

Official Transcript

NUCLEAR REGULATORY COMMISSION

Title: 10 CFR 2.206 Petition Review Board
Pre-Meeting with Friends of the Earth
RE: San Onofre Units 2 and 3

Docket Numbers: 50-361 and 50-362

Location: Rockville, Maryland

Date: Wednesday, January 16, 2013

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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)

PRE-MEETING WITH FRIENDS OF THE EARTH

RE: SAN ONOFRE UNITS 2 AND 3

REPLACEMENT STEAM GENERATORS

+ + + + +

WEDNESDAY

JANUARY 16, 2013

+ + + + +

The meeting convened in the Commissioner's Hearing Room, One White Flint North, 11555 Rockville Pike, Rockville, Maryland, at 12:30 p.m., Sher Bahadur, Chairperson of the Petition Review Board, presiding.

PETITIONER: FRIENDS OF THE EARTH

RICHARD AYRES, ESQ., Ayres Law Group

ARNOLD GUNDERSEN

PETITION REVIEW BOARD MEMBERS

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SHER BAHADUR, Deputy Director

Office of Nuclear Reactor Regulation

BRIAN BENNEY, Petition Manager for 2.206

petition

LEE BANIC, Petition Coordinator

MOLLY BARKMAN MARCH, Office of General Counsel

DAVID BEAULIEU, Office of Nuclear Reactor

Regulation

ART HOWELL, Region IV

GREG WERNER, Region IV

NRC HEADQUARTERS STAFF PRESENT:

DOUG BROADDUS, Chief, SONGS Special Projects

Branch

LICENSEE REPRESENTATIVE:

STEVEN FRANTZ

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1
2 P-R-O-C-E-E-D-I-N-G-S

3 12:30 p.m.

4 MR. RODRIGUEZ: Good afternoon.

5 My name is Michael Rodriguez, and I'd like
6 to thank everyone for attending the Category 3 Public
7 Meeting. The meeting is to allow the Petitioner,
8 Friends of the Earth, represented by Mr. Richard Ayres,
9 to address the NRC Petition Review Board, also referred
10 to as the PRB, regarding the 2.206 petition dated June
11 18, 2012.

12 This is a Category 3 Public Meeting where
13 the public is invited to participate in the meeting by
14 providing comments and asking questions throughout the
15 meeting. In this instance, the public will have an
16 opportunity to ask questions pertaining only to the 10
17 CFR 2.206 processes after the Petitioner completes his
18 uninterrupted presentation to the PRB.

19 The purpose of this meeting is to provide
20 the Petitioner with an opportunity to address the NRC
21 Petition Review Board. The portion of that original
22 petition that the NRC is tasked with is your claim that
23 the Southern California Edison violated 10 CFR 50.59 when
24 the steam generators were replaced in 2010 and 2011.

25 Brian Benney is the Petition Manager for the

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1 petition, and Dr. Sher Bahadur is the Petition Review
2 Board Chairman. Dr. Bahadur will provide you with the
3 meeting details and petition process.

4 As part of the PRB's agreement with the
5 petition, the Petitioner was offered an initial
6 opportunity to address the PRB to provide any relevant
7 additional explanation in support for the petition. Mr.
8 Ayres requested this opportunity to provide supplemental
9 information in support for the petition before the PRB
10 meets internally to make the initial recommendation to
11 accept or reject the petition for a review.

12 This meeting is scheduled for one and a half
13 hours. The meeting is being recorded by the NRC
14 Operations Center and will be transcribed by a court
15 reporter. The transcript will become a supplement to
16 the petition. Prior to placing the transcript in ADAMS,
17 the PRB will review it to ensure that it does not contain
18 any allegations or sensitive information.

19 There are some meeting ground rules to
20 discuss. This is a recorded event so we ask that only
21 one person speak at a time. We ask that everyone respect
22 and not interrupt the person speaking. Because this
23 meeting is limited in time, we're going to allow
24 approximately one minute for questions or concerns by
25 each individual of the public. The NRC operator will

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1 supervise the telephone lines and allow only one person
2 to speak at a time.

3 I'd like to emphasize that you need to speak
4 clearly and loudly to ensure that the court reporter can
5 accurately transcribe this meeting. When doing so,
6 please state your name and your affiliation.

7 For individuals attending the meeting,
8 public meeting feedback forms are available to fill out
9 over on the side of the meeting room. You may either
10 leave them here at the conclusion of the meeting or mail
11 them back. The forms are postage-paid.

12 If you are participating by phone and would
13 like to email your questions or provide feedback in this
14 public meeting, please forward your comments to the
15 Petition Review Board by email at brian.benney --
16 B-E-N-N-E-Y -- @nrc.gov.

17 I'd like to open the meeting with
18 introductions of the NRC PRB members. I ask that all the
19 members clearly state your name, your title or position
20 and your organization.

21 For those in attendance, please speak
22 clearly so the court reporter can accurately record your
23 statement. For those dialing into the meeting, please
24 remember to state your name and any affiliation. Once
25 again, the NRC operator will maintain line supervision.

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1 And we ask that you speak clearly for the court reporter.

2 At this time, I'd like to turn it over to
3 the PRB Chairman, Dr. Sher Bahadur.

4 MR. BAHADUR: Thank you, Mike.

5 Good afternoon. Welcome to this meeting
6 regarding the 2.206 petition submitted by Mr. Richard
7 Ayres, counsel of Friends of the Earth.

8 And we are fortunate that it's raining
9 outside. So sitting inside, we don't feel that bad.

10 We have this meeting scheduled for about an
11 hour and a half, and we'd like to see that the proceedings
12 go smoothly. And I promise that we'll complete that in
13 time.

14 I'd first like to share some background of
15 this process. And please bear with me because they're
16 somewhat tedious. But for the completeness and since we
17 have the court reporter here, I'm going to be reading some
18 of these materials for you.

19 Section 2.206 of Title 10 of the Code of
20 Federal Regulations describes the petition process as
21 the primary mechanism for the public to request
22 enforcement action by the NRC in a public process. This
23 process permits anyone to petition NRC to take
24 enforcement action related to an NRC licensee or a
25 licensed activity. Depending on the results of this

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1 evaluation, NRC can modify, suspend or revoke the
2 NRC-issued license or take any other appropriate
3 enforcement action to resolve the problem.

4 The NRC staff's guidance for the
5 disposition of 2.206 petition requests is in the
6 Management Directive 8.11. And I'm sure you're familiar
7 with that. It's publicly available also.

8 The purpose of today's meeting is to give
9 the Petitioner -- that's the gentleman in front of me and
10 the ladies -- an opportunity to provide additional
11 support for the petition before the Petition Review
12 Board's initial consideration and recommendation. So
13 in that sense, this meeting is not a hearing, nor is it
14 an opportunity for the Petitioner to question or examine
15 the PRB's on its merits or the issue presented in the
16 petition request.

17 No decision regarding the merit of this
18 petition will be made in this meeting. And following
19 this meeting, the Petition Review Board will conduct its
20 internal deliberations. And the outcome of that
21 internal meeting will be discussed with the Petitioner.

22 The Petition Review Board typically
23 consists of a Chairman, usually a manager or a senior
24 executive service-level of the NRC. It has a petition
25 manager, and other members of the Board are determined

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1 by the NRC staff based on the content of the information
2 in the petition request.

3 So at this time, I'd like to introduce the
4 Board.

5 I am Sher Bahadur. I'm a Deputy Director
6 in the Office of Nuclear Reactor Regulation . And my
7 division, which is the Division of Policy and Rulemaking,
8 is responsible for the process of the petition. I will
9 be chairing the Review Board.

10 Brian Benney on my right is the Petition
11 Manager. Lee Banic is the Petition Coordinator for the
12 petition under discussion today. Our technical and
13 administrative staff include David Beaulieu which is
14 also in the Office of NRR, and Mr. Art Howell from the
15 NRC Region IV Office; Mr. Greg Werner from the NRC's
16 Region IV Office -- is he online?

17 PARTICIPANT: He's on the phone.

18 MR. BAHADUR: And he is on the telephone.

19 In addition, we obtain advice from the
20 Office of General Counsel which is represented by Ms.
21 Molly Barkman March on my left.

22 So as part of our process, the NRC staff may
23 ask clarifying questions in order to better understand
24 the Petitioner's presentation and to reach a reasoned
25 decision whether to accept or reject the Petitioner's

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1 request for review under the 2.206 process.

2 Also, as described in our process, the
3 licensees have been invited to participate in today's
4 meeting to ensure that they understand the concern about
5 their facility or activity, which are sitting on my left.

6 While the licensees may also ask questions
7 to clarify the issues raised by the Petitioner, I want
8 to stress that the licensees are not a part of the PRB's
9 decision making process.

10 So I would have to summarize the PRB's
11 understanding of the scope of the petition under
12 consideration and also the NRC's activity to date.

13 On November 8, 2012, the U.S. NRC approved
14 the Memorandum and Order which was CLI-12-20 to address
15 the intervention petition where the Friends of the Earth
16 argued that Southern California Edison violated Title 10
17 of the Code of Federal Regulations Section 50.59 when the
18 steam generators for San Onofre Nuclear Generating
19 Station Units 2 and 3 were replaced in 2010 and 2011
20 without a license amendment.

21 So FOE requested a hearing on the 10 CFR
22 50.59 claim and asked that its petition not be construed
23 as a request for enforcement relief under 10 CFR 2.206.
24 In a subsequent submittal, FOE stated that the 10 CFR
25 2.206 process was not a viable alternative for obtaining

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1 relief. The Commission disagreed and referred this
2 portion of the FOE's petition to the Executive Director
3 of Operations for consideration as a petition under 10
4 CFR 2.206.

5 So the purpose of this meeting is to provide
6 the Petitioner with an opportunity to address the NRC
7 Petition Review Board, which I just introduced, pursuant
8 to 10 CFR 2.206, specifically to allow the Petitioner to
9 present the information regarding the 50.59 process that
10 the licensee followed in order to replace these steam
11 generators.

12 Now the original petition argues that the
13 Southern California Edison violated 10 CFR 50.59 when
14 these steam generators were replaced in 2010 and 2011.
15 And of course, they will elaborate that further. So the
16 Petitioner requests that the NRC undertake license
17 amendment proceedings including the adjudicatory public
18 hearing required under 10 CFR 2.209, a hearing request,
19 petitions to intervene requirements.

20 So to date, the Petitioner submitted the
21 petition to NRC on July 30, 2012. The Commission
22 responded on November 8, 2012. And on December 10, 2012,
23 Mr. Brian Benney, petition manager on my right, contacted
24 Mr. Ayres to inform him of the NRC's receipt of the
25 petition in the 2.206 process. Mr. Ayres requested an

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1 opportunity to address the PRB in a public meeting which
2 is what is the purpose of today's meeting.

3 So therefore, the meeting participants,
4 please identify yourself if you make any remarks as this
5 will help in the preparation of the meeting transcript
6 that will be made publicly available.

7 In addition, the NRC staff verified that
8 there was no security-related information contained
9 within the petition. Since this is a public meeting, I
10 would have to remind the PRB members the licensees, the
11 Petitioner and other meeting participants of the need to
12 refrain from discussing any NRC security-related
13 information during today's public meeting.

14 So Mr. Ayres, I'd like to turn it over to
15 you to allow you to provide any additional information
16 you believe the PRB should consider as part of this
17 petition.

18 MR. AYRES: Thank you very much, Mr.
19 Chairman.

20 My name is Richard Ayres, and I represent
21 Friends of the Earth in this matter. We're here because
22 of the concern of the organization -- Friends of the Earth
23 -- it's members and others in Southern California about
24 the safety of operating San Onofre in its present
25 condition.

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1 Under the Commission's order, this body is
2 to consider whether enforcement action should be taken
3 against Edison. And by the way, I want to note that we're
4 of course aware of Edison's filing of about a week ago
5 I think it was. And we plan to respond with a filing on
6 paper to that earlier. So the extent we don't discuss
7 or respond to any arguments in the Edison filing, they
8 will be responded to in our subsequent filing.

9 We have concluded that Edison violated the
10 NRC Regulation 10 CFR 50.59 when it chose not to seek a
11 license for the replacement steam generators at San
12 Onofre. We're here today to explain why we think you
13 should reach the same conclusion. We also want to
14 discuss appropriate enforcement measures in response to
15 Edison's violation of the Regulation.

16 There will be two presenters today -- myself
17 and Arnie Gundersen, to my left. Arnie will explain why
18 the changes made at Edison in our view triggered an
19 obligation on the part of Edison to seek a license
20 amendment.

21 Mr. Gundersen is a nuclear engineer with 40
22 years of experience. He's been a licensed nuclear
23 reactor operator. He also managed and coordinated
24 projects at some 70 nuclear power plants across the
25 country. I'd also say that in his earlier expert report

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1 filed with our original petition, I think if one looks
2 at that again, you'll find that he pretty well hit the
3 nail on the head about happened there.

4 In any case, I'd like to turn it over to
5 Arnie. And when he's completed his presentation, I have
6 a few additional words to say.

7 Arnie?

8 MR. GUNDERSEN: Thanks. I'm Arnie
9 Gundersen. For those of you on the phone bridge,
10 Gundersen with an "E" with Fairewinds. And that has an
11 "E" in it, too. We like "Es" in Vermont.

12 The presentation I'm about to give is
13 available on the Fairewinds.org site. If there's
14 anybody on the phone bridge who'd like to go up to
15 Fairewinds.org and click on it, you can follow along.
16 And I understand that apparently the NRC has made it
17 available, too. So it's readily available to anyone who
18 wants to follow along.

19 Thank you for having me today.

20 And I will just go slide-by-slide through
21 the presentation. And we'll skip 1 which is a pretty
22 picture of the power plant.

23 Today is a discussion using the 2.206
24 process to discuss 50.59 violations at San Onofre as the
25 plant progressed toward its replacement steam generator

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1 process.

2 The sequence, which is slide 3, first, I'll
3 give a brief chronology of events as I see them.
4 Secondly, I'll discuss the magnitude of the design
5 changes. And thirdly, I'll offer up some conclusions.

6 So let's get right into it -- chronology of
7 events.

8 I'm on slide 5.

9 It's important to know that according to
10 Edison's annual report and lots of other references,
11 Edison applied in 2004 -- early in 2004 -- to the
12 California Public Utilities Commission to have the steam
13 generators replaced. And later in 2004 -- the end of
14 September -- they placed an order with Mitsubishi Heavy
15 Industries. I'll probably just call them Mitsubishi.
16 As the owner of five Mitsubishi in my life, I should go
17 on record as having bought their product in the past.

18 But more importantly is that this was a
19 fixed-price contract, and the price was determined in
20 2004. The Public Utilities Commission was told it would
21 be around \$670 million total, not all through Mitsubishi,
22 but for the entire process. So the price was known to
23 the parties early in 2004.

24 Slide 6 now.

25 An Edison employee provided us -- Friends

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1 of the Earth -- with portions of the design specification
2 for the replacement steam generators at San Onofre.
3 This specification number is S023-617.1. And the
4 individuals that were involved in developing the
5 specification are listed in slide 6.

6 Most importantly though, the specification
7 required that 50.59 would not apply for San Onofre. So
8 even before the bid was given to Mitsubishi, the decision
9 had been made by Edison that 50.50 would not apply. Now,
10 to my opinion, like slide 7, that's putting the cart
11 before the horse.

12 Slide 8 really gets into the specific
13 sections of the design specification that we were given
14 by an Edison employee that really speak to the issue of
15 the intent of Edison even before the design was
16 finalized. Section 3.6.1.1 says that Edison's intent
17 was to replace the generators under 50.59, but that the
18 supplier shall guarantee in writing that the design is
19 licensable and provide all support necessary. And
20 finally, that any deviations from these requirements
21 require Edison approval.

22 The slide 9, I think, has the key paragraph
23 in it. And it's from 3.6.2 from the Edison design
24 specification. And it states that the supplier --
25 ultimately that was to be Mitsubishi, but at the time this

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1 was given -- all the bidders were aware of it -- would
2 provide a licensing topical report that demonstrates
3 compliance with the RSG design. The report shall
4 include an engineering evaluation including all
5 necessary analyses that justifies that the RSGs can be
6 replaced under 50.59 without prior NRC approval.

7 So sometime at the end of '03 when this spec
8 was made, and certainly in '04 when the bids were let,
9 the decision had already been made by Edison that no NRC
10 approval would be required and that the licensee was
11 required to provide -- I'm sorry -- that Edison was
12 required to provide a topical report stating that. The
13 final evaluation though was Edison's.

14 Moving on in time, the public record
15 indicates that the official notification of the NRC was
16 in June of '06. The kick-off meeting, if you will, was
17 requested by Edison in June of '06. Slide 11, and
18 subsequent slides, affirm that presentation.

19 So in June of '06, there are, by the way,
20 no notes in the public document room about this. As a
21 matter of fact, this presentation from '06 wasn't in the
22 public document room until several months ago when I went
23 looking for it. So there really is no public record of
24 what went on in this meeting except for these several
25 slides.

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1 The most important issue is the slide that
2 starts with "Licensing." And that the statement is that
3 it'll be implemented under 50.59. Now, that's all we
4 know based on the statement. But clearly, that could be
5 read as we've completed a thorough engineering analysis
6 and we've determined that 50.59 doesn't apply. In 2006,
7 that may be what could be read into the record. Or it
8 could also mean that you were told that we haven't
9 completed the analysis but we've already determined that
10 50.59 doesn't apply. The record isn't clear. It is
11 clear from this that it was discussed, but there's
12 nothing in Friends of the Earth's position to indicate
13 anymore detail than that.

14 We have a filed a FOIA six months ago on
15 information related to this. And to date, we have no
16 additional information from the FOIA.

17 Slide 12 is also interesting. This is
18 again from the Edison presentation in 2006. It talks
19 about improvements in the design which are compared to
20 the original steam generators. The two I'd like to
21 highlight is that they claim to have improved the AVB
22 design. AVB stands for anti-vibration bars. And also
23 that they improved the materials in the tube supports.
24 There's other issues on that sheet, but the two that will
25 come back will into the discussion a little later are the

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1 AVB design "improvements" and the materials for tube
2 support.

3 I also call your attention to the picture.
4 This is a picture of the generators being built in 2006.
5 So while the NRC was notified for the very first time in
6 June of 2006, clearly the process was well along the way
7 and these generators were substantially into the
8 construction process.

9 Another slide which I didn't include also
10 talks about the procurement of tubes which occurred very
11 early in the process so that key design decisions had been
12 made in '04, '05, and certainly before this meeting in
13 '06. One would hope that the 50.59 decision that
14 licensing didn't apply would have been completed before
15 they started to build these enormous vessels.

16 My slide 13 is also important because in the
17 kick-off meeting, Edison assumed responsibility for this
18 project. Although it was being built by Mitsubishi,
19 they clearly said that they were retaining oversight
20 responsibility including doing design reviews,
21 technical meetings. They had resident personnel on
22 site, special engineering visits, readiness reviews,
23 independent inspections and audits. So Edison clearly
24 was the person that was responsible for the design and
25 the fabrication of this. And they told the NRC so at the

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1 very first meeting.

2 Okay. Moving on to my slide 14 is that I
3 believe that the contract restrained -- constrained
4 Mitsubishi Heavy Industries on the issue of the 50.59
5 process. Somewhere between '04 when the contract was
6 awarded to Mitsubishi and the kick-off meeting in '06,
7 it seems to me that NEI had to force fit the replacement
8 steam generator analysis and design in order to support
9 the previous decision -- the earlier decision that 50.59
10 would not apply. Again, the cart was before the horse.
11 And Mitsubishi analysis had to substantiate what the
12 contract required as opposed to the other way around.

13 My slide 15 refers to the Edison letter you
14 got last week. Edison says on page five of their letter
15 that NEI 96-07, which is the approved NRC process for
16 50.59, clearly states changes are a multi-step process.
17 The first step of the process, according to Edison, is
18 that the licensee must determine that the proposed change
19 is safe and effective through appropriate engineering
20 and technical evaluations. I have no problem with that
21 statement. That's not what happened at San Onofre.

22 The contractual language was in place
23 before the engineering analysis was begun. And we know
24 that because of the contract requirements that were
25 provided to us by an Edison employee. So there was no

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1 appropriate engineering and technical evaluation
2 performed by Edison when the contract was written and the
3 decision on 50.59 had already been made. The dye was
4 cast in 2003 or 2004.

5 My slide 16, moving on in time, we've come
6 to 2009 at which point Edison is applying for standard
7 technical specification change. And Edison was asked in
8 an RAI -- a request for additional information -- to make
9 some comparisons which they provided to the NRC.

10 The slide 17 is some of the information that
11 Edison provided to the NRC that was in response to NRC
12 RAIs. The middle column is Edison information. But the
13 ratio is done by Fairewinds. So those numbers -- the
14 23,100 -- come from information Edison provided. But
15 then the actual division of the two numbers comparing the
16 replacement steam generator to the original are
17 Fairewinds. So the right most column percent
18 differences indicate some very significant changes
19 between the original steam generator and the replacement
20 steam generators.

21 I'll call your attention to a couple. The
22 secondary volume to cover the tubes in one steam
23 generator was a 14 percent increase -- seven percent
24 heavier or 100,000 pounds; cold pipe coolant mass, 13
25 percent increase. These kinds of increases clearly to

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1 me indicate that they should have fired off the NRC's
2 warning system saying that this really doesn't look
3 like-for-like.

4 Now it's about six years too late in the
5 process by 2009. At least the Unit 2 steam generators
6 were being shipped across the Pacific. But there was an
7 indication of some huge changes in those generators that
8 was in the NRC's possession before the plants were
9 started up.

10 My slide 18. Edison and MHI co-authored a
11 report that touts all the design changes that were
12 implemented at San Onofre. This was published in a major
13 magazine. And there's a list of literally dozens of
14 major changes. This is the first time -- 2011 -- when
15 the public became aware of the magnitude of the changes
16 in the replacement steam generator process. Now I've
17 been through the PDR, and I can't find any substantive
18 discussions on the magnitude of the change.

19 There are four reports on the Fairewinds
20 website relating to the changes that Edison made. And
21 I think we'll just reference those when we submit in
22 writing. We've got four reports we'd like to get on the
23 record about those changes as well as the affidavit that
24 I submitted last week on the other issue covered by the
25 ASLB. So we'll provide those. But this

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1 Edison report identifies that they were removing the stay
2 cylinder, that they were adding 377 tubes, that they were
3 changing the tube support structure, that they were
4 adding new anti-vibration bars and dozens of other
5 changes. So it's 2011 when the public first became aware
6 of the magnitude of the changes in a co-authored report
7 by MHI and Edison. And then of course came the failures
8 at the beginning of 2012.

9 Section 2 moves on to what is the magnitude
10 of these design changes that were really made to these
11 generators. Were they small? Was it really for like?
12 And should the NRC have been noticed as opposed to the
13 50.59 process determining that these were like-for-like
14 and the NRC didn't have to know? Should the NRC have to
15 been noticed?

16 My slide 20, John Large, who's also a
17 consultant with Friends of the Earth and I both agree that
18 in and of themselves, Edison's design changes to the
19 replacement steam generators should have triggered a
20 50.59 review by the NRC.

21 Now the steam generator tubes and the tube
22 sheet are part of the containment boundary on a PWR.
23 They prevent the radioactive fluids from going from the
24 primary containment -- from the primary system over to
25 the secondary. So clearly they're safety related.

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1 Also in this process, you have to remember
2 that back in '06, Edison claimed to the NRC that they had
3 "improved" their anti-vibration bars, and that these --
4 I'm assuming because there are no notes from that meeting
5 -- that the improvements would reduce wear inside those
6 steam generators. The original steam generators at San
7 Onofre experienced a lot of denting at the top because
8 of the old design. And Edison claimed that the new
9 anti-vibration bars were improvements.

10 Now I think that's a euphemism. Frankly,
11 I think improved is another way of saying it's a test or
12 an experiment. In which case it should fall under 50.59.
13 But clearly it was important enough that at the very first
14 meeting with you back in '06, the NRC was told that the
15 AVBs had been "improved."

16 My slide 22 is very long and very busy, and
17 I won't spend much time on it. But it lists the eight
18 criteria on the left side. And across the top, it lists
19 eight changes that were identified by Mitsubishi and
20 Edison in their paper that they published in 2011.

21 Now in this table, green is good. So no is
22 good. Red, yes, is bad. So eight by eight is 64. And
23 I count 39 yeses which is 39 opportunities where the 50.59
24 process should have been noticed to the NRC.

25 Now some of those may have been legitimately

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1 filtered out. And I can appreciate that. However, the
2 odds of 39 out of 64 of them being legitimately filtered
3 out by the Edison process, given the fact that they had
4 already determined in '03 what the answer was, that to
5 me is unbelievable.

6 I want to focus on just four of the columns
7 -- the stay cylinder issue, the changes in the tube
8 supports and additional tubes. Those are the first
9 three columns in that table.

10 So my slide 23, I don't believe that MHI --
11 Mitsubishi Heavy Industries -- should be made the
12 scapegoat. In Edison's letter to you just last week,
13 they say, "If the RSGs had been designed and manufactured
14 in accordance with the procurement specifications, the
15 leak and tube wear would never have occurred." That's
16 in absolute disagreement with the AIT report. The AIT
17 report on page 23 says that the "replacement steam
18 generator designed and developed by Mitsubishi were in
19 accordance with the licensee" -- San Onofre's design
20 specification -- "and were translated into design and
21 fabrication drawings." So I think the AIT would agree
22 that this is not Mitsubishi's problem and that it should
23 not be scapegoated.

24 Both Large and I agree though that the
25 problems in these replacement steam generators are not

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1 fabrication problems. There were fabrication problems
2 of course. But it's our opinion that no matter who in
3 the world -- and there's about five people that can make
4 these -- were building these generators, they would have
5 experienced a fluid elastic instability due to a high
6 void fraction anyway.

7 So the problem is not how they were
8 fabricated, although fabrication problems certainly
9 compounded it, but no matter who built it, these
10 generators would have failed eventually. Now if it was
11 six months or four years, that part is uncertain based
12 on fabrication problems. But the high void fractions
13 were built into the design and the fluid inelastic
14 instability was inevitable in the design.

15 Now Edison's annual report going back in
16 time to 2003 states that the Palo Verde steam generators,
17 which are also combustion plant -- a little bit bigger
18 but essentially the same -- the Palo Verde steam
19 generators are identical to the San Onofre steam
20 generators. More importantly, they say the new -- the
21 replaced steam generators on Palo Verde Unit 2 are of the
22 same design and the same material as the original steam
23 generators on San Onofre.

24 Now I'll remind you that the replacement
25 steam generators that Palo Verde did go through the 50.59

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1 NRC process, and I'll talk a little bit more about that
2 later. But I think it's important to know that Edison
3 has identified one plant in the whole planet that is
4 essentially identical to it, and it's Palo Verde Unit 2.
5 And that's in a filing with the Security Exchange
6 Commission which supposedly should be quite accurate.

7 My slide 25 is a picture from the Palo Verde
8 application which shows a stay cylinder. It's a big hunk
9 of iron. It's huge. So one would think the removal of
10 it would be a big deal.

11 The stay cylinder at Palo Verde was
12 retained. The stay cylinder at San Onofre was removed.
13 I think and John Large also thinks that this is one of
14 the causative factors in the problems that were
15 encountered at San Onofre.

16 The stay cylinder -- while we're on it --
17 actually goes through the tube sheet. It was originally
18 designed -- remember the tube sheet is a containment
19 boundary, and its failure is considered beyond
20 imaginable. So it was a key structural support when
21 Combustion built these things back in the day when I was
22 young and actually was in their shops in Chattanooga.
23 But it also goes up through the generator to the tube side
24 and provides a water column up through the center which
25 in the design has no additional heat provided.

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1 My slide 26 says also that at Palo Verde they
2 retained the combustion approach which used egg crate
3 tubes tube support which are the tubes on the right. But
4 at San Onofre, the original way Combustion built those
5 generators was replaced with a broach tube which a good
6 approximation is the picture on the left.

7 It's my position, and Mr. Large's as well,
8 that the San Onofre problems were foreseeable. And
9 here's why. The stay cylinder removal and the
10 additional tubes put four percent more heat into the
11 center of the bundle. Now four percent is actually the
12 377 tubes are four percent of the total tubes. So the
13 heat output from the nuclear reactor didn't change, but
14 the location of that heat within the steam generator
15 changed dramatically. By adding four percent more tubes
16 in the center, the heat distribution was different than
17 in the original steam generators and more was driven to
18 the center.

19 The other part of that is we need to know
20 that Palo Verde had added 10 percent more tubes and almost
21 three percent more heat. But Palo Verde retained their
22 stay cylinder, and Palo Verde also did not experience
23 fluid elastic instabilities. Edison, on the other hand,
24 destroyed their generator in less than a year. So by
25 adding the heat on the periphery like Palo Verde did and

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1 because also they didn't go with broached tubes, they
2 essentially were able to avoid the pocket with the high
3 void fraction that was created in the San Onofre
4 generators.

5 So my slide 28 is from another Edison report
6 that was provided by a different person within San Onofre
7 to Friends of the Earth. And it's a contour of steam
8 quality.

9 The stay cylinder would have been in the
10 middle of this drawing, sort of right in the center of
11 that large circle. The flow of course is from the cold
12 side to the hot side. And that large red area is the area
13 where the void fraction is highest and where the fluid
14 elastic instability was most pronounced.

15 By adding four percent in the middle, I
16 believe and Large believes that it exacerbated if not
17 created the fluid elastic instability that occurred just
18 slightly to the right as you would expect because that's
19 the direction of the flow.

20 It was inevitable when you add heat to the
21 center of the tube bundle as opposed to on the periphery
22 that you're going to heat up the center more and create
23 these high void fractions like we see in this Edison
24 drawing.

25 So my slide 29 -- I think it's important to

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1 go back and look at the letter you received last week.
2 Edison says two things. At the time the RSGs were
3 designed, Mitsubishi evaluated the flow patterns and
4 determined that the fluid elastic instability would not
5 occur. And separately three pages later, they say that
6 MHI provided the thermal-hydraulic analysis as part of
7 the original design that shows that there would be no FEI.

8 I think that's an answer to a question that
9 was never asked. I don't care what Mitsubishi said at
10 the early part of the design. But you have to remember
11 that back on my slide 9, Mitsubishi was contractually
12 required to provide something called a licensing topical
13 report that would cover the applicability of 50.59. So
14 Edison in their letter to you is not referring to the
15 "licensing topical report" that they had in the contract
16 commitments, but rather some earlier Mitsubishi
17 analysis, none of which has Friends of the Earth seen.

18 So removing the stay cylinder allowed 377
19 extra tubes into the center. That's four percent. The
20 riser column does another thing. Remember the stay
21 cylinder moves through both on the primary side and on
22 the steam side of the generator. The riser column
23 provides a water void. So the Palo Verde design has
24 essentially a water void through the center of it. I
25 like to think of that as a jersey barrier. It's designed

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1 to keep the flow moving vertically.

2 So now when that's removed, there's nothing
3 on the steam side to facilitate and bias the flow
4 direction. The steam side flow patterns were never
5 established because the stay cylinder was removed. So
6 the 50.59 analysis should have identified that a high
7 void fraction and confused in and out of the plain FEI
8 was inevitable because they added tubes, it changed to
9 broached supports which also affect the flow, and they
10 removed the stay cylinder.

11 So my slide 30 refers to the Edison letter
12 again. Edison says that on page nine, "design changes
13 may be screened out under 50.59." I agree. The 50.59
14 process can be a screen if used appropriately.

15 Edison then goes on to say the adverse
16 condition that later resulted in the tube leak was not
17 known at the time the 50.59 evaluation was performed.
18 Mr. Large and I don't believe that that's the case. An
19 example of that is the anti-vibration bars. The AVBs on
20 Unit 2 -- an AVB is like a giant woman's hairpin, and it
21 peels back on itself -- and in the process of taking a
22 straight piece of steel and bending it over on itself,
23 on Unit 2 distortion was introduced. That was shipped
24 across the Pacific with the distortion in it. But on
25 Unit 3, a different process was used and the distortion

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1 was removed. So I believe that the AVBs were in fact a
2 test. At least on Unit 2, the AVBs were a test or an
3 experiment because they clearly were modified on Unit 3.

4 We both agree -- John Large and I -- that
5 these problems were foreseeable in '04 when the stay
6 cylinder was removed, when the extra tubes were added and
7 when the broached tube support plates were installed.
8 Increasing the void fraction was inevitable. And of
9 course the increased void fraction then leads over to the
10 FEI.

11 Almost finally -- at least finally for the
12 second section -- the Edison cause report is just flat
13 out wrong. I'm on my slide 31.

14 I met with Chairman Jaczko this summer.
15 And he said well, we promised the State of California a
16 root cause analysis. And I said no, you haven't. If you
17 read the CAL, the CAL requires a cause analysis but not
18 a root cause analysis. And Chairman Jaczko went up and
19 he went across his desk and he found the CAL and he said,
20 oh, my God, you're right. He said that they're the same.
21 And they are not.

22 An Edison employee provided us with another
23 document that had the Kepner Tregoe analysis that Edison
24 used to determine what they consider to be the cause.
25 Kepner Tregoe -- in 1976, way back in the day, I was

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1 trained in Kepner Tregoe. One of the very first nuclear
2 engineers in the nuclear community did use it. It's a
3 tool to identify root cause. And it's a great tool.

4 And I dusted off my book. I still had it,
5 and I pulled it out. The pages are getting a little
6 yellow. But I actually have the First Edition of the
7 Kepner Tregoe book. It's still in my bookcase. So I
8 dusted off the book. And the key point of a Kepner Tregoe
9 analysis for solving problems is that you define the
10 problem correctly.

11 There's a famous saying by Thomas Pynchon.
12 If you can get them asking the wrong questions, then you
13 don't have to worry about the answers. Well, that's
14 exactly what happened in the Kepner Tregoe analysis
15 that's being used by Edison to compare the replacement
16 steam generators at San Onofre to the rest of the nuclear
17 fleet.

18 The question Edison asked is what is
19 different, what has changed -- which is sort of a standard
20 Kepner Tregoe kickoff. What is different or has changed
21 when comparing SONGS' replacement steam generators to
22 another plant's replacement steam generator? That's on
23 page 43 of their condition report. That's the wrong
24 question. There are no changes between what San Onofre
25 did and what St. Lucie did or between San Onofre and

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1 another PWR. That's almost like asking what is the
2 difference between my Volkswagen and your Chevy? They
3 shouldn't be compared. It's an apples and orange
4 comparison.

5 The comparison should be if you're using the
6 Kepner Tregoe process correctly is that the original
7 steam generators should be compared to the replacement
8 steam generators. The question should be what's the
9 difference between the original steam generators and the
10 replacement steam generators, not between San Onofre's
11 Volkswagen and somebody else's Chevy or Ford.

12 So the other possibility, which would also
13 be legitimate, is to compare the replacement steam
14 generators in San Onofre to the replacement steam
15 generators at Palo Verde. Palo Verde didn't experience
16 an FEI. I've been back over the Palo Verde questions --
17 the RAIs that the NRC asked -- and they're great. If you
18 had asked the same questions of San Onofre, you would have
19 identified the problems that occurred in 2011 five years
20 earlier, and we wouldn't be here today. But you weren't
21 given the opportunity to ask the questions because the
22 licensee didn't declare 50.59 applicability.

23 But back to the original slide on this issue
24 of the Kepner Tregoe analysis, I don't think that the
25 promise the NRC made to the State of California has yet

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1 been met. There is no root cause analysis for Palo
2 Verde, and there won't be until you compare not on an
3 apples and oranges basis, but when you compare oranges
4 to oranges or maybe lemon to orange or whatever. But in
5 any event, the key is to compare to something that's
6 similar, not what Edison did.

7 Now my slide 33 is an example of this.
8 These are right from the Kepner Tregoe analysis that's
9 in the cause report that was provided to Friends of the
10 Earth by an Edison employee.

11 They have two columns. One is the possible
12 causes and one is the reason why it can't be a cause.

13 The three possible causes include the
14 issues of the tubes in the U bend region, the design that
15 was changed by replacing the stay cylinder and issues
16 related to the support on the straight legs of the tubes.

17 So Edison claims to have looked at things
18 like replacing the stay cylinder. But if you look at the
19 right-most column, they were thrown out and never
20 analyzed. The right-most column says that they were not
21 analyzed because they were not a causal factor in the tube
22 wear. That gets back to the wrong question was asked.
23 When you ask the wrong questions, you're going to get the
24 wrong answer.

25 And I submit to you that the NRC's been on

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1 that hunt now for six months. Instead of comparing the
2 original steam generators to the replacements or the
3 replacement steam generators at San Onofre to the
4 replacements steam generators at Palo Verde, you've
5 bought hook, line and sinker the approach that San Onofre
6 would like you to do, which is to compare their Volkswagen
7 -- their steam generator -- to all the other fleet in the
8 country. And there's in fact no similarities.

9 Okay. My conclusions. I'm on 35. The
10 changes that Edison made were foreseeable. Over the
11 past eight years, there's been ample evidence from
12 multiple sources that these were not like-for-like
13 replacements.

14 I think that the significant damage that has
15 occurred really clearly shows that design changes did
16 have a significant impact upon the key design functions.
17 And in fact, the containment boundary was degraded.

18 I realize that 50.59 is not a retroactive
19 thing and because it failed that is not an indication
20 50.59 should have been used. On the other hand, both
21 John Large and I agree that in '04 instead of
22 contractually demanding the 50.59 be used in such a way
23 that the NRC didn't have to be notified, if engineers had
24 gone in and made the determination first -- got the cart
25 in front of the horse instead of behind the horse -- we

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1 both believe that the NRC would have been notified.

2 And based on the questions you ask at Palo
3 Verde, I think you would have identified this problem.
4 It's clear you guys were on to the FEI issues at Palo
5 Verde. And Palo Verde, while it did have some tube
6 problems -- it had some minor -- like 20 tubes involved
7 in minor problems. The 1300 tubes that were damaged at
8 San Onofre, Palo Verde pails in comparison.
9 The appropriate analysis would be to compare the original
10 to the replacement or the Palo Verde replacement to the
11 San Onofre replacement.

12 Edison should have identified to the NRC
13 that this change required NRC evaluation.

14 My slide 26 is that I think we need to admit
15 that this was a near miss. This is the biggest equipment
16 failure since Davis Bessie. Davis Bessie was worse.
17 I'm not denying that. But in the last 10 years, nobody
18 has screwed up a piece of equipment more than the steam
19 generators at San Onofre.

20 My 37 -- when you go back into the tech specs
21 at San Onofre, they say that the licensing basis is a
22 double ended rupture of a single tube. My 38 though
23 shows that when the pressure test was applied, eight
24 tubes failed, not one.

25 So that tells me that San Onofre was

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1 operating outside of its original design bases since
2 those generators were installed. To date, the NRC
3 really hasn't addressed the fact that you had a plant that
4 was operating outside of its original design bases.

5 Now one tube failed as a leaker. Had there
6 been a main steam line break, it's likely that all eight
7 would have failed. The emergency plans and also
8 operator training is based on one tube failing. I've
9 been working with another former NRC expert, Dr.
10 Hopenfeld. And he and I have concluded that the make-up
11 into the reactor vessel as a result of loss through eight
12 tubes would have resulted in a serious loss of coolant
13 accident had it occurred. Now we're all lucky a main
14 steam line break didn't happen. But if it had, it's
15 likely that the design bases of one tube failing would
16 have been exceeded.

17 The NRC AIT also mentions something
18 similar. They say that although in this case the
19 degraded condition manifested as just a small primary to
20 secondary leak. Parenthetically although it was
21 growing, but it started small enough that the plant shut
22 down. It is possible that a full-blown rupture could
23 have been the first indication.

24 And that sums up my presentation. My
25 background is on the last page, but I don't think we need

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1 to go into it. So thank you very much.

2 MR. BAHADUR: Thank you.

3 MR. AYRES: And thank you very much.

4 I just want to give a bit of a summary of
5 Mr. Gundersen's presentation and its implications for
6 this process.

7 He's presented information today showing
8 that the design of the RSGs at San Onofre -- that in the
9 design, they made changes that adversely affected a
10 design function in that they foreseeably degraded the
11 steam generator adversely affecting the ability of the
12 generator to contain radioactive steam and water from the
13 primary loop of the reactor.

14 He's also told us that these adverse effects
15 were foreseeable at the time, and time has in fact
16 confirmed that they were foreseeable because we've seen
17 what's happened at the plant.

18 Edison should under the requirements of
19 50.59 therefore have notified the NRC that it would seek
20 a license amendment back in 2006 or whenever the
21 appropriate time was. Instead, Edison did not inform
22 the NRC or seek an amendment. And that in our view is
23 a violation of Section 50.59.

24 This body therefore should consider
25 appropriate enforcement actions for two reasons. One

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1 reason is to protect the health and safety of people in
2 California. And the second is to deter others from
3 making a similar kind of mistake.

4 In terms of what the enforcement might be,
5 we suggest the following. The plant license should be
6 suspended until Edison applies for and receives license
7 amendments that address the changes that adversely
8 affected the design functions in Units 2 and 3. Thus the
9 Board should order a license amendment proceeding if
10 Edison wishes to go forward with restarting the plants.

11 So that's what we draw from this
12 presentation and from what we've provided before. As I
13 said, we'll be also submitting our own responses to the
14 comments that were filed last week by Edison.

15 So with that, I think we're prepared to take
16 questions from the Board or whoever it might be.

17 MR. RODRIGUEZ: At this time, since this is
18 a public meeting, I would like to remind the PRB members,
19 the licensees, the Petitioner and other meeting
20 participants of the need to refrain from discussing any
21 security-related information during today's public
22 meeting.

23 Does the staff from the NRC Headquarters
24 have any questions for the Petitioner?

25 MR. BEAULIEU: This is Dave Beaulieu in

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1 NRR, and I'm responsible for 50.59s in NRR.

2 Everything you said about 50.59 was correct
3 in terms of 50.59 is a prospective, that you need prior
4 NRC approval, and it's not a retrospective. And now
5 you're saying that the licensee was unaware of the
6 deficiency so therefore they did not evaluate it under
7 50.59 at the time. So they weren't aware of the
8 deficiency until after the tube leak.

9 So in terms of -- I just want to understand.
10 What would you -- why do you think that the licensee would
11 submit a license amendment based on a condition that
12 would not exist on a going forward basis?

13 MR. AYRES: This is Mr. Ayres responding.
14 Mr. Gundersen may want to as well.

15 But I think that's -- what you -- how you
16 characterized that is not quite the argument we're
17 making. What we're saying is that Edison should have
18 know if it had done an analysis appropriately here that
19 the criteria in 50.59 were tripped which then required
20 application for a license amendment. And they didn't do
21 that.

22 They have the responsibility to do that.
23 And in my view at least for them to say oh, well, we didn't
24 understand that because we didn't look at it is not
25 fulfilling the obligation they have to understand the

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1 effects of the changes they're making in the plan.

2 MR. GUNDERSEN: Let me expand on that, too.

3 Can I?

4 MR. AYRES: Please.

5 MR. GUNDERSEN: Hi. Arnie Gundersen.

6 If I said that, I want to correct the record.

7 I'm on my slide 30. And I read into the
8 record, "The adverse condition that later resulted in the
9 tube leak was a deficiency associated with the design."
10 It was not known at the time the process was performed.

11 That was not my position. That's Edison's
12 position. That came in the Edison letter you got last
13 week.

14 My position I thought I went on to develop
15 was the issue that let's just look at one example -- the
16 AVBs. The AVB on Unit 2 was known to be distorted and
17 shipped across the Pacific. And while that was shipping
18 across the Pacific in a distorted form, it was modified
19 on Unit 3 to avoid the distortion. So it really gets to
20 the point that the adverse condition was known to Edison
21 before these were ever operated. And so, I
22 meant to say -- and if I didn't, I apologize -- I meant
23 to say that Edison's statement just last week is wrong,
24 that the adverse conditions were known at the time these
25 things were being built. And in fact, as modifications

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1 from Unit 2 to Unit 3 to correct some of those adverse
2 conditions.

3 And then in addition, I would also agree
4 with what Mr. Ayres said that the analysis at the time
5 it was done -- which in my opinion should have been '04
6 -- but according to this letter from Edison that we got
7 last week indicates that the 50.59 analysis might have
8 been done in '08, well after this plant -- this missile's
9 been fired. It's not a ballistic trajectory at this
10 point. It was too late when the 50.59 was done to change
11 the outcome because Mitsubishi was contractually bound
12 and shackled.

13 Thank you.

14 MR. BENNEY: This is Brian Benney.

15 You mentioned that you're going to continue
16 to give us more information. I just want to put on the
17 record that this is a limited process. And today is
18 really your best shot for providing whatever new
19 information or substantial information that you have on
20 the 50.59 process that was done before the steam
21 generators were installed.

22 And again, this isn't a hearing. So
23 there's still time for discussions here and for you to
24 provide information. But you mentioned that you're
25 going to provide a response to Edison. I'm just curious

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1 when that's going to come in because we've got to meet
2 as a Board and complete our process here.

3 MR. AYRES: Well, perhaps you could give us
4 an idea of when that's going to occur because obviously
5 we'd like to make our response expeditiously. But we
6 want to be sure also that it will be read before the Board
7 starts making its decision. Can you give us an idea of
8 what that schedule is like?

9 MR. BENNEY: This is Brian Benney.

10 I don't have it scheduled yet. But I have
11 some pressures here to complete the process. Not that
12 we wouldn't follow anything that we found safety related
13 in this respect, but the fact remains that your original
14 petition came in June 18 of 2012. We're now in January
15 of 2013. I'm just wondering how much more information
16 is out there and when are we going to finally get to see
17 it so that we can make a decision.

18 MR. AYRES: This is Mr. Ayres.

19 I would expect that we'd be able to respond
20 within two weeks from today.

21 MR. BENNEY: Thank you.

22 MR. BROADDUS: Chair, if it's okay, I had
23 a question as well.

24 My name is Doug Broaddus. I'm branch chief
25 in the Division of Operating Reactor Licensing. I'm the

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1 chief of the SONGS special projects branch, not part of
2 the PRB. But the question was did any of the NRC staff
3 want to ask questions.

4 Mr. Gundersen, you referred to Palo Verde
5 in a couple places. And you indicated that Palo Verde
6 went through a 50.59 process. And then in another
7 instance, you indicated that if the NRC staff had asked
8 the same questions of Palo Verde that we would have
9 identified these issues.

10 First of all, can you clarify what you mean
11 by they went through a 50.59 process and what you meant
12 by that? And then, what questions that we asked, and
13 what the context of that is. We might be able to go back
14 and look at that information.

15 MR. GUNDERSEN: Yes. In, I think 2001 --
16 it might have been 2000 -- Palo Verde Unit 2 added 10
17 percent more tubes to the generator on the periphery
18 retaining a correct design retained the central stay
19 through the unit and also increased power by 2.9 percent.
20 That whole process -- the steam generators modifications
21 and the 2.9 percent power increase -- was flagged by Palo
22 Verde, and the NRC was notified.

23 I was going through RAIs on Palo Verde, and
24 there was extensive questions about the possibility of
25 an FEI. Off the top of my head, I don't remember what

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1 the RAI was. But it was in the RAI process. For people
2 on the phone, RAI is request for additional information.
3 And so, in the RAI process, the NRC asked -- and Palo Verde
4 adequately answered -- questions related to flow and FEI
5 questions.

6 Now I think maybe in our response back --
7 and perhaps you'll have it before then -- but I can
8 identify the specific RAIs that talked about the FEI
9 issues, the questions that were asked.

10 MR. AYRES: And just to clarify, I heard
11 Arnie say that. And I thought as he said it, it might
12 mislead.

13 What he's saying is San Onofre went through
14 an amendment process -- went through the 50.59, triggered
15 --

16 MR. GUNDERSEN: Palo Verde.

17 MR. AYRES: Palo Verde. I'm sorry. These
18 plants get confused.

19 But it did go through a license amendment
20 process unlike San Onofre.

21 MR. BROADDUS: So they have submitted a
22 license amendment specifically for the replacement steam
23 generators and the RAI questions were in response to that
24 license amendment request? Is that what --

25 MR. GUNDERSEN: Arnie Gundersen.

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1 There were two issues. The application
2 says to replace the steam generators and for a 2.9 percent
3 power upgrade.

4 MR. BROADDUS: Okay.

5 MR. GUNDERSEN: And they are coupled
6 together inextricably. It's hard to say that if they
7 didn't get the power upgrade would they have applied for
8 the 50.59 -- notified the NRC. But a 2.9 percent power
9 upgrade was part of a 10 percent tube addition. But
10 those tubes were added on the periphery. The steam
11 generator was made larger on the diameter to accommodate
12 the 10 percent tubes whereas the San Onofre generator was
13 increased slightly. But the four percent tubes at San
14 Onofre were put in the center and the 10 percent tubes
15 at Palo Verde were put on the outside. One experienced
16 an FEI. One didn't.

17 MR. BROADDUS: Okay. That helps to
18 clarify it so we can go back and look at that information
19 more specifically.

20 The second question that I had was I thought
21 I heard you say when you were talking about the
22 supplemental information, and this is along the lines of
23 what Brian was saying. I thought I heard you say that
24 you also planned to supplement the information that you
25 have provided to the ASLB as part of this. Because you

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1 referred to other information you provided to the ASLB.

2 MR. AYRES: Well, we did provide an
3 affidavit from Mr. Gundersen to the ASLB. I think that's
4 what he was referring to.

5 MR. BROADDUS: Only that you provided some
6 additional information to them, but you're not
7 requesting that to be part of this?

8 MR. GUNDERSEN: Arnie Gundersen.

9 I would hope you'd read the affidavit to the
10 ASLB because it is a technical affidavit, not a legal one.
11 And there's definitely a correlation. We could submit
12 the affidavit again as part of this two-week response.
13 But it's already known to the NRC, and this presentation
14 today plus what was in the affidavit is all I planned to
15 say on the matter until of course Edison modified the
16 record last week. And I think that's what Dick is
17 talking about now.

18 MR. BROADDUS: Yes. I think it would be
19 helpful for us -- if there's specific information in all
20 of what you submitted -- that you want to make reference
21 so we know which information to look at and make sure it's
22 clear.

23 That's all the questions I had.

24 MR. BENNEY: Brian Benney.

25 I do agree. That would be extremely

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1 helpful because I have a large pile of paper at this point
2 in time.

3 And based on that large pile of paper, we
4 start back in, like I said June 18, 2012, with your
5 initial petition. And subsequent things have happened
6 since then. And unfortunately, I'm going to have
7 probably rely a little bit on your knowledge of it.

8 But in the AIT report that came out -- when
9 was it -- November 8th -- I'll give you the Adams number
10 since I've got it written down here on the paper. It's
11 M-L or Mike Lima if you're into the --
12 1-2-1-8-8-Alpha-7-4-8.

13 It states on page ii under item number five,
14 "Based on the updated safety analysis report description
15 of the original steam generators, the steam generators'
16 major design changes were appropriately reviewed in
17 accordance with 10 CFR 50.59 requirements."

18 Since that report came out, what new
19 information do you have that that original 50.59 was done
20 incorrectly, examples that you've got, any other facts
21 in evidence you want to get in to have the Board challenge
22 that statement?

23 MR. GUNDERSEN: Arnie Gundersen.

24 In July, we filed an FOIA and we haven't
25 gotten anything yet. So we have no information from the

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1 NRC about its internal processes, nor have we seen the
2 50.59 analysis that the AIT refers to. So we are frankly
3 in the dark. We don't know what the NRC's deliberative
4 process was, and we don't know what Edison wrote
5 originally.

6 We don't even know when the 50.59 was done.
7 Was it '04 when they did the contract? Was it '08 as
8 suggested in the memo last week? We are in the dark.

9 Mr. Large and I have determined that if we
10 were there in '04 with these changes, our decision would
11 be different. But again, we're boxing in the dark here,
12 and we just have no clue how the AIT arrived at that
13 conclusion.

14 MR. AYRES: Just to follow up on that -- Mr.
15 Ayres again. You should understand if you don't already
16 that the Friends of the Earth asked in the ASLB proceeding
17 for a series of documents that were characterized by
18 Edison as proprietary. These would have been helpful --
19 both our experts thought and understanding what happened
20 as well as understanding the past.

21 The Board denied that request. So
22 consequently, we're operating without a lot of
23 information that is available to the Commission and is
24 available to Edison. We think this is not exactly fair.
25 But it does handicap our ability to come up new factual

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1 gem.

2 Having said that, however, I think the key
3 here on the AIT report -- the conclusion you read -- is
4 that that is essentially a legal conclusion that's stated
5 there. There was compliance with 50.59.

6 Yes, there's a technical element to that
7 conclusion. But it's ultimately a legal conclusion.
8 And there was a cover letter with the AIT report in which
9 Elmo Collins, the Regional Director of Region IV, made
10 that point very forcefully. He said, "It is not the
11 responsibility of an AIT to determine compliance with the
12 NRC rules and regulations or to recommend enforcement
13 action. That will be done through subsequent NRC
14 inspection or review."

15 So I think our point is that that statement,
16 in our view, does not carry weight as a legal conclusion.
17 And what it's talking about is something which is a legal
18 conclusion.

19 MR. BROADDUS: Just to clarify, the
20 November 9th inspection report was as a result of a
21 follow-up inspection that Mr. Collins was referring to
22 in that initial report.

23 There's a distinction between the AIT
24 activities and then a routine or special inspection
25 activities and that the AIT is fact-finding mission

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1 whereas an inspection or even a special inspection,
2 you're looking at compliance from that standpoint.

3 So that follow-up inspection was to address
4 those issues that were identified by the AIT in their
5 initial or fact-finding charge basically.

6 MR. RODRIGUEZ: Are there any additional
7 questions from NRC staff?

8 (No audible response.)

9 MR. RODRIGUEZ: At this time, do the
10 licensees in this room have any questions or comments?

11 MR. FRANTZ: This is Steve Frantz
12 representing Southern California Edison.

13 We understand the purpose of this meeting
14 is not to discuss the merits but simply to ask questions.
15 We have no questions of Friends of the Earth.

16 MR. RODRIGUEZ: NRC operator, please admit
17 the lines at this time.

18 Are there any questions or statements for
19 the Petitioner or the Petition Review Board from the
20 public?

21 MR. LIGHTNING: Yes. My name is Don. I
22 have a question.

23 Hi. Don Lightning. I'm calling from San
24 Diego.

25 We have issued -- an NRC AIT review requires

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1 an NRR investigation document. I've sent that in. It
2 deals specifically with the 50.59 process at San Onofre.

3 It also goes in that the length of the tubes
4 were also increased in size by seven inches which
5 exacerbated the problem at the top of the steam
6 generators.

7 Also, in the 50.59 process, the NRR
8 technical specialist found two instances that failed to
9 adequately address was the change involved a departure
10 of the methods of evaluation described in the updated
11 final safety analysis report.

12 And we listed those things, and I can
13 provide that to Brian if you want.

14 But there's a wealth of information out
15 there. And I'd just like to say for the other technical
16 people of the public, unless we have access to this
17 information, how are we supposed to make intelligent,
18 helpful suggestions to the NRR and/or the NRC to do its
19 job? You're keeping us blinded. And that's not fair.
20 And it's not conducive to nuclear safety in America. We
21 can't afford a Fukushima-type event in America. It will
22 devastate the country.

23 MR. RODRIGUEZ: Well, sir, we appreciate
24 your comments.

25 And once again, brian.benney -- B-E-N-N-E-Y

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1 -- @nrc.gov is the resource location so that you can
2 provide information -- additional input -- to Brian
3 regarding the 2.206 process for today's activities.

4 I will take a question from the audience.
5 Operator, hold, please.

6 MR. FREEMAN: My name is S. David Freeman.
7 And I'm a volunteer helping Friends of the Earth. I have
8 a statement.

9 I think the discussion I heard and the
10 question that was asked by someone from the staff made
11 fuzzy what appears to be the central issue in this case.

12 A utility does not have to know that its
13 equipment will not work in order for it to be different
14 enough to be required to go through the full license
15 amendment process. So the issue in this case cannot be
16 did Edison know that its equipment was defective or was
17 going to get in as much trouble as it has. The issue is
18 whether it was like the former steam generator. And I
19 think the evidence of the differences between the two
20 steam generators are abundant.

21 And I don't really know that any additional
22 information is needed. This case seems as clear as a
23 bell to me, that it was very apparent that the steam
24 generator was modified in a number of significant ways,
25 and there should have been a license amendment process

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1 even if it had all worked.

2 MR. BEAULIEU: I understand. Thank you
3 for that clarification.

4 MS. ROBINSON: I have a question.

5 MR. RODRIGUEZ: Please go ahead. State
6 your name and any affiliation, please.

7 MS. ROBINSON: Rita Robinson, the Benedict
8 Independent Newspaper.

9 Was there a 50.59 done in an earlier process
10 that's just not evident? There some confusion in my mind
11 about that.

12 MR. BROADDUS: This is Doug Broaddus.
13 Could you please clarify when you say a 50.59, a 50.59
14 specifically on the steam generators? Is that what
15 you're asking -- the steam generator replacements?

16 MS. ROBINSON: A 50.59 was done. NRC was
17 notified on earlier changes at San Onofre. I did not
18 find any evidence of that. I'm asking if that's correct.

19 MR. BROADDUS: I'm sorry. You were
20 breaking up.

21 Did you understand?

22 MR. BENNEY: This is Brian Benney.

23 I think I caught it. Dave, can you talk
24 about the 50.59 process a little bit and whether or not
25 a 50.59 to replace the steam generators was done at San

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1 Onofre?

2 MR. BEAULIEU: Yes. The licensee
3 performed a 50.59. And they determined that prior NRC
4 review and approval was not required by 50.59.

5 There were two other license amendments
6 related to tech specs that they requested and received
7 changes for, but no additional changes or amendments were
8 required.

9 MR. AYRES: Just one comment. This is
10 Richard Ayres responding.

11 I can understand the confusion because of
12 the way these words are used.

13 But the 50.59 process is an analytical
14 process. The result of that process is either a decision
15 that a license amendment is necessary or is not
16 necessary. And really, the question here is whether the
17 right answer was given by Edison. They apparently did
18 do a 50.59 analysis on these steam generators. They
19 concluded that no license amendment was needed. As you
20 heard today, we think very strongly that a license
21 amendment was needed and that by not asking for it, Edison
22 violated 50.59 of the regulations.

23 MS. ROBINSON: Okay. That helps very
24 much. Thank you.

25 MR. HURD: Dan Hurd here from Committee to

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1 Bridge the Gap. May I ask a question?

2 MR. RODRIGUEZ: Could you please repeat
3 your name and state your affiliation?

4 MR. HURD: Dan Hurd from Committee to
5 Bridge the Gap.

6 MR. RODRIGUEZ: Okay, Mr. Hurd.

7 MR. HURD: I'm quite struck by the
8 Kafkaesque nature of this proceeding whereby you are
9 asking Friends of the Earth what is wrong with the Edison
10 50.59 analysis, but you will not release the 50.59
11 analysis to Friends of the Earth to review or make it
12 public.

13 I was wondering if you can explain why
14 you're keeping secret the central documents and then
15 placing the burden on these people to critique something
16 they cannot see.

17 MR. RODRIGUEZ: Mr. Hurd, once again, we're
18 just going to stay within the bounds of the 2.206 process
19 regarding what Mr. Ayres and his associates have
20 discussed before the Board.

21 Could you re-state your question, please,
22 so that it stays within the bounds of the proceedings?

23 MR. HURD: I think it's clearly within the
24 bounds. The 2.206 proceeding is one in which you're
25 placing the burden on Friends of the Earth to tell you

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1 what's wrong with a document you will not permit them to
2 see. So I'm asking you to explain the rationale behind
3 a public agency keeping those public documents secret
4 from the public and then demanding that the public
5 critique something that they can't have access to.

6 MR. BROADDUS: The 2.206 process -- this is
7 Doug Broaddus. The 2.206 process is a process by which
8 any individual may bring an issue, concern to us -- to
9 us in the NRC. That's the process that we're in at this
10 point is to understand -- to listen and understand the
11 issues that are being put before us. And it's not that
12 we're challenging -- I want to make sure that that's clear
13 -- we're not trying to challenge you or anything. We're
14 just trying to find out what information you have
15 available to help us to get through this process. And
16 I want to make sure that that's clear.

17 The 50.59 is a licensee control document.
18 That's something that the licensee has control over.
19 It's not something that is submitted to us. If it is
20 something that is reviewed during inspections by our
21 inspectors because it's required to be maintained by the
22 licensee to ensure that we have the ability to review that
23 and determine whether they were in compliance and in the
24 process that they followed.

25 So it is not something that's been submitted

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1 to us that we could make available at that point. It
2 hasn't been submitted to us for our review in that sense.

3 MR. HURD: And one quick comment here. It
4 seems to me that your system is completely broken if you
5 allow the licensee to make the determination whether or
6 not they have to come to you for license amendments and
7 then you keep that secret from the public.

8 Let me make one concluding point, if I may.
9 I think the evidence is just absolutely clear empirically
10 that a license amendment was required under 50.59.
11 50.59 requires a license amendment if there's a change
12 which could increase the likelihood by more than a minor
13 amount of malfunction of a system that is critical to
14 safety. And steam generators are one of those.

15 Empirically, there's absolutely no
16 question that the change that was made by Edison with this
17 new design led to a more than minor increase in the
18 likelihood of malfunction because in fact it did
19 malfunction. It seems to me that the question you are
20 asking has been empirically demonstrated by a billion
21 dollar steam generator project collapsing. They told
22 you the change couldn't increase by more than a minimal
23 amount the likelihood of malfunction, and it did increase
24 the likelihood of malfunction by a great deal. End of
25 story, it seems to me.

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1 MR. RODRIGUEZ: Well, thank you, sir. We
2 appreciate your comments.

3 Any additional comments from the public?

4 DR. BROWN: This is Dr. Jerry Brown with the
5 World Business Academy.

6 I have an information point related to 2.206
7 and referring to Arnie Gundersen's slide 38, referring
8 to page 57 of the NRC AIT report that the degraded
9 condition of the tubes manifested as a small primary to
10 secondary leak. The whole process here is predicated on
11 the fact that there was premature wear and tear and that
12 the plant has been -- both reactors have been shut down
13 since January 2012.

14 The shutdown -- was that monitored due to
15 radiation leaks -- and this is a question to the NRC staff
16 -- monitored by the NRC and/or the licensee? If so, was
17 the amount of radiation and specific isotopes available
18 to the public and where would that be available? And
19 what procedures are in place should the NRC allow the
20 licensee to re-start the plant to monitor for additional
21 radiation releases?

22 MR. BAHADUR: This is Sher Bahadur.

23 The question you asked would be perhaps best
24 given to Brian. And you already have the mailing address
25 for Brian. If not, I'll ask Mike to repeat that one more

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1 time.

2 Let's just keep the questions focused on
3 issues where we need the clarification from Mr. Ayres
4 and Mr. Gundersen or if you need to know specific
5 information about the process 2.206. Would that be all
6 right with you?

7 DR. BROWN: Well, I think this question is
8 germane. I think the public would like to know about it.
9 We are in a public discussion and you've indicated there
10 might not be many more relevant to this case. And I would
11 like to know what the source of that information would
12 be in this discussion if you could provide that
13 information.

14 MR. WERNER: This is Greg Werner, Region
15 IV. Can you hear me?

16 DR. BROWN: Yes, sir.

17 MR. WERNER: Look on page 57 of the AIT
18 report under Section 10. It actually addresses your
19 question about radiation monitoring, some of the
20 isotopes as well as the radiation that was associated
21 potentially could have been received by a member of the
22 public. If you'll look at that, it should answer your
23 question.

24 DR. BROWN: Thank you, sir.

25 MR. AYRES: This is Mr. Ayres.

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1 I wonder if I might interject a comment on
2 the 50.59 point that was discussed a few minutes ago.

3 To me, it seems obvious from the
4 conversation that we've had today that the 50.59 analysis
5 that was done by Edison is central to this determination
6 that you have to make.

7 As we've said, we've not seen it. We asked
8 for it in the ASLB process. We agreed to abide and signed
9 agreements to abide by requirement to keep all
10 confidential material confidential and to adopt
11 processes to make sure that it was not released to the
12 public. But that request was denied by the Board.

13 I want to suggest that this group -- this
14 Board -- should think about requesting from Edison that
15 50.59 report. It seems to me it's crucial to what you
16 do.

17 I would ask that when you do that we be
18 allowed to see the document as well under the same
19 conditions as we've agreed to in the ASLB proceeding.

20 I'll leave that with you. You can make a
21 decision now or later.

22 MR. BAHADUR: Mr. Ayres, your suggestion is
23 well taken.

24 MR. RODRIGUEZ: We will have a question
25 from the public here within the NRC facilities, Kendra

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1 Ulrich from Friends of the Earth.

2 MS. ULRICH: Yes. I have two statements I
3 would like to make.

4 The first is that the comment from Elmo
5 Collins that Mr. Ayres had brought up related to the AIT
6 concluding that Edison was in compliance was actually in
7 direct response to the brief that they had submitted to
8 you -- the testimony they had submitted to you --
9 asserting that the AIT had made those conclusions.

10 Now I did want to just point out to the
11 public something that Mr. Broaddus had brought up
12 regarding the Special Investigations Team and the
13 November 9th report which is that it was implied that all
14 of the questions from the AIT that had been raised with
15 regard to licensing had been resolved when in fact the
16 computer modeling -- that was the implication, and you
17 didn't say it explicitly -- so I just want to make it very
18 clear to the NRC staff that are considering this as well
19 as for the public on the phone that one of the main issues
20 that had been raised by the AIT with regard to whether
21 or not Edison was in violation of their license was with
22 the use of the FIT III computer modeling. That issue was
23 not addressed and not resolved by the Special
24 Investigations Teams and still remains under
25 investigation as to whether or not that should have

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1 tripped the 50.59 and Edison should have been required
2 to go through the license amendment process as a result
3 of the use of the FIT III code.

4 Thank you.

5 MR. BROADDUS: Thank you also for that
6 clarification. It was not my intention to say that all
7 issues had been resolved.

8 MR. RODRIGUEZ: Ladies and gentlemen,
9 we've exceeded our time for 2:00 o'clock. However,
10 we'll keep the phone lines open for another five minutes
11 in the spirit of openness and communication.

12 Any additional questions from the public on
13 the phones?

14 MR. LIGHTNING: Yes, I have another
15 question.

16 MR. RODRIGUEZ: Please identify yourself
17 -- your name and your affiliation.

18 MR. LIGHTNING: Don Lightning. I'm with
19 the DAB Safety Team, San Diego.

20 Given the testimony today about multiple
21 and as I like to say, cascading tube effect failures, how
22 is this going to affect the 50.59 process? And in the
23 bigger picture, how is the NRC and the NRR going to
24 address safety for all reactors because up to now, it's
25 never been proven as a fact, and yet now after San

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1 Onofre's eight failures in situ testing, we have to admit
2 the possibility of cascading tube failures and the effect
3 it might have on the public health. And I don't hear
4 anybody talking about that. And I think I've heard the
5 person's name, Dr. Hopenfeld. That is the person who
6 identified that a long time ago. Because our research
7 said that was --

8 MR. BENNEY: This is Brian Benney. I'm the
9 Petition Manager.

10 The reason you don't hear that being
11 discussed today is that's actually being handled under
12 a different process. What we're looking at today is the
13 50.59 process before the steam generators were
14 installed.

15 And it's challenging for us to keep things
16 separated, but unfortunately I have to keep things
17 separated and finish the process that we're under here
18 for the 50.59 before the steam generators were installed.

19 MR. LIGHTNING: I would like to add to that
20 that I agree with most of the other commenters today that
21 the system is seriously flawed now. And if Edison gets
22 away with begging for forgiveness instead of asking for
23 permission, you're sending the worst possible message to
24 the industry because everyday they're held up and they
25 can't generate electricity, they're losing millions of

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1 dollars.

2 And so, you need to make it crystal clear
3 to the industry and the public that's depending on you
4 for safety that if people make changes, they need to ask
5 and get permission and have it reviewed because the
6 people in Southern California almost had a really bad
7 problem with San Onofre, and they missed by the skin of
8 their teeth. And that's a proven fact.

9 So thank you very much.

10 MR. RODRIGUEZ: Thank you, Mr. Lightning.

11 We'll take one more question from the public
12 over the phone.

13 MR. WERNER: This is Greg Werner, Region
14 IV. And I'll make one clarifying statement about FIT
15 III.

16 FIT III is an unresolved item that is still
17 out there, that's still open. However, it does not
18 involve 10 CFR 50.59.

19 MR. BENNEY: Mike, this is Brian. Can you
20 take one more question?

21 MR. RODRIGUEZ: One more question from the
22 public, please, over the phone lines.

23 NRC operator, any additional public members
24 on the telephone?

25 MR. STYMITZ: This is Jeff Stymitz.

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1 When is the NRC going to --

2 MR. RODRIGUEZ: Mr. Stymitz, could you
3 repeat your question? You broke up. Please?

4 We've lost transmission. We will take one
5 final question from the public within NRC Headquarters.

6 MR. LEE: Hi, this is Morgan Lee with the
7 Union Tribune Newspaper in San Diego.

8 I just wanted to ask if there's a time frame
9 for a decision on this matter or what happens next.

10 MR. BAHADUR: This is Sher Bahadur.

11 As we said earlier, now that we got the
12 additional information from the Petitioner, the next
13 step would be for the Petition Review Board to meet. The
14 meeting is unscheduled yet. But I may tell you it's not
15 a matter of months or weeks, but I think in a matter of
16 days once we get the additional information from the
17 Petitioner. And I understand it's two weeks time that
18 Mr. Ayres said he will be providing us additional
19 information.

20 After that, we'll find a common time slot
21 where the PRB can meet. So I think it's just a matter
22 of weeks that we should be meeting.

23 Whether the next meeting would end in a
24 decision or not, I do not know at this time. It depends
25 upon the extent of information that's put in front of the

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1 PRB members. So we'll know more about this after the
2 first meeting.

3 MR. RODRIGUEZ: Ms. Ulrich?

4 MS. ULRICH: I just wanted to very quickly
5 respond to what Mr. Werner said over the phone which is
6 that that it is incongruent with what's actually in the
7 AIT report. I can go back and look for the language, but
8 it specifically questions whether or not the computer
9 modeling should have tripped the 50.59 and whether or not
10 that that was the licensing issue.

11 So in any event, I just wanted to point that
12 out.

13 MR. RODRIGUEZ: Dr. Bahadur, would you like
14 to throw out closing statements, please?

15 MR. BAHADUR: Well, Mr. Ayres, Mr.
16 Gundersen, thank you so much for taking time to provide
17 NRC staff with clarifying information.

18 I thank you very much for your patience to
19 sit through this.

20 Thank you, public, for being cooperative
21 and patient, licensee and my staff.

22 And the meeting is now adjourned.

23 MR. RODRIGUEZ: Before we close, does the
24 court reporter need any additional information for the
25 meeting transcript?

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1 (No audible response.)

2 MR. RODRIGUEZ: Thank you for your
3 attendance. This meeting is concluded.

4 Operator, the telephone lines may be
5 terminated now.

6 (Whereupon, at 2:13 p.m., the meeting was
7 concluded.)

8

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