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Title: 10 CFR 2.206 Petition Review Board
Natural Resources Defense Council
RE: Indian Point Nuclear Generating Unit No. 2

Docket Number: 05000247

Location: teleconference

Date: Thursday, June 14, 2012

Edited by Douglas Pickett

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Pages 1-30

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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10 CFR 2.206 PETITION REVIEW BOARD (PRB)

PRESENTATION

BY

NATURAL RESOURCES DEFENSE COUNCIL, INC.

+ + + + +

THURSDAY

JUNE 14, 2012

+ + + + +

The conference call was held, John Lubinski,
Chairperson of the Petition Review Board, presiding.

PETITIONER: NATIONAL RESOURCES DEFENSE COUNCIL

PETITION REVIEW BOARD MEMBERS

JOHN LUBINSKI, Deputy Director

Division of Inspection and Regional Support

Office of Nuclear Reactor Regulation

DOUGLAS PICKETT, Petition Manager for 2.206 petition

CHRISTOPHER HAIR, Office of General Counsel

NRC HEADQUARTERS STAFF

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ANDREA RUSSELL, Petition Coordinator

~~ANHSAN~~ [AHSAN] SALLMAN, Containment and Ventilation

Branch, NRR

FARHAD FARZAM, Mechanical and Civil Engineering Branch,

NRR

NRC REGION I STAFF

BRICE BICKETT

LAWRENCE DOERFLEIN

ON BEHALF OF THE PETITIONER

JORDAN WEAVER, Natural Resources Defense Council

THOMAS COCHRAN

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ON BEHALF OF THE LICENSEE

STEVE PRUSSMAN, Entergy

BILL DENNIS, Entergy

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P R O C E E D I N G S

10:03 a.m.

1
2
3 MR. WEAVER: All right. So, my name is
4 Jordan Weaver. I'm with the National Resources Defense
5 Council. And I just wanted to quickly thank the NRC for
6 providing us with the opportunity to speak with the
7 Petition Review Board this morning regarding our
8 petition.

9 MR. PICKETT: Mr. Weaver, if I could
10 interrupt you, we have a script we want to run through
11 first.

12 MR. WEAVER: Sure, no problem.

13 MR. PICKETT: And then we will open the
14 floor for you in a few moments.

15 MR. WEAVER: Sounds great. Sorry about
16 that.

17 MR. PICKETT: No problem. Good morning.
18 My name is Doug Pickett. I'd like to welcome everybody
19 here. I am the Indian Point Project Manager. We are
20 here today to allow the petitioner, Mr. Jordan Weaver,
21 of the National Resources Defense Council, assisted by
22 Mr. Mark Leyse. The Petition Review Board also referred
23 to as PRB -

24 MR. ~~WEAVER~~ [LUBINSKI]: If we could ask,
25 when people are not speaking, if they could put their

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1 phone on mute.

2 MR. PICKETT: Okay, we'll start again.
3 I'd like to thank everybody for attending this meeting.
4 My name is Doug Pickett, and I am the Indian Point Project
5 Manager. We are here today to allow the petitioner, Mr.
6 Jordan Weaver, of the National Resources Defense
7 Council, assisted by Mr. Mark Leyse, to address the
8 Petition Review Board, also referred to as the PRB,
9 regarding the 2.206 petition dated April 16, 2012.

10 I am the Petition Manager for the petition.
11 The PRB chairman is Mr. John Lubinski. As part of the
12 PRB's review of this petition, Jordan Weaver has
13 requested this opportunity to address the PRB. This
14 meeting is scheduled from 10 to 11 a.m. eastern time.
15 The meeting is being recorded by the NRC Operations
16 Center, and will be transcribed by a court reporter. The
17 transcript will become a supplement to the petition.
18 The transcript will also be made publicly available.

19 I'd like to open this meeting with
20 introductions. As we go around the room here in
21 headquarters, please be sure to clearly state your name,
22 your position, and the office that you work for within
23 the NRC, for the record. I'll start with myself, Douglas
24 Pickett. I'm the Indian Point Project Manager in the
25 Office of Nuclear Reactor Regulations, and I'm also the

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1 Petition Manager.

2 MR. SALLMAN: My name is Ahsan Sallman. I
3 am ~~the~~ [a] Reactor Systems Engineer in the Containment
4 and Ventilation Branch, in the Office of Nuclear Reactor
5 Regulations.

6 MR. HAIR: I'm Christopher Hair from the
7 Office of General Council.

8 MS. RUSSELL: Andrea Russell, 2.206
9 Coordinator for the NRC.

10 CHAIR LUBINSKI: John Lubinski. I'm the
11 Deputy Director of the Division of Inspection and
12 Regional Support, and I will serve as the chair for this
13 petition review board.

14 MR. PICKETT: We've completed the
15 introductions of the NRC Headquarters. At this time,
16 are there any NRC participants from Headquarters on the
17 phone?

18 MR. FARZAM: Yes, this is Farhad Farzam.
19 I'm a Senior Structural Engineer, Mechanical and Civil
20 Engineering Branch, Office of Nuclear Reactor
21 Regulations.

22 MR. PICKETT: Are there any NRC
23 participants from the regional office on the phone?

24 MR. DOERFLEIN: Yes, this is Larry
25 Doerflein. I'm Chief Engineering Branch 2, in NRC

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1 Region 1.

2 MR. BICKETT: And this is Brice Bickett,
3 NRC Region 1, Senior Project Engineer for Branch 2.

4 MR. PICKETT: Are there any
5 representatives for the licensee on the phone?

6 MR. PRUSSMAN: Steve Prussman, Entergy.

7 MR. DENNIS: Bill Dennis, Entergy.

8 MR. PICKETT: Mr. Weaver, would you please
9 introduce yourself, and anyone assisting you, for the
10 record?

11 MR. WEAVER: Yes, my name is Jordan Weaver.
12 I am a Nuclear Program Scientist at the Natural Resources
13 Defense Council. And with me, I have Dr. Tom Cochran,
14 who is also a scientist at the Natural Resources Defense
15 Council. And I believe also on the line is Mark Leyse,
16 who I'll let introduce himself.

17 MR. LEYSE: Sure. Mark Leyse.

18 MR. PICKETT: All right, thank you. It is
19 not required for members of the public to introduce
20 themselves for this call. However, if there are any
21 members of the public on the phone that wish to do so at
22 this time, please state your name for the record. The
23 hearing then will go on.

24 I'd like to emphasize that we each need to
25 speak clearly and loudly, to make sure that the court

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1 reporter can accurately transcribe this meeting. If you
2 do have something that you would like to say, please first
3 state your name for the record.

4 For those dialing in to the meeting, please
5 remember to mute your phones to minimize any background
6 noise or distractions. If you do not have a mute button,
7 this can be done by pressing the keys *6. To unmute,
8 press *6 keys again. Thank you.

9 At this time, I'll turn it over to the PRB
10 Chairman, John Lubinski.

11 CHAIR LUBINSKI: Good morning. Welcome to
12 this meeting regarding the 2.206 petition submitted by
13 Mr. Weaver of the National Resources Defense Council.
14 I'd like to first share some background on our process.
15 Section 2.206 of Title 10 of the Code of Federal
16 Regulations describes the petition process - the primary
17 mechanism for the public to request enforcement action
18 by the NRC in a public process. This
19 process permits anyone to petition the NRC to take
20 enforcement-type action related to NRC licensees or
21 licensed activities. Depending on the results of its
22 evaluation, NRC could modify, suspend or revoke an
23 NRC-issued license, or take any other appropriate
24 enforcement action to resolve a problem. The NRC
25 staff's guidance for the disposition of 2.206 petition

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1 requests is in Management Directive ~~8-1~~[8.11], which is
2 publicly available.

3 The purpose of today's meeting is to give
4 the petitioner an opportunity to provide additional
5 explanation or support for the petition before the
6 Petition Review Board's initial consideration and
7 recommendation.

8 This meeting is not a hearing, ~~not~~ [nor] is
9 it an opportunity for the petitioner to question or
10 examine the PRB on the merits or the issues presented in
11 the petitioner request. No decisions regarding the
12 merits of the petition will be made at this meeting.

13 Following this meeting, the Petition Review
14 Board will conduct its internal deliberations. The
15 outcome of this internal meeting will be discussed with
16 the petitioner.

17 The Petition Review Board typically
18 consists of a Chairman, usually a manager at the senior
19 executive service level at the NRC. It has a Petition
20 Manager and a PRB Coordinator. Other members of the
21 Board are determined by the NRC staff based on the content
22 of the information in the petition request. At this
23 time, I would like to introduce the Board.

24 I am John Lubinski, the Petition Review
25 Board Chairman. Doug Pickett is the Petition Manager

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1 for the petition under discussion today. Andrea Russell
2 is the office's PRB Coordinator.

3 Our technical staff includes: Ahsan Sallman
4 of NRR's Containment and Ventilation Branch, Farhad
5 Farzam from NRR's Mechanical and Civil Engineering
6 Branch, and Brice Bickett and Larry Doerflein from NRC's
7 Region 1 Office. We also obtain advice from our Office
8 of General Counsel, represented today by Chris Hair.

9 As described in our process, the NRC staff
10 may ask clarifying questions in order to better
11 understand the petitioner's presentation, and to reach
12 a reasoned decision whether to accept or reject the
13 petitioner's requests for review under the 2.206
14 process.

15 I would like to summarize the scope of the
16 petition under consideration, and the NRC activities to
17 date. On April 16, 2012, Mr. Weaver submitted to the NRC
18 a petition, prepared by Mr. Leyse, acting as a consultant
19 to the Natural Resources Defense Council, under 2.206,
20 regarding the use of passive autocatalytic recombiners,
21 hereafter referred to as PARs, at the Indian Point
22 Nuclear Generating Unit 2.

23 In this petition, Mr. Leyse requests that
24 the NRC order the licensee of Indian Point Unit 2 to
25 remove the PAR system from the reactor containment,

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1 because the PAR system could have unintended ignitions
2 in the event of a severe accident which, in turn, could
3 cause a hydrogen detonation and ultimate failure of the
4 reactor containment structure.

5 As the basis for this request, the
6 petitioner describes the PAR system as simple devices
7 consisting of catalyst surfaces arranged in an
8 open-ended enclosure. In the presence of hydrogen, a
9 catalytic reaction occurs spontaneously with oxygen at
10 the catalyst surface. PARs do not need external power
11 or operator action to function, and once installed, they
12 cannot be stopped or turned off by control room operators
13 following an accident.

14 The petitioner does not question the use of
15 the PAR system during the design basis accident.
16 However, the petitioner believes that the nearby Ramapo
17 seismic zone could create a seismic event that exceeds
18 the Indian Point design, thus inducing a severe reactor
19 accident.

20 Once a severe reactor accident occurs, the
21 petitioner believes that the PAR system will be
22 overwhelmed by local concentrations of hydrogen gas, and
23 effectively become ignition sources leading to the
24 hydrogen detonation as described above.

25 Next, I'll talk about NRC activities to

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1 date. On April 17, 2012, the petition manager contacted
2 the petitioner to discuss the 10 CFR 2.206 process, and
3 to offer the petitioner an opportunity to address the PRB
4 by phone or in person. The petitioner requested to
5 address the PRB by phone prior to its initial meeting to
6 make the initial recommendation to accept or reject the
7 petition for review.

8 As a reminder for the phone participants,
9 please identify yourself if you make any remarks, as this
10 will help us in the preparation of the meeting transcript
11 that will be made publicly available. Thank you. At
12 this point, Mr. Weaver, I would like to turn the meeting
13 over to you and Mr. Leyse, to provide any information you
14 believe the PRB should consider as part of this petition.

15 MR. WEAVER: Thank you. And I want to
16 thank, generally, the NRC for providing us with the
17 opportunity to speak today. So, just a little
18 background, for over a year now, NRDC's nuclear program
19 has become increasingly involved with the assessment of
20 reactor safety, especially as it pertains to severe
21 accident mitigation, and the plans of associated safety
22 systems.

23 We believe this petition highlights the
24 vulnerability in the passive autocatalytic recombiner
25 system, or PAR system, currently installed in Indian

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1 Point Unit 2. The petition describes the problem
2 thoroughly, and ~~sites~~[cites] numerous studies that have
3 analyzed the behavior of PAR systems in a range of
4 environments and scenarios.

5 And of a particular concern, is that which
6 is the result of a design basis accident or severe
7 accident, and how the transition into this environment
8 plays the risk of the PAR system, being its ability to
9 mitigate any possible quantities of hydrogen produced.

10 ~~NRC~~ [NRDC] consultant Mark Leyse is a
11 principal researcher and author of this petition, and so
12 at this time, I will turn it over to Mr. Leyse to provide
13 the remainder of our comments. And if there are any
14 questions, either now or at the end, I'm more than happy
15 to answer them. Thank you.

16 CHAIR LUBINSKI: Okay, thank you, Mr.
17 Weaver. Mr. Leyse?

18 MR. LEYSE: Sorry, Mark Leyse speaking. I
19 forgot that I was on mute there. Sorry about that. You
20 can hear me now?

21 CHAIR LUBINSKI: Yes, we can, thank you.

22 MR. LEYSE: Okay, great, thanks. Okay.
23 First, I'd like to cover some of the points that have been
24 made in the petition. On pages six and seven, there is
25 information about the fact that passive autocatalytic

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1 recombiners, which I will now call PARs, would operate
2 automatically.

3 You covered this in your introduction, but
4 just to reiterate, they would commence operation when
5 there was enough hydrogen and oxygen available, and then
6 there would be a reaction on their catalytic surfaces,
7 and they would commence operation without operator
8 action. And so, Unit Number 2 operators would not be
9 able to turn PARs off, or stop PARs from operating.

10 Now, Unit 3, as is mentioned in the
11 petition, has electrical-powered thermal recombiners.
12 So, that is not a problem with the Unit Number 3. Okay,
13 now on page 10 of the petition, there is a quote from -

14 CHAIR LUBINSKI: Excuse me, Mr. Leyse?

15 MR. LEYSE: Yes?

16 CHAIR LUBINSKI: Would you like us to ask
17 questions along the way, or -

18 MR. LEYSE: Feel free to, please.

19 CHAIR LUBINSKI: Okay, can you just clarify
20 please, for me, when you say that it is not an issue for
21 Unit 3, your position on why it's not?

22 MR. LEYSE: Oh, of course. Basically,
23 Unit 3 has two electrically-powered thermal hydrogen
24 recombiners. It's a different type of recombiner than
25 the passive autocatalytic recombiners that are in Unit

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1 2. And so, the thermal hydrogen recombiners that are in
2 Unit 3, which actually used to be in Unit 2, operators
3 would be able to control the operation of those two
4 electrically-powered thermal hydrogen recombiners, of
5 course if they were functioning properly.

6 But, the important thing is that if they
7 weren't functioning properly, they wouldn't even be able
8 to be actuated, and that's the problem that we have, is
9 with the PAR system that's in Unit 2, it does not need
10 any electrical power, so it's something that cannot be
11 shut off if a detonable concentration of hydrogen were
12 to build up in Unit 2's containment. So, that's the
13 problem we have with that.

14 CHAIR LUBINSKI: Thank you for that
15 clarification.

16 MR. LEYSE: You're welcome. Okay, just to
17 continue, I'm just going through and highlighting
18 certain things in the petition. On page 10 of the
19 petition, there's a quote from an OECD Nuclear Energy
20 Agency report from 2000. It states that quote, "A rapid
21 initial hydrogen source occurs in practically all severe
22 accident scenarios, because of the large chemical heat
23 release of the zirconium steam reaction, that it causes
24 a fast self-accelerating temperature excursion, which
25 initially large surfaces and masses of reaction partners

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1 are available."

2 So, basically, in the event of a severe
3 accident also, if there were a scenario in which there
4 was the reflooding of an overheated core, up to 300
5 kilograms of hydrogen could be produced in 1 minute, and
6 that's information from a Nuclear Engineering and Design
7 paper from 2003. That's on page 10.

8 And also on page 10, it states that the
9 hydrogen removal capacity for each PAR unit is several
10 grams per second of hydrogen. So clearly, Unit 2's two
11 PAR units would not be able to handle the quantity of
12 hydrogen that could be produced in a severe accident,
13 within a time frame that would prevent the buildup of
14 hydrogen to concentrations at which there could be either
15 a deflagration or detonation.

16 They would be completely overwhelmed by the
17 quantity of hydrogen produced in a severe accident. So,
18 that's something that, you know, clearly they could help
19 in a design-basis accident, but in a severe accident,
20 they're not going to be effective. So, that's one of the
21 main points that we're making.

22 And then, pages 14 to 16 of the petition,
23 there's information about the fact that PARs have had
24 unintended ignitions in three different experimental
25 investigations. On page 15, there's a quote from a

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1 Nuclear Engineering and Design paper from 2004, which
2 states that during the operation of PARs, "at a hydrogen
3 concentration of 4 percent volume, maximum temperatures
4 reach the ignition limits, which according to reports is
5 in region of about 560 degrees Celsius, or 1,040 degrees
6 Fahrenheit. Any further increase in the inlet hydrogen
7 concentration would lead to catalyst temperatures above
8 the ignition limit, and hence increase the risk of an
9 unintended ignition."

10 And on pages 16 and 17 of the petition, there
11 are quotes from recent reports that have discussed the
12 fact that PARs behave like igniters in elevated
13 concentrations. So, that would be the type of
14 concentrations one would expect to have in the event of
15 a severe accident.

16 On pages 18 and 19 of the petition, there
17 is information about the fact that, "An unintended
18 ignition of a PAR unit could cause a hydrogen detonation,
19 in the event of a severe accident." That's a quote from
20 a Nuclear Engineering and Design paper from 2003.

21 Clearly, safety issues regarding igniters
22 pertain to PARs, because PARs would be likely to have
23 unintended ignitions, and behave like igniters in the
24 event of a severe accident.

25 On pages 19 to 21 of the petition, there are

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1 quotes from recent reports that have questioned the
2 safety of using igniters to mitigate hydrogen at certain
3 times in some severe accident scenarios, or without
4 having conducted a thorough safety analysis with
5 computer codes.

6 So, basically, that's the highlights of
7 some of the things - information that is in the petition,
8 and the reason why NRDC has submitted this petition
9 requested that the two passive autocatalytic recombiners
10 be removed from Unit number 2.

11 And now, I'd like to make a suggestion for
12 Entergy, and in this, I'm going to reiterate some of the
13 information I said in answering your question earlier.
14 Basically, if Entergy would really like to have two
15 hydrogen recombiner units at Indian Point Unit number 2,
16 to handle the quantity of hydrogen that would be produced
17 in a design-basis accident, NRDC has no objection to
18 that.

19 We would - I should say, NRDC, again I am
20 a consultant for them - So, NRDC would recommend that
21 Entergy replace Indian Point Unit 2's two passive
22 autocatalytic recombiners with two electrically powered
23 thermal hydrogen recombiners, which is the type of
24 recombiners that are currently in Indian Point Unit 3,
25 and used to be in Unit 2.

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1 In the event of a severe accident, operators
2 would be able to control the operation of the two
3 electrically powered thermal hydrogen recombiners, if
4 they were functioning properly. But, the main thing is,
5 if they were not functioning properly, they would not be
6 able to be actuated, which obviously, the PARs would turn
7 on once a high enough concentration of hydrogen
8 developed, and they would not be able to be shut off.

9 So, operators would be able to turn off
10 electrically powered thermal hydrogen recombiners if an
11 accident transitioned into a severe accident, in which
12 there would be higher hydrogen concentrations. This is
13 important, because thermal hydrogen recombiners are also
14 prone to ignitions in the elevated hydrogen
15 concentrations which would occur in severe accidents.

16 On this issue, a Sandia National
17 Laboratories report, the title is *Light Water Reactor*
18 *Hydrogen Manual* states that thermal recombiners, "Use is
19 limited to containment atmospheres, that are not within
20 the flammability limits," and that, "Thermal recombiners
21 could be an ignition source for a flammable mixture in
22 the containment."

23 Additionally, in a 2011 IAEA report, this
24 is the title: *Mitigation of Hydrogen Hazards in Severe*
25 *Accidents in Nuclear Power Plants* states, "Below a

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1 hydrogen concentration of about 4 percent, thermal
2 recombiners may be used to reduce the hydrogen
3 concentration. Above this value, they can act as
4 igniters. Hence, their use is then only allowed if
5 ignition is allowed. Care is needed in using thermal
6 recombiners, as they may be damaged by the burn, and cause
7 radioactive releases."

8 It is clear that Entergy should not use the
9 two electrically powered thermal hydrogen recombiners in
10 the Unit 3 containment in the event of a severe accident.
11 I'm kind of going a bit off topic now, but just real
12 quickly. The same would apply, of course, if Entergy did
13 indeed decide to put those units back into Indian Point
14 Unit 2's containment.

15 But, it's clear that the NRC needs to
16 regulate severe accident training, so that plant
17 operators would be instructed to not run thermal hydrogen
18 recombiners in the event of a severe accident.

19 So, again, I just want to reiterate, if
20 Entergy really wants to have two hydrogen recombiners at
21 Indian Point Unit 2 to handle the quantity of hydrogen
22 that would be produced in a design-basis accident, NRDC
23 would recommend that Entergy replace Unit 2's two passive
24 autocatalytic recombiners with two electrically powered
25 thermal hydrogen recombiners, because operators would

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1 not be able to control the operation of passive
2 autocatalytic recombiners in a severe accident. And as
3 covered in the petition, they are prone to ignitions
4 which could, in turn, cause a detonation. Thank you, and
5 I would be happy to answer any more questions that you
6 may have.

7 CHAIR LUBINSKI: Thank you, Mr. Leyse.
8 Again, this is John Lubinski. And I'm going to start
9 with a couple questions here from NRC Headquarters, and
10 then go around the table here, and go around to all the
11 NRC folks to ask any clarifying questions.

12 Either Mr. Weaver, or Mr. Leyse, on page 5
13 of your petition, you state why you believe this is
14 applicable to Indian Point Unit 2. You have clarified
15 why it's not applicable to Indian Point Unit 3. Can I
16 ask you to clarify why you believe this is applicable to
17 Indian Point Unit 2, and not other nuclear power plants
18 that may use PARs?

19 MR. LEYSE: First, this is Mark Leyse
20 speaking. I would first like to give Jordan Weaver the
21 opportunity to answer this if he would like. Otherwise,
22 I'd be happy to answer that question.

23 MR. WEAVER: At the moment we don't have the
24 necessary information to kind of make that judgment with
25 regard to other plants. The issue was brought to us by

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1 Mr. Leyse that there was kind of a disparity between the
2 two units.

3 And so, the installation of PARs at the
4 level which they're currently installed, which is only
5 two units, implies that this would only be able to handle
6 the hydrogen during a design-basis accident, as Mr. Leyse
7 pointed out.

8 So, as to where it would apply to other
9 plants, if there are indeed other plants that employ the
10 use of passive autocatalytic recombiners in such a small
11 number that they're only qualified for a design-basis
12 accident, and the other mitigating measures don't apply,
13 that they would be able to handle the hydrogen produced
14 in a severe accident, then I suppose I could be possible
15 that it would apply to that plant. But, at this moment,
16 we didn't have the information to make that judgement.

17 CHAIR LUBINSKI: Thank you, Mr. Weaver.

18 MR. LEYSE: Mark Leyse speaking. Are
19 there other plants that you could list that have PAR units
20 that are licensed by the NRC?

21 CHAIR LUBINSKI: You're asking that
22 question of us?

23 MR. LEYSE: Yes.

24 CHAIR LUBINSKI: And that's where I'm
25 asking for a clarification from the standpoint of, this

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1 is our initial review, and looking at the scope of your
2 petition, you've made specific reasons why you felt it
3 was specific to Indian Point Unit 2.

4 So, I'm just asking for that clarification,
5 of whether you're asking it just because that's the only
6 plant you have knowledge of, of having PARs, or are you
7 saying that any plant that has PARs, this would have the
8 same - because when I read page five, I read it to be plant
9 specific because of the population around Indian Point,
10 as well as the seismic zone around Indian Point.

11 MR. LEYSE: Right, that is definitely - it
12 is definitely plant specific for those reasons, because
13 of the location of Indian Point, and also the high
14 population density. So, there are many unique aspects
15 of Indian Point.

16 I just want to point out that the PARs that
17 were placed in Unit Number 2, were placed there in, I
18 believe, in the late `90s, and maybe even in 2000, but
19 I believe it was the late `90s. And in 2003, the NRC,
20 they got rid of the regulation that would require a
21 pressurized water reactor containment to have recombiner
22 units.

23 So, most pressurized water reactor
24 containments that still have hydrogen recombiners, have
25 the electrically powered thermal hydrogen recombiners.

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1 They have the older type of system installed, just as Unit
2 3 still has.

3 So, I think because, I know for a fact that
4 Unit Number 2 was the first American plant, or first plant
5 licensed by the NRC to have PAR units installed. And so
6 - and even before 2003, there was information available
7 to licensees that they were going to most likely stop
8 requiring hydrogen recombiners to be in containment
9 buildings.

10 So, there - it is quite possible that Unit
11 Number 2 is actually the only containment building by a
12 plant that is licensed by the NRC that has PAR units.
13 Now, it's also possible that there could be other plants
14 that have it, but as I say, the regulation was - it was
15 revoked in 2003, and prior to that, there was information
16 available that they were not going to require hydrogen
17 recombiner units anymore.

18 So, that - if indeed Unit Number 2 is the
19 only plant that has PAR units, that certainly think
20 that's plant specific. If not, if you want to say unit
21 specific, since Unit 3 does [not] have the PAR units.

22 CHAIR LUBINSKI: Thank you, Mr. Leyse,
23 appreciate it. What I'd like to do now, is go around the
24 room here at Headquarters, to see if anyone here in the
25 room has additional questions.

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1 MR. PICKETT: This is Doug Pickett. Mr.
2 Leyse, I'd like to say the Board here is not aware of other
3 plants with PAR systems. Are you aware of any plants in
4 the country that have the PAR system, other than Indian
5 Point 2?

6 MR. LEYSE: No, I am not. And as I just
7 said, it's possible that there are none besides Unit
8 Number 2, for the reasons I just gave.

9 MR. PICKETT: Thank you.

10 CHAIR LUBINSKI: Did you have other
11 questions, Doug?

12 MR. PICKETT: I guess I just wanted to
13 clarify your statements about the design-basis accident
14 versus severe accident. Reading the petition, it came
15 across to me that you did not have concerns about the
16 design-basis accident, which we (inaudible 10:36:02).
17 I wanted to clarify that.

18 MR. LEYSE: Okay, Mark Leyse, I'll answer
19 that. Yes, I believe that just - there is information,
20 I think it's in the petition, regarding the quantity of
21 hydrogen that would be produced in the event of a
22 design-basis accident, and that is the - yes, on page 8,
23 there is information about the quantity or the generation
24 rate of hydrogen that could be produced in a design-basis
25 accident. And that is from .001 to .05 of a kilogram per

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1 second.

2 So, that is a - the type of generation rate
3 that a PAR unit, which has the capacity of several grams
4 per second, could handle. So, we're talking about a
5 situation where the PAR unit, it's a very reasonable
6 device for handling the type of hydrogen generation that
7 could occur in a design-basis accident.

8 However, we do have some additional
9 information that just says that there can be some other
10 - you know, it's a very complex issue, and that is also
11 discussed on page eight and nine of the petition.

12 So, that's why we have made the - NRDC has
13 made the recommendation of replacing the PAR units that
14 are in Indian Point Unit 2, with thermal hydrogen
15 recombiners, because recombiners can be an effective
16 tool for removing hydrogen in a design-basis accident.

17 Or just to clarify, we're talking about just
18 two units. So, it's not -

19 MR. WEAVER: If I could just interrupt
20 really quickly. This is Jordan Weaver at NRDC. It's
21 not necessarily that we don't have some concerns with
22 how, you know, a PAR system or a thermal recombiner system
23 could handle hydrogen produced during a design-basis
24 accident, that would all depend on, you know, a case by
25 case basis.

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1 But, as far as this petition goes, we didn't
2 actually speak to that problem. So, we are more
3 concerned, and this petition addresses the issue, of the
4 transition from a design-basis accident to a severe
5 accident, in terms of the amount of hydrogen produced.

6 So, it's just the inability to be able to
7 selectively use a mitigation system when you enter an
8 environment in which it is no longer applicable. So, and
9 that is what this petition speaks to, not necessarily how
10 it handles in operations for which it is likely qualified
11 how. That doesn't really concern us that much, because
12 there is reason enough to believe that they would operate
13 correctly in a design-basis accident.

14 CHAIR LUBINSKI: Thank you, both Mr. Leyse
15 and Mr. Weaver. There are no more questions here at the
16 Headquarters office where we're calling in from. I want
17 to turn next to Headquarters staff that are on the line.
18 Farhad, do you have any questions?

19 MR. FARZAM: No, John, I don't.

20 CHAIR LUBINSKI: Okay, thank you. Let me
21 turn to our regional staff. Brice and Larry, do you guys
22 have any questions?

23 MR. BICKETT: No, John, we don't.

24 CHAIR LUBINSKI: Thank you. I'd like to
25 now turn to the licensee. We have a couple licensee

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1 representatives on the phone. Do you have any questions
2 at this point?

3 MR. PRUSSMAN: This is Steve Prussman.
4 No, I don't.

5 CHAIR LUBINSKI: Okay. As Doug mentioned
6 earlier, members of the public were allowed to call into
7 the meeting, and did not have to identify themselves.
8 Are there any members of the public right now, that would
9 like to provide any comments regarding the petitions, or
10 ask questions about the 2.206 petition process?

11 Okay. As hearing none, I assume there is
12 either no one from the public on the line, or they chose
13 not to ask any questions.

14 As stated at the opening of the meeting, the
15 purpose of this meeting is not to provide an opportunity
16 for the petitioner or the public to question or examine
17 the Petition Review Board regarding the merits of this
18 petition request. But, we did want to give members of
19 the public and the licensee an opportunity to ask any
20 questions.

21 Mr. Weaver and Mr. Leyse, I'd like to thank
22 you for taking the time to provide the NRC staff with
23 clarifying information on the petition you have
24 submitted. Before we close, does the court reporter
25 need any additional information for the meeting

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1 transcript?

2 MR. WEAVER: We have a quick question,
3 really quickly. I apologize for - this is Jordan Weaver.

4 MR. COCHRAN: And Mr. Cochran. I
5 recognize this isn't the proper time to ask the Review
6 Board, whether they could comment on the petition, but
7 I would like to ask whether any of the technical staff
8 or anybody at Entergy, in light of wherever they stand
9 with regard to the review of the petition, if they are
10 knowledgeable of any errors in the petition? Errors of
11 fact?

12 CHAIR LUBINSKI: Mr. Cochran, thank you.
13 As you said, the purpose of this Board today was for the
14 petitioners to present any additional information to the
15 NRC, and for us to ask clarifying questions. The
16 licensee and any member of the public is allowed to
17 participate in this call, and ask questions of the Review
18 Board. With respect to the licensee being on the call,
19 it's up to you if you want to respond to any of the
20 questions from the petitions.

21 MR. PRUSSMAN: We have no response.

22 CHAIR LUBINSKI: Okay, thank you.

23 MR. PRUSSMAN: Steve Prussman.

24 CHAIR LUBINSKI: Thank you, Mr. Prussman.
25 Okay. I don't believe I got a confirmation from the

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1 court reporter. Does the court reporter need any
2 additional information for the meeting transcript?

3 COURT REPORTER: If I could get a copy of
4 the service list, that would be great.

5 CHAIR LUBINSKI: Service list? Okay.
6 Andrea Russell will put that together for you, thank you.
7 Okay, with that, this meeting is concluded, and we will
8 be terminating the phone connection. Thank you all.
9 Have a great day.

10 (Whereupon, the meeting concluded at 10:43
11 a.m.)

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