

ORIGINAL

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

In the Matter of:)
)
SPENT FUEL CAPACITY AT VERMONT)
YANKEE NUCLEAR PLANT)

Pages: 1 through 36

Place: Rockville, Maryland

Date: February 9, 1988

Heritage Reporting Corporation

Official Reporters
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Washington, D.C. 20005
(202) 628-4888

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UNITED STATES NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD PANEL

In the Matter of:)
)
SPENT FUEL CAPACITY AT VERMONT YANKEE NUCLEAR PLANT)

Tuesday
February 9, 1988

U.S. Nuclear Regulatory
Commission
11555 Rockville Pike
1 White Flint North
16th Floor, Room 11
Rockville, MD 20852

The above entitled matter came on for hearing,
pursuant to notice, at 10:09 a.m.

APPEARANCES:

On Behalf of Vermont Yankee Nuclear Plant:

- DON REID
- DAVE McELWAY
- JOHN DEVINCENTIS
- JOHN HOFFMAN
- JAY THAYER
- CHRIS HANSEN
- BOB CAPSTICK
- JOHN RITSHER

1 APPEARANCES (Continued)

2 On Behalf of the State of Vermont:

3 PHIL PAULL

4 On Behalf of the State of Massachusetts:

5 GEORGE DEAN

6 On Behalf of the Nuclear Regulatory Commission:

7 VERNON ROONEY

8 DICK WESSMAN

9 GUS LAINAS

10 JACK KUDRICK

11 JERRY WERMIEL

12 JOHN RIDGELY

13 ANN HODGDON

14 JOE RUTBERG

15 BOB WEISMAN

16 ASHOK THADANI

17 JOE SCINTO

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P R O C E E D I N G S

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2 MR. ROONEY: This is a meeting between the staff and
3 Vermont Yankee to consider information needed to complete the
4 staff's review of the Vermont Yankee spent fuel proposal.

5 It is a public meeting. We have public
6 representatives here presently and we may have some more, I
7 believe. The public is present as observers, not participants.
8 If members of the public have questions or comments, would you
9 hold them till the end, and I will try to deal with them if you
10 direct them to me, and we will try to do what we can, as we
11 usually do, to deal with those matters at that time.

12 But we want to focus today on trying to get as much
13 mileage and communications on resolving the longstanding fuel
14 pool proposal that we are dealing with.

15 The meeting's being transcribed, and, so, a
16 transcription will be issued fairly soon after the meeting. So,
17 if, when you have something to say, would you please identify
18 yourself for the reporter and, further, if those at the side of
19 the room, and there may be some participating, will come
20 forward, we will try to make way so you have access to a mike,
21 so you can be entered into the record. And, of course, don't
22 everybody speak at once.

23 I guess with these preliminaries, I would like to ask
24 Dick Wessman, my boss, if he has any comments.

25 MR. WESSMAN: No, I don't, Vern. I think we have one

1 additional person that has come in. If you would identify
2 yourself, please?

3 MR. DEAN: George Dean, Assistant Attorney General
4 for the Commonwealth of Massachusetts.

5 MR. WESSMAN: Okay. Glad to have you, George.

6 I would suggest to the Vermont Yankee folks, we may
7 lose at least a couple of managers around 11:00 because of
8 another commitment. If you have some -- you know, we want to
9 get the best part of your message at the front end of the
10 session and work technical details later.

11 You know, we will be here as long as we need to work
12 the problem, and, Ashok or Gus, do you have anything else that
13 you want to cover before we get started?

14 MR. THADANI: I don't.

15 MR. WESSMAN: Okay. Vern, let's go ahead and get on
16 with it.

17 MR. ROONEY: Okay. Well, I guess, Warren, you --
18 I'll turn it over to you for presentation of such information
19 as you have.

20 MR. MURPHY: Okay. I'll immediately lateral the
21 football to Don Reid to give the introductory remarks and then
22 go on to John Hoffman.

23 MR. REID: Okay. I guess we'd first like to show you
24 the topics we intended to cover today, at least to start out.
25 We're going to provide an introductory statement.

1 John Hoffman, to my right, is going to go
2 specifically through your open items listed in your previous
3 letter or your last letter, and then we'll talk about where
4 we're going to go from here, at least from our point of view,
5 and then hopefully we'll get into any discussions or questions
6 you may have at the end of our presentation.

7 MR. WESSMAN: Do you all have handouts that you're
8 going to be able to give to us to help us take notes and attach
9 to the transcript?

10 MR. REID: I don't believe so, other than --

11 MR. HOFFMAN: We can make copies of the viewgraphs
12 later.

13 MR. REID: I guess we'll make copies of the
14 viewgraphs.

15 MR. WESSMAN: I think we'd like to get a copy of the
16 viewgraphs for the record.

17 MR. REID: Okay. I guess I'd like to start out by
18 saying we appreciate this opportunity to directly address the
19 outstanding technical issues and answer any questions you may
20 still have relative to our licensing request.

21 Our proposal is to gain your approval to expand the
22 storage capacity of our spent fuel pool from 2000 assemblies to
23 2870 assemblies, using a slightly higher density fuel rate than
24 that which presently exists.

25 We wish to make it extremely clear today that it is

1 our intent to finally resolve these outstanding issues to the
2 satisfaction of the NRC staff, and to clarify any other areas
3 that still appear to involve some misunderstandings.

4 Our presentation today will provide you with a firm
5 basis upon which you can issue a timely and satisfactory safety
6 evaluation report and the accompanying amendments which would
7 identify no outstanding concerns.

8 In order to facilitate a conclusion to this long-
9 active licensing effort, we wish to present a solution that
10 will, without question, address and satisfy all the outstanding
11 concerns. This solution is presented despite the fact that we
12 still fully believe and support the adequacy of our present
13 license amendment request.

14 We wish to emphasize that our new proposed solution
15 is being offered solely to expedite and facilitate closure on
16 an issue critical to Vermont Yankee that has been pending for
17 almost two years.

18 In order to break this licensing logjam, we are
19 willing to make a major commitment that will clearly resolve
20 all the outstanding staff concerns. We are willing to commit
21 to design and install a completely redundant seismic fuel pool
22 cooling system prior to the time that we reach 2000 bundles
23 stored in the fuel pool.

24 This will have sufficient capacity to preclude any
25 concerns with the use of the residual heat removal system.

1 At this time, there are many options available to
2 accomplish this design objective. Hence, the seismic fuel pool
3 cooling system could be a wholly new system or it could be a
4 combination of some new components and modifications of some
5 existing sections of the system.

6 The final system design will comply with the
7 appropriate criteria of your standard review plan and, of
8 course, be available for your review and inspection at any
9 stage of the process.

10 John Hoffman, like I mentioned previously, will have
11 more to say about that as well as specifically addressing the
12 concerns in your January 21st letter.

13 As I indicated previously, this commitment is offered
14 in support for you to complete your review and issue a timely
15 safety evaluation report and the amendment.

16 Finally, we wish to make it clear that Vermont Yankee
17 continues to have a high commitment to operate and maintain the
18 safe nuclear power plant. This includes compliance with all
19 the applicable rules and regulations. We are available and
20 wish to fully be cooperative with the NRC in bringing this
21 issue to its conclusion.

22 We would be happy to address any questions following
23 the remaining presentations.

24 John?

25 MR. HOFFMAN: John Hoffman.

1 What we'd like to do is present a viewgraph that
2 shows the design criteria that we'll be using in the design of
3 the fuel pool cooling system that Don just mentioned.

4 The Seismic Category 1, safety class system. Seismic
5 Category 1, cooling system. Single active failure proof.
6 Detectors for loss of function and designed for the appropriate
7 licensing criteria, detection and isolation of leaks, flooding,
8 internal and external missiles, in-service testing, the
9 installation will have the appropriate considerations at the
10 time of the project as well as fire protection concerns.

11 As Don indicated, the design details have not been
12 worked out, but these are the criteria that will be used and
13 would help in the following discussion of the open items to
14 keep those criteria in mind as we go through the open items and
15 show how the new system as well as the existing plan fully
16 complies with your open items.

17 Okay. What we have done is extracted from your
18 February letter the open items that you folks had at the back,
19 and we have broken them down into five open items. The first
20 one relates to heat removal capability, and the items the NRC
21 had questioned in that letter was the use of the 1971 ANS draft
22 standard, the DK heat generation, questioned the basis for the
23 9.1 million BTUs per hour that we used as a heat load, and an
24 apparent discrepancy between the FSAR capacity of the heat
25 exchangers and the fuel pool cooling system and what we are

1 using in our evaluation.

2 On Item A, ANS draft standard, that was only used in
3 a specific scenario where we used it to calculate the decayed
4 heat in the reactor vessel. All fuel pool heat loads are
5 calculated in accordance with standard review plan
6 requirements.

7 In that particular scenario was a loss of fuel pool
8 cooling where we were going between cooling the reactor vessel
9 and the fuel pool with the RHR system. So, we don't believe
10 there is any conflict with your requirements in what we have
11 done in that evaluation.

12 The next slide, please. This slide is, for
13 information, a comparison of your heat load calculations which
14 came out of a response that you provided to an intervenor
15 interrogatory and our heat load calculations, and they are
16 essentially the same, within second decimal point.

17 I do not think there is any problem with how we're
18 calculating heat load and that it is in compliance with your
19 requirements.

20 Next viewgraph, please. The following viewgraph is a
21 curve of heat exchanger performance as a function of days and
22 this is from an internal calculation that we've done and have
23 benchmarked several of the values that you folks have come up,
24 and I think it explains our capacity situation.

25 The one bent, the top curve, with the square box, is

1 a one pump/one heat exchanger. We come up with essentially
2 seventy days for a 150 degree temperature limit in the pool.
3 You folks report sixty-nine days. So, we're right on track
4 there.

5 The second curve with the pluses is a one pump/two
6 heat exchanger mode of operation where the two heat exchangers
7 are valved in parallel and that produces at a 150 degrees a
8 ten-day heat removal capacity. The third curve is two
9 pumps/two heat exchangers.

10 In the scenario we used for evaluating use of RHR,
11 the 9.1 million BTUs per hour was an arbitrary assumption.
12 That it is is the capacity at ten days. It's the point at which
13 one pump/two heat exchangers would be capable of cooling the
14 fuel pool. We have committed that we would not operate the
15 plant without that capability. So, we took that as an upper
16 bound heat load.

17 In reality, the heat load would be significantly
18 less. We don't feel we could ever start the plant up ten days
19 following a refueling, that that was picked as an arbitrary
20 upper bound, as an adequate assumption for that evaluation.

21 The 2.23 million BTUs per hour is really the one
22 train/one pump/one heat exchanger capacity for a given set of
23 inlet conditions. The same calculation that was used to
24 generate these data also produces the 2.23 million BTUs at the
25 appropriate operating conditions.

1 So, all numbers are correct. It's just which point
2 you assume and what the different performance parameters of the
3 fuel pool cooling system is. So, we don't believe there are
4 any conflicts really with your requirements, the independent
5 evaluations you folks have performed.

6 Go back to the first one?

7 MR. WESSMAN: Can we agree to that? We might as well
8 offer the comment, if we could. Do we have any problem with the
9 numbers that we see here, John?

10 MR. RIDGELY: I don't know that there's any conflict
11 because the 2.23 was what, as I was saying, the specific
12 conditions at match point. We did not calculate, recalculate
13 those specific conditions, but based on information that's
14 here, I would expect that those really are the -- that the
15 curve would go to that data point.

16 MR. HOFFMAN: In conclusion, then, we feel that your
17 open items are clearly addressed by our current submittal and
18 certainly the new fuel pool cooling system would have the same
19 compliance with those requirements.

20 So, we would say that the first open item in your
21 letter is resolved.

22 Item 2 was identified as the temperature limit in the
23 spent fuel pool. Your concern was that there is no fuel pool
24 temperature monitoring when the spent fuel pool cooling system
25 is not operating.

1 Strictly speaking, that is correct. The monitor for
2 fuel pool temperature is in the fuel pool cooling line and,
3 therefore, if both trains are not operating, there would be no
4 monitoring.

5 Your concern was with the fact that without a
6 monitor, we wouldn't know when to isolate the mineralizers, the
7 fuel pool system is not operating, there's no flow, therefore
8 there would be no need to isolate the mineralizers.

9 MR. RIDGELY: More than just the mineralizers is the
10 fact that you don't know when you get to a 150 degrees, you
11 have to enter your tech spec.

12 MR. HOFFMAN: Okay. I will -- let me correct that.
13 I mean, let me address that next.

14 The first concern was related to the mineralizers. We
15 have indicated in our letter we do have an alarm in the control
16 room at a 125 degrees. So, we know when the pool hits a 125
17 degrees. That's an administrative limit at which point the
18 plant would take corrective action to ensure we do not exceed
19 the 150 degree tech spec.

20 If, at any time, we found that one train of the fuel
21 pool cooling system was inoperable, the licensee is committed
22 to augmented monitoring, where they have an operator go up and
23 monitor the pool on a four-hour basis. So, we would all times
24 know the temperature and the trending of the pool within a
25 four-hour time period, essentially, and the heat-up rate is

1 such that we don't believe we'd ever be in a mode of exceeding
2 a 150 degrees without knowing it.

3 So, we feel we have appropriate actions although they
4 are operator actions. We at all times would know the
5 temperature of the fuel pool.

6 The new system being as its seismic and single
7 failure approval, there will always be flow through that
8 system. We'll always be monitoring the fuel pool temperature
9 during normal operation. The only time when that system might
10 be secured would be during a refueling, when the gates were
11 open, and we were on RHR, at which point there are other
12 monitors in the plant to also monitor the temperatures.

13 So, we feel that with the existing system, we have
14 that capability. With the new system, it's built right into
15 it, we would always know the temperature and be able to take
16 the appropriate actions.

17 MR. McELWAY: Excuse me, Don.

18 I just want to make it clear that the new system we'd
19 be installing for fuel pool temperature monitoring.

20 MR. HOFFMAN: You folks have any comment on that
21 before we leave it?

22 (No response.)

23 MR. HOFFMAN: The third item was the capability of
24 fuel pool cooling following a seismic event, and the questions
25 you folks had asked related to the fire water connection to

1 service water, alternate cooling piping for the cooling tower
2 cell, and the RHR service water to RHR cross-connect piping.

3 All those systems are seismic or are isolated in the
4 case of the service water from a non-seismic piping to a
5 normally-shut manual valve. I think were we to proceed on this
6 basis, I think, although it would be necessary for you folks if
7 you wanted to come up to review the calculations, review the
8 system boundaries, we have all that information available.

9 With the new system, those particular connections and
10 that would not be required and would be resolved completely by
11 the installation of the new system.

12 MR. WESSMAN: I'm assuming the new system will meet
13 all the EQ and all the rest of the criteria, whatever is
14 appropriate in the codes and standards.

15 MR. HOFFMAN: That is correct, yes.

16 MR. WESSMAN: Okay.

17 MR. HOFFMAN: Item 4 was the radiological
18 consequences of boiling. This was a potential operating mode
19 with the existing fuel pool cooling system, and your open items
20 essentially requested that we provide the assumptions and the
21 dose for on-site. We have that information available.

22 It was a very conservative analysis that our people
23 did. Essentially, they assumed the pool boiled for thirty
24 days. They took the boil-off rate as the maximum boil-off which
25 was about 16.6 GPM, assumed that lasted for the entire thirty

1 days.

2 For the off-site dose, it was an assumption of a
3 ground level unfiltered release and that came out to about six
4 percent of the Part 20 requirements.

5 For the on-site dose, similar assumptions were made.
6 Thirty days, and there was no provision of supplied air for the
7 personnel on site for recovery. It was also a very small
8 fraction of Part 20.

9 And for the new system, there will be no pool,
10 potential pool boiling events and the whole issue becomes moot.

11 The fifth open item was a concern that you folks
12 expressed on the particular scenario we presented for
13 supplemental pooling in the event of loss of the normal fuel
14 pool cooling system by some external event, and the two items
15 that were asked were the capability of parallel heat exchanger
16 operation and your feeling that the number of operator actions
17 were more than you felt was suitable.

18 The heat exchangers can be tied together in parallel.
19 In reviewing for this meeting last night, I did notice there
20 was a sketch that we provided in the back of our letter that
21 didn't explicitly show that cross-tie. That may have been a
22 source of confusion, but, indeed, the heat exchangers can be
23 tied together in parallel.

24 Our evaluation was a very conservative evaluation, as
25 I indicated earlier, on the heat load. We just took the upper

1 bounds that the pool could ever be at with the fuel pool
2 cooling system in service and demonstrated that the operators
3 could handle that event. It was, I believe, six pump starts
4 and approximately twelve operator actions.

5 That was discussed with the operating staff. They
6 feel that is a reasonable sequence of events. In reality, the
7 numbers would be much lower than that because it wouldn't be
8 the situation with the 9.1 million BTUs in the pool anyway.

9 So, we feel that that is a suitable mode of operation
10 for an extremely unlikely off-normal event. However, once
11 again, the new system completely does away with that potential
12 of events and would never require that operation.

13 So, once again, we feel that we can address your
14 concerns with the existing system and our new proposal makes
15 the issue moot.

16 With that, if there's any comments, I would be glad
17 to answer them.

18 MR. KUDRICK: I have a question relative to the
19 documentation.

20 Jack Kudrick, Compliance Systems.

21 You provided quite a bit of information in response
22 to some of the concerns that we did not have on the pumps and
23 so forth.

24 Were you planning to document that at all, other than
25 in the transcript of this meeting?

1 MR. HOFFMAN: I don't think we'd be planning on it
2 now because our new system proposal, for the ones that are no
3 longer applicable with the new system, I don't see we'd be
4 documenting them in detail.

5 MR. KUDRICK: Okay. So, you're strictly relying on
6 your new system.

7 MR. HOFFMAN: That's correct.

8 MR. WERMIEL: If the new system then goes to almost
9 every issue, as you have said, so if that's what you frame the
10 documents in, then I don't think we see a problem with that
11 proposal resolving these.

12 MR. WESSMAN: Let me make that clear. I think it
13 would be appropriate as you come in with that description of
14 the new system that you at least reference back to the
15 questions of our letter of January 21st and indicate how this
16 issue is resolved because a couple of sentences or whatever it
17 takes, and then go on to the discussion of the new system.

18 MR. HOFFMAN: That's correct.

19 MR. WESSMAN: Rather than in a debate on an old
20 system that was not there, but at least, you know, build the
21 link for us and for the public record of how the new system
22 makes these issues moot.

23 MR. HOFFMAN: Right. That would be -- that's our
24 plan. We wouldn't be submitting detailed calculations.

25 MR. ROONEY: Let me just clarify my understanding.

1 The theory bullet in our January 21st letter was
2 provision for essential fuel pool cooling in case of single
3 failure, and as I understood what you were saying, is that the
4 reliance -- without the new system now, your reliance on the
5 RHR in all situations, you felt, as you described in the
6 scenario, that was something that could be done, correct, but
7 with the new system, it was going to be redundant and single
8 failure proof.

9 MR. HOFFMAN: That is correct.

10 MR. THADANI: Ashok Thadani.

11 Clarification and question about the issue of single
12 failure.

13 Can you describe what your intention is in terms of
14 the single failure to be considered? Are these some active
15 failures or would they be consideration of passive failures?

16 MR. HOFFMAN: Active failures.

17 MR. THADANI: Thank you.

18 THE REPORTER: I'm afraid we're going to have to get
19 people to come up here. It's just not that good in the back.
20 I'm sorry.

21 MR. ROONEY: If anyone wants to come up to talk, I'll
22 step aside and yield the right-of-way, so you can have access
23 to my mike.

24 MR. McELWAY: Any other questions pertaining to the
25 questions in the letter?

1 (No response.)

2 MR. McELWAY: The next item -- my name is David
3 McElway.

4 The next item on our agenda was future actions
5 Vermont Yankee foresees.

6 I've put together a time line to try to indicate the
7 proposed schedule that Vermont Yankee has developed.
8 Certainly, the first item that we need to reach closure on is
9 the licensing approval.

10 Our next task will be to come up with a conceptual
11 design which is scheduled to be completed by the end of Cycle
12 14. At the completion of the conceptual design, as-built
13 dimensions being taken, a detailed design change would be
14 developed and put through the normal review process, both at
15 Yankee Atomic and the plant, during which time, early purchase
16 of long lead time equipment would be established, with the
17 final detailed design completed by the end of Cycle 15, and the
18 installation of the entire design change to take place during
19 Cycle 16, such that it is complete and fully operational at the
20 end of Cycle 16.

21 And as indicated on the time line, that's the time
22 frame in which the spent fuel pool will have approximately 1978
23 spent fuel assemblies in the racks.

24 MR. WESSMAN: Help me out. This is Dick Wessman.

25 Help me out, if you would. Are you in Cycle 14 now?

1 MR. McELWAY: We're in Cycle 13 now.

2 MR. WESSMAN: And when -- can you throw in at least
3 an estimate of the date on a couple of those so that we have a
4 feel of the number of years in the future that --

5 MR. McELWAY: Certainly.

6 MR. WESSMAN: -- you kind of estimate these things to
7 occur?

8 MR. McELWAY: Certainly. We're currently in Cycle
9 13, which is scheduled to end April 1st of 1989. The
10 conceptual design -- and these are the projected dates based on
11 our current schedules.

12 The Cycle 14 is scheduled to be completed in
13 September of 1990, and Cycle 15 is scheduled to be completed in
14 April of '92, and Cycle 16 is scheduled to be completed in
15 October of '93.

16 MR. WESSMAN: Thank you.

17 MR. McELWAY: And that brings us to the last item on
18 our agenda for today, which is a summary, and Warren?

19 MR. MURPHY: Okay. A very brief summary.

20 That is the extent of our presentation. It's rather
21 brief, but I think you have heard a very significant commitment
22 on our part.

23 Let me say that we're extremely anxious to resolve
24 the NRC staff concerns in our submittal. We made our submittal
25 in April of 1986. It's been almost two years. We think far too

1 long a time period to resolve this particular issue.

2 During that two-year time period, we've had to incur
3 significant expenses to make alternative plans and provisions
4 for the spent fuel that we'd generate. If we're going to spend
5 any more money on this project, we want to spend it in a more
6 meaningful way than in the short-term interim solutions, and
7 that's why we're willing to commit to make this very
8 significant commitment to additional fuel pool cooling system.

9 And we do it with the, first of all, notion that we
10 still believe that the submittal that we made two years ago was
11 valid, that we can technically defend our submittal and our
12 plans. However, we're willing to go one step further to
13 alleviate the looming concerns that apparently you have that we
14 can't make go away otherwise.

15 Either you're not listening or we're not speaking
16 correctly, and I think maybe I sense a little bit of both.

17 But, in any event, we're more than willing to make
18 this commitment and hope that it does solve your concerns, that
19 we can get some sort of a verbal commitment from you folks
20 today that, in your opinion, in fact, does address all of these
21 concerns.

22 And I think by doing this, we will avoid prolonging
23 the debate and the continuing analyses and so forth to try to
24 prove fine points. We're willing to give up that approach and
25 solve the problems in one fell swoop here.

1 So, with that, that's all we have to say today. We
2 certainly would like to have your reaction, if you have one,
3 and look forward to an SCR at the nearest possible opportunity.

4 MR. WESSMAN: Why don't we seek to explore whether,
5 in the room here, do we think that we have questions that we
6 need to explore to see whether it resolves our concerns and
7 then perhaps we need to chat for a moment amongst ourselves and
8 try and develop a scenario of the activities that we would have
9 and you would have in the next, you know -- that meets with
10 your fuel cycles and our review of the documentation that would
11 be appropriate.

12 John, do you and Jerry, what are your thoughts on how
13 this would resolve the concerns that we've raised?

14 MR. WERMIEL: My thinking is that their commitment
15 conceptually and the criteria that identified it would satisfy
16 our concerns.

17 MR. RIDGELY: I have a question. Is there any
18 particular reason why you're going to wait on conceptual design
19 until Cycle 14?

20 MR. REID: Just because this year is pretty well
21 already accounted for and the resources are assigned. We'd
22 have to divert them to already planned and on-going activities.

23 MR. RIDGELY: So, you're saying then, in essence,
24 that you won't have the resources until after April of '89 to
25 really start working on this?

1 MR. REID: Yes. To the next sphere. We're already
2 budgeted and work and everything else has already begun for
3 '88. We would have to significantly interrupt that.

4 Based on the schedule and when we really need the
5 racks, which is what our amendment calls for above 2000, there
6 doesn't appear to be a need to do it.

7 MR. WESSMAN: I'm under the -- excuse me. Do you
8 have another question?

9 MR. WERMIEL: No.

10 MR. WESSMAN: I guess I'm under the impression,
11 Warren, from chatting with Vern that as an interim basis, you
12 would have to do some modification to the existing racks to get
13 you all through the next two-three cycles, is that correct?
14 Can you address that for me or help me out on that?

15 MR. MURPHY: Well, our plans are that we can go ahead
16 and install the new racks, and the thing that we will not do
17 before we install the new system is exceed the capacity 2000
18 fuel assembly.

19 We've designed and are building new racks that we're
20 ready to install this year. First of all, don't confuse our
21 completion date of the new system with the point in time when
22 we need the new racks. We need the new racks considerably
23 before that because the problem we have is getting the new
24 racks in with the amount of fluid we have in the pool.

25 That is, we have less than 2000 assemblies in the

1 pool now, with a limited amount of space to get new racks in,
2 to shuffle the fuel from old racks to new racks. We can't go
3 up to the 2000 limit and then install the new racks. We have to
4 do that considerably before that.

5 So, what we're seeking here is the okay to go ahead
6 and install the new racks. However, the constraint on us is to
7 not exceed 2000 fuel assemblies in that pool until such time as
8 we have that new system installed.

9 MR. WESSMAN: Okay. So, one of the things that you
10 need agreement from the staff on then is your plan to go ahead
11 and put in the new racks as this interim measure, --

12 MR. MURPHY: That's right.

13 MR. WESSMAN: -- getting you to 2000.

14 MR. MURPHY: Yes.

15 MR. WESSMAN: And another thing that you need is an
16 agreement from the staff on the conceptual design. I'm
17 separating the two major activities then, is that right?

18 MR. MURPHY: Well, I don't know. Well, the two
19 different issues. We're hoping that you give us the okay to
20 put a new rack on the basis of the commitment to install the
21 new system with the design criteria that we outlined.

22 I guess we have to determine yet to what extent you
23 want to review the design as we go along in terms of looking at
24 the conceptual or waiting till the final design. Certainly it
25 will be there and available to you to review.

1 MR. WESSMAN: Okay.

2 For the record, we have just added one more guy to
3 the gathering. This is Joe Sointo from OGC.

4 MR. SOINTO: Not for long.

5 MR. WESSMAN: Not for long.

6 MR. ROONEY: Are there any other questions that we
7 have for the licensee?

8 I think this is the next step to be sure we
9 understand all the facets of what's been proposed.

10 MR. WESSMAN: Are there any other questions you all
11 have of us because then I think we will break up in caucus for
12 a moment and then offer some thoughts to you?

13 MR. REID: I guess our basic question is how do we
14 get here to the end?

15 MR. ROONEY: For Joe's benefit, since he just came
16 in, I think -- you want me to -- okay. You pretty much know
17 where we are. We just completed the final questioning to
18 confirm our understanding.

19 MR. PAULL: Vern, could I ask a question?

20 MR. ROONEY: Phil, could you wait till the end? I'd
21 like to get these matters dealt with first, please.

22 Okay. Thank you. Would you hold it till after we get
23 these things wound up?

24 Ashok, do you have --

25 MR. THADANI: I have no more questions.

1 MR. ROONEY: You have no more? Well, perhaps we
2 ought to take a break at this time. We'd like to caucus and
3 consider what we've heard. We may have additional questions
4 following.

5 I think the best way would be for you guys to take a
6 rest room break at this point.

7 MR. WESSMAN: You guys go to the cool space. Let's
8 go off the record, please.

9 (Whereupon, a recess was taken.)

10 MR. ROONEY: Do we have present everyone we need?

11 MR. MURPHY: You got the guy who can sign the SER,
12 Vern?

13 MR. ROONEY: We aren't that far.

14 We are in agreement that what you've presented deals
15 with the technical issues which we had identified as the
16 unresolved technical issues in our letter to you, and, further,
17 technically, we're able to react very positively to what you've
18 told us as being substantial enhancement and very good.

19 As you might appreciate, we probably have yet to work
20 out and were unable to quickly work out the procedural aspects
21 of these matters.

22 I guess that, as you know, we proceeded fairly far
23 along with our review in the process on the Proposed 2870 with
24 these NES racks, and we have -- we are at a point that we
25 expect that we -- if you come in with a proposal, the thing you

1 have given us in this meeting, in writing, we'd expect you to
2 submit this in writing, we would expect to be able to fairly
3 shortly issue the aspects that we have reviewed already and
4 document them.

5 Now, we have the bulk thermal hydraulic
6 considerations that your enhanced fuel pool cooling system
7 deals with. We understand that the details of that's not going
8 to be worked out until the end of Cycle 14.

9 We see a second submittal from you when you have
10 that.

11 MR. MURPHY: Excuse me. In terms of our language, --

12 MR. ROONEY: Yeah.

13 MR. MURPHY: -- is that -- are we talking about the
14 conceptual design phase of this new system? Is that what
15 you're saying?

16 MR. WESSMAN: Yes, Warren. I think you are.

17 Let me summarize how I think the flow of paper is
18 likely to happen, if I may butt in on you for just a second,
19 please.

20 MR. ROONEY: Certainly.

21 MR. WESSMAN: After you all go home from this session
22 today, what we're suggesting that you do is you come back to us
23 with the request that basically, to some degree, modifies the
24 amendment request that you have on the books today because that
25 is an amendment request taking up to the 2800 number of fuel

1 assemblies and based upon originally the existing system that
2 you have.

3 You need to tell us that you're headed in a different
4 direction with giving some indication of the criteria and the
5 concept of the modified system, which is pretty much what
6 you've said to us today, and that in the interim, you expect to
7 use the new fuel racks up to the 2000 capacity to carry you
8 forward until you've completed the work on the new system and
9 you have staff approval on the new system.

10 I think that's a letter that relatively easy you can
11 send to us in the not-to-distant future.

12 Now, the next step then from us is a response and the
13 evaluation we've done on the rack design that we've done for
14 your 2800 fuel assembly proposal, we're essentially done with
15 that. So, of course, we should be able to respond back to you
16 in a timely manner allowing you to get on with putting in the
17 racks to carry you forward for the next couple of cycles while
18 the rest of the work goes on.

19 The only potentially untidy aspect of that is, it may
20 require a resholly because you are now doing a rack activity
21 that is different than a rack and spent fuel cooling system
22 activity.

23 We don't know the answer to that today, but you see,
24 you are proceeding down slightly a different path than was
25 originally done, and I just don't know how that will go.

1 Then, some time in the future, I guess it's on your
2 Cycle 14 that you say is when you would actually come with us
3 with essentially the details of your conceptual design, a year
4 and a half from now, whenever you've got that conceptual
5 design, and that's when we should be able to, based upon that
6 reasonably good knowledge of that conceptual design, we would
7 expect probably to get pretty well done with the SER process on
8 that, which then gets you in a position to go forward.

9 MR. MURPHY: Okay. Let me say something about that,
10 if I can.

11 Our plans are to design and install a new system
12 under 5059 and it's our opinion that it doesn't require a
13 license amendment to do that.

14 We will submit the design to you, if you ask to look
15 at it, but we don't see that as a requirement if we do it on
16 the 5059.

17 MR. WESSMAN: Okay. When you say the design of the
18 system, what do you mean by "design of the system"? Are you
19 talking about the entire additional train that you're talking
20 about, the concept?

21 MR. MURPHY: Yes, yes. We see that design
22 modification as being done under 5059 and not requiring the
23 tech spec change or a license amendment.

24 MR. WESSMAN: Okay. I'm not sure that we agree with
25 you at this point in time. I think our perception was that

1 that would involve the amendment process.

2 MR. MURPHY: Okay. What's the basis for that? Why do
3 you feel that way?

4 MR. WESSMAN: Well, I think it's -- of course, one,
5 we're a little bit talking on something that's going to come
6 because you're talking a conceptual configuration, and I guess
7 we don't know enough about your conceptual configuration and
8 how it may or may not tie into the plant as designed and as
9 reviewed.

10 I think early in the session, we talked about using
11 some portions of the old system or a wholly new system. I
12 don't think -- you know, you don't know or we don't know
13 exactly how it ties in, but it sounds like it's going to have
14 some relation to the plant as designed, as originally reviewed,
15 and that would move it into our review space.

16 Am I saying it right, technical folks? Help me out.

17 MR. MURPHY: It's not necessarily true.

18 MR. THADANI: I think -- it seems to me that the
19 termination of 505: is up to you. You make that decision. You
20 can make a modification under 5059. We may or may not agree
21 with you, and at this stage, at least, I can't say for sure
22 that we believe there is an unreviewed safety question,
23 therefore you must come in with a submittal. I don't think we
24 know the answer, at least I don't.

25 Does anybody else want to comment on that?

1 MR. WEISMAN: Well, look, maybe I can be perfectly
2 clear here.

3 What we're trying to say is, at least from today's
4 meeting, we believe from a technical point of view, your
5 submittal can be justified for fuel storage up to 2000
6 elements. That's what we think.

7 For storage up to 2800 elements, I believe, which is
8 what you'd like to have in the future, it's dependent on a new
9 design. So, the exact legal procedures, what you follow from
10 here on in, is still under discussion by us, but as far as the
11 5059, I got one question for you.

12 Do you have a license condition now limiting the
13 number of elements you can store on site, fuel elements?

14 MR. MURPHY: That's right.

15 MR. WEISMAN: Well, if you go to 2800, it would seem
16 to me that that would require some sort of an amendment.

17 MR. MURPHY: Oh, it does, and we've applied for that.
18 That's what we're --

19 MR. WEISMAN: The approval that we would give you at
20 this stage of the game would be to 2000 elements. That's what
21 we're trying to tell you. All right. We understand your
22 criteria for future expansion under the system, and we think
23 it's a good criteria, all right, but how you get there for the
24 final resolution of the 2800 from a legal point of view as was
25 said by Vern and all, it may need a renotece or resholly.

1 We haven't determined that.

2 MR. MURPHY: Okay. Fair enough, and we may conclude,
3 in fact, it needs a license submittal or amendment.

4 MR. WEISMAN: Right.

5 MR. MURPHY: The other thing I wanted to make clear
6 is that our plans, if you agree with this, when we install the
7 new racks, we want to install, for a number of reasons, we want
8 to install the capacity of 2870, but be limited to a use of
9 2000.

10 MR. WEISMAN: Right.

11 MR. MURPHY: Okay. Is that clear?

12 MR. WESSMAN: Okay. I understood that clearly.

13 You're saying if you do work on the racks in the next
14 six months, the next year or two, you want to install all the
15 way to 2870, but have the limitation of use to 2000.

16 MR. MURPHY: That's right.

17 MR. WESSMAN: So that, basically, you've finished
18 that portion of the work for the comprehensive change that you
19 want.

20 MR. REID: We already have the limit to use of 2000.

21 MR. WESSMAN: I understand. We're going to have to
22 think on that. I'm not sure we fully appreciate it exactly
23 because I thought you were actually going to modify a corner of
24 the pool to get yourselves up conveniently to 2000 and in a
25 sense, it may be that the license condition is all it takes.

1 But let's think on that. I don't think I can answer
2 that today, but I understand what you're saying.

3 MR. MURPHY: It's a just more much efficient way to
4 do the job.

5 MR. WESSMAN: Certainly. I understand that. Okay.

6 MR. THADANI: I don't see -- does anyone see any
7 problem with that? At least I don't.

8 MR. WERMIEL: No. I was going to say --

9 MR. RIDGELY: Not from a technical standpoint.

10 MR. WERMIEL: Not from a technical standpoint.
11 There's no problem with that.

12 MR. WESSMAN: Okay. Well, maybe we have our answer.
13 We want to think a little bit and be sure that we're
14 comfortable with that just by virtue of you have a capability
15 to do more than the license says, and yet you are bound by what
16 the license says, and yet is there some other issue about a
17 heavy load over another one of these racks somewhere else, but
18 it sounds like we're saying it's okay.

19 Okay. What else? You had another question on what we
20 started to say or did you finish summarizing, Vern?

21 MR. MURPHY: I made the two points that I wanted to
22 make.

23 MR. ROONEY: You made the -- okay. Very good.

24 So, I think we would expect a submittal shortly after
25 this meeting from you, putting on the record what you have told

1 us.

2 We intend to issue a safety evaluation covering those
3 portions of the review we've completed to this point shortly.
4 We would expect you to provide further detail on the new system
5 when you've reached the point that you can speak more
6 specifically to it, and I guess we would like that in the form
7 of a submittal at the end of conceptual design.

8 Am I speaking correctly for the staff here?

9 MR. MURPHY: Okay. Regardless of the determination
10 of 5059 and the license amendment?

11 MR. WESSMAN: That's the determination that's
12 described in your schedule.

13 MR. ROONEY: Yeah. We have yet to work out the
14 procedural aspects.

15 Staff, have I let anything major out? I hope not.

16 MR. WESSMAN: Any other thoughts, Warren, at this
17 time?

18 MR. MURPHY: Again, I just want to be clear that if
19 we give you our proposal in writing, basically tell you in
20 writing what we told you today, the result of that will be an
21 SER that would allow us to install the new racks?

22 MR. WESSMAN: That's our expectation.

23 MR. ROONEY: I guess this completes the matter we
24 sought to accomplish in this meeting.

25 Now, I think that we ought to -- I'm open to

1 questions from members of the public or comments at this point,
2 and we'll do what we can to answer them, as we said.

3 MR. WESSMAN: And, John, do you or Phil have anything
4 else you wanted to ask the staff at this time?

5 MR. RIDGELY: No. I have a question, but I've had it
6 answered.

7 MR. ROONEY: Okay. Very good. Joe?

8 MR. DEAN: The only question I have -- George Dean.

9 THE REPORTER: The gentleman has got to come up.

10 MR. DEAN: Would be whether the staff intends to do a
11 new environmental impact statement with respect to this new
12 proposal in consideration of the alternatives.

13 It seems to me that this is an entirely new proposal
14 to get the 2800 on the floor, which is going to involve an
15 additional substantial sum of money being expended.

16 MR. WESSMAN: Okay. I don't know that the staff has
17 decided how to do the environmental aspect. We've got your
18 question and let us think on it.

19 MR. SOINTO: Yeah. I -- let me interject. It's our
20 position that we have it. It is not necessary to do an
21 environmental impact statement for the application we sought.
22 We've been doing an environmental impact appraisal. I would be
23 surprised if this change changed that basic position. I would
24 be surprised to see us do an environmental impact appraisal on
25 this, but in view of the position we took in the proceeding, I

1 would be surprised to see us do an environmental impact
2 statement.

3 MR. DEAN: That answers my question.

4 MR. ROONEY: Are there further questions?

5 (No response.)

6 MR. ROONEY: Meeting adjourned.

7 Thank you for coming in.

8 (Whereupon, at 11:30 a.m., the hearing was
9 adjourned.)

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REPORTER'S CERTIFICATE

DOCKET NUMBER:

CASE TITLE: Spent Fuel Capacity at Vermont Yankee Nuclear Plant

HEARING DATE: February 9, 1988

LOCATION: Rockville, MD

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the United States Nuclear Regulatory Authority.

Date: 2-9-88

alan k. friedman
Official Reporter

HERITAGE REPORTING CORPORATION
1220 L Street, N.W.
Washington, D.C. 20005

1 UNITED STATES NUCLEAR REGULATORY COMMISSION
2 ATOMIC SAFETY AND LICENSING BOARD PANEL
3

4 In the Matter of:)
5 SPENT FUEL CAPACITY AT VERMONT YANKEE NUCLEAR PLANT)

6
7 Tuesday
8 February 9, 1988

9 U.S. Nuclear Regulatory
10 Commission
11 11555 Rockville Pike
12 1 White Flint North
13 16th Floor, Room 11
14 Rockville, MD 20852

15 The above entitled matter came on for hearing,
16 pursuant to notice, at 10:09 a.m.

17 APPEARANCES:

18 On Behalf of Vermont Yankee Nuclear Plant:

- 19 DON REID
- 20 DAVE McELWAY
- 21 JOHN DEVINCENTIS
- 22 JOHN HOFFMAN
- 23 JAY THAYER
- 24 CHRIS HANSEN
- 25 BOB CAPSTICK
- JOHN RITSHER

1 APPEARANCES (Continued)

2 On Behalf of the State of Vermont:

3 PHIL PAULL

4 On Behalf of the State of Massachusetts:

5 GEORGE DEAN

6 On Behalf of the Nuclear Regulatory Commission:

7 VERNON ROONEY

DICK WESSMAN

8 GUS LAINAS

JACK KUDRICK

9 JERRY WERMIEL

JOHN RIDGELY

10 ANN HODGDON

JOE RUTBERG

11 BOB WEISMAN

ASHOK THADANI

12 JOE SCINTO

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P R O C E E D I N G S

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2 MR. ROONEY: This is a meeting between the staff and
3 Vermont Yankee to consider information needed to complete the
4 staff's review of the Vermont Yankee spent fuel proposal.

5 It is a public meeting. We have public
6 representatives here presently and we may have some more, I
7 believe. The public is present as observers, not participants.
8 If members of the public have questions or comments, would you
9 hold them till the end, and I will try to deal with them if you
10 direct them to me, and we will try to do what we can, as we
11 usually do, to deal with those matters at that time.

12 But we want to focus today on trying to get as much
13 mileage and communications on resolving the longstanding fuel
14 pool proposal that we are dealing with.

15 The meeting's being transcribed, and, so, a
16 transcription will be issued fairly soon after the meeting. So,
17 if, when you have something to say, would you please identify
18 yourself for the reporter and, further, if those at the side of
19 the room, and there may be some participating, will come
20 forward, we will try to make way so you have access to a mike,
21 so you can be entered into the record. And, of course, don't
22 everybody speak at once.

23 I guess with these preliminaries, I would like to ask
24 Dick Wessman, my boss, if he has any comments.

25 MR. WESSMAN: No, I don't, Vern. I think we have one

1 additional person that has come in. If you would identify
2 yourself, please?

3 MR. DEAN: George Dean, Assistant Attorney General
4 for the Commonwealth of Massachusetts.

5 MR. WESSMAN: Okay. Glad to have you, George.

6 I would suggest to the Vermont Yankee folks, we may
7 lose at least a couple of managers around 11:00 because of
8 another commitment. If you have some -- you know, we want to
9 get the best part of your message at the front end of the
10 session and work technical details later.

11 You know, we will be here as long as we need to work
12 the problem, and, Ashok or Gus, do you have anything else that
13 you want to cover before we get started?

14 MR. THADANI: I don't.

15 MR. WESSMAN: Okay. Vern, let's go ahead and get on
16 with it.

17 MR. ROONEY: Okay. Well, I guess, Warren, you --
18 I'll turn it over to you for presentation of such information
19 as you have.

20 MR. MURPHY: Okay. I'll immediately lateral the
21 football to Don Reid to give the introductory remarks and then
22 go on to John Hoffman.

23 MR. REID: Okay. I guess we'd first like to show you
24 the topics we intended to cover today, at least to start out.
25 We're going to provide an introductory statement.

1 John Hoffman, to my right, is going to go
2 specifically through your open items listed in your previous
3 letter or your last letter, and then we'll talk about where
4 we're going to go from here, at least from our point of view,
5 and then hopefully we'll get into any discussions or questions
6 you may have at the end of our presentation.

7 MR. WESSMAN: Do you all have handouts that you're
8 going to be able to give to us to help us take notes and attach
9 to the transcript?

10 MR. REID: I don't believe so, other than --

11 MR. HOFFMAN: We can make copies of the viewgraphs
12 later.

13 MR. REID: I guess we'll make copies of the
14 viewgraphs.

15 MR. WESSMAN: I think we'd like to get a copy of the
16 viewgraphs for the record.

17 MR. REID: Okay. I guess I'd like to start out by
18 saying we appreciate this opportunity to directly address the
19 outstanding technical issues and answer any questions you may
20 still have relative to our licensing request.

21 Our proposal is to gain your approval to expand the
22 storage capacity of our spent fuel pool from 2000 assemblies to
23 2870 assemblies, using a slightly higher density fuel rate than
24 that which presently exists.

25 We wish to make it extremely clear today that it is

1 our intent to finally resolve these outstanding issues to the
2 satisfaction of the NRC staff, and to clarify any other areas
3 that still appear to involve some misunderstandings.

4 Our presentation today will provide you with a firm
5 basis upon which you can issue a timely and satisfactory safety
6 evaluation report and the accompanying amendments which would
7 identify no outstanding concerns.

8 In order to facilitate a conclusion to this long-
9 active licensing effort, we wish to present a solution that
10 will, without question, address and satisfy all the outstanding
11 concerns. This solution is presented despite the fact that we
12 still fully believe and support the adequacy of our present
13 license amendment request.

14 We wish to emphasize that our new proposed solution
15 is being offered solely to expedite and facilitate closure on
16 an issue critical to Vermont Yankee that has been pending for
17 almost two years.

18 In order to break this licensing logjam, we are
19 willing to make a major commitment that will clearly resolve
20 all the outstanding staff concerns. We are willing to commit
21 to design and install a completely redundant seismic fuel pool
22 cooling system prior to the time that we reach 2000 bundles
23 stored in the fuel pool.

24 This will have sufficient capacity to preclude any
25 concerns with the use of the residual heat removal system.

1 At this time, there are many options available to
2 accomplish this design objective. Hence, the seismic fuel pool
3 cooling system could be a wholly new system or it could be a
4 combination of some new components and modifications of some
5 existing sections of the system.

6 The final system design will comply with the
7 appropriate criteria of your standard review plan and, of
8 course, be available for your review and inspection at any
9 stage of the process.

10 John Hoffman, like I mentioned previously, will have
11 more to say about that as well as specifically addressing the
12 concerns in your January 21st letter.

13 As I indicated previously, this commitment is offered
14 in support for you to complete your review and issue a timely
15 safety evaluation report and the amendment.

16 Finally, we wish to make it clear that Vermont Yankee
17 continues to have a high commitment to operate and maintain the
18 safe nuclear power plant. This includes compliance with all
19 the applicable rules and regulations. We are available and
20 wish to fully be cooperative with the NRC in bringing this
21 issue to its conclusion.

22 We would be happy to address any questions following
23 the remaining presentations.

24 John?

25 MR. HOFFMAN: John Hoffman.

1 What we'd like to do is present a viewgraph that
2 shows the design criteria that we'll be using in the design of
3 the fuel pool cooling system that Don just mentioned.

4 The Seismic Category 1, safety class system. Seismic
5 Category 1, cooling system. Single active failure proof.
6 Detectors for loss of function and designed for the appropriate
7 licensing criteria, detection and isolation of leaks, flooding,
8 internal and external missiles, in-service testing, the
9 installation will have the appropriate considerations at the
10 time of the project as well as fire protection concerns.

11 As Don indicated, the design details have not been
12 worked out, but these are the criteria that will be used and
13 would help in the following discussion of the open items to
14 keep those criteria in mind as we go through the open items and
15 show how the new system as well as the existing plan fully
16 complies with your open items.

17 Okay. What we have done is extracted from your
18 February letter the open items that you folks had at the back,
19 and we have broken them down into five open items. The first
20 one relates to heat removal capability, and the items the NRC
21 had questioned in that letter was the use of the 1971 ANS draft
22 standard, the DK heat generation, questioned the basis for the
23 9.1 million BTUs per hour that we used as a heat load, and an
24 apparent discrepancy between the FSAR capacity of the heat
25 exchangers and the fuel pool cooling system and what we are

1 using in our evaluation.

2 On Item A, ANS draft standard, that was only used in
3 a specific scenario where we used it to calculate the decayed
4 heat in the reactor vessel. All fuel pool heat loads are
5 calculated in accordance with standard review plan
6 requirements.

7 In that particular scenario was a loss of fuel pool
8 cooling where we were going between cooling the reactor vessel
9 and the fuel pool with the RHR system. So, we don't believe
10 there is any conflict with your requirements in what we have
11 done in that evaluation.

12 The next slide, please. This slide is, for
13 information, a comparison of your heat load calculations which
14 came out of a response that you provided to an intervenor
15 interrogatory and our heat load calculations, and they are
16 essentially the same, within second decimal point.

17 I do not think there is any problem with how we're
18 calculating heat load and that it is in compliance with your
19 requirements.

20 Next viewgraph, please. The following viewgraph is a
21 curve of heat exchanger performance as a function of days and
22 this is from an internal calculation that we've done and have
23 benchmarked several of the values that you folks have come up,
24 and I think it explains our capacity situation.

25 The one bent, the top curve, with the square box, is

1 a one pump/one heat exchanger. We come up with essentially
2 seventy days for a 150 degree temperature limit in the pool.
3 You folks report sixty-nine days. So, we're right on track
4 there.

5 The second curve with the pluses is a one pump/two
6 heat exchanger mode of operation where the two heat exchangers
7 are valved in parallel and that produces at a 150 degrees a
8 ten-day heat removal capacity. The third curve is two
9 pumps/two heat exchangers.

10 In the scenario we used for evaluating use of RHR,
11 the 9.1 million BTUs per hour was an arbitrary assumption.
12 What it is is the capacity at ten days. It's the point at which
13 one pump/two heat exchangers would be capable of cooling the
14 fuel pool. We have committed that we would not operate the
15 plant without that capability. So, we took that as an upper
16 bound heat load.

17 In reality, the heat load would be significantly
18 less. We don't feel we could ever start the plant up ten days
19 following a refueling, that that was picked as an arbitrary
20 upper bound, as an adequate assumption for that evaluation.

21 The 2.23 million BTUs per hour is really the one
22 train/one pump/one heat exchanger capacity for a given set of
23 inlet conditions. The same calculation that was used to
24 generate these data also produces the 2.23 million BTUs at the
25 appropriate operating conditions.

1 So, all numbers are correct. It's just which point
2 you assume and what the different performance parameters of the
3 fuel pool cooling system is. So, we don't believe there are
4 any conflicts really with your requirements, the independent
5 evaluations you folks have performed.

6 Go back to the first one?

7 MR. WESSMAN: Can we agree to that? We might as well
8 offer the comment, if we could. Do we have any problem with the
9 numbers that we see here, John?

10 MR. RIDGELY: I don't know that there's any conflict
11 because the 2.23 was what, as I was saying, the specific
12 conditions at match point. We did not calculate, recalculate
13 those specific conditions, but based on information that's
14 here, I would expect that those really are the -- that the
15 curve would go to that data point.

16 MR. HOFFMAN: In conclusion, then, we feel that your
17 open items are clearly addressed by our current submittal and
18 certainly the new fuel pool cooling system would have the same
19 compliance with those requirements.

20 So, we would say that the first open item in your
21 letter is resolved.

22 Item 2 was identified as the temperature limit in the
23 spent fuel pool. Your concern was that there is no fuel pool
24 temperature monitoring when the spent fuel pool cooling system
25 is not operating.

1 Strictly speaking, that is correct. The monitor for
2 fuel pool temperature is in the fuel pool cooling line and,
3 therefore, if both trains are not operating, there would be no
4 monitoring.

5 Your concern was with the fact that without a
6 monitor, we wouldn't know when to isolate the mineralizers, the
7 fuel pool system is not operating, there's no flow, therefore
8 there would be no need to isolate the mineralizers.

9 MR. RIDGELY: More than just the mineralizers is the
10 fact that you don't know when you get to a 150 degrees, you
11 have to enter your tech spec.

12 MR. HOFFMAN: Okay. I will -- let me correct that.
13 I mean, let me address that next.

14 The first concern was related to the mineralizers. We
15 have indicated in our letter we do have an alarm in the control
16 room at a 125 degrees. So, we know when the pool hits a 125
17 degrees. That's an administrative limit at which point the
18 plant would take corrective action to ensure we do not exceed
19 the 150 degree tech spec.

20 If, at any time, we found that one train of the fuel
21 pool cooling system was inoperable, the licensee is committed
22 to augmented monitoring, where they have an operator go up and
23 monitor the pool on a four-hour basis. So, we would all times
24 know the temperature and the trending of the pool within a
25 four-hour time period, essentially, and the heat-up rate is

1 such that we don't believe we'd ever be in a mode of exceeding
2 a 150 degrees without knowing it.

3 So, we feel we have appropriate actions although they
4 are operator actions. We at all times would know the
5 temperature of the fuel pool.

6 The new system being as its seismic and single
7 failure approval, there will always be flow through that
8 system. We'll always be monitoring the fuel pool temperature
9 during normal operation. The only time when that system might
10 be secured would be during a refueling, when the gates were
11 open, and we were on RHR, at which point there are other
12 monitors in the plant to also monitor the temperatures.

13 So, we feel that with the existing system, we have
14 that capability. With the new system, it's built right into
15 it, we would always know the temperature and be able to take
16 the appropriate actions.

17 MR. McELWAY: Excuse me, Don.

18 I just want to make it clear that the new system we'd
19 be installing for fuel pool temperature monitoring.

20 MR. HOFFMAN: You folks have any comment on that
21 before we leave it?

22 (No response.)

23 MR. HOFFMAN: The third item was the capability of
24 fuel pool cooling following a seismic event, and the questions
25 you folks had asked related to the fire water connection to

1 service water, alternate cooling piping for the cooling tower
2 cell, and the RHR service water to RHR cross-connect piping.

3 All those systems are seismic or are isolated in the
4 case of the service water from a non-seismic piping to a
5 normally-shut manual valve. I think were we to proceed on this
6 basis, I think, although it would be necessary for you folks if
7 you wanted to come up to review the calculations, review the
8 system boundaries, we have all that information available.

9 With the new system, those particular connections and
10 that would not be required and would be resolved completely by
11 the installation of the new system.

12 MR. WESSMAN: I'm assuming the new system will meet
13 all the EQ and all the rest of the criteria, whatever is
14 appropriate in the codes and standards.

15 MR. HOFFMAN: That is correct, yes.

16 MR. WESSMAN: Okay.

17 MR. HOFFMAN: Item 4 was the radiological
18 consequences of boiling. This was a potential operating mode
19 with the existing fuel pool cooling system, and your open items
20 essentially requested that we provide the assumptions and the
21 dose for on-site. We have that information available.

22 It was a very conservative analysis that our people
23 did. Essentially, they assumed the pool boiled for thirty
24 days. They took the boil-off rate as the maximum boil-off which
25 was about 16.6 GPM, assumed that lasted for the entire thirty

1 days.

2 For the off-site dose, it was an assumption of a
3 ground level unfiltered release and that came out to about six
4 percent of the Part 20 requirements.

5 For the on-site dose, similar assumptions were made.
6 Thirty days, and there was no provision of supplied air for the
7 personnel on site for recovery. It was also a very small
8 fraction of Part 20.

9 And for the new system, there will be no pool,
10 potential pool boiling events and the whole issue becomes moot.

11 The fifth open item was a concern that you folks
12 expressed on the particular scenario we presented for
13 supplemental pooling in the event of loss of the normal fuel
14 pool cooling system by some external event, and the two items
15 that were asked were the capability of parallel heat exchanger
16 operation and your feeling that the number of operator actions
17 were more than you felt was suitable.

18 The heat exchangers can be tied together in parallel.
19 In reviewing for this meeting last night, I did notice there
20 was a sketch that we provided in the back of our letter that
21 didn't explicitly show that cross-tie. That may have been a
22 source of confusion, but, indeed, the heat exchangers can be
23 tied together in parallel.

24 Our evaluation was a very conservative evaluation, as
25 I indicated earlier, on the heat load. We just took the upper

1 bounds that the pool could ever be at with the fuel pool
2 cooling system in service and demonstrated that the operators
3 could handle that event. It was, I believe, six pump starts
4 and approximately twelve operator actions.

5 That was discussed with the operating staff. They
6 feel that is a reasonable sequence of events. In reality, the
7 numbers would be much lower than that because it wouldn't be
8 the situation with the 9.1 million BTUs in the pool anyway.

9 So, we feel that that is a suitable mode of operation
10 for an extremely unlikely off-normal event. However, once
11 again, the new system completely does away with that potential
12 of events and would never require that operation.

13 So, once again, we feel that we can address your
14 concerns with the existing system and our new proposal makes
15 the issue moot.

16 With that, if there's any comments, I would be glad
17 to answer them.

18 MR. KUDRICK: I have a question relative to the
19 documentation.

20 Jack Kudrick, Compliance Systems.

21 You provided quite a bit of information in response
22 to some of the concerns that we did not have on the pumps and
23 so forth.

24 Were you planning to document that at all, other than
25 in the transcript of this meeting?

1 MR. HOFFMAN: I don't think we'd be planning on it
2 now because our new system proposal, for the ones that are no
3 longer applicable with the new system, I don't see we'd be
4 documenting them in detail.

5 MR. KUDRICK: Okay. So, you're strictly relying on
6 your new system.

7 MR. HOFFMAN: That's correct.

8 MR. WERMIEL: If the new system then goes to almost
9 every issue, as you have said, so if that's what you frame the
10 documents in, then I don't think we see a problem with that
11 proposal resolving these.

12 MR. WESSMAN: Let me make that clear. I think it
13 would be appropriate as you come in with that description of
14 the new system that you at least reference back to the
15 questions of our letter of January 21st and indicate how this
16 issue is resolved because a couple of sentences or whatever it
17 takes, and then go on to the discussion of the new system.

18 MR. HOFFMAN: That's correct.

19 MR. WESSMAN: Rather than in a debate on an old
20 system that was not there, but at least, you know, build the
21 link for us and for the public record of how the new system
22 makes these issues go.

23 MR. HOFFMAN: Right. That would be -- that's our
24 plan. We wouldn't be submitting detailed calculations.

25 MR. ROONEY: Let me just clarify my understanding.

1 The theory bullet in our January 21st letter was
2 provision for essential fuel pool cooling in case of single
3 failure, and as I understood what you were saying, is that the
4 reliance -- without the new system now, your reliance on the
5 RHR in all situations, you felt, as you described in the
6 scenario, that was something that could be done, correct, but
7 with the new system, it was going to be redundant and single
8 failure proof.

9 MR. HOFFMAN: That is correct.

10 MR. THADANI: Ashok Thadani.

11 Clarification and question about the issue of single
12 failure.

13 Can you describe what your intention is in terms of
14 the single failure to be considered? Are these some active
15 failures or would they be consideration of passive failures?

16 MR. HOFFMAN: Active failures.

17 MR. THADANI: Thank you.

18 THE REPORTER: I'm afraid we're going to have to get
19 people to come up here. It's just not that good in the back.
20 I'm sorry.

21 MR. ROONEY: If anyone wants to come up to talk, I'll
22 step aside and yield the right-of-way, so you can have access
23 to my mike.

24 MR. McELWAY: Any other questions pertaining to the
25 questions in the letter?

1 (No response.)

2 MR. McELWAY: The next item -- my name is David
3 McElway.

4 The next item on our agenda was future actions
5 Vermont Yankee foresees.

6 I've put together a time line to try to indicate the
7 proposed schedule that Vermont Yankee has developed.
8 Certainly, the first item that we need to reach closure on is
9 the licensing approval.

10 Our next task will be to come up with a conceptual
11 design which is scheduled to be completed by the end of Cycle
12 14. At the completion of the conceptual design, as-built
13 dimensions being taken, a detailed design change would be
14 developed and put through the normal review process, both at
15 Yankee Atomic and the plant, during which time, early purchase
16 of long lead time equipment would be established, with the
17 final detailed design completed by the end of Cycle 15, and the
18 installation of the entire design change to take place during
19 Cycle 16, such that it is complete and fully operational at the
20 end of Cycle 16.

21 And as indicated on the time line, that's the time
22 frame in which the spent fuel pool will have approximately 1978
23 spent fuel assemblies in the racks.

24 MR. WESSMAN: Help me out. This is Dick Wessman.

25 Help me out, if you would. Are you in Cycle 14 now?

1 MR. McELWAY: We're in Cycle 13 now.

2 MR. WESSMAN: And when -- can you throw in at least
3 an estimate of the date on a couple of those so that we have a
4 feel of the number of years in the future that --

5 MR. McELWAY: Certainly.

6 MR. WESSMAN: -- you kind of estimate these things to
7 occur?

8 MR. McELWAY: Certainly. We're currently in Cycle
9 13, which is scheduled to end April 1st of 1989. The
10 conceptual design -- and these are the projected dates based on
11 our current schedules.

12 The Cycle 14 is scheduled to be completed in
13 September of 1990, and Cycle 15 is scheduled to be completed in
14 April of '92, and Cycle 16 is scheduled to be completed in
15 October of '93.

16 MR. WESSMAN: Thank you.

17 MR. McELWAY: And that brings us to the last item on
18 our agenda for today, which is a summary, and Warren?

19 MR. MURPHY: Okay. A very brief summary.

20 That is the extent of our presentation. It's rather
21 brief, but I think you have heard a very significant commitment
22 on our part.

23 Let me say that we're extremely anxious to resolve
24 the NRC staff concerns in our submittal. We made our submittal
25 in April of 1986. It's been almost two years. We think far too

1 long a time period to resolve this particular issue.

2 During that two-year time period, we've had to incur
3 significant expenses to make alternative plans and provisions
4 for the spent fuel that we'd generate. If we're going to spend
5 any more money on this project, we want to spend it in a more
6 meaningful way than in the short-term interim solutions, and
7 that's why we're willing to commit to make this very
8 significant commitment to additional fuel pool cooling system.

9 And we do it with the, first of all, notion that we
10 still believe that the submittal that we made two years ago was
11 valid, that we can technically defend our submittal and our
12 plans. However, we're willing to go one step further to
13 alleviate the looming concerns that apparently you have that we
14 can't make go away otherwise.

15 Either you're not listening or we're not speaking
16 correctly, and I think maybe I sense a little bit of both.

17 But, in any event, we're more than willing to make
18 this commitment and hope that it does solve your concerns, that
19 we can get some sort of a verbal commitment from you folks
20 today that, in your opinion, in fact, does address all of these
21 concerns.

22 And I think by doing this, we will avoid prolonging
23 the debate and the continuing analyses and so forth to try to
24 prove fine points. We're willing to give up that approach and
25 solve the problems in one fell swoop here.

1 So, with that, that's all we have to say today. We
2 certainly would like to have your reaction, if you have one,
3 and look forward to an SCR at the nearest possible opportunity.

4 MR. WESSMAN: Why don't we seek to explore whether,
5 in the room here, do we think that we have questions that we
6 need to explore to see whether it resolves our concerns and
7 then perhaps we need to chat for a moment amongst ourselves and
8 try and develop a scenario of the activities that we would have
9 and you would have in the next, you know -- that meets with
10 your fuel cycles and our review of the documentation that would
11 be appropriate.

12 John, do you and Jerry, what are your thoughts on how
13 this would resolve the concerns that we've raised?

14 MR. WERMIEL: My thinking is that their commitment
15 conceptually and the criteria that identified it would satisfy
16 our concerns.

17 MR. RIDGELY: I have a question. Is there any
18 particular reason why you're going to wait on conceptual design
19 until Cycle 14?

20 MR. REID: Just because this year is pretty well
21 already accounted for and the resources are assigned. We'd
22 have to divert them to already planned and on-going activities.

23 MR. RIDGELY: So, you're saying then, in essence,
24 that you won't have the resources until after April of '89 to
25 really start working on this?

1 MR. REID: Yes. To the next sphere. We're already
2 budgeted and work and everything else has already begun for
3 '88. We would have to significantly interrupt that.

4 Based on the schedule and when we really need the
5 racks, which is what our amendment calls for above 2000, there
6 doesn't appear to be a need to do it.

7 MR. WESSMAN: I'm under the -- excuse me. Do you
8 have another question?

9 MR. WERMIEL: No.

10 MR. WESSMAN: I guess I'm under the impression,
11 Warren, from chatting with Vern that as an interim basis, you
12 would have to do some modification to the existing racks to get
13 you all through the next two-three cycles, is that correct?
14 Can you address that for me or help me out on that?

15 MR. MURPHY: Well, our plans are that we can go ahead
16 and install the new racks, and the thing that we will not do
17 before we install the new system is exceed the capacity 2000
18 fuel assembly.

19 We've designed and are building new racks that we're
20 ready to install this year. First of all, don't confuse our
21 completion date of the new system with the point in time when
22 we need the new racks. We need the new racks considerably
23 before that because the problem we have is getting the new
24 racks in with the amount of fluid we have in the pool.

25 That is, we have less than 2000 assemblies in the

1 pool now, with a limited amount of space to get new racks in,
2 to shuffle the fuel from old racks to new racks. We can't go
3 up to the 2000 limit and then install the new racks. We have to
4 do that considerably before that.

5 So, what we're seeking here is the okay to go ahead
6 and install the new racks. However, the constraint on us is to
7 not exceed 2000 fuel assemblies in that pool until such time as
8 we have that new system installed.

9 MR. WESSMAN: Okay. So, one of the things that you
10 need agreement from the staff on then is your plan to go ahead
11 and put in the new racks as this interim measure, --

12 MR. MURPHY: That's right.

13 MR. WESSMAN: -- getting you to 2000.

14 MR. MURPHY: Yes.

15 MR. WESSMAN: And another thing that you need is an
16 agreement from the staff on the conceptual design. I'm
17 separating the two major activities then, is that right?

18 MR. MURPHY: Well, I don't know. Well, the two
19 different issues. We're hoping that you give us the okay to
20 put a new rack on the basis of the commitment to install the
21 new system with the design criteria that we outlined.

22 I guess we have to determine yet to what extent you
23 want to review the design as we go along in terms of looking at
24 the conceptual or waiting till the final design. Certainly it
25 will be there and available to you to review.

1 MR. WESSMAN: Okay.

2 For the record, we have just added one more guy to
3 the gathering. This is Joe Sointo from OGC.

4 MR. SOINTO: Not for long.

5 MR. WESSMAN: Not for long.

6 MR. ROONEY: Are there any other questions that we
7 have for the licensee?

8 I think this is the next step to be sure we
9 understand all the facets of what's been proposed.

10 MR. WESSMAN: Are there any other questions you all
11 have of us because then I think we will break up in caucus for
12 a moment and then offer some thoughts to you?

13 MR. REID: I guess our basic question is how do we
14 get here to the end?

15 MR. ROONEY: For Joe's benefit, since he just came
16 in, I think -- you want me to -- okay. You pretty much know
17 where we are. We just completed the final questioning to
18 confirm our understanding.

19 MR. PAULL: Vern, could I ask a question?

20 MR. ROONEY: Phil, could you wait till the end? I'd
21 like to get these matters dealt with first, please.

22 Okay. Thank you. Would you hold it till after we get
23 these things wound up?

24 Ashok, do you have --

25 MR. THADANI: I have no more questions.

1 MR. ROONEY: You have no more? Well, perhaps we
2 ought to take a break at this time. We'd like to caucus and
3 consider what we've heard. We may have additional questions
4 following.

5 I think the best way would be for you guys to take a
6 rest room break at this point.

7 MR. WESSMAN: You guys go to the cool space. Let's
8 go off the record, please.

9 (Whercupon, a recess was taken.)

10 MR. ROONEY: Do we have present everyone we need?

11 MR. MURPHY: You got the guy who can sign the SER,
12 Vern?

13 MR. ROONEY: We aren't that far.

14 We are in agreement that what you've presented deals
15 with the technical issues which we had identified as the
16 unresolved technical issues in our letter to you, and, further,
17 technically, we're able to react very positively to what you've
18 told us as being substantial enhancement and very good.

19 As you might appreciate, we probably have yet to work
20 out and were unable to quickly work out the procedural aspects
21 of these matters.

22 I guess that, as you know, we proceeded fairly far
23 along with our review in the process on the Proposed 2870 with
24 these NES racks, and we have -- we are at a point that we
25 expect that we -- if you come in with a proposal, the thing you

1 have given us in this meeting, in writing, we'd expect you to
2 submit this in writing, we would expect to be able to fairly
3 shortly issue the aspects that we have reviewed already and
4 document them.

5 Now, we have the bulk thermal hydraulic
6 considerations that your enhanced fuel pool cooling system
7 deals with. We understand that the details of that's not going
8 to be worked out until the end of Cycle 14.

9 We see a second submittal from you when you have
10 that.

11 MR. MURPHY: Excuse me. In terms of our language, --

12 MR. ROONEY: Yeah.

13 MR. MURPHY: -- is that -- are we talking about the
14 conceptual design phase of this new system? Is that what
15 you're saying?

16 MR. WESSMAN: Yes, Warren. I think you are.

17 Let me summarize how I think the flow of paper is
18 likely to happen, if I may butt in on you for just a second,
19 please.

20 MR. ROONEY: Certainly.

21 MR. WESSMAN: After you all go home from this session
22 today, what we're suggesting that you do is you come back to us
23 with the request that basically, to some degree, modifies the
24 amendment request that you have on the books today because that
25 is an amendment request taking up to the 2800 number of fuel

1 assemblies and based upon originally the existing system that
2 you have.

3 You need to tell us that you're headed in a different
4 direction with giving some indication of the criteria and the
5 concept of the modified system, which is pretty much what
6 you've said to us today, and that in the interim, you expect to
7 use the new fuel racks up to the 2000 capacity to carry you
8 forward until you've completed the work on the new system and
9 you have staff approval on the new system.

10 I think that's a letter that relatively easy you can
11 send to us in the not-to-distant future.

12 Now, the next step then from us is a response and the
13 evaluation we've done on the rack design that we've done for
14 your 2800 fuel assembly proposal, we're essentially done with
15 that. So, of course, we should be able to respond back to you
16 in a timely manner allowing you to get on with putting in the
17 racks to carry you forward for the next couple of cycles while
18 the rest of the work goes on.

19 The only potentially untidy aspect of that is, it may
20 require a resholly because you are now doing a rack activity
21 that is different than a rack and spent fuel cooling system
22 activity.

23 We don't know the answer to that today, but you see,
24 you are proceeding down slightly a different path than was
25 originally done, and I just don't know how that will go.

1 Then, some time in the future, I guess it's on your
2 Cycle 14 that you say is when you would actually come with us
3 with essentially the details of your conceptual design, a year
4 and a half from now, whenever you've got that conceptual
5 design, and that's when we should be able to, based upon that
6 reasonably good knowledge of that conceptual design, we would
7 expect probably to get pretty well done with the SER process on
8 that, which then gets you in a position to go forward.

9 MR. MURPHY: Okay. Let me say something about that,
10 if I can.

11 Our plans are to design and install a new system
12 under 5059 and it's our opinion that it doesn't require a
13 license amendment to do that.

14 We will submit the design to you, if you ask to look
15 at it, but we don't see that as a requirement if we do it on
16 the 5059.

17 MR. WESSMAN: Okay. When you say the design of the
18 system, what do you mean by "design of the system"? Are you
19 talking about the entire additional train that you're talking
20 about, the concept?

21 MR. MURPHY: Yes, yes. We see that design
22 modification as being done under 5059 and not requiring the
23 tech spec change or a license amendment.

24 MR. WESSMAN: Okay. I'm not sure that we agree with
25 you at this point in time. I think our perception was that

1 that would involve the amendment process.

2 MR. MURPHY: Okay. What's the basis for that? Why do
3 you feel that way?

4 MR. WESSMAN: Well, I think it's -- of course, one,
5 we're a little bit talking on something that's going to come
6 because you're talking a conceptual configuration, and I guess
7 we don't know enough about your conceptual configuration and
8 how it may or may not tie into the plant as designed and as
9 reviewed.

10 I think early in the session, we talked about using
11 some portions of the old system or a wholly new system. I
12 don't think -- you know, you don't know or we don't know
13 exactly how it ties in, but it sounds like it's going to have
14 some relation to the plant as designed, as originally reviewed,
15 and that would move it into our review space.

16 Am I saying it right, technical folks? Help me out.

17 MR. MURPHY: It's not necessarily true.

18 MR. THADANI: I think -- it seems to me that the
19 termination of 5059 is up to you. You make that decision. You
20 can make a modification under 5059. We may or may not agrse
21 with you, and at this stage, at least, I can't say for sure
22 that we believe there is an unreviewed safety question,
23 therefore you must come in with a submittal. I don't think we
24 know the answer. at least I don't.

25 Does anybody else want to comment on that?

1 MR. WEISMAN: Well, look, maybe I can be perfectly
2 clear here.

3 What we're trying to say is, at least from today's
4 meeting, we believe from a technical point of view, your
5 submittal can be justified for fuel storage up to 2000
6 elements. That's what we think.

7 For storage up to 2800 elements, I believe, which is
8 what you'd like to have in the future, it's dependent on a new
9 design. So, the exact legal procedures, what you follow from
10 here on in, is still under discussion by us, but as far as the
11 5059, I got one question for you.

12 Do you have a license condition now limiting the
13 number of elements you can store on site, fuel elements?

14 MR. MURPHY: That's right.

15 MR. WEISMAN: Well, if you go to 2800, it would seem
16 to me that that would require some sort of an amendment.

17 MR. MURPHY: Oh, it does, and we've applied for that.
18 That's what we're --

19 MR. WEISMAN: The approval that we would give you at
20 this stage of the game would be to 2000 elements. That's what
21 we're trying to tell you. All right. We understand your
22 criteria for future expansion under the system, and we think
23 it's a good criteria, all right, but how you get there for the
24 final resolution of the 2800 from a legal point of view as was
25 said by Vern and all, it may need a renotice or resholly.

1 We haven't determined that.

2 MR. MURPHY: Okay. Fair enough, and we may conclude,
3 in fact, it needs a license submittal or amendment.

4 MR. WEISMAN: Right.

5 MR. MURPHY: The other thing I wanted to make clear
6 is that our plans, if you agree with this, when we install the
7 new racks, we want to install, for a number of reasons, we want
8 to install the capacity of 2870, but be limited to a use of
9 2000.

10 MR. WEISMAN: Right.

11 MR. MURPHY: Okay. Is that clear?

12 MR. WESSMAN: Okay. I understood that clearly.

13 You're saying if you do work on the racks in the next
14 six months, the next year or two, you want to install all the
15 way to 2870, but have the limitation of use to 2000.

16 MR. MURPHY: That's right.

17 MR. WESSMAN: So that, basically, you've finished
18 that portion of the work for the comprehensive change that you
19 want.

20 MR. REID: We already have the limit to use of 2000.

21 MR. WESSMAN: I understand. We're going to have to
22 think on that. I'm not sure we fully appreciate it exactly
23 because I thought you were actually going to modify a corner of
24 the pool to get yourselves up conveniently to 2000 and in a
25 sense, it may be that the license condition is all it takes.

1 But let's think on that. I don't think I can answer
2 that today, but I understand what you're saying.

3 MR. MURPHY: It's a just more much efficient way to
4 do the job.

5 MR. WESSMAN: Certainly. I understand that. Okay.

6 MR. THADANI: I don't see -- does anyone see any
7 problem with that? At least I don't.

8 MR. WERMIEL: No. I was going to say --

9 MR. RIDGELY: Not from a technical standpoint.

10 MR. WERMIEL: Not from a technical standpoint.
11 There's no problem with that.

12 MR. WESSMAN: Okay. Well, maybe we have our answer.
13 We want to think a little bit and be sure that we're
14 comfortable with that just by virtue of you have a capability
15 to do more than the license says, and yet you are bound by what
16 the license says, and yet is there some other issue about a
17 heavy load over another one of these racks somewhere else, but
18 it sounds like we're saying it's okay.

19 Okay. What else? You had another question on what we
20 started to say or did you finish summarizing, Vern?

21 MR. MURPHY: I made the two points that I wanted to
22 make.

23 MR. ROONEY: You made the -- okay. Very good.

24 So, I think we would expect a submittal shortly after
25 this meeting from you, putting on the record what you have told

1 us.

2 We intend to issue a safety evaluation covering those
3 portions of the review we've completed to this point shortly.
4 We would expect you to provide further detail on the new system
5 when you've reached the point that you can speak more
6 specifically to it, and I guess we would like that in the form
7 of a submittal at the end of conceptual design.

8 Am I speaking correctly for the staff here?

9 MR. MURPHY: Okay. Regardless of the determination
10 of 5059 and the license amendment?

11 MR. WESSMAN: That's the determination that's
12 described in your schedule.

13 MR. ROONEY: Yeah. We have yet to work out the
14 procedural aspects.

15 Staff, have I let anything major out? I hope not.

16 MR. WESSMAN: Any other thoughts, Warren, at this
17 time?

18 MR. MURPHY: Again, I just want to be clear that if
19 we give you our proposal in writing, basically tell you in
20 writing what we told you today, the result of that will be an
21 SER that would allow us to install the new racks?

22 MR. WESSMAN: That's our expectation.

23 MR. ROONEY: I guess this completes the matter we
24 sought to accomplish in this meeting.

25 Now, I think that we ought to -- I'm open to

1 questions from members of the public or comments at this point,
2 and we'll do what we can to answer them, as we said.

3 MR. WESSMAN: And, John, do you or Phil have anything
4 else you wanted to ask the staff at this time?

5 MR. RIDGELY: No. I have a question, but I've had it
6 answered.

7 MR. ROONEY: Okay. Very good. Joe?

8 MR. DEAN: The only question I have -- George Dean.

9 THE REPORTER: The gentleman has got to come up.

10 MR. DEAN: Would be whether the staff intends to do a
11 new environmental impact statement with respect to this new
12 proposal in consideration of the alternatives.

13 It seems to me that this is an entirely new proposal
14 to get the 2800 on the floor, which is going to involve an
15 additional substantial sum of money being expended.

16 MR. WESSMAN: Okay. I don't know that the staff has
17 decided how to do the environmental aspect. We've got your
18 question and let us think on it.

19 MR. SOINTO: Yeah. I -- let me interject. It's our
20 position that we have it. It is not necessary to do an
21 environmental impact statement for the application we sought.
22 We've been doing an environmental impact appraisal. I would be
23 surprised if this change changed that basic position. I would
24 be surprised to see us do an environmental impact appraisal on
25 this, but in view of the position we took in the proceeding, I

1 would be surprised to see us do an environmental impact
2 statement.

3 MR. DEAN: That answers my question.

4 MR. ROONEY: Are there further questions?

5 (No response.)

6 MR. ROONEY: Meeting adjourned.

7 Thank you for coming in.

8 (Whereupon, at 11:30 a.m., the hearing was
9 adjourned.)

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REPORTER'S CERTIFICATE

DOCKET NUMBER:

CASE TITLE: Spent Fuel Capacity at Vermont Yankee Nuclear Plant

HEARING DATE: February 9, 1988

LOCATION: Rockville, MD

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the United States Nuclear Regulatory Authority.

Date: 2-9-88

alan k. Friedman
Official Reporter

HERITAGE REPORTING CORPORATION
1220 L Street, N.W.
Washington, D.C. 20005

1 UNITED STATES NUCLEAR REGULATORY COMMISSION
2 ATOMIC SAFETY AND LICENSING BOARD PANEL
3

4 In the Matter of:)
5 SPENT FUEL CAPACITY AT VERMONT YANKEE NUCLEAR PLANT)
6

7 Tuesday
8 February 9, 1988

9 U.S. Nuclear Regulatory
10 Commission
11 11555 Rockville Pike
12 1 White Flint North
13 16th Floor, Room 11
14 Rockville, MD 20852

15 The above entitled matter came on for hearing,
16 pursuant to notice, at 10:09 a.m.
17

18 APPEARANCES:

19 On Behalf of Vermont Yankee Nuclear Plant:

- 20 DON REID
- 21 DAVE McELWAY
- 22 JOHN DEVINCENTIS
- 23 JOHN HOFFMAN
- 24 JAY THAYER
- 25 CHRIS HANSEN
- BOB CAPSTICK
- JOHN RITSHER

1 APPEARANCES (Continued)

2 On Behalf of the State of Vermont:

3 PHIL PAULL

4 On Behalf of the State of Massachusetts:

5 GEORGE DEAN

6 On Behalf of the Nuclear Regulatory Commission:

7 VERNON ROONEY

8 DICK WESSMAN

9 GUS LAINAS

10 JACK KUDRICK

11 JERRY WERMIEL

12 JOHN RIDGELY

13 ANN HODGDON

14 JOE RUTBERG

15 BOB WEISMAN

16 ASHOK THADANI

17 JOE SCINTO

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P R O C E E D I N G S

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MR. ROONEY: This is a meeting between the staff and Vermont Yankee to consider information needed to complete the staff's review of the Vermont Yankee spent fuel proposal.

It is a public meeting. We have public representatives here presently and we may have some more, I believe. The public is present as observers, not participants. If members of the public have questions or comments, would you hold them till the end, and I will try to deal with them if you direct them to me, and we will try to do what we can, as we usually do, to deal with those matters at that time.

But we want to focus today on trying to get as much mileage and communications on resolving the longstanding fuel pool proposal that we are dealing with.

The meeting's being transcribed, and, so, a transcription will be issued fairly soon after the meeting. So, if, when you have something to say, would you please identify yourself for the reporter and, further, if those at the side of the room, and there may be some participating, will come forward, we will try to make way so you have access to a mike, so you can be entered into the record. And, of course, don't everybody speak at once.

I guess with these preliminaries, I would like to ask Dick Wessman, my boss, if he has any comments.

MR. WESSMAN: No, I don't, Vern. I think we have one

1 additional person that has come in. If you would identify
2 yourself, please?

3 MR. DEAN: George Dean, Assistant Attorney General
4 for the Commonwealth of Massachusetts.

5 MR. WESSMAN: Okay. Glad to have you, George.

6 I would suggest to the Vermont ankee folks, we may
7 lose at least a couple of managers around 11:00 because of
8 another commitment. If you have some -- you know, we want to
9 get the best part of your message at the front end of the
10 session and work technical details later.

11 You know, we will be here as long as we need to work
12 the problem, and, Ashok or Gus, do you have anything else that
13 you want to cover before we get started?

14 MR. THADANI: I don't.

15 MR. WESSMAN: Okay. Vern, let's go ahead and get on
16 with it.

17 MR. FOGNEY: Okay. Well, I guess, Warren, you --
18 I'll turn it over to you for presentation of such information
19 as you have.

20 MR. MURPHY: Okay. I'll immediately lateral the
21 football to Don Reid to give the introductory remarks and then
22 go on to John Hoffman.

23 MR. REID: Okay. I guess we'd first like to show you
24 the topics we intended to cover today, at least to start out.
25 We're going to provide an introductory statement.

1 John Hoffman, to my right, is going to go
2 specifically through your open items listed in your previous
3 letter or your last letter, and then we'll talk about where
4 we're going to go from here, at least from our point of view,
5 and then hopefully we'll get into any discussions or questions
6 you may have at the end of our presentation.

7 MR. WESSMAN: Do you all have handouts that you're
8 going to be able to give to us to help us take notes and attach
9 to the transcript?

10 MR. REID: I don't believe so, other than --

11 MR. HOFFMAN: We can make copies of the viewgraphs
12 later.

13 MR. REID: I guess we'll make copies of the
14 viewgraphs.

15 MR. WESSMAN: I think we'd like to get a copy of the
16 viewgraphs for the record.

17 MR. REID: Okay. I guess I'd like to start out by
18 saying we appreciate this opportunity to directly address the
19 outstanding technical issues and answer any questions you may
20 still have relative to our licensing request.

21 Our proposal is to gain your approval to expand the
22 storage capacity of our spent fuel pool from 2000 assemblies to
23 2870 assemblies, using a slightly higher density fuel rate than
24 that which presently exists.

25 We wish to make it extremely clear that it is

1 our intent to finally resolve these outstanding issues to the
2 satisfaction of the NRC staff, and to clarify any other areas
3 that still appear to involve some misunderstandings.

4 Our presentation today will provide you with a firm
5 basis upon which you can issue a timely and satisfactory safety
6 evaluation report and the accompanying amendments which would
7 identify no outstanding concerns.

8 In order to facilitate a conclusion to this long-
9 active licensing effort, we wish to present a solution that
10 will, without question, address and satisfy all the outstanding
11 concerns. This solution is presented despite the fact that we
12 still fully believe and support the adequacy of our present
13 license amendment request.

14 We wish to emphasize that our new proposed solution
15 is being offered solely to expedite and facilitate closure on
16 an issue critical to Vermont Yankee that has been pending for
17 almost two years.

18 In order to break this licensing logjam, we are
19 willing to make a major commitment that will clearly resolve
20 all the outstanding staff concerns. We are willing to commit
21 to design and install a completely redundant seismic fuel pool
22 cooling system prior to the time that we reach 2000 bundles
23 stored in the fuel pool.

24 This will have sufficient capacity to preclude any
25 concerns with the use of the residual heat removal system.

1 At this time, there are many options available to
2 accomplish this design objective. Hence, the seismic fuel pool
3 cooling system could be a wholly new system or it could be a
4 combination of some new components and modifications of some
5 existing sections of the system.

6 The final system design will comply with the
7 appropriate criteria of your standard review plan and, of
8 course, be available for your review and inspection at any
9 stage of the process.

10 John Hoffman, like I mentioned previously, will have
11 more to say about that as well as specifically addressing the
12 concerns in your January 21st letter.

13 As I indicated previously, this commitment is offered
14 in support for you to complete your review and issue a timely
15 safety evaluation report and the amendment.

16 Finally, we wish to make it clear that Vermont Yankee
17 continues to have a high commitment to operate and maintain the
18 safe nuclear power plant. This includes compliance with all
19 the applicable rules and regulations. We are available and
20 wish to fully be cooperative with the NRC in bringing this
21 issue to its conclusion.

22 We would be happy to address any questions following
23 the remaining presentations.

24 John?

25 MR. HOFFMAN: John Hoffman.

1 What we'd like to do is present a viewgraph that
2 shows the design criteria that we'll be using in the design of
3 the fuel pool cooling system that Don just mentioned.

4 The Seismic Category 1, safety class system. Seismic
5 Category 1, cooling system. Single active failure proof.
6 Detectors for loss of function and designed for the appropriate
7 licensing criteria, detection and isolation of leaks, flooding,
8 internal and external missiles, in-service testing, the
9 installation will have the appropriate considerations at the
10 time of the project as well as fire protection concerns.

11 As Don indicated, the design details have not been
12 worked out, but these are the criteria that will be used and
13 would help in the following discussion of the open items to
14 keep those criteria in mind as we go through the open items and
15 show how the new system as well as the existing plan fully
16 complies with your open items.

17 Okay. What we have done is extracted from your
18 February letter the open items that you folks had at the back,
19 and we have broken them down into five open items. The first
20 one relates to heat removal capability, and the items the NRC
21 had questioned in that letter was the use of the 1971 ANS draft
22 standard, the DK heat generation, questioned the basis for the
23 9.1 million BTUs per hour that we used as a heat load, and an
24 apparent discrepancy between the FSAR capacity of the heat
25 exchangers and the fuel pool cooling system and what we are

1 using in our evaluation.

2 On Item A, ANS draft standard, that was only used in
3 a specific scenario where we used it to calculate the decayed
4 heat in the reactor vessel. All fuel pool heat loads are
5 calculated in accordance with standard review plan
6 requirements.

7 In that particular scenario was a loss of fuel pool
8 cooling where we were going between cooling the reactor vessel
9 and the fuel pool with the RHR system. So, we don't believe
10 there is any conflict with your requirements in what we have
11 done in that evaluation.

12 The next slide, please. This slide is, for
13 information, a comparison of your heat load calculations which
14 came out of a response that you provided to an intervenor
15 interrogatory and our heat load calculations, and they are
16 essentially the same, within second decimal point.

17 I do not think there is any problem with how we're
18 calculating heat load and that it is in compliance with your
19 requirements.

20 Next viewgraph, please. The following viewgraph is a
21 curve of heat exchanger performance as a function of days and
22 this is from an internal calculation that we've done and have
23 benchmarked several of the values that you folks have come up,
24 and I think it explains our capacity situation.

25 The one bent, the top curve, with the square box, is

1 a one pump/one heat exchanger. We come up with essentially
2 seventy days for a 150 degree temperature limit in the pool.
3 You folks report sixty-nine days. So, we're right on track
4 there.

5 The second curve with the pluses is a one pump/two
6 heat exchanger mode of operation where the two heat exchangers
7 are valved in parallel and that produces at a 150 degrees a
8 ten-day heat removal capacity. The third curve is two
9 pumps/two heat exchangers.

10 In the scenario we used for evaluating use of RHR,
11 the 9.1 million BTUs per hour was an arbitrary assumption.
12 What it is is the capacity at ten days. It's the point at which
13 one pump/two heat exchangers would be capable of cooling the
14 fuel pool. We have committed that we would not operate the
15 plant without that capability. So, we took that as an upper
16 bound heat load.

17 In reality, the heat load would be significantly
18 less. We don't feel we could ever start the plant up ten days
19 following a refueling, that that was picked as an arbitrary
20 upper bound, as an adequate assumption for that evaluation.

21 The 2.23 million BTUs per hour is really the one
22 train/one pump/one heat exchanger capacity for a given set of
23 inlet conditions. The same calculation that was used to
24 generate these data also produces the 2.23 million BTUs at the
25 appropriate operating conditions.

1 So, all numbers are correct. It's just which point
2 you assume and what the different performance parameters of the
3 fuel pool cooling system is. So, we don't believe there are
4 any conflicts really with your requirements, the independent
5 evaluations you folks have performed.

6 Go back to the first one?

7 MR. WESSMAN: Can we agree to that? We might as well
8 offer the comment, if we could. Do we have any problem with the
9 numbers that we see here, John?

10 MR. RIDGELY: I don't know that there's any conflict
11 because the 2.23 was what, as I was saying, the specific
12 conditions at match point. We did not calculate, recalculate
13 those specific conditions, but based on information that's
14 here, I would expect that those really are the -- that the
15 curve would go to that data point.

16 MR. HOFFMAN: In conclusion, then, we feel that your
17 open items are clearly addressed by our current submittal and
18 certainly the new fuel pool cooling system would have the same
19 compliance with those requirements.

20 So, we would say that the first open item in your
21 letter is resolved.

22 Item 2 was identified as the temperature limit in the
23 spent fuel pool. Your concern was that there is no fuel pool
24 temperature monitoring when the spent fuel pool cooling system
25 is not operating.

1 Strictly speaking, that is correct. The monitor for
2 fuel pool temperature is in the fuel pool cooling line and,
3 therefore, if both trains are not operating, there would be no
4 monitoring.

5 Your concern was with the fact that without a
6 monitor, we wouldn't know when to isolate the mineralizers, the
7 fuel pool system is not operating, there's no flow, therefore
8 there would be no need to isolate the mineralizers.

9 MR. RIDGELY: More than just the mineralizers is the
10 fact that you don't know when you get to a 150 degrees, you
11 have to enter your tech spec.

12 MR. HOFFMAN: Okay. I will -- let me correct that.
13 I mean, let me address that next.

14 The first concern was related to the mineralizers. We
15 have indicated in our letter we do have an alarm in the control
16 room at a 125 degrees. So, we know when the pool hits a 125
17 degrees. That's an administrative limit at which point the
18 plant would take corrective action to ensure we do not exceed
19 the 150 degree tech spec.

20 If, at any time, we found that one train of the fuel
21 pool cooling system was inoperable, the licensee is committed
22 to augmented monitoring, where they have an operator go up and
23 monitor the pool on a four-hour basis. So, we would all times
24 know the temperature and the trending of the pool within a
25 four-hour time period, essentially, and the heat-up rate is

1 such that we don't believe we'd ever be in a mode of exceeding
2 a 150 degrees without knowing it.

3 So, we feel we have appropriate actions although they
4 are operator actions. We at all times would know the
5 temperature of the fuel pool.

6 The new system being as its seismic and single
7 failure approval, there will always be flow through that
8 system. We'll always be monitoring the fuel pool temperature
9 during normal operation. The only time when that system might
10 be secured would be during a refueling, when the gates were
11 open, and we were on RHR, at which point there are other
12 monitors in the plant to also monitor the temperatures.

13 So, we feel that with the existing system, we have
14 that capability. With the new system, it's built right into
15 it, we would always know the temperature and be able to take
16 the appropriate actions.

17 MR. McELWAY: Excuse me, Don.

18 I just want to make it clear that the new system we'd
19 be installing for fuel pool temperature monitoring.

20 MR. HOFFMAN: You folks have any comment on that
21 before we leave it?

22 (No response.)

23 MR. HOFFMAN: The third item was the capability of
24 fuel pool cooling following a seismic event, and the questions
25 you folks had asked related to the fire water connection to

1 service water, alternate cooling piping for the cooling tower
2 cell, and the RHR service water to RHR cross-connect piping.

3 All those systems are seismic or are isolated in the
4 case of the service water from a non-seismic piping to a
5 normally-shut manual value. I think were we to proceed on this
6 basis, I think, although it would be necessary for you folks if
7 you wanted to come up to review the calculations, review the
8 system boundaries, we have all that information available.

9 With the new system, those particular connections and
10 that would not be required and would be resolved completely by
11 the installation of the new system.

12 MR. WESSMAN: I'm assuming the new system will meet
13 all the EQ and all the rest of the criteria, whatever is
14 appropriate in the codes and standards.

15 MR. HOFFMAN: That is correct, yes.

16 MR. WESSMAN: Okay.

17 MR. HOFFMAN: Item 4 was the radiological
18 consequences of boiling. This was a potential operating mode
19 with the existing fuel pool cooling system, and your open items
20 essentially requested that we provide the assumptions and the
21 dose for on-site. We have that information available.

22 It was a very conservative analysis that our people
23 did. Essentially, they assumed the pool boiled for thirty
24 days. They took the boil-off rate as the maximum boil-off which
25 was about 16.6 GPM, assumed that lasted for the entire thirty

1 days.

2 For the off-site dose, it was an assumption of a
3 ground level unfiltered release and that came out to about six
4 percent of the Part 20 requirements.

5 For the on-site dose, similar assumptions were made.
6 Thirty days, and there was no provision of supplied air for the
7 personnel on site for recovery. It was also a very small
8 fraction of Part 20.

9 And for the new system, there will be no pool,
10 potential pool boiling events and the whole issue becomes moot.

11 The fifth open item was a concern that you folks
12 expressed on the particular scenario we presented for
13 supplemental pooling in the event of loss of the normal fuel
14 pool cooling system by some external event, and the two items
15 that were asked were the capability of parallel heat exchanger
16 operation and your feeling that the number of operator actions
17 were more than you felt was suitable.

18 The heat exchangers can be tied together in parallel.
19 In reviewing for this meeting last night, I did notice there
20 was a sketch that we provided in the back of our letter that
21 didn't explicitly show that cross-tie. That may have been a
22 source of confusion, but, indeed, the heat exchangers can be
23 tied together in parallel.

24 Our evaluation was a very conservative evaluation, as
25 I indicated earlier, on the heat load. We just took the upper

1 bounds that the pool could ever be at with the fuel pool
2 cooling system in service and demonstrated that the operators
3 could handle that event. It was, I believe, six pump starts
4 and approximately twelve operator actions.

5 That was discussed with the operating staff. They
6 feel that is a reasonable sequence of events. In reality, the
7 numbers would be much lower than that because it wouldn't be
8 the situation with the 9.1 million BTUs in the pool anyway.

9 So, we feel that that is a suitable mode of operation
10 for an extremely unlikely off-normal event. However, once
11 again, the new system completely does away with that potential
12 of events and would never require that operation.

13 So, once again, we feel that we can address your
14 concerns with the existing system and our new proposal makes
15 the issue moot.

16 With that, if there's any comments, I would be glad
17 to answer them.

18 MR. KUDRICK: I have a question relative to the
19 documentation.

20 Jack Kudrick, Compliance Systems.

21 You provided quite a bit of information in response
22 to some of the concerns that we did not have on the pumps and
23 so forth.

24 Were you planning to document that at all, other than
25 in the transcript of this meeting?

1 MR. HOFFMAN: I don't think we'd be planning on it
2 now because our new system proposal, for the ones that are no
3 longer applicable with the new system, I don't see we'd be
4 documenting them in detail.

5 MR. KUDRICK: Okay. So, you're strictly relying on
6 your new system.

7 MR. HOFFMAN: That's correct.

8 MR. WERMIEL: If the new system then goes to almost
9 every issue, as you have said, so if that's what you frame the
10 documents in, then I don't think we see a problem with that
11 proposal resolving these.

12 MR. WESSMAN: Let me make that clear. I think it
13 would be appropriate as you come in with that description of
14 the new system that you at least reference back to the
15 questions of our letter of January 21st and indicate how this
16 issue is resolved because a couple of sentences or whatever it
17 takes, and then go on to the discussion of the new system.

18 MR. HOFFMAN: That's correct.

19 MR. WESSMAN: Rather than in a debate on an old
20 system that was not there, but at least, you know, build the
21 link for us and for the public record of how the new system
22 makes these issues moot.

23 MR. HOFFMAN: Right. That would be -- that's our
24 plan. We wouldn't be submitting detailed calculations.

25 MR. ROONEY: Let me just clarify my understanding.

1 The theory bullet in our January 21st letter was
2 provision for essential fuel pool cooling in case of single
3 failure, and as I understood what you were saying, is that the
4 reliance -- without the new system now, your reliance on the
5 RHR in all situations, you felt, as you described in the
6 scenario, that was something that could be done, correct, but
7 with the new system, it was going to be redundant and single
8 failure proof.

9 MR. KOFFMAN: That is correct.

10 MR. THADANI: Ashok Thadani.

11 Clarification and question about the issue of single
12 failure.

13 Can you describe what your intention is in terms of
14 the single failure to be considered? Are these some active
15 failures or would they be consideration of passive failures?

16 MR. HOFFMAN: Active failures.

17 MR. THADANI: Thank you.

18 THE REPORTER: I'm afraid we're going to have to get
19 people to come up here. It's just not that good in the back.
20 I'm sorry.

21 MR. ROONEY: If anyone wants to come up to talk, I'll
22 step aside and yield the right-of-way, so you can have access
23 to my mike.

24 MR. McELWAY: Any other questions pertaining to the
25 questions in the letter?

1 (No response.)

2 MR. McELWAY: The next item -- my name is David
3 McElway.

4 The next item on our agenda was future actions
5 Vermont Yankee foresees.

6 I've put together a time line to try to indicate the
7 proposed schedule that Vermont Yankee has developed.
8 Certainly, the first item that we need to reach closure on is
9 the licensing approval.

10 Our next task will be to come up with a conceptual
11 design which is scheduled to be completed by the end of Cycle
12 14. At the completion of the conceptual design, as-built
13 dimensions being taken, a detailed design change would be
14 developed and put through the normal review process, both at
15 Yankee Atomic and the plant, during which time, early purchase
16 of long lead time equipment would be established, with the
17 final detailed design completed by the end of Cycle 15, and the
18 installation of the entire design change to take place during
19 Cycle 16, such that it is complete and fully operational at the
20 end of Cycle 16.

21 And as indicated on the time line, that's the time
22 frame in which the spent fuel pool will have approximately 1978
23 spent fuel assemblies in the racks.

24 MR. WESSMAN: Help me out. This is Dick Wessman.

25 Help me out, if you would. Are you in Cycle 14 now?

1 MR. McELWAY: We're in Cycle 13 now.

2 MR. WESSMAN: And when -- can you throw in at least
3 an estimate of the date on a couple of those so that we have a
4 feel of the number of years in the future that --

5 MR. McELWAY: Certainly.

6 MR. WESSMAN: -- you kind of estimate these things to
7 occur?

8 MR. McELWAY: Certainly. We're currently in Cycle
9 13, which is scheduled to end April 1st of 1989. The
10 conceptual design -- and these are the projected dates based on
11 our current schedules.

12 The Cycle 14 is scheduled to be completed in
13 September of 1990, and Cycle 15 is scheduled to be completed in
14 April of '92, and Cycle 16 is scheduled to be completed in
15 October of '93.

16 MR. WESSMAN: Thank you.

17 MR. McELWAY: And that brings us to the last item on
18 our agenda for today, which is a summary, and Warren?

19 MR. MURPHY: Okay. A very brief summary.

20 That is the extent of our presentation. It's rather
21 brief, but I think you have heard a very significant commitment
22 on our part.

23 Let me say that we're extremely anxious to resolve
24 the NRC staff concerns in our submittal. We made our submittal
25 in April of 1986. It's been almost two years. We think far too

1 long a time period to resolve this particular issue.

2 During that two-year time period, we've had to incur
3 significant expenses to make alternative plans and provisions
4 for the spent fuel that we'd generate. If we're going to spend
5 any more money on this project, we want to spend it in a more
6 meaningful way than in the short-term interim solutions, and
7 that's why we're willing to commit to make this very
8 significant commitment to additional fuel pool cooling system.

9 And we do it with the, first of all, notion that we
10 still believe that the submittal that we made two years ago was
11 valid, that we can technically defend our submittal and our
12 plans. However, we're willing to go one step further to
13 alleviate the looming concerns that apparently you have that we
14 can't make go away otherwise.

15 Either you're not listening or we're not speaking
16 correctly, and I think maybe I sense a little bit of both.

17 But, in any event, we're more than willing to make
18 this commitment and hope that it does solve your concerns, that
19 we can get some sort of a verbal commitment from you folks
20 today that, in your opinion, in fact, does address all of these
21 concerns.

22 And I think by doing this, we will avoid prolonging
23 the debate and the continuing analyses and so forth to try to
24 prove fine points. We're willing to give up that approach and
25 solve the problems in one fell swoop here.

1 So, with that, that's all we have to say today. We
2 certainly would like to have your reaction, if you have one,
3 and look forward to an SCR at the nearest possible opportunity.

4 MR. WESSMAN: Why don't we seek to explore whether,
5 in the room here, do we think that we have questions that we
6 need to explore to see whether it resolves our concerns and
7 then perhaps we need to chat for a moment amongst ourselves and
8 try and develop a scenario of the activities that we would have
9 and you would have in the next, you know -- that meets with
10 your fuel cycles and our review of the documentation that would
11 be appropriate.

12 John, do you and Jerry, what are your thoughts on how
13 this would resolve the concerns that we've raised?

14 MR. WERMIEL: My thinking is that their commitment
15 conceptually and the criteria that identified it would satisfy
16 our concerns.

17 MR. RIDGELY: I have a question. Is there any
18 particular reason why you're going to wait on conceptual design
19 until Cycle 14?

20 MR. REID: Just because this year is pretty well
21 already accounted for and the resources are assigned. We'd
22 have to divert them to already planned and on-going activities.

23 MR. RIDGELY: So, you're saying then, in essence,
24 that you won't have the resources until after April of '89 to
25 really start working on this?

1 MR. REID: Yes. To the next sphere. We're already
2 budgeted and work and everything else has already begun for
3 '88. We would have to significantly interrupt that.

4 Based on the schedule and when we really need the
5 racks, which is what our amendment calls for above 2000, there
6 doesn't appear to be a need to do it.

7 MR. WESSMAN: I'm under the -- excuse me. Do you
8 have another question?

9 MR. WERMIEL: No.

10 MR. WESSMAN: I guess I'm under the impression,
11 Warren, from chatting with Vern that as an interim basis, you
12 would have to do some modification to the existing racks to get
13 you all through the next two-three cycles, is that correct?
14 Can you address that for me or help me out on that?

15 MR. MURPHY: Well, our plans are that we can go ahead
16 and install the new racks, and the thing that we will not do
17 before we install the new system is exceed the capacity 2000
18 fuel assembly.

19 We've designed and are building new racks that we're
20 ready to install this year. First of all, don't confuse our
21 completion date of the new system with the point in time when
22 we need the new racks. We need the new racks considerably
23 before that because the problem we have is getting the new
24 racks in with the amount of fluid we have in the pool.

25 That is, we have less than 2000 assemblies in the

1 pool now, with a limited amount of space to get new racks in,
2 to shuffle the fuel from old racks to new racks. We can't go
3 up to the 2000 limit and then install the new racks. We have to
4 do that considerably before that.

5 So, what we're seeking here is the okay to go ahead
6 and install the new racks. However, the constraint on us is to
7 not exceed 2000 fuel assemblies in that pool until such time as
8 we have that new system installed.

9 MR. WESSMAN: Okay. So, one of the things that you
10 need agreement from the staff on then is your plan to go ahead
11 and put in the new racks as this interim measure, --

12 MR. MURPHY: That's right.

13 MR. WESSMAN: -- getting you to 2000.

14 MR. MURPHY: Yes.

15 MR. WESSMAN: And another thing that you need is an
16 agreement from the staff on the conceptual design. I'm
17 separating the two major activities then, is that right?

18 MR. MURPHY: Well, I don't know. Well, the two
19 different issues. We're hoping that you give us the okay to
20 put a new rack on the basis of the commitment to install the
21 new system with the design criteria that we outlined.

22 I guess we have to determine yet to what extent you
23 want to review the design as we go along in terms of looking at
24 the conceptual or waiting till the final design. Certainly it
25 will be there and available to you to review.

1 MR. WESSMAN: Okay.

2 For the record, we have just added one more guy to
3 the gathering. This is Joe Sointo from OGC.

4 MR. SOINTO: Not for long.

5 MR. WESSMAN: Not for long.

6 MR. ROONEY: Are there any other questions that we
7 have for the licensee?

8 I think this is the next step to be sure we
9 understand all the facets of what's been proposed.

10 MR. WESSMAN: Are there any other questions you all
11 have of us because then I think we will break up in caucus for
12 a moment and then offer some thoughts to you?

13 MR. REID: I guess our basic question is how do we
14 get here to the end?

15 MR. ROONEY: For Joe's benefit, since he just came
16 in, I think -- you want me to -- okay. You pretty much know
17 where we are. We just completed the final questioning to
18 confirm our understanding.

19 MR. PAULL: Vern, could I ask a question?

20 MR. ROONEY: Phil, could you wait till the end? I'd
21 like to get these matters dealt with first, please.

22 Okay. Thank you. Would you hold it till after we get
23 these things wound up?

24 Ashok, do you have --

25 MR. THADANI: I have no more questions.

1 MR. ROONEY: You have no more? Well, perhaps we
2 ought to take a break at this time. We'd like to caucus and
3 consider what we've heard. We may have additional questions
4 following.

5 I think the best way would be for you guys to take a
6 rest room break at this point.

7 MR. WESSMAN: You guys go to the cool space. Let's
8 go off the record, please.

9 (Whereupon, a recess was taken.)

10 MR. ROONEY: Do we have present everyone we need?

11 MR. MURPHY: You got the guy who can sign the SER,
12 Vern?

13 MR. ROONEY: We aren't that far.

14 We are in agreement that what you've presented deals
15 with the technical issues which we had identified as the
16 unresolved technical issues in our letter to you, and, further,
17 technically, we're able to react very positively to what you've
18 told us as being substantial enhancement and very good.

19 As you might appreciate, we probably have yet to work
20 out and were unable to quickly work out the procedural aspects
21 of these matters.

22 I guess that, as you know, we proceeded fairly far
23 along with our review in the process on the Proposed 2870 with
24 these NES racks, and we have -- we are at a point that we
25 expect that we -- if you come in with a proposal, the thing you

1 have given us in this meeting, in writing, we'd expect you to
2 submit this in writing, we would expect to be able to fairly
3 shortly issue the aspects that we have reviewed already and
4 document them.

5 Now, we have the bulk thermal hydraulic
6 considerations that your enhanced fuel pool cooling system
7 deals with. We understand that the details of that's not going
8 to be worked out until the end of Cycle 14.

9 We see a second submittal from you when you have
10 that.

11 MR. MURPHY: Excuse me. In terms of our language, --

12 MR. ROONEY: Yeah.

13 MR. MURPHY: -- is that -- are we talking about the
14 conceptual design phase of this new system? Is that what
15 you're saying?

16 MR. WESSMAN: Yes, Warren. I think you are.

17 Let me summarize how I think the flow of paper is
18 likely to happen, if I may butt in on you for just a second,
19 please.

20 MR. ROONEY: Certainly.

21 MR. WESSMAN: After you all go home from this session
22 today, what we're suggesting that you do is you come back to us
23 with the request that basically, to some degree, modifies the
24 amendment request that you have on the books today because that
25 is an amendment request taking up to the 2800 number of fuel

1 assemblies and based upon originally the existing system that
2 you have.

3 You need to tell us that you're headed in a different
4 direction with giving some indication of the criteria and the
5 concept of the modified system, which is pretty much what
6 you've said to us today, and that in the interim, you expect to
7 use the new fuel racks up to the 2000 capacity to carry you
8 forward until you've completed the work on the new system and
9 you have staff approval on the new system.

10 I think that's a letter that relatively easy you can
11 send to us in the not-to-distant future.

12 Now, the next step then from us is a response and the
13 evaluation we've done on the rack design that we've done for
14 your 2800 fuel assembly proposal, we're essentially done with
15 that. So, of course, we should be able to respond back to you
16 in a timely manner allowing you to get on with putting in the
17 racks to carry you forward for the next couple of cycles while
18 the rest of the work goes on.

19 The only potentially untidy aspect of that is, it may
20 require a resholly because you are now doing a rack activity
21 that is different than a rack and spent fuel cooling system
22 activity.

23 We don't know the answer to that today, but you see,
24 you are proceeding down slightly a different path than was
25 originally done, and I just don't know how that will go.

1 Then, some time in the future, I guess it's on your
2 Cycle 14 that you say is when you would actually come with us
3 with essentially the details of your conceptual design, a year
4 and a half from now, whenever you've got that conceptual
5 design, and that's when we should be able to, based upon that
6 reasonably good knowledge of that conceptual design, we would
7 expect probably to get pretty well done with the SER process on
8 that, which then gets you in a position to go forward.

9 MR. MURPHY: Okay. Let me say something about that,
10 if I can.

11 Our plans are to design and install a new system
12 under 5059 and it's our opinion that it doesn't require a
13 license amendment to do that.

14 We will submit the design to you, if you ask to look
15 at it, but we don't see that as a requirement if we do it on
16 the 5059.

17 MR. WESSMAN: Okay. When you say the design of the
18 system, what do you mean by "design of the system"? Are you
19 talking about the entire additional train that you're talking
20 about, the concept?

21 MR. MURPHY: Yes, yes. We see that design
22 modification as being done under 5059 and not requiring the
23 tech spec change or a license amendment.

24 MR. WESSMAN: Okay. I'm not sure that we agree with
25 you at this point in time. I think our perception was that

1 that would involve the amendment process.

2 MR. MURPHY: Okay. What's the basis for that? Why do
3 you feel that way?

4 MR. WESSMAN: Well, I think it's -- of course, one,
5 we're a little bit talking on something that's going to come
6 because you're talking a conceptual configuration, and I guess
7 we don't know enough about your conceptual configuration and
8 how it may or may not tie into the plant as designed and as
9 reviewed.

10 I think early in the session, we talked about using
11 some portions of the old system or a wholly new system. I
12 don't think -- you know, you don't know or we don't know
13 exactly how it ties in, but it sounds like it's going to have
14 some relation to the plant as designed, as originally reviewed,
15 and that would move it into our review space.

16 Am I saying it right, technical folks? Help me out.

17 MR. MURPHY: It's not necessarily true.

18 MR. THADANI: I think -- it seems to me that the
19 termination of 5059 is up to you. You make that decision. You
20 can make a modification under 5059. We may or may not agree
21 with you, and at this stage, at least, I can't say for sure
22 that we believe there is an unreviewed safety question,
23 therefore you must come in with a submittal. I don't think we
24 know the answer, at least I don't.

25 Does anybody else want to comment on that?

1 MR. WEISMAN: Well, look, maybe I can be perfectly
2 clear here.

3 What we're trying to say is, at least from today's
4 meeting, we believe from a technical point of view, your
5 submittal can be justified for fuel storage up to 2000
6 elements. That's what we think.

7 For storage up to 2800 elements, I believe, which is
8 what you'd like to have in the future, it's dependent on a new
9 design. So, the exact legal procedures, what you follow from
10 here on in, is still under discussion by us, but as far as the
11 5059, I got one question for you.

12 Do you have a license condition now limiting the
13 number of elements you can store on site, fuel elements?

14 MR. MURPHY: That's right.

15 MR. WEISMAN: Well, if you go to 2800, it would seem
16 to me that that would require some sort of an amendment.

17 MR. MURPHY: Oh, it does, and we've applied for that.
18 That's what we're --

19 MR. WEISMAN: The approval that we would give you at
20 this stage of the game would be to 2000 elements. That's what
21 we're trying to tell you. All right. We understand your
22 criteria for future expansion under the system, and we think
23 it's a good criteria, all right, but how you get there for the
24 final resolution of the 2800 from a legal point of view as was
25 said by Vern and all, it may need a renotice or resholly.

1 We haven't determined that.

2 MR. MURPHY: Okay. Fair enough, and we may conclude,
3 in fact, it needs a license submittal or amendment.

4 MR. WEISMAN: Right.

5 MR. MURPHY: The other thing I wanted to make clear
6 is that our plans, if you agree with this, when we install the
7 new racks, we want to install, for a number of reasons, we want
8 to install the capacity of 2870, but be limited to a use of
9 2000.

10 MR. WEISMAN: Right.

11 MR. MURPHY: Okay. Is that clear?

12 MR. WESSMAN: Okay. I understood that clearly.

13 You're saying if you do work on the racks in the next
14 six months, the next year or two, you want to install all the
15 way to 2870, but have the limitation of use to 2000.

16 MR. MURPHY: That's right.

17 MR. WESSMAN: So that, basically, you've finished
18 that portion of the work for the comprehensive change that you
19 want.

20 MR. REID: We already have the limit to use of 2000.

21 MR. WESSMAN: I understand. We're going to have to
22 think on that. I'm not sure we fully appreciate it exactly
23 because I thought you were actually going to modify a corner of
24 the pool to get yourselves up conveniently to 2000 and in a
25 sense, it may be that the license condition is all it takes.

1 But let's think on that. I don't think I can answer
2 that today, but I understand what you're saying.

3 MR. MURPHY: It's a just more much efficient way to
4 do the job.

5 MR. WESSMAN: Certainly. I understand that. Okay.

6 MR. THADANI: I don't see -- does anyone see any
7 problem with that? At least I don't.

8 MR. WERMIEL: No. I was going to say --

9 MR. RIDGELY: Not from a technical standpoint.

10 MR. WERMIEL: Not from a technical standpoint.
11 There's no problem with that.

12 MR. WESSMAN: Okay. Well, maybe we have our answer.
13 We want to think a little bit and be sure that we're
14 comfortable with that just by virtue of you have a capability
15 to do more than the license says, and yet you are bound by what
16 the license says, and yet is there some other issue about a
17 heavy load over another one of these racks somewhere else, but
18 it sounds like we're saying it's okay.

19 Okay. What else? You had another question on what we
20 started to say or did you finish summarizing, Vern?

21 MR. MURPHY: I made the two points that I wanted to
22 make.

23 MR. ROONEY: You made the -- okay. Very good.

24 So, I think we would expect a submittal shortly after
25 this meeting from you, putting on the record what you have told

1 us.

2 We intend to issue a safety evaluation covering those
3 portions of the review we've completed to this point shortly.
4 We would expect you to provide further detail on the new system
5 when you've reached the point that you can speak more
6 specifically to it, and I guess we would like that in the form
7 of a submittal at the end of conceptual design.

8 Am I speaking correctly for the staff here?

9 MR. MURPHY: Okay. Regardless of the determination
10 of 5059 and the license amendment?

11 MR. WESSMAN: That's the determination that's
12 described in your schedule.

13 MR. ROONEY: Yeah. We have yet to work out the
14 procedural aspects.

15 Staff, have I let anything major out? I hope not.

16 MR. WESSMAN: Any other thoughts, Warren, at this
17 time?

18 MR. MURPHY: Again, I just want to be clear that if
19 we give you our proposal in writing, basically tell you in
20 writing what we told you today, the result of that will be an
21 SER that would allow us to install the new racks?

22 MR. WESSMAN: That's our expectation.

23 MR. ROONEY: I guess this completes the matter we
24 sought to accomplish in this meeting.

25 Now, I think that we ought to -- I'm open to

1 questions from members of the public or comments at this point,
2 and we'll do what we can to answer them, as we said.

3 MR. WESSMAN: And, John, do you or Phil have anything
4 else you wanted to ask the staff at this time?

5 MR. RIDGELY: No. I have a question, but I've had it
6 answered.

7 MR. ROONEY: Okay. Very good. Joe?

8 MR. DEAN: The only question I have -- George Dean.

9 THE REPORTER: The gentleman has got to come up.

10 MR. DEAN: Would be whether the staff intends to do a
11 new environmental impact statement with respect to this new
12 proposal in consideration of the alternatives.

13 It seems to me that this is an entirely new proposal
14 to get the 2800 on the floor, which is going to involve an
15 additional substantial sum of money being expended.

16 MR. WESSMAN: Okay. I don't know that the staff has
17 decided how to do the environmental aspect. We've got your
18 question and let us think on it.

19 MR. SOINTO: Yeah. I -- let me interject. It's our
20 position that we have it. It is not necessary to do an
21 environmental impact statement for the application we sought.
22 We've been doing an environmental impact appraisal. I would be
23 surprised if this change changed that basic position. I would
24 be surprised to see us do an environmental impact appraisal on
25 this, but in view of the position we took in the proceeding, I

1 would be surprised to see us do an environmental impact
2 statement.

3 MR. DEAN: That answers my question.

4 MR. ROONEY: Are there further questions?

5 (No response.)

6 MR. ROONEY: Meeting adjourned.

7 Thank you for coming in.

8 (Whereupon, at 11:30 a.m., the hearing was
9 adjourned.)

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REPORTER'S CERTIFICATE

DOCKET NUMBER:

CASE TITLE: Spent Fuel Capacity at Vermont Yankee Nuclear Plant

HEARING DATE: February 9, 1988

LOCATION: Rockville, MD

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the United States Nuclear Regulatory Authority.

Date: 2-9-88

alan k. friedman
Official Reporter

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ATHadani
GLainas
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