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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
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OFFICE OF INVESTIGATIONS
INTERVIEW

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IN THE MATTER OF :
INTERVIEW OF : Docket No.
ERIC A. DeBARBA : 194021

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Wednesday, November 29, 1995

Fire Training Facility
Millstone Station
Rope Ferry Road
Waterford, Connecticut

The above-entitled interview was conducted at

1:15 p.m.

BEFORE:

Senior Investigator Donald D. Driskill
Investigator John V. Kaufmann

A/1

1 APPEARANCES:

2

3

ON BEHALF OF NORTHEAST UTILITIES:

4

DAVID A. REPKA, ESQ.

5

of: Winston & Strawn

6

1400 L Street, N.W.

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Washington D.C. 2005-3502

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WITNESS:

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ERIC A. DeBARBA

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

2 (1:15 p.m.)

3 SENIOR INVESTIGATOR DRISKILL: For the record,
4 this is an interview of Eric A. DeBarba, who is employed
5 by Northeast Utilities Service Company.

6 The location of this interview is at the
7 Millstone Nuclear Station, Waterford, Connecticut.

8 Present at this interview are Mr. DeBarba,
9 David Repka with Winston & Strawn, Washington D.C.,
10 myself, Donald Driskill, with the NRC Office of
11 Investigations and John Kaufmann with the NRC.

12 This interview is being transcribed by Kathy
13 Fallon. The subject matter of this interview concerns
14 historical information relative to refueling Millstone
15 Unit I and matters associated with refueling outages and a
16 recent licensee event report relative to that.

17 MR. REPKA: I just want to put on the record
18 what I said earlier that --

19 SENIOR INVESTIGATOR DRISKILL: Let me swear
20 him in and then we'll --

21 (Oath taken.)

22 MR. DeBARBA: Yes, I do.

23 SENIOR INVESTIGATOR DRISKILL: Thank you very
24 much. Dave, do you have something that you'd like to say,
25 please?

1 MR. REPKA: Yes. Mr. DeBarba was recently
2 interviewed by the NRC's Office of Inspector General on
3 the record on issues similar, if not the same, as we're
4 here to discuss today.

5 We have not been given or asked for the
6 opportunity to review that transcript before appearing
7 today.

8 And in the interest of cooperating and in
9 expediting your investigation into these matters, we've
10 opted not to do that. But in light of that fact, we would
11 like to reserve the opportunity if, after the Inspector
12 General completes its review and issues its report, if
13 there's any reason for us to clarify something in the
14 testimony in either transcript, we'd like to have that
15 opportunity.

16 SENIOR INVESTIGATOR DRISKILL: And I agreed
17 with that. That will be fine. Mr. DeBarba, to begin
18 with, I'd like to ask you what's your current job title?

19 MR. DeBARBA: My current job title is Vice
20 President of Engineering Services.

21 SENIOR INVESTIGATOR DRISKILL: And how long
22 have you held that position?

23 MR. DeBARBA: I've held that position for a
24 period of about a year and a half. I've been Vice
25 President of various engineering parts of the organization

1 since 1990.

2 SENIOR INVESTIGATOR DRISKILL: Okay.

3 MR. DeBARBA: My titles have changed slightly
4 over the last couple of years.

5 SENIOR INVESTIGATOR DRISKILL: And prior to
6 that?

7 MR. DeBARBA: Prior to that, I worked at
8 Yankee Atomic Power Company for a period of four years --

9 SENIOR INVESTIGATOR DRISKILL: Okay.

10 MR. DeBARBA: -- in two different positions.
11 One is I was Stations Services Director for a period of
12 three-plus years, and I was a Plant Manager for a short
13 period of time.

14 SENIOR INVESTIGATOR DRISKILL: Okay. And had
15 you been at Millstone at any time prior to 1990?

16 MR. DeBARBA: I had never been permanently
17 assigned to Millstone, no.

18 SENIOR INVESTIGATOR DRISKILL: And how long
19 have you worked for Northeast Utilities?

20 MR. DeBARBA: Since 1972.

21 SENIOR INVESTIGATOR DRISKILL: As you're
22 aware, we currently conducting an investigation related to
23 the two allegations that have been made, and a recent
24 2.206 petition that was submitted to the NRC relative to
25 contentions that Millstone has performed its refueling

1 outages in a manner that's inconsistent with the
2 description provided the NRC in the FSAR and in various
3 license amendments submitted subsequent to the approval of
4 the initial FSAR.

5 And additionally, there were a number of other
6 allegations that were presented. Just so you know, the
7 matters relating to the spent fuel pool, the refueling
8 outages and so on is the primary focus of our
9 investigation at that time, and these other issues have
10 basically been set aside for now for further consideration
11 at a later time.

12 And I don't know whether there will be any
13 additional investigation related to those.

14 So we may meet again to discuss other issues
15 associated with the allegations of the 2.206 petition and
16 so on. And I know that the company has responded, had an
17 initial response to the 2.206, and also responded to a
18 supplemental 2.206 which was later submitted sometime in
19 later -- in August of 1995.

20 MR. DeBARBA: Right.

21 SENIOR INVESTIGATOR DRISKILL: I was told
22 earlier on in this investigation that you had apparently
23 looked into the matters associated with the licensing and
24 the design basis and licensing commitments that were made
25 relative to this refueling stuff, and essentially that you

1 could probably answer a lot of the questions that we had.

2 So we chose to probably try to talk to you
3 early on, at least during our interviews.

4 MR. DeBARBA: Okay.

5 SENIOR INVESTIGATOR DRISKILL: Perhaps you can
6 put some focus on those things and help us understand
7 Northeast Utilities' position relative to this, expanding
8 of course on what was provided in response to the 2.206
9 petition.

10 I would assume that sometime since 1992 when
11 George Galatis presented -- initially presented his
12 concerns to the Northeast Utilities Licensing Department,
13 and subsequent to that an REF was initiated which received
14 a considerable amount of review prior to the 1993 LER
15 being submitted.

16 I suppose that somewhere during that period of
17 time, since you've only been here since 1990, you became
18 acquainted with this concern, and perhaps looked into it -
19 -

20 MR. DeBARBA: Yes.

21 SENIOR INVESTIGATOR DRISKILL: -- and asked
22 some questions and became somewhat familiar with it.

23 MR. DeBARBA: Right.

24 SENIOR INVESTIGATOR DRISKILL: So I guess to
25 begin with, why don't you just give us an overview of what

1 you perceive to be the problem, the concern, and basically
2 where you feel that the utility stands relative to all of
3 that.

4 MR. DeBARBA: Okay, I --

5 SENIOR INVESTIGATOR DRISKILL: Would that be a
6 fair way to do this?

7 MR. DeBARBA: Sure, I believe so. Just to
8 make sure I'm answering the question properly, beginning
9 in about the 1992 time frame? In other words, beginning
10 with --

11 SENIOR INVESTIGATOR DRISKILL: Well, the
12 concerns were originally presented in 1992.

13 MR. DeBARBA: Correct.

14 SENIOR INVESTIGATOR DRISKILL: Obviously, you
15 haven't been here at the site since 1968 or '70 when all
16 this started.

17 MR. DeBARBA: Yes, right, right.

18 SENIOR INVESTIGATOR DRISKILL: But from what I
19 understood, you are aware of the concerns that were
20 submitted and they, in themselves, are alleging
21 essentially historical non-compliance.

22 MR. DeBARBA: Oh sure.

23 SENIOR INVESTIGATOR DRISKILL: And so I think
24 that -- and I was told that you could probably address
25 this whole issue.

1 So I just thought that perhaps you could --
2 since you've looked into it and apparently are aware of
3 this and more or less able to address the company's
4 position relative to these concerns.

5 It would a historical overview, I guess, what
6 is -- as far as you know.

7 MR. DeBARBA: I can give you a historical view
8 from my perspective --

9 SENIOR INVESTIGATOR DRISKILL: Okay, that
10 would be fine.

11 MR. DeBARBA: -- on things. And just so it's
12 accurate, even though I've been assigned from 1972 in the
13 Berlin Office, then to CY and back to Berlin, and most
14 recently to Millstone, there were periods of time when I
15 actually did a fair amount of work at Millstone.

16 So I was here even though my permanent home
17 office was at Berlin.

18 SENIOR INVESTIGATOR DRISKILL: Okay.

19 MR. DeBARBA: For instance, in the early
20 1970's time period, I spent some time here during the
21 refueling outage working with reactor engineers on actual
22 fuel movement, and also working on a chloride intrusion
23 incident event that they had back then and the clean up
24 from that, as well as working on the spent fuel pool when
25 it was first filled and working on feed water spargers

1 that had lots of problems.

2 So I spent a lot of my time very early on in
3 my career as an Assistant Engineer working on Millstone I,
4 typically during refueling outages, but in some other
5 periods of time.

6 So very early on, I was aware that fuel was
7 being put in the spent fuel pool, but I really had no -- I
8 was not in that particular line. I was a mechanical
9 engineer, and I really had no knowledge of what the
10 requirements might be for a fuel offload and that type of
11 thing.

12 But I clearly was aware that we had offload of
13 the entire core.

14 SENIOR INVESTIGATOR DRISKILL: Right.

15 MR. DeBARBA: I personally was inside the
16 reactor vessel on one of those occasions, so I knew that
17 there was no fuel below me. So very early in my career, I
18 did have that experience.

19 Like I said, I worked in the Corporate Office
20 up until 1986, and then spent four years at Connecticut
21 Yankee.

22 And coming back to the Engineering Office in
23 the home office in Berlin, Connecticut in 1990, I needed
24 up having organizational responsibilities really for the
25 design site of the Engineering Organization.

1 And in the 1991 time frame, we had a
2 reorganization where we changed some people around and
3 ended up doing a lot of integration with the Engineering
4 Organization.

5 And I became responsible for some new parts of
6 the organization and some new people. George Galatis was
7 one of those new people who entered my organization. I
8 think it was in the middle of 1991.

9 I understand that George was involved in some
10 reviews of some spent fuel pool issues, and I'm not sure
11 exactly what began his review process that led him to the
12 discovery that he did.

13 But ultimately, I believe, like is common in
14 our organization, a process of initiating some sort of a
15 plan, information report, or something like that, and then
16 following it to an REF process occurred.

17 I don't know if there was a PIR on this, but
18 certainly there was an REF that called for some
19 engineering evaluation of a particular situation at the
20 plant.

21 I was not aware, I don't believe, until the
22 middle of 1993 of any of the details of what these
23 concerns were.

24 But I did have reporting to me at that point
25 in time a Director of Engineering, Bob Harris, who had

1 been working with Pete Austin, Al Cizel, George Galatis on
2 a number of different technical topics.

3 One of the topics happened to be this
4 particular one.

5 And Bob did advise me on occasion that he was
6 working on some issues having to do with the spent fuel
7 pool item as I recall, but said he had -- you know, he was
8 making progress, that type of thing, nothing more than
9 that.

10 It wasn't until, I think, May or the June time
11 frame of 1993 that I became concerned that there was an
12 issue that was of higher significance than I had
13 previously had realized.

14 And I received a call from Cheryl Grise, who
15 was the Vice President of Human Resources. And she said
16 that she would -- that we ought to get together and talk
17 because she was aware that there was an employee in my
18 organization who appeared to have some concerns, although
19 she technically is not an expert in this particular area.
20 She doesn't have a technical background.

21 But she said from the sounds of it, it seemed
22 like he was quite charged about this and pretty concerned
23 about it.

24 And so I didn't know who she was talking with.
25 I did have lunch with her and she told me that it was Mr.

1 Galatis who had some concerns. And she thought it would
2 be a good idea that perhaps I called him and found out for
3 myself what the issues were.

4 So I don't know if it was that day or shortly
5 thereafter I did call Mr. Galatis, and told him I was
6 aware that he had some issues that were of concern to him,
7 and told him that I would like to meet with him to find
8 out what they were and see if I could help to bring those
9 to some sort of resolution.

10 He did, shortly thereafter -- again, I'm not
11 sure what the specific days were, but it was a short
12 period of time and not a long period of time. And he came
13 up to my office and had a fairly complete folder of lots
14 of information of things.

15 And I was kind of surprised that he seemed to
16 have a lot of files pretty organized of things that had
17 transpired or how he had felt about things.

18 And I think that was probably the first time I
19 had actually formally met George. I knew the name, but I
20 -- you know, I had an organization of about 600 people at
21 that point and didn't know the names and faces,
22 particularly some of the new ones.

23 And so it was my first real introduction to
24 George at that time. You know, he explained the issues
25 that he had been working on, what were some of the things

1 that troubled him.

2 And I asked him a number of questions about
3 what they were, how it was proceeding. You know, in
4 general, I know what the REF process is. I didn't know
5 ever specific REF that was going on in the organization or
6 all other work assignments.

7 But I asked him quite a few questions about
8 these types of issues: were they progressing properly in
9 his mind? What did he see as logical outcomes? You know,
10 how could we bring these things to resolution?

11 And he had some ideas and thoughts, but it
12 became apparent to me that on his present course within
13 the organization, it wasn't going to be dealt with as
14 timely as it needed to be dealt with.

15 I thought it was more important to do
16 something at a more senior level.

17 So I told George that I would be in contact
18 with him again shortly, that I needed to think about this.
19 But I wanted to have some other people involved. And I
20 said I think we needed to put a little group together to
21 give some focused attention to these issues.

22 And so I think -- again we're talking about
23 the June time frame of 1993. I formed a group that
24 included not only myself but Bob Harris, who was the
25 Director, I believe Rick Kacik was involved as the

1 Director of Licensing, as well as George; I believe Peter
2 Austin who was his manager, as well as Al Cizek were
3 involved.

4 So we involved a number of people. And
5 basically we took all the issues that George had discussed
6 with me and we tried to -- and label them and categorize
7 them.

8 And we had two columns that we ended up
9 putting together on this matrix. One was what were the
10 technical issues that George felt needed to be addressed,
11 and then we had some others that were more either inter-
12 personal or I forget how we actually labelled them, or
13 maybe organizational or something like that.

14 They were things like procedural compliance
15 might have been an issue, some questions about operator
16 attitudes, you know, it was some other types of issues.

17 And it was a fairly lengthy list if I recall.
18 It was maybe 20 items total, ten on each side.

19 And what we tried to do was, number one,
20 understand what each of the issues was, and then
21 understand who had the lead responsibility to make sure it
22 got driven to a logical conclusion.

23 And then we tried to assign some dates as to
24 when that would happen.

25 And we met periodically as a group to kind of

1 go over this list. We invited some people in as we needed
2 to and made assignments.

3 Bob Harris was the keeper of the list. That
4 was the assignment I gave him. And my role was the one
5 of facilitation to try to help, you know, drive this thing
6 to conclusion.

7 I thought we had made some pretty progress
8 actually. I think a number of the items got resolved.
9 LERs got issued. We had a refueling outage that was
10 coming up. I believe the refueling outage at Millstone I
11 was scheduled for late '93. I think it got delayed into
12 early '94, and we wanted to be prepared for that
13 particular refueling outage and make sure that we had
14 taken all this information and applied those lessons to
15 this upcoming refueling outage, which I believe we did in
16 the way of a 50.59 and had driven most of those issues to
17 closure.

18 It became apparent to me that even though we
19 had closed those items, that the -- at least some of them
20 were not responded to to George's complete satisfaction in
21 some way, shape or form. It wasn't 100 percent clear
22 necessarily why.

23 What we tried to do was engage other people to
24 see if they could find from an independent way, other than
25 this task group that we had set up, to see if they might

1 find out as well, is there something that we're missing?
2 Is there some way that they might communicate with George
3 to help understand what his feelings or issues are as it
4 related to this so we could get kind of an independent
5 view on this and see if there was something we missed so
6 we could help drive it.

7 So I recall we had ended up engaging Yankee
8 Atomic to come in and independent review this. And we
9 engaged a former NRC person, Jim Partlow, to do some
10 investigations.

11 I believe the Nuclear Review Board conducting
12 a study somehow surrounding this. I can't remember the
13 specifics, but I know that there was a report issued there
14 on the Unit I Review Board.

15 So a number of independent things that were
16 done as well to try and pin it down.

17 And off and on over that period of time, I did
18 have some discussions with George to try to understand how
19 he was doing. Do he feel like we were making the right
20 progress?

21 And to be honest, at times, it seemed like we
22 were, and then there were other times it seemed like we
23 weren't.

24 And you know, I spent a lot of time trying to
25 figure out myself what we might have done differently.

1 But I'm still not sure myself what that might have been.

2 I think we certainly made several attempts to
3 try to get at the source of some of the concerns he had.
4 And I think we addressed everything we could find. At
5 least we thought we had addressed it, not only to our
6 satisfaction, but to his.

7 But evidently, we did not.

8 It became -- I realized that for the upcoming
9 refueling outage that we're in right now on Millstone I,
10 that we needed to have a more permanent solution to what
11 we were doing on the full-core offload, and that we needed
12 to do something to either do a permanent 50.59 evaluation
13 or get a license amendment document issued.

14 There seemed to be some split feelings in the
15 organization as to whether a license amendment was
16 required or whether a 50.59 evaluation itself would be
17 sufficient to do this.

18 I could see the clock ticking along and us not
19 coming to a decision process as to what was the right
20 thing to do.

21 You know, despite the fact that I pressed
22 people to get going and make a decision so that we could
23 get off the dime and give the NRC appropriate time to
24 review a license amendment if that was required. I became
25 disturbed that we weren't getting there quick enough.

1 So I formed a different task team, this time
2 including George Galatis, as well as George Bentancourt,
3 some people from the Nuclear Safety Concerns Program and
4 some people from the Spent Fuel Project Team that had been
5 formed to specifically take a look at where we were today
6 with the overall task objective of bringing clean closure
7 to all the issue surrounding the Millstone I spent fuel
8 pool.

9 SENIOR INVESTIGATOR DRISKILL: When was this
10 group established?

11 MR. DeBARBA: I think it was in May of this
12 year.

13 SENIOR INVESTIGATOR DRISKILL: Did you have a
14 name for it or --

15 MR. DeBARBA: Spent Fuel Task Team.

16 SENIOR INVESTIGATOR DRISKILL: Okay.

17 MR. DeBARBA: It was more ad hoc than
18 anything. And we had a number of issues on there that we
19 felt we needed to address to reach clean closure.

20 SENIOR INVESTIGATOR DRISKILL: I think Dave
21 and I discussed that once before. You had a list of the
22 various topics and --

23 INVESTIGATOR KAUFMANN: I think we've gotten
24 some of those reports.

25 MR. DeBARBA: Yes, it was one through 44 or

1 something, I don't know. You know, the list expanded and
2 we have meeting notes that were issued, and I'm sure all
3 those can be available to you.

4 But one of the issues on there, and it
5 probably be the critical one, was the license amendment;
6 were we going to have a license amendment or were we not?

7 And ultimately we decided, I decided, that we
8 should pursue a license amendment. I felt that it was
9 important that we do that, if for no other reason to move
10 it along.

11 It seemed like the most conservative thing we
12 could do. And I know that the longer we waited, the worse
13 it was going to be.

14 And I said to let's just do it. We've got to
15 move this forward.

16 Even at that point, we had plenty of people
17 who said no, we could do this evaluation on a 50.59. And
18 perhaps they're right. I don't really know.

19 But we chose the license amendment route. We
20 engaged in -- and George Galatis was actively involved in
21 that. He ended up being part of the approval process so
22 we sent that license amendment out the door.

23 And I think shortly after we issued the
24 license amendment request, he ended up filing a 2.206
25 petition.

1 We had subsequent task force meetings after
2 that, and we completed, I think, our last task force
3 meeting a couple of weeks ago and completed that.

4 The -- I guess your question really is, well
5 what is the issue?

6 SENIOR INVESTIGATOR DRISKILL: Well, with
7 respect to the one issue that we're looking at, and that
8 has to do with historical compliance relative to the
9 manner and mode in which fuel offloads have been performed
10 and the company position relative to -- and your own views
11 relative to regulatory compliance --

12 MR. DeBARBA: Sure.

13 SENIOR INVESTIGATOR DRISKILL: -- with respect
14 to that.

15 MR. DeBARBA: And I guess what I'll do is
16 recite what I've said to legislators, as well as IG as nd
17 other people relative to the position, as to the best I
18 know it and understand it and as the company position.

19 And that is simply this: that is that back
20 from the time that the plant was built, there were
21 regulations in place that stated how we had to do analysis
22 for offloads, full-core offloads.

23 And basically, those analyses had two
24 conditions that required evaluation. They changed the
25 names over a period of time.

1 Sometimes it was "normal" and "abnormal."
2 Sometimes it was "normal" and "emergency." And the
3 conditions may have changed.

4 Sometimes it was very prescriptive about
5 single failure, and sometimes it wasn't. But by and
6 large, all of these surrounded two analytical cases that
7 were ~~referred~~^{required} to be completed, docketed and approved by
8 the NRC as it related to heats checks on heat exchangers.
9 In other words, heat capacity checks to see if our heat
10 exchangers had the capacity to perform their intended
11 safety function.

12 That is how we interpreted the regulation, and
13 we believe that was how the NRC was interpreting it and
14 how they were writing their SER.

15 We believed, having completed those analyses,
16 submitted them, and received SERs back, that we had
17 documented and had proved to the NRC that we could meet
18 both this "normal" and this "abnormal" case. That is, we
19 could do a partial core offload and meet the safety
20 limits, and we could do a full-core and meet the safety
21 limits.

22 And therefore, both were safe, i.e. a partial
23 core offload was safe and a full-core offload was safe.

24 The question then becomes well, what are the
25 administrative requirements that you might choose to

1 determine when you use which.

2 In looking at that, our license documents are
3 silent on that topic. They don't say anything about it.
4 Specifically, our tech specs have nothing in them at all.
5 All they talk about are, in one spot really, I believe in
6 Section 5, just the number of fuel bundles that you're
7 allowed to put in the spent fuel pool.

8 And that's never been in contention. It's not
9 an issue. What's at issue here are the sub-tier documents
10 far below the tech specs.

11 And in a safety evaluation that we received
12 back from NRC, the NRC reflected that we could do a full-
13 core offload should the offloading of the core be
14 necessary or desirable because of operational
15 considerations.

16 And I think this further illustrates to us
17 that it was really our choice as to how we wanted to
18 perform or conduct offloads.

19 SENIOR INVESTIGATOR DRISKILL: That statement
20 was contained somewhere in the approval for Amendment 39?

21 MR. DeBARBA: Yes, that's correct. That's
22 correct, and that there was no administrative limitation
23 on it. We had shown that we were safe for both cases.

24 The NRC had reviewed and had come to the same
25 conclusion. And it then became our choice as to which

1 method we wanted to use.

2 And I think that that represents our position.
3 I think at the time in 1992 when it became apparent to us
4 that there was a more conservative way of interpreting how
5 those analyses were performed, that we looked at that.

6 And our conclusion from that time forward was
7 yes, you're right. There are more -- there is a move
8 conservative way of interpreting that, i.e. for this full-
9 core offload case, we could apply all of the more
10 conservative assumptions from the partial core offload
11 case to that case and it would result in a more
12 conservative approach.

13 It's true, and that's what we did. And from
14 that point forward, that's exactly what we have applied.

15 In essence, we've now taken the regulations
16 that used to have two cases, two analytical cases, and we
17 now have essentially one, and that is the full-core
18 offload.

19 SENIOR INVESTIGATOR DRISKILL: In summary, I
20 guess essentially you're saying is the choice was the
21 Utility's, whether they wanted to perform a full-core or a
22 quarter-core or a third-core or whatever was prescribed at
23 those particular points in time. And then both were
24 analyzed and both were safe.

25 MR. DeBARBA: Correct.

1 SENIOR INVESTIGATOR DRISKILL: I guess one of
2 the problems that exists relative to this, or at least one
3 of the contentions that exists relative to this is if you
4 go back to RFO 13, which was governed by, I guess, License
5 Amendment 40 in some way.

6 License Amendment 40 also contained the words
7 that -- that was the pool expansion amendment which
8 contained in it the reference to fuel offload and said
9 that they would be performed in -- the types of offloads
10 that would be performed would be 1) the normal offload,
11 which would be a third of the core after 150 hours; 2) an
12 abnormal offload which would be a full-core after 250
13 hours.

14 And basically, I think that that description,
15 at least in License Amendment 40, got carried down into
16 the design basis, whereas maybe some argument to whether
17 other previous definitions of those things were actually
18 in the design basis prior to that.

19 But just for now, we'll concentrate on this
20 1988/89 approval of License Amendment 40.

21 So then essentially what happened is this
22 design basis requirement, essentially, never got brought
23 down into the technical specifications or operating
24 procedures.

25 And we had a full-core offload in 1991, which

1 would have been RFO 13, which was a full-core offload
2 after how many hours?

3 MR. DeBARBA: One hundred and fifty.

4 SENIOR INVESTIGATOR DRISKILL: How many hours?

5 MR. DeBARBA: For when?

6 SENIOR INVESTIGATOR DRISKILL: RFO 13?

7 MR. DeBARBA: Oh, when they actually did it?

8 INVESTIGATOR KAUFMANN: It says commencing in
9 the offload --

10 MR. DeBARBA: About 161 hours.

11 SENIOR INVESTIGATOR DRISKILL: Okay. So we had
12 a full-core offload after 161 hours, or initiated after
13 161 hours, which is less than the 250 prescribed by not
14 only the license amendment, but would be part of the
15 design basis.

16 So I think in essence, somebody has made the
17 decision. But then historically, you start going back and
18 you start looking at these things. And almost without
19 exception, except for RFO No. 1, the times prescribed for
20 these offloads have always been exceeded.

21 And so then it gets into I guess an argument
22 as to whether these were requirements or not requirements,
23 that they meet these various times and so on and so forth.

24 I think we've had some individuals that have
25 agreed with the fuss that some people either provides

1 every one of these offloads should have been preceded by a
2 50.59 to ensure that -- in as much as the time were less
3 than -- the time limits used were less than the time
4 limits analyzed and it was -- that it -- and that a 50.59
5 perhaps should have been done prior to the offload to
6 ensure that the problem -- and that's without regards for
7 even for the single failure analysis aspect of it,
8 whenever that became required.

9 MR. DeBARBA: Right, right.

10 SENIOR INVESTIGATOR DRISKILL: Do you agree
11 with that?

12 MR. DeBARBA: Yes, I think you're talking
13 about analytical assumptions here or an analysis base.
14 And I think that the one thing that you do have to be
15 careful of is how you lift things that are in an
16 analytical space into operational restraints or
17 constraints.

18 And your question surrounds were there some
19 points where we were outside the design bases?

20 SENIOR INVESTIGATOR DRISKILL: Yes.

21 MR. DeBARBA: What I was suggesting was that
22 it's easy for me to say how people could look at it and
23 conclude that since we had submitted analyses that met the
24 NRC's rule of doing a partial core offload and a full-core
25 offload, both with acceptable results, that they concluded

1 that both were acceptable without diving into the details
2 of it.

3 And there are other parallels in business
4 where we do analytical work, and not all the analytical
5 assumptions are carried over into operating constraints.

6 Like for instance when we build the plant, we
7 do fatigue evaluations on all the pipes and all the joints
8 and that type of thing. And we're required to show that
9 in no place do our fatigue usage factors get greater than
10 one, all right?

11 But yes, we don't count every time the pipe
12 heats up ten degrees and cools down five degrees and
13 calculate how much usage factor that is and apply it.

14 More recently, we've -- you know, we're
15 starting to look at some of those things in some other
16 types of terms working with the NRC.

17 But we don't translate those things literally
18 and count those types of issues.

19 Now I think there are a lot of things in
20 design specs where analytical assumptions aren't brought
21 into operating restrictions or operating limits.

22 I think what you might be talking about is you
23 got some examples where it shows that some of the
24 analytical assumptions weren't bounded by what actually
25 happened and --

1 SENIOR INVESTIGATOR DRISKILL: Or perhaps what
2 happened was that outside the bounds of what was analyzed.

3 MR. DeBARBA: Correct, correct. Yes, I think
4 it's a different way of saying the same thing.

5 But what you need to ask is not only that
6 point, but what were all the other assumptions? In other
7 words, when you will do a bounding calculation, you bound
8 it with a whole set of parameters.

9 So given this refueling outage that happened
10 for instance in January, what was the ocean water
11 temperature that was assumed? Was it 75 degrees or was it
12 the 60 degrees or 50 degrees or what not that ocean was
13 really sitting at in Long Island Sound at that time?

14 What about heat exchanger following criteria?
15 In other words, there's a number of assumptions that tend
16 to bound these analyses.

17 The heat load, for instance. It's not only
18 that heat load in the full-core offload case. You assume
19 you just had a discharge that occurred 30 days prior, or
20 some number like that.

21 So there's a whole different set of
22 assumptions. And what i'm saying it when you aggregate
23 all those up, what that says is that there was a test that
24 the NRC wanted you to perform that shows that you could
25 take a full-core offload into some fairly extreme manner.

1 And that once you had documented that, you had
2 bounded this situation, you now had a choice.

3 Now you say is that the most conservative
4 approach they could have taken? No, it was not.

5 In other words, would it have been more
6 conservative to wait more time? Sure, it would have been.
7 And would that have been a more appropriate thing to do?
8 I think in hindsight, sure, that would have been.

9 But it's -- what I'm saying is I believe that
10 you can see how people could make a decision that a
11 partial core offload and a full-core offload, having been
12 fully analyzed, were acceptable cases.

13 And since there were no restrictions in the
14 license language, that it became our choice as to how they
15 became used.

16 SENIOR INVESTIGATOR DRISKILL: Well, with NRC
17 staff to say this License Amendment 40, which seems to be
18 the most recent thing we have to work with -- and of
19 course, you're being asked to provide, you know, these
20 analyses for, say, the partial core of the normal case and
21 the abnormal case --

22 MR. DeBARBA: Right.

23 SENIOR INVESTIGATOR DRISKILL: -- and perform
24 failure analysis relative to that and so on and so forth.
25 And I think -- in my view and the way I understand it is

1 certain aspects of all that bound the activities that are
2 going to be conducted.

3 And taking a less conservative approach would
4 be in violation of the design basis.

5 MR. DeBARBA: Well, it think it --

6 SENIOR INVESTIGATOR DRISKILL: I think you're
7 essentially saying that you're going to wait 150 hours or
8 250 hours either way. And I think in the license
9 amendment submittal, you say you will comply with the
10 provisions of the data that you're submitting.

11 So I think the NRC really expects you to do
12 something less than that.

13 MR. DeBARBA: I understand your point. And
14 that's why I said your question really is one of are you
15 outside the design basis that you set up?

16 And you know, we submitted -- you know, that's
17 why an REF was done and why we ended up making the
18 submittals we did in looking at that overall.

19 I'm just stating that I don't think that you
20 can necessarily just take one analytical parameter
21 necessarily and conclude that every single analytical
22 parameter has to be tracked against some operational
23 constraint.

24 If you did that, our procedures -- you know,
25 we'd have them multiplied by ten because there are an

1 awful lot of things that are done in the analytical world
2 that aren't transcribed specifically into operating
3 restrictions.

4 SENIOR INVESTIGATOR DRISKILL: Would you agree
5 that certain aspects of that License Amendment 40 should
6 have been carried over into the technical specifications?

7 MR. DeBARBA: Well, certainly the number of
8 fuel bundles in the pool, and that was. But I guess I get
9 back to the actual calculations, and the calculations are
10 ones that are bounding calculations that say for these
11 given set of conditions, we have assurance that your heat
12 exchangers are properly sized to be able to do the job.

13 Our historical records show that, in fact, we
14 did do the job. In other words, we have gone through 14
15 or 15 refueling outages now, and all the time our
16 temperature was maintained properly in the temperatures.

17 That's another indication that that was
18 correct.

19 What specifically the reactor engineers did
20 each refueling outage to help convince themselves that
21 they had the proper heat removal capability, I don't know.
22 I'm not sure what additional things they may have done.
23 But they may have done some things.

24 What I'm suggesting to you is why I believe
25 people believe that they had two fully analyzed,

1 acceptable cases that were bounding: one which was
2 practical core, one which was full-core.

3 And that people then felt that since you had
4 those fully analyzed and acceptable cases that were both
5 safe, then it became our choice to use them -- as to how
6 to use them.

7 INVESTIGATOR KAUFMANN: I don't understand
8 when I look at the two cases, the normal case is
9 historically a much smaller number: 7 million -- around 7
10 million BTUs per hour. The abnormal case is 18 to 24
11 million BTUs per hour historically.

12 The first case has single failure criteria and
13 doesn't use the shut-down cooling heat exchanger.

14 And it's obvious that -- I don't understand
15 why anyone would have asked for that first case to be
16 analyzed when the second one was -- if only the second one
17 applied.

18 It gave three times more room. And I guess I
19 don't understand why you would analyze the two cases if
20 only the second one is the one that mattered.

21 And just seeing which language, "normal"
22 means, in most Websters, this is what we normally do.
23 "Emergency" is some very unusual, strange, extreme
24 condition.

25 MR. DeBARBA: Well, I guess my thought on that

1 -- and I was not the author of these documents, so I
2 really don't know. But I could tell you that the normal
3 case goes on 24 hours a day, every day of the year.

4 In other words, these spent fuel pool heat
5 exchangers are designed to operate all the time. That's
6 the normal case.

7 Our spent fuel pool heat exchangers and the
8 heat exchange load that is on that, their design limit,
9 are to basically be able to take care of what goes on
10 every day.

11 That's why you would apply single failure,
12 because the probability of having single failures 24 hours
13 a day, every day a week of the rest of 40 years, is pretty
14 high.

15 INVESTIGATOR KAUFMANN: So you're saying that
16 case is kind of the steady state of what's in the pool and
17 not the short-term outage with the hot fuel in, put most
18 of it back?

19 MR. DeBARBA: Right. It's in there all the
20 time. You always have a heat load in your spent fuel
21 pool.

22 Now you're kind of asking me to speculate
23 because you said you couldn't understand how that would
24 be, and I was giving you a hypothetical about how it might
25 be.

1 I didn't write the regulations, so I don't
2 really know. But I would say that would be one explanation
3 that would seem somewhat plausible.

4 The other thing, if you think about it is if
5 this emergency case or abnormal case is safe and we've
6 documented the analysis and the NRC reviewed it and said
7 it was safe, then what is the limit on its use?

8 Is once okay? How about five times? How
9 about ten times? And recognize, we've only got about 20
10 shots of doing this, 25 shots over the life of the plant.

11 So if you look at this under a problemistic
12 scope, does it really make much difference whether it's
13 five times or two times or ten times given the others?

14 We already said it was safe, so there is no
15 restriction in the language that you can only use this two
16 times or five times. What's the safety limit, if you
17 understand my point on that?

18 So from the speculation as to why these things
19 were written there, that's what I would think. I think
20 that the original read the kind of bound -- the various
21 conditions you might have.

22 One is how you run the plan day in and day out
23 all the time.

24 You're got some vulnerabilities to have a
25 single failure during the course of the life of the plant.

1 Maybe you add to those kind of criteria.

2 But for these other situations, what you do --
3 it's very unusual to have that really high heat load in
4 there for a period to time. It's only a short window of
5 opportunity.

6 Perhaps you could relax the standards.

7 Now if you're asking is that the most
8 conservative way of interpreting those? Heck no, it's
9 not.

10 INVESTIGATOR KAUFMANN: Well, when I look at
11 the assumptions that go into the emergency heat load, I
12 see that it's three months after the last refueling
13 outage.

14 That would tell me that the analysis assumed
15 that there was some kind of a problem, that the run
16 wasn't for a full cycle, and the core was offloaded.

17 I do know looking at some decay heat curves
18 that if I have a 12 month or a two-year burn that that's
19 going to give me significantly more heat than is assumed
20 by what a three month burn would give me.

21 I know when I look at my decay heat curves too
22 that if I take one year exposed core, I compare it to
23 offloading the whole thing after 150 hours compared to 250
24 hours. The 150 hour case gives me about 30 percent more
25 decay heat.

1 MR. DeBARBA: One hundred and fifty versus
2 250?

3 INVESTIGATOR KAUFMANN: Two fifty for a -- for
4 a --

5 MR. DeBARBA: What percentage did you say?

6 INVESTIGATOR KAUFMANN: About 30 percent.

7 MR. DeBARBA: About 30 percent?

8 INVESTIGATOR KAUFMANN: And --

9 MR. DeBARBA: Of course, the analysis there
10 assumes, what, assumes that you do -- all of the fuel is
11 offloaded instantaneously at 150 hours, right?

12 INVESTIGATOR KAUFMANN: I just assumed if I
13 take one bundle and compare it to another bundle, I assume
14 it's an integral function. I didn't do an integral
15 calculation of what each one would --

16 MR. DeBARBA: Right, right.

17 INVESTIGATOR KAUFMANN: But I was trying to
18 gage the magnitude and it's not a trivial magnitude.

19 And in fact, when I go and I look at a 67 hour
20 offload, which I've seen was done for RFO 2, I see that
21 that's a factor of nearly four times more than the heat
22 load for the 250 hour case.

23 So no, we're not talking trivial differences.

24 MR. DeBARBA: Right, right. And you know,
25 Dave had mentioned before that we're gong to go back and

1 check the heat loads and what not.

2 What's not -- I mean, it's not intuitively
3 obvious that just that fact alone will show that the heat
4 exchanger doesn't have the capacity to do the job, if you
5 know what I mean.

6 MR. DeBARBA: I understand.

7 INVESTIGATOR KAUFMANN: In other words, you've
8 got to look at a bunch of factors. It's also obvious, or
9 I think you'll agree that a buy-on load -- a full-core
10 compared to a quarter-core, that I will get about four
11 times more heat out of the full-core and it's roughly
12 proportional to the number of bundles.

13 MR. DeBARBA: Yes, that's true. Although the
14 corollary argument to that point is the heat is the heat.
15 In other words, you've got 580 bundles somewhere that have
16 the same amount of heat that you've got to remove.

17 You've only got so many systems to remove it,
18 and those systems are spent fuel pool cooling and shut-
19 down cooling, somehow, someway, in order to move that
20 heat.

21 And that's what our operators are focusing on
22 I'm sure.

23 Now is it true when they're in the reactor
24 vessel you also have some ECCS equipment that's available?
25 Sure.

1 And depending on tech specs, those are tech
2 spec systems. Some you can take out and some you can't,
3 depending on what's going on.

4 We also have a refueling gate that's wide
5 open, a pretty big opening, where you can get some
6 exchange of water, you can get some cooling. You don't
7 take credit for those things.

8 There are a lot of things we don't take credit
9 for in the analysis that are real-world type of
10 situations.

11 So again, I guess we're kind of still a little
12 bit of a speculation mode of what were these normal cases
13 and these abnormal cases all about, and was it even
14 reasonable for people to assume that they had the license
15 to be able to do a full-core offload?

16 And I guess my point is in looking at this and
17 how I've looked at this and reviewed this based on the
18 information I have is I can see how we could come to the
19 assumption that a full-core offload was an acceptable
20 thing to do, it was approved, and that we had the ability
21 to make that choice ourselves.

22 We didn't have any specific limit that said
23 you can't do a full-core offload unless you did these
24 things or you had to gain prior approval to do it. We
25 didn't have that.

1 MR. REPKA: As long as you're talking about
2 that, Eric, I'll interject -- I mean, I'll ask you to
3 speculate about how operations would have ben perceived in
4 addition to the FSAR and what was discussed in the FSAR,
5 in that historical perspective, that historical context?

6 MR. DeBARBA: Well, I think that the FSAR was
7 as document that was used on Millstone I and it was a
8 document that was used as we gained our -- went from our
9 provisional to our full-term operating license in the
10 70's, but was a document that was really more in licensing
11 space and not something that was kept -- thought of as a
12 real, living, useful design type of tool.

13 I don't think it was until the 80's time frame
14 that it became clear that using and treating the FSAR as a
15 real design control-type vehicle became apparent to
16 people.

17 And I think that the NRC promulgated some
18 regulation in the -- what was it, the mid-80's time frame
19 relative to FSARs and what were there requirements to
20 update FSARs and the type of information that should be in
21 there na dhow it was to be treated.

22 I think up until that time, it wasn't -- it
23 wasn't nearly as clear.

24 MR. REPKA: So is it fair to say when you
25 looked at the issue in 1992, you were applying both a new

1 perspective on the FSAR?

2 MR. DeBARBA: In 1992? Yes, that's true.

3 That's true.

4 SENIOR INVESTIGATOR DRISKILL: You believe the
5 design basis requirements that are contained in the FSAR
6 should be put into the technical specifications and
7 operating procedures to ensure compliance?

8 MR. DeBARBA: No. No, I'm not saying that.
9 I'm saying that the FSAR, you know, today is viewed as a
10 design resource document, one that contains design basis-
11 type information that you reconcile with whether you're
12 doing a 50.59 evaluation or you're writing a plant
13 procedure or whatever you have to do.

14 It's something that you ought to count on as
15 being accurate and up to date and controlled.

16 SENIOR INVESTIGATOR DRISKILL: But I'm saying
17 don't design basis requirements have their place in the
18 operational procedures of the plant?

19 MR. DeBARBA: Yes, some of them. I'm not so
20 sure all of them. I think that there are lots of things
21 in the FSAR that aren't tech specs, for instance.

22 SENIOR INVESTIGATOR DRISKILL: So you don't
23 believe it was shortcoming in the technical specifications
24 that certain design basis requirements contained in
25 License Amendment 40 didn't get into the technical

1 specifications or if, in fact, it's viewed at this 150
2 hour for the normal and 250 for the abnormal core
3 offloads, was a design basis requirement as of License
4 Amendment 40 and the fact that they exceeded that 250 hour
5 time constraint in RFO 13, you don't believe that that was
6 a violation of the design basis?

7 MR. DeBARBA: I believe that from a design
8 analysis standpoint, it was clearly outside the design
9 analysis assumptions. There's no question about that.

10 SENIOR INVESTIGATOR DRISKILL: Would those
11 analyses have been part and parcel of the design basis
12 since the design basis was based on those?

13 MR. DeBARBA: Well again, I think you're
14 getting into a very specific part of what constitutes the
15 design basis.

16 What I would say is that the design basis are
17 those heat exchangers and the heat exchangers were
18 designed to remove so much heat, all right?

19 And the design basis was to have calculations
20 to prove they are able to do that. And you know, we
21 proved that under certain conditions.

22 Now the question is given the fact that at
23 least one of the conditions was done differently in a
24 shortly time period than what was assumed in the analysis,
25 what is the effect of that? Is that outside the design

1 basis?

2 It's clearly outside the analysis, one of the
3 analysis assumptions. From an overall heat load
4 standpoint, is that outside the heat load capacity? I
5 don't know, and I also don't know what somebody might have
6 done to maybe check to see if it was.

7 In other words, if somebody were to run a
8 calculation and say that geez, you know, we're going to
9 maybe shorten this up front, but we know based on other
10 conditions, that we're still bounded by that calculation -
11 -

12 SENIOR INVESTIGATOR DRISKILL: Or either
13 concede to what you're saying or agree with it, based on
14 what we know wouldn't it still have been more appropriate
15 than a 50.59 evaluation be performed prior to RFO 13 to 0
16 ensure that -- and to document the acceptability of
17 removing the fuel in the shorter period of time?

18 MR. DeBARBA: Well sure, it certainly would
19 have been more conservative. And it certainly would have
20 reduced doubts about some things, no question about it.
21 It would definitely be a more conservative thing to do.

22 You know, if you ask me was it a matter that
23 it violated some license condition if it didn't do that?
24 I don't think so. I don't think, from what I know, that I
25 would say that.

1 I think we took the prudent course of action
2 from 1992 when we came to the recognition that clearly
3 there was a more conservative way of treating this full-
4 core offload case that we had analyzed.

5 I think we took the more conservative approach
6 and got the thing sorted out.

7 I think what we're really questioning here is
8 historical, what happened historically and what should
9 have been done and what was done. Was it proper or was it
10 correct?

11 And you know, would it have been made better
12 by doing certain things?

13 I think you can postulate lots of things that
14 you could have done that would have made it better.

15 SENIOR INVESTIGATOR DRISKILL: Yes, that's
16 true. Let me ask you, since you've been involved with
17 this thing for several years, are you aware of the
18 question that Mr. Galatis had posed in 1992, that question
19 ever being asked previously or as, in your discussions
20 with any of the people here who were knowledgeable
21 relative to these activities and some of whom had been
22 around for a number of years say, "Yes, we discussed all
23 that back in 1981, and we decided this, this and this
24 about that."?

25 I mean, I'm just asking.

1 MR. DeBARBA: No, I'm really not aware of
2 that. I'm not aware that there were those discussions.

3 SENIOR INVESTIGATOR DRISKILL: And as far as
4 you know then, basically, this whole issue came to the
5 table in 1992 with Mr. Galatis?

6 MR. DeBARBA: Yes. And in fact, one of the
7 reasons it took as long as it did from 1992 to 1993 when
8 the LER was rewritten was because I think I
9 organizationally and internally there were lots of
10 different opinions on how that ought to be interpreted.

11 George had one set of opinions, which was more
12 conservative. And there are a number of other people who
13 felt differently about the issue.

14 So it took some time to get through that
15 process, to ultimately reach that kind of a conclusion.

16 that right there tells me that you've got
17 people who have differing professional opinions about
18 what's right and what's not.

19 SENIOR INVESTIGATOR DRISKILL: Okay. Later
20 on, you mentioned Mr. Partlow, Jim Partlow, later on came
21 int. I think he sort of agreed with Galatis that this
22 activity was perhaps outside of the design basis. Did you
23 ever have an opportunity to talk to him about that?

24 MR. DeBARBA: I did not.

25 SENIOR INVESTIGATOR DRISKILL: You obviously

1 or apparently, I'm sure, read his letters that he had
2 written on this.

3 MR. DeBARBA: Sure, I did.

4 SENIOR INVESTIGATOR DRISKILL: And did you
5 agree or disagree perhaps with his contention? Not that
6 he's the end-all to --

7 MR. DeBARBA: No.

8 SENIOR INVESTIGATOR DRISKILL: --
9 interpretation of the regulations certainly, but --

10 MR. DeBARBA: Yes, I clearly can understand
11 his perspective on it. I clearly do. I understand that
12 that is a more conservative interpretation on it.

13 SENIOR INVESTIGATOR DRISKILL: And the
14 Connecticut Yankee interpretation, which I think somewhat
15 sided with Galatis' view relative to historical, do you
16 remember that?

17 MR. REPKA: Yankee Atomic.

18 SENIOR INVESTIGATOR DRISKILL: Yankee Atomic,
19 I'm sorry.

20 MR. DeBARBA: Oh yes, yes. No, I'm familiar
21 with that as well.

22 INVESTIGATOR KAUFMANN: If we go back
23 historically, let's talk about the SEP, the standard
24 review plans, et cetera, where NRC spelled out in an TO
25 position and what-not how to do the calculations on the

1 heat exchangers.

2 And my understanding is that those documents
3 say do it this way. If you do it this way and you get
4 acceptable answers, we'll approve it.

5 And my understanding isn't that that was the
6 way the calculations have to be done, and there are other
7 options to do it and it can be submitted and reviewed. Is
8 that --

9 MR. DeBARBA: I'm not sure I'm quite following
10 you, John. You're saying the analytical methods can be
11 different or something from the standard review plan?

12 INVESTIGATOR KAUFMANN: Right, that's my
13 question. That is, I believe one way that a licensee can
14 attempt to address that. My understanding is that's not
15 the only way.

16 And where I'm headed to is should the normal,
17 as described, licensee in fact, be what they normally do
18 or should it be what I'll call a stylized analysis where
19 the NRC says do it this way, that it has not relationship
20 to what people really do?

21 MR. DeBARBA: No, it should not have no
22 relationship to what people do. It really ought to bound
23 what people do.

24 And that's why I say in calculations space,
25 whether you're doing an earthquake analysis or fatigue

1 analysis or heat exchanger analysis, that type of thing,
2 the NRC regulations are typically written to bound what
3 you would expect, so that you don't have to get into a
4 situation of specifically monitoring every single
5 operational parameter.

6 And if you have good bounding analysis, that's
7 the case.

8 I think you've got a situation right here that
9 is more borderline. Does this, in fact, really bound --
10 you know, when somebody offloads it in a manner that
11 begins quicker than their start time, does that really
12 bound the analytical assumptions that were made in that
13 heat exchanger calculation?

14 INVESTIGATOR KAUFMANN: So that's conservative
15 on the surface, and I guess I would --

16 MR. DeBARBA: Right.

17 INVESTIGATOR KAUFMANN: -- my opinion would be
18 that therefore I ought to do a calculation analysis,
19 something that shows it's okay before I do it?

20 MR. DeBARBA: I think today, that's exactly
21 what we would do. I think back in time I'm less certain
22 because of how people interpreted the regulations on that.

23 And I'm also less certain as to whether that
24 really is a license requirement to do it. In the
25 aggregate, are you really bounded or not bounded?

1 And again, it goes back to the necessity to,
2 on an individual basis, bound all the analytical
3 assumptions that you have.

4 For instance, in LOCA's space, I think it's
5 annually we are required by regulation to make submittals
6 on our LOCA codes and where we find differences in the
7 pluses and minuses and that type of thing.

8 There are some very detailed analytical
9 assumptions in there. Are people looking at that? Yes,
10 they're looking at some of those details.

11 But those are things that are documented on an
12 annual basis. I guess I would say that if it was that
13 reburied, then why would you do it on an annual basis?
14 Why wouldn't you do it the second that that particular
15 discrepancy was identified?

16 So I don't think it's quite fair to say that
17 all analytical assumptions ought to be translated into an
18 operational spec. And I'm concerned that you would have
19 an analogy which says analytical assumption: 150 hours in
20 the analytical space. Therefore, it ought to be as if it
21 were in tech specs of 150 hours.

22 In other words, that's the connection that's
23 made. And you're treating that analytical assumption as
24 if it stood right there in the tech specs that says "Thou
25 shalt not do anything different than 150 hours."

1 And I don't think it's fair to make that
2 assumption. I don't think that in the analytical space
3 that you make those kinds of assumptions.

4 Now I do believe that this is a bit of a gray
5 issue. And I think we do have the obligation to make sure
6 our case is bounded. So in that case, yes. Might we be
7 outside our design basis? We might be.

8 If we, you know, take a look at it and
9 conclude that our heat load was not bounded by that
10 analytical assumption; in other words, we go back and
11 looked at the actual case, which is what we're doing now
12 and the supplement on the LER.

13 We go back and look at that. Was that -- if
14 those original analyses did not bound what actually
15 happened, then we're outside our design basis, clearly
16 outside.

17 Our design basis said those heat exchangers
18 with that heat load will maintain the temperature below
19 some number, whether it was 140 or 150. The question is,
20 did we do that or didn't we? That's the design basis.

21 INVESTIGATOR KAUFMANN: Well, I think I can
22 give you the answer. And you told us before that you
23 maintained temperatures and there -- and so are we going
24 to assume single failures in the next go-around that's
25 being done?

1 MR. DeBARBA: What I'm saying is that based on
2 what the design assumptions were -- in other words, we had
3 a set of calculations that said here, this is what you
4 need to do. You run these calculations with these sets of
5 assumptions and it produces acceptable results.

6 Now if we got some other assumptions that
7 actually occurred, like the hold time was different, plug
8 those in and see what the results are, all right?

9 And if, in fact, we are outside that design
10 basis envelope, yes, then we're outside our design basis.
11 But I don't think you can just take one parameter all by
12 itself and say ah ha, therefore, you're outside your
13 design basis.

14 I think the design basis is a little broader
15 than one assumption.

16 SENIOR INVESTIGATOR DRISKILL: Okay, but what
17 was submitted to the NRC in support of those cases,
18 assumes heat exchanger fouling, -- water temperatures,
19 certain computer codes for how decay heat was calculated?

20 And I know one of the submittals talks about
21 they want to change how decay heat is calculated and
22 change analytical methods. Therefore, it needed to be a
23 license amendment and go to the NRC.

24 This strikes me as we're changing analytical
25 methods from a worse-case to an actual case. And no

1 offense to -- I have an engineer title, but I don't really
2 consider myself an engineer.

3 I was an operator. And no offense to
4 engineers, but we don't need 600 engineers if the test is
5 to put fuel in there. And if you can cool it and
6 everything is okay, I don't understand why my office would
7 have a branch reviewing these issues.

8 I don't understand why there would be heat
9 people here worried about it. If the test acceptance
10 criteria is with the heat exchangers I have, I throw the
11 fuel in, with the actual water temperatures I have, I can
12 cool it, and I don't have to assume a single failure and
13 everything is okay. I don't need a lot of engineers. I
14 can just turn the operators loose.

15 MR. DeBARBA: No, don't misinterpret what I'm
16 saying. I'm not saying that that is the right thing to
17 do. I think that -- you know, I think that people should
18 be looking at FSARs and looking at that kind of
19 information in making those judgements, all right?

20 What I'm saying is that I wouldn't be as quick
21 to say thought historically what was done was outside of
22 the design basis.

23 Does that put you in a little different space?
24 And I'm not so sure that it is outside of the design
25 basis.

1 You're saying from a practical standpoint,
2 should they have done something differently? Would it
3 have been better if they had waited the 150 hours? Sure.

4 SENIOR INVESTIGATOR DRISKILL: The simple
5 question is, is this anyway to run a railroad, to do
6 things less conservative that are analyzed without showing
7 it's okay ahead of time?

8 MR. DeBARBA: No, no. They should have done
9 that. That would have been better if they had done that,
10 clearly. There's no question about that.

11 But to say that that put them outside the
12 design basis, I don't know. I don't know if it was
13 outside the design basis or not.

14 You've got to do some work in order to make
15 that kind of a determination.

16 INVESTIGATOR KAUFMANN: Well then, the
17 question obviously leads one to a reasonable assurance,
18 some things are submitted to the NRC; they were approved
19 based on information, the assumptions given to the NRC;
20 and then different things are done and nobody can say if
21 that's right or wrong.

22 That seems like it should be a little more
23 black and white than that, but --

24 SENIOR INVESTIGATOR DRISKILL: Well, how do
25 you reconcile the matter in which RFO 13 was conducted

1 without a 50.59 without and the way RFO 13 was conducted
2 with a 50.59?

3 MR. DeBARBA: Well, RFO 14, when we realized
4 that a more conservative approach would be to take all the
5 assumptions from the abnormal case and from the normal
6 case and apply it to the full-core offload, that's what we
7 did. And we looked at it and said, "Well, is there a way
8 to improve the plant?"

9 Because we were looking at applying single
10 failure criteria to a shut-down cooling system that did
11 not have a full cross-tie capability hydraulically.

12 And we said, "Yes, there are some things that
13 we need to do. It's going to take us a little bit of time
14 to do that. Let's structure this into a more conservative
15 approach." That's the way to run a railroad, using your
16 words.

17 I mean, that was the right thing to do upon
18 discovery that that was where we found ourselves. And
19 there's no question about that.

20 And now your question is well, shouldn't we
21 have done that in RFO 13, not having discovered that we
22 had this discrepancy?

23 And now I'm in speculation land. I really
24 don't know. You know, I don't know. It's hard to do a
25 50.59 on something that you don't know about.

1 SENIOR INVESTIGATOR DRISKILL: Well, I just
2 find it difficult to believe that people are taking the
3 license with these hours and shortening the time for
4 unloading which is putting additional heat in there
5 without doing any kind of analysis at all and not ever
6 understanding what the FSAR says about it, or essentially
7 says are the hours that should be associated with these
8 different kinds of offload scenarios.

9 MR. DeBARBA: Right. Well like I said, I
10 don't know what the reactor engineers or the people might
11 have done at each of those refueling outages.

12 Perhaps they did do some calculations. I
13 don't know.

14 INVESTIGATOR KAUFMANN: Well, we know for some
15 of the early outages, -- back of the envelope calculations
16 were done and there really weren't mechanisms put in place
17 that if this one came out and the ocean heated up to stop
18 putting in bundles.

19 MR. DeBARBA: Right, right. You know, you're
20 saying, is it the right thing to do? No, it's not the
21 right thing to do.

22 Was it outside their design basis envelope? I
23 don't know. It might be. It might not be. If it's
24 outside their design basis envelope, yes, that violates
25 one of the rules.

1 Is there a better way to do it? Yes, there
2 is. That's what we're doing now. I think that's how I'm
3 trying to characterize it. Maybe I'm not making it clear.

4 SENIOR INVESTIGATOR DRISKILL: Of course, you
5 understand what Galatis' contention was. And trying to
6 restate that basically as I understood it was you've got
7 the normal offload criteria and you've got the abnormal
8 offload criteria.

9 And it's his contention then, and he was
10 right, that the abnormal was the normal, and that the same
11 constraints both for analysis and time were not being
12 considered for what was being used as the normal as the
13 NRC requirements imposed on the licensee.

14 In other words, he was saying that you were
15 using the abnormal, which essentially existed as an
16 emergency remedy for some problem. That was being used as
17 the normal offload manner and it was not as safe, and it
18 was not analyzed and so on and so forth.

19 Because the NRC basically didn't expect it to
20 be used but once or twice during the lifetime of the
21 plant.

22 Based on the presentation that Northeast
23 Utilities made to the Nuclear Regulatory Commission in
24 application for the provisional operating license, later
25 on their operating license, and the license amendments

1 that they submitted that addressed that particular thing.

2 I think that's basically where Galatis is
3 coming from. And on the face, it looks like he's right.

4 But of course, I guess you've got to get in a
5 lot of these definitions of why and all that other stuff,
6 and that's why --

7 MR. DeBARBA: And that's why I'm not taking
8 issue with George and the issues that he raised. I think
9 that from that 1992 time frame going forward, I think
10 we've listened very intently to what he had to say and did
11 the things we felt we needed to do to improve the plant's
12 performance and make sure that we carried that forward
13 into how we run those plant systems.

14 I think what he really brought to bear was the
15 fact that spent fuel pool cooling systems and shut-down
16 cooling systems for the plant were -- had not been given
17 the same type of treatment that perhaps other safety
18 systems in the plant.

19 And that the degree to which -- the degree of
20 rigor that had been applied could be improved and brought
21 up to a higher level of standard. And that's what we've
22 done.

23 SENIOR INVESTIGATOR DRISKILL: We're going to
24 go off the record for just a minute.

25 (Whereupon, the proceedings went off the

1 record at 2:30 p.m. and resumed at 2:35.)

2 SENIOR INVESTIGATOR DRISKILL: Back on the
3 record. The time is 2:35 p.m. We're with Mr. Eric
4 DeBarba. Prior to this interview, we were informed that
5 Mr. DeBarba would have a couple of hours to spend with us,
6 and that he needed to leave somewhere approximately three
7 o'clock this afternoon.

8 And I think there's been a considerable amount
9 of time discussing some of the historical issues relative
10 to the refueling outages and offloading procedures and so
11 on.

12 And I think we've kind of run into a point now
13 where we've got several other issues that we wanted to
14 discuss which we're not going to have time to discuss. So
15 we're going to briefly discuss a couple more things here
16 and allow Mr. DeBarba to leave and make his other
17 scheduled appointments this afternoon.

18 INVESTIGATOR KAUFMANN: Eric, as a result of
19 all of the follow-up to the REF 92.73 and the LER, as we
20 detailed in the last hour or so, changes were made in the
21 way the refueling outages were conducted.

22 I know that the REF process was looked at and
23 changes made. Can you just outline for us if you will the
24 lessons learned for your organization in handling this
25 event and what kind of improvements, changes you've made

1 to your processes if you will?

2 MR. DeBARBA: Sure. The REF process and how
3 it related to the PIR process was revamped considerably.
4 In fact, we now have what we call an adverse condition
5 report. We've reduced the threshold on that significantly
6 so that practically anything that we see out of the
7 ordinary ends up becoming an adverse condition report.

8 And within a very short period of time, I
9 believe it's 24 hours, it ends up going to the shift
10 supervisor and ends up being discussed at the morning
11 meeting, and ultimately kicking off into some other areas.

12 It could be determinations of operability of
13 plant equipment and that type of thing.

14 We no longer have an REF process, but we do
15 have a process that causes us to review things for
16 operability. And we now have a requirement, really I set
17 this requirement, to have the preliminary operability
18 judgement made in a 24 hour period of time.

19 So that regardless of what the issue happens
20 to be, and you get some pretty complex technical issues at
21 times, that we have to reach an initial operability
22 determination in no more than 24 hours.

23 Basically it means if people are working on
24 something, they don't go home until they come to some
25 conclusion.

1 And we think that that's been a significant
2 improvement for us to do that, and to not allow these
3 judgements and decisions go for a long period of time.
4 Until we've got ever "i" dotted and ever "t" crossed to
5 every single calculation, we think that we've got a
6 responsibility to make those judgements a lot more quickly
7 in the interest of the plant operators.

8 The other thing we've been working on is the
9 one that we make sure that we understand messages that we
10 receive from our employees. And we're working on that and
11 will continue to work on that.

12 And we are really driving that from a
13 standpoint of accountability and increased accountability
14 on everybody's part.

15 We've run a program called Managing for
16 Nuclear Safety Concerns where all our supervisors
17 basically go through a training program, at least two or
18 three programs. It's a fairly comprehensive program
19 anyway.

20 And there's a testing component in there where
21 they talk about how well they're doing in terms of
22 relating to their employees and dealing with the people
23 who may have questions or issues on their minds.
24 Sometimes safety concerns, but sometimes maybe just some
25 other inter-personal type matters.

1 I think that's been fairly effective. The
2 corollary is Partnership 2000 where all our employees
3 basically go through a training session.

4 Typically, a person like myself kicks off that
5 session and talks to the group for about an hour or two
6 about expectations and accountability. And the employees
7 are asked to sign a form. And it's a form that basically
8 talks about their role and responsibility as it relates to
9 safety concerns and being able to communicate and converse
10 with their supervisors.

11 What we're trying to do is build good two-way
12 communications back and forth and we think that that is at
13 the root of a really good safety concern program.

14 And it doesn't matter whether you're talking
15 about nuclear safety or you're talking about how
16 somebody's child is doing in school. I mean, they're all
17 very important types of things in terms of building good
18 relationships.

19 And usually it's that caring and empathy that
20 really go a long ways in helping people having good
21 conversations very early on in the game, and not get to a
22 point where things become polarized and structured to the
23 point where you can't have a real good dialogue.

24 And it takes a lot of time to break down walls
25 and barriers and really get at the source of it.

1 Sometimes those sources go beyond just what is technically
2 there.

3 It's feelings and it's hurt and it's pain.
4 And those things are very hard to get over. Sometimes,
5 you just can't. And those are some of the lessons we
6 learned.

7 We feel that people have to be accountable in
8 two ways. If you are a receiver of a message, typically a
9 supervisor or somebody else in the organization, you have
10 100 percent accountability to receive that message and act
11 on it.

12 If you're a sender, you have 100 percent
13 accountability to send the message and make sure it's
14 understood. And we're looking at really driving this
15 point of 200 percent accountability at the interfaces and
16 trying to drive this sender/receiver message. It's one
17 that's important.

18 So those are a couple of the things that --

19 SENIOR INVESTIGATOR DRISKILL: Okay.
20 As you talked, the operations regarding the spent fuel
21 pool where evaluations were done, the way it's operated
22 now is more conservative, design changes made to the shut-
23 down cooling system.

24 MR. DeBARBA: Right.

25 SENIOR INVESTIGATOR DRISKILL: And for want of

1 a better thing, we'll say because maybe the design basis
2 are fuzzy, have you gone and looked at design basis for
3 other systems, activities, with a view toward maybe their
4 bases are fuzzy and could be cleared up and maybe we could
5 operate the system's activity more conservatively?

6 Has there been a global look?

7 MR. DeBARBA: Yes. In fact, we've looked
8 across our units. But what has stood out really is Unit
9 I. And Unit I's design bases are -- I would characterize
10 as the weakest of all the units.

11 We had a formal evaluation team end up looking
12 at that over the last several months, headed up by a
13 fellow named John Blisedale, who is the Manager of the
14 Nuclear Safety Engineering Group reporting to the
15 oversight function.

16 And they ended up looking in detail at some of
17 the design bases issues, the design change process, the
18 design basis reconciliation activities, the FSAR itself,
19 and ended up providing a report on what we needed to do to
20 correct that.

21 As sa result of that work and some other work
22 there's a couple of things that we're doing. One is we're
23 going back and sampling some additional design changes
24 that have occurred over the last ten years, particularly
25 in the electrical area.

1 We think that there's some identified
2 weaknesses there.

3 But more specifically, we have put a project
4 in place, and we're going to have a dedicated team
5 starting the first of the year, just as soon as this
6 outage is over, that is going to look at the Millstone I
7 design bases, the FSAR and improved standard tech specs,
8 all as a package to be completed by the end of the year.

9 That's something that Bill Riffer, the Unit
10 Director, is totally supportive of, as is the Engineering
11 Organization. And it's going to be a major effort for us,
12 but one that we think is very important to undertake.

13 We do believe that the tech specs on Millstone
14 I are very difficult to use. They're not very user
15 friendly.

16 And we think that some of the improve standard
17 tech spec features will provide us tremendous clarity,
18 tremendous improvement in clarity on what the requirements
19 are all about.

20 INVESTIGATOR KAUFMANN: That's all I have.
21 Don, do you have more questions?

22 SENIOR INVESTIGATOR DRISKILL: No, I don't
23 have any more questions today. Mr. DeBarba, we appreciate
24 the time you've taken with us, and we want you know that
25 we'll probably be trying to schedule something for several

1 weeks from now, perhaps another couple of hours that we
2 can finish this thing up.

3 MR. DeBARBA: Okay.

4 SENIOR INVESTIGATOR DRISKILL: We want you to
5 know we appreciate your meeting with us on a short term
~~6 notice.~~

7 MR. DeBARBA: Okay.

8 SENIOR INVESTIGATOR DRISKILL: I'd like to ask
9 you if you feel that you've been threatened in any manner
10 or offered any rewards in return for your statement?

11 MR. DeBARBA: No.

12 SENIOR INVESTIGATOR DRISKILL: Has this
13 statement been given freely and voluntarily?

14 MR. DeBARBA: Yes, it has.

15 SENIOR INVESTIGATOR DRISKILL: We'll close the
16 record now. Thank you very much.

17 (Whereupon, the interview of ERIC A. DeBARBA
18 was concluded at 3:45 p.m.)

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