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UNITED STATES NUCLEAR REGULATORY COMMISSION'S

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

April 6, 2005

The contents of this transcript of the proceeding of the United States Nuclear Regulatory Commission Advisory Committee on Reactor Safeguards, taken on April 6, 2005, as reported herein, is a record of the discussions recorded at the meeting held on the above date.

This transcript has not been reviewed, corrected and edited and it may contain inaccuracies.

1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

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4 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

5 (ACRS)

6 PLANT LICENSE RENEWAL SUBCOMMITTEE

7 + + + + +

8 WEDNESDAY,

9 APRIL 6, 2005

10 + + + + + +

11 ROCKVILLE, MARYLAND

12 + + + + +

13

14 The Subcommittee met at the Nuclear

15 Regulatory Commission, Two White Flint North, Room

16 T2B3, 11545 Rockville Pike, at 1:30 p.m., John D.

17 Sieber, Chairman, presiding.

18

19 COMMITTEE MEMBERS:

20 JOHN D. SIEBER, Chairman

21 JOHN J. BARTON, Consultant

22 STEPHEN L. ROSEN, Member

23 WILLIAM J. SHACK, Member

24 GRAHAM B. WALLIS, Member

25

1 ACRS STAFF PRESENT:

2 CAYATANO SANTOS

3 NRC STAFF PRESENT:

4 KENNETH CHANG, NRR

5 JOHNNY EADS, NRR

6 MICHAEL MODES, Region I

7 P.T. KUO, NRR

8 ALSO PRESENT:

9 PAUL AITKEN, Dominion Nuclear Connecticut

10 NANCY BURTON, Connecticut Coalition Against

11 Millstone

12 WILLIAM WATSON, Dominion Nuclear Connecticut

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

2 1:31 p.m.

3 CHAIRMAN SIEBER: The meeting will now
4 come to order.

5 This is a meeting of the Plant License
6 Renewal Subcommittee. I'm John Sieber, Chairman of
7 this Plant License Renewal Subcommittee meeting. ACRS
8 members in attendance are Dr. William Shack, Mr.
9 Steven Rosen, and Dr. Graham Wallis.

10 ACRS consultant Mr. John Barton is also
11 present.

12 Mr. Tanny Santos of the ACRS staff is the
13 Designated Federal Official for this meeting.

14 The purpose of this meeting is to discuss
15 the license renewal application for Millstone Units 2
16 and 3. We will hear presentations from
17 representatives of Dominion Nuclear Connecticut and
18 the NRC's Office of Nuclear Reactor Regulation.

19 In addition, we have received one request
20 from a member of the public to make a statement at
21 today's meeting. Ms. Nancy Burton of the Connecticut
22 Coalition Against Millstone will make an oral
23 statement after the applicant and the staff's
24 presentations.

25 The Subcommittee will gather information,

1 analyze relevant issues and facts and formulate
2 proposed positions and actions as appropriate for
3 deliberation by the full Committee.
4 The rules of participation in today's
5 meeting have been announced as part of the notice of
6 this meeting previously published in the *Federal*
7 *Register*.
8 A transcript of the meeting is being kept
9 and will be made available as stated in the *Federal*
10 *Register* notice. Therefore, we request all
11 participants in this meeting to use the microphones
12 located throughout the meeting room when addressing
13 the Subcommittee.
14 The participants should first identify
15 themselves and speak with sufficient clarity and
16 volume so that they may be readily heard by us and
17 also by the court reporter.
18 Before we begin, and by way of
19 introduction, Millstone Units 2 and 3 are part of a
20 nuclear power generation complex consisting of three
21 units of different manufacturers were built over a 16
22 year period.
23 Unit 1, which as shutdown in the late
24 1990s was a Mark 1 BWR. Unit 2 designed by Combustion
25 Engineering and Unit 3 designed by Westinghouse are

1 currently operating and are the subject of the
2 applicant's license renewal application. Parts of
3 Unit 1 must remain operable for the period of extended
4 licenses of Units 2 and 3 because there is some
5 substructure systems and components that are shared
6 among all three units. Therefore, I request the
7 applicant and the staff to point out those situations
8 where Unit 1 structure systems and components are
9 shared with the other two units so as to make it clear
10 what structures and systems we are discussing.
11 Lastly, the meeting is intended to review
12 only the technical details of the application. The
13 associated environmental impact statement has been
14 reviewed by the staff separately from this review.
15 Also, issues related to current operation
16 of the units are covered by the Reactor Oversight
17 Process. It will not be further discussed here except
18 to the extent that current operating practices have an
19 influence on the licensee's ability to maintain
20 specific programs such as the corrective action
21 system.
22 Actually ample agency resources are
23 available to assure compliance with code and the
24 current licensing basis for these units. The
25 requirements of license renewal are set forth in Title

1 10 of the Code of Federal Regulations in Part 54.
2 This part of the Code requires the scoping, screening
3 and aging management of long-lived passive structures
4 systems and components during the term of extended
5 operation. Aging management for active components is
6 covered under other parts of Title 10 and the license,
7 and especially the Maintenance Rule which the
8 applicant has pointed out.
9 The application was not submitted as a
10 risk-informed application. Therefore, the staff has
11 used deterministic evaluations and criteria to assure
12 compliance with the rules and conformance with and the
13 maintenance of the current licensing basis.
14 ACRS review of license renewals is
15 required by statute. During this meeting we will
16 conduct interim review of the application and the
17 draft safety evaluation report.
18 We may or may not write an interim report
19 at this time depending on their issues that are
20 identified as significant. However, after the staff
21 issues its final safety evaluation report, we will
22 again review this application and the final SER and
23 write a report that will be published as part of the
24 SER.
25 What I would like to do no is to continue

1 and proceed with the meeting. And I call upon Dr.
2 P.T. Kuo of the Office of Nuclear Reactor Regulations
3 to begin.
4 P.T.?
5 DR. KUO: Thank you, Mr. Chairman. Good
6 afternoon.
7 And again for the record, P.T. Kuo, the
8 program director of the License Renewal and
9 Environmental Impacts Program.
10 To my right is Dr. Kenneth Chang, who is
11 the team leader for the staff audit review.
12 And to my far right is Johnny Eads, who is
13 the project manager for this safety evaluation.
14 The staff has completed the safety
15 evaluation of the Millstone Power Plant license
16 renewal application. And Johnny Eads will lead the
17 staff's presentation on the results of the evaluation
18 today with the support of the technical staff who are
19 sitting in the audience right now.
20 In addition, Dr. Kenneth Chang, who is a
21 team leader for the site review, will provide the
22 Committee a few examples of their audit findings.
23 We have also invited Mr. Mike Modes here,
24 who is the inspection team leader from Region I. And
25 he will brief the Commission on their inspection

1 findings, and also performance indicators.

2 Millstone license renewal application is

3 the first application that followed the completion of

4 our pilot program. They fully implemented the standard

5 format and content described in NEI 95-10, Revision 4;

6 now it's Revision 5. And also they have fully

7 supported the staff's audit review process which is to

8 verify whether their application or their program is

9 consistent with GALL or consistent with previously

10 staff approved positions.

11 And according to the applicant the

12 matching rate is high, it's around 90 percent. Indeed,

13 a very impressive number but we still, of course, find

14 questions, we ask questions during the audit. And you

15 will hear some of the discussion later on by Johnny.

16 Briefly, this SER contains six open items,

17 and they are all at various stages of resolution.

18 Again, Johnny will discuss each and every one of them

19 in more details.

20 So this brief introduction, if you don't

21 have any questions in general matters, then I will

22 turn over the presentation to the applicant first and

23 then it will be followed by staff presentation later.

24 CHAIRMAN SIEBER: Thank you.

25 DR. KUO: Bill?

1 DR. WATSON: I just noticed the lights
2 dimmed just before I came up. So I hope I'll be able
3 to see my notes.
4 Good afternoon. My name is Bill Watson.
5 I'm the supervisor of Millstone site license renewal.
6 And I'm here to make the main presentation on behalf
7 of Dominion.
8 MR. BARTON: Are you a Dominion employee
9 or a consultant?
10 DR. WATSON: No. I am a Dominion
11 employee.
12 MR. BARTON: Okay. Thank you.
13 DR. WATSON: An employee of Dominion
14 Nuclear Connecticut.
15 Also with me today is Bill Corbin, who is
16 the Director of Nuclear Engineering and currently
17 license renewal is in his area of responsibility.
18 Paul Aitken who is the supervisor for
19 license renewal for all of the Dominion fleet. And
20 also Paul Aitken had the direct responsibility of
21 supervising the integrated plant assessment portion of
22 the process.
23 And then you can see the remaining names
24 here or other team personnel that have come to support
25 us.

1 The way Dominion went about developing its
2 application is we actually had a single team but
3 divided into two portions, one down in our engineering
4 headquarters in Innsbrook and the other half was up at
5 Connecticut at Millstone Power Station. Down in
6 Innsbrook was the team that did the integrated plan
7 assessment under the direction of Paul Aitken. And
8 then up at Millstone under my direction was the
9 development of the license renewal application with,
10 obviously, a lot of input from Innsbrook, the time-
11 limited aging analyses, the aging management programs
12 and the environmental report.
13 And one point I'd like to bring up is that
14 the team down in Innsbrook that did the integrated
15 plan assessment for Millstone was the same team that
16 did the integrated plan assessment for Surry and North
17 Anna. So we were able to take great advantage of an
18 enormous amount of experience from that application.
19 This is what I plan to talk about today.
20 I'll go over a brief description of Millstone Units 2
21 and 3. And the description is in the application. I'm
22 not going to go into any great detail, but just to get
23 everybody sort of on the same page and orientated in
24 the same direction, I will do a brief general overview
25 of the plants.

1 Then I'll get into a little bit about the
2 background of our application supplemental, followed
3 by operating information which includes operating
4 history; not just the parameters of the plant but
5 operating history of the plant, any major components
6 that were replaced or planned to be replaced.
7 I'll move to the aging management
8 programs.
9 And then I understand that this Committee
10 in the past has appreciated at least having the upper
11 shelf energy and RTpts values presented. So I have a
12 slide to do that.
13 And then we'll get into a discussion
14 finally on commitments and how we plan to implement
15 those at the Millstone Power Station.
16 Millstone Unit 2 is a Combustion
17 Engineering NSSS plant, that's a two-loop design with
18 two recirculating steam generators, four reactor
19 coolant pumps, two hot legs and four cold legs.
20 The architect engineer is Bechtel
21 Corporation. And the initial operations, we began
22 initial operations in July of 1975.
23 Millstone Unit 3 has a Westinghouse NSSS
24 standard four-loop design; four recirculating steam
25 generators, four reactor coolant pumps.

1 The architect engineer was Stone & Webster
2 Engineering. And Unit 3 began initial operations in
3 November of 1985.
4 Dominion submitted its application, it was
5 docketed on January 22, 2004. The actual letter was
6 dated January 20, 2004.
7 The original license expiration for Unit
8 2 of the current operating license is July 31, 2015.
9 Unit 3's expiration date of the current operating
10 license is November 25, 2025.
11 Notice, and I put a parenthetical
12 statement here, that required us to get an exemption
13 from 10 CFR 54.17 because when we made our application
14 submittal we were not yet at 20 years of operation.
15 And the rule requires 20 years of operating
16 experience. However, we were able to demonstrate to
17 the staff that we had ample operating experience
18 through our experience on Unit 1, experience on Unit
19 2 and industry operating experience. And, of course,
20 we were comparing to GALL and using the GALL which
21 also has an enormous amount of industry operating
22 experience. We did receive our exemption grant in
23 December of '03. So just prior to our submittal.
24 MR. BARTON: A question for the NRC. I
25 don't see all the applications. Is this the first

1 time that there's been an exemption given on an
2 application being submitted prior to 20 years?
3 DR. KUO: No. This is one of it. We have
4 others.
5 MR. BARTON: Okay.
6 MR. ROSEN: It's true, is it not, that the
7 exemption is granted based on operating experience?
8 DR. WATSON: That is correct.
9 MR. ROSEN: And yet this plant is
10 different than the other two units at the site?
11 DR. WATSON: It's different than the other
12 two units from the standpoint of the NSSS vendor, but
13 the materials, the environments and all that it's a
14 common plant site. So those would be common for all
15 three units in that case. And there's a different
16 design to containment, which I'll talk about a little
17 bit later, for Unit 3. And we did have to bring in
18 some special focus on that when we presented that to
19 the staff.
20 CHAIRMAN SIEBER: Well, the requirement in
21 the rule for having 20 years of operating experience,
22 the operating experience that they're talking about is
23 experience of degradation of materials --
24 MR. ROSEN: That's right.
25 CHAIRMAN SIEBER: -- and configuration as

1 opposed to do I really need 20 years of practice to
2 know what valve to turn.
3 MR. ROSEN: Right.
4 CHAIRMAN SIEBER: And so it's not clear to
5 me that that's transferrable. On the other hand, I
6 think the staff has properly exercised its duty in
7 granting the exemption because you're very close to
8 the 20 year mark.
9 MR. ROSEN: Does that describe the basis
10 upon which the exemption was granted in the SER?
11 DR. KUO: In the SER we do consider
12 operating experience of degradation or whatever, you
13 know that's relevant to the operation. And I have it
14 all here. But I think that's basically what we did.
15 CHAIRMAN SIEBER: Right. Okay. Go ahead.
16 DR. WATSON: Thank you.
17 I think Dr. Kuo already mentioned, is we
18 did use a standard license renewal application format.
19 We were very true to the format because we were very
20 heavily involved with the development of the standard
21 license renewal application format. So we knew it
22 very well and we used it. And we felt it was very
23 beneficial in this process in helping provide for an
24 efficient review and ensuring that we had the proper
25 information included within the application.

1 We did make extensive use of past
2 precedences, as was also mentioned earlier. And we
3 did participate in the consistent with GALL audits.
4 And we'd just like to note for the record that we felt
5 these were very valuable audits. The face-to-face
6 type questioning that you can get while it's very in
7 depth and sometimes can be very stressful, it was very
8 thorough but beneficial because we were able to
9 understand exactly where the reviewer was coming from
10 when they were making their questions and provide them
11 with the necessary data.
12 I'm going to have to stand up here, so
13 I'll speak as loudly as I can. Just want to orientate
14 everyone in this meeting to the arrangement at the
15 Millstone site.
16 Now, as was mentioned earlier, the
17 Millstone site does include Millstone Unit 1, which is
18 permanently defueled, and I'll talk about that a
19 little bit later on one of my slides.
20 Millstone Unit 1 turbine building is right
21 here. And this is the containment building for
22 Millstone Unit 1. This is the intake structure taking
23 and drawing in from Niantic Bay and the outfall which
24 is actually a common outfall for all three units from
25 the old quarry, granite quarry.

1 CHAIRMAN SIEBER: I want to interrupt you
2 just for a second to ask the court reporter if she can
3 hear what you're saying.
4 COURT REPORTER: It's good enough. Is it
5 continuing after the slide?
6 DR. WATSON: No. It's just this one
7 slide, and I can even talk louder if you'd like.
8 CHAIRMAN SIEBER: Okay.
9 DR. WATSON: Millstone Unit 2 turbine
10 building is here. Reactor and enclosure building
11 right behind -- I should say the containment building,
12 enclosure building right behind the turbine building.
13 The intake structure, again making a suction off the
14 Niantic Bay and discharging through the quarry cut.
15 The plant vent stack is right here.
16 And then Millstone Unit 3, turbine
17 building here, containment building here. Intake
18 structure here, outfall is a combined outfall. We
19 have the engineering building for the site located
20 here. And then you can just sort of see in the upper
21 left hand corner the switchyard. You can see the
22 takeoff towers and the wires going over the switchyard
23 at this location.
24 MR. BARTON: The containment design
25 between 2 and 3 is really different, isn't it?

1 DR. WATSON: Yes. The containment design
2 is different between the two plants. And I do have a
3 slide on that.
4 MR. BARTON: Okay.
5 DR. WATSON: We do have a post-tension for
6 Unit 2 and then a subatmospheric reinforced concrete
7 system for Unit 3.
8 CHAIRMAN SIEBER: And Dominion owns all
9 three units?
10 DR. WATSON: That is correct. Dominion
11 owns all three units.
12 CHAIRMAN SIEBER: And you share systems
13 with Unit 1?
14 DR. WATSON: That is correct.
15 CHAIRMAN SIEBER: Fire protection and some
16 structural components?
17 DR. WATSON: That is correct.
18 CHAIRMAN SIEBER: And since Dominion owns
19 Unit 1 it has control over operation of the fire
20 protection system; it's maintenance, it's aging,
21 monitoring and control?
22 DR. WATSON: That is correct, but even
23 more importantly from our perspective those systems
24 and structures that are in the scope of license
25 renewal were actually reassigned to Unit 3, or at

1 least the components. I should say systems structures
2 meaning the fire protection system components were
3 reassigned to Unit 3. They have ownership just from
4 that standpoint.
5 CHAIRMAN SIEBER: And the fire pumps and
6 so forth, they're in the Unit 1 screenhouse?
7 DR. WATSON: NO. Gary?
8 CHAIRMAN SIEBER: Where are they? The
9 question is what's the source of the fire water?
10 MR. KOMOSKY: Yes. The fire water is
11 provided by three different pumps that are located on
12 the back side in between the Unit 2 structure and the
13 stack as you see it on that slide.
14 CHAIRMAN SIEBER: Okay.
15 MR. KOMOSKY: They're separate houses, one
16 for each pump. One of them did belong to Unit 1.
17 Like Bill said, the ownership was transferred to Unit
18 3 so they have full responsibility for surveillance
19 and maintenance.
20 CHAIRMAN SIEBER: Okay.
21 MR. KOMOSKY: I'm sorry. My name is Gary
22 Komosky from Dominion Nuclear Connecticut.
23 CHAIRMAN SIEBER: Okay. Thank you.
24 DR. WATSON: Okay. Millstone Unit 2 and
25 3 operating parameters.

1 Millstone Unit 2 is a 2700 megawatt
2 thermal 895 megawatt electric plant. Unit 3 is a 3411
3 megawatt thermal 1195 megawatt electric plant.
4 You can see that the core inlet and outlet
5 temperatures while different, are fairly close to each
6 other: 549 inlet temperature for Unit 2, 557 for Unit
7 3; 600.5 for Unit 2 and 617.2 for Unit 3.
8 And while, obviously, the neutron fluence
9 values and flux values should be different between the
10 two units, the fact that the operating temperatures
11 are reasonably close to each other and in fact, close
12 to if you want to call it reference plant for GALL
13 allowed us, again, to apply a lot of operating
14 experience and match GALL in a lot of areas.
15 CHAIRMAN SIEBER: The Unit 3 outlet
16 temperature is pretty high.
17 DR. WATSON: It is fairly high.
18 CHAIRMAN SIEBER: And so that has some
19 implications as far as aging and aging management is
20 concerned with regard to the reactor vessel head and
21 also the steam generators and other nickel-based
22 alloys.
23 DR. WATSON: Right.
24 CHAIRMAN SIEBER: The transition
25 temperature for change in degradation rate is below

1 617.

2 DR. WATSON: Right. Go ahead.

3 DR. SHACK: Just curious. One of your

4 scoping tools or sources of information which are

5 Maintenance Rule kind of list of categories.

6 DR. WATSON: Yes.

7 DR. SHACK: And that's the only risk-

8 informed part of this thing that I could find.

9 Everything else is strictly design basis. And I was

10 just curious as to whether that brought any additional

11 components into scope that would have been missed if

12 you just strictly stuck to the design basis

13 requirements like FSAR and such?

14 DR. WATSON: Well, I'll turn that question

15 over to our integrated plant assessment team and see.

16 I wouldn't know of any, but I'll ask them.

17 MR. AITKEN: This is Paul Aitken from

18 Dominion.

19 The use of the Maintenance Rule scoping

20 matrix I don't think really added anything. And I

21 think it was really a good validation tool for the

22 other design basis documents that we had. We had some

23 design basis documents and FSAR matrixes and some

24 other matrixes. So they all complimented each other.

25 And when we did find a difference, it caused us to

1 reflect and reconcile those differences. And that kind
2 of went on throughout the whole process of development
3 of the IPA. And by the time we got to the end I think
4 everything lined up fairly well.
5 DR. WATSON: Okay. Millstone Unit 2 and
6 3, obviously, have numerous similarities. They have
7 some differences as well, but I put up a slide for
8 each.
9 We did take maximum advantage of the
10 similarities between the units for obvious reasons.
11 Millstone Unit 2 and 3 are located on a common plant
12 site, so obviously that means: (1) we were able to
13 have a single environmental report written, but from
14 the standpoint of this meeting's focus the foundation,
15 the material on which the structures are founded is
16 common across the site. Most category 1 structures.
17 Note the reactor containments -- I already
18 mentioned that.
19 The similarities in operating conditions,
20 environments, materials of construction also yield
21 similar aging effects for plant equipment.
22 And we have a common OE process between
23 Units 2 and 3. And, in fact, when we were owned by
24 our previous owner, Millstone Units 2 and 3 operated
25 somewhat separately from each other. But under

1 Dominion the units quickly became operated as if you
2 were working at a single unit. Obviously, there are
3 some differences and you have to be aware of it. But
4 the whole focus there was unification and that's
5 reflected in our aging management programs. If you
6 noticed that 27 of the 28 programs are common across
7 the site.
8 But even in addition to that, every
9 morning all the condition reports are reviewed by a
10 multi-discipline team that goes across units. And OE
11 is shared very freely between the units. And really,
12 it's used for planning between the units.
13 On top of that, system engineers are
14 responsible to making sure that even if they have a
15 system on one unit, they also need to be aware of what
16 is going on with a similar system on the other unit.
17 And in some cases, they're even the same system
18 engineer so that's not even a challenge, at all.
19 Also a majority of site programs, as I
20 mentioned, are common.
21 Differences between the two units. As was
22 pointed out earlier, Unit 2 the containment design is
23 different. It includes a post-tensioning system of
24 tendons with an access gallery. It's got the hoop,
25 vertical and dome tendons, whereas Unit 3 is a

1 subatmospheric containment. It is constructed of, at
2 least the subfoundation I should say, is constructed
3 of porous concrete which directs groundwater seepage
4 to a dewatering system and therefore is, again, a
5 different design than we have for Unit 2.
6 Also, the system nomenclature is not
7 always consistent between the two units. Sometimes we
8 have exact names between the two units, other times we
9 have similar names, and sometimes they're different
10 entirely and we have to make that translation. So
11 that's a difference. It really didn't pose much of a
12 challenge for us in the license renewal space, but the
13 system boundaries obviously would be inherently
14 different because of the system design being
15 different.
16 Millstone 2 operating history, I do have
17 to correct the first bullet on this side. It
18 currently says, just for the record, Unit 2 operating
19 for 386 days since the last refueling outage. That's
20 inaccurate. It's been operating 386 days since the
21 last automatic reactor trip. We did have a feedwater
22 pump trip since the last refueling outage. And since
23 we came up from that trip we've been operating for 386
24 days.
25 The lower portions of the Unit 2 -- I

1 should say getting into some of the more significances
2 in operating history or significant events in
3 operating history. The lower portions of the two
4 steam generators at Unit 2 were replaced with
5 corrosion resistent material, and that would include
6 the tubes, the tube sheet, the lower bowl and the feed
7 ring as well were all replaced during that steam
8 generator replacement project.
9 The reactor vessel head is scheduled to be
10 replaced in this upcoming outage. It's coming up
11 fairly shortly here in 2005.
12 In addition, the --
13 DR. SHACK: You had a crack in Millstone
14 2 in the CRDMs, right?
15 DR. WATSON: Actually, we did. We
16 actually had three -- when we went and looked in -- I
17 believe that was in 2002, we found that we did have
18 indications on 3 of a CRDM nozzles. And then when we
19 looked at our most recent outage, we found that we had
20 indications on eight of those. And we indications on
21 three additional ones, but they didn't need to be
22 repaired. They just were able to --
23 DR. SHACK: So you basically repaired all
24 the indications?
25 DR. WATSON: That is correct. We repaired

1 those. But, obviously when you look at that
2 indication three in one outage, eight in the next
3 outage there's an obvious trend going there and we
4 weren't going to wait. So we just decided to replace
5 the reactor vessel head, and that's what we're doing
6 this next outage.
7 DR. SHACK: Now that's a pretty cool head.
8 CHAIRMAN SIEBER: Yes, it is.
9 DR. SHACK: Unit 3 is cooler.
10 CHAIRMAN SIEBER: Cooler, right.
11 DR. SHACK: But you're just about the
12 coldest head that's cracked.
13 DR. WATSON: Yes. We were in the middle of
14 the list of susceptibility. But now we won't be.
15 We'll be at the bottom.
16 MR. ROSEN: Were any of those indications
17 leaking?
18 DR. WATSON: I don't know the details. I
19 think we did have indications of leakage. I'll call
20 on Tom Hendy to --
21 MR. HENDY: My name is Tom Hendy, Dominion
22 Nuclear Connecticut.
23 There were discontinuities that were found
24 in the nozzles, but there was no indication of actual
25 leakage.

1 DR. SHACK: Okay.

2 DR. WATSON: The pressurizer is in a

3 similar boat in the sense that we're noticing that

4 we're getting more leaks in the nozzles of the

5 pressurizer. So we have also scheduled a replacement

6 for the pressurizer, and that's scheduled for our 2006

7 refueling outage.

8 MR. ROSEN: Now you said it was similar,

9 you're getting more leaks. But we didn't have any

10 leaks --

11 DR. WATSON: Okay. Similar as far as a

12 degradation trend. Thank you for that correction.

13 MR. ROSEN: You're seeing more indications

14 on the pressurizer?

15 DR. WATSON: Right. I don't know if we

16 have any actual leakage, because we do have Mensa

17 clamps on the pressurizer.

18 So I don't know if anybody can help me

19 with that? Did we actually have any leaks on that or

20 do we know? I will check for you on that.

21 MR. BARTON: It's just I read where you

22 had a leak on a pressurizer.

23 DR. WATSON: Yes. I do have indication.

24 MR. BARTON: You did have one leak.

25 DR. WATSON: Yes.

1 MR. BARTON: I believe it was in your LRA
2 or SER.
3 DR. SHACK: So your major problem with the
4 pressurizer is the nickel alloy cracking. Do you have
5 thermal fatigue problems with it also?
6 DR. WATSON: I do not know. Do we have a
7 thermal fatigue for the pressurizer? I don't recall
8 personally any discussion of that. It's all been
9 focused on the cracking.
10 Okay. Continuing on. For the Unit 2 also
11 does not have any bottom mounted instrumentation, so
12 that was not an issue for Unit 2.
13 Unit 3 operating history. Unit 3 has been
14 operating for 333 days since it's last refueling
15 outage, but something that we feel that we're very
16 proud of and is very noteworthy, we also went breaker-
17 to-breaker in the last outage. So we really
18 technically since the last trip, we have been
19 operating 834 days.
20 The reactor vessel head for Unit 3 is not
21 currently scheduled for replacement. As we noted on
22 the slide here, the reactor vessel head susceptibility
23 ranking is in the lowest susceptibility category. And
24 during the 2002 refueling outage we did have a bare
25 metal visual inspection and we did not identify any

1 evidence of material degradation or RCS leakage.

2 In addition, I guess I'd like to add that

3 we did inspect all the CEDM nozzles, 360 degree

4 inspection. And an inspection of the annulus between

5 the nozzle and the reactor vessel head. Again, no

6 indications of degradation whatsoever or any leakage,

7 obviously.

8 In the 2004 refueling outage we did do a

9 bottom mounted instrumentation visual inspection and,

10 again, identified no evidence of material degradation

11 or RCS leakage. And in those inspections are now part

12 of our program going forward, not just license

13 renewal, I mean our actual program, our 10 CFR 50

14 program going forward. So we will be doing an

15 inspection every refueling outage there.

16 DR. SHACK: Just to confirm, I couldn't

17 find anywhere in the SER or the license renewal

18 application, you apparently do not have any nickel

19 alloy buttering between your hot leg and your vessel?

20 Those are stainless steel welds in your plant?

21 DR. WATSON: I would have to, again, refer

22 to the IPA team on that.

23 MR. WOOTTEN: David Wootten, Dominion

24 Nuclear Connecticut.

25 Yes. That's stainless steel, that's

1 correct. So that there is no buttering there.

2 DR. SHACK: Okay.

3 DR. WATSON: Millstone Unit 1. Millstone

4 Unit 1 shutdown in 1995 for a refueling outage and

5 never restarted after that. Northeast Utilities, the

6 then owner, notified the NRC that we were permanently

7 defueling Unit 1 on July 17, 1998.

8 However, as has been discussed already

9 previously in this meeting, there were obviously some

10 Unit 1 system structures and components that are in

11 the scope of license renewal for Units 2 and 3. In

12 fact, we did evaluate the Unit 1 system structures and

13 components for their impact on Units 2 and 3 and

14 determined that from the standpoint of the structures,

15 that Unit 1 turbine building and the control room/rad

16 waste treatment building, they're an integrated

17 building, did have to be brought into scope for

18 license renewal.

19 The Unit 1 turbine building, if you're

20 interested in why, it provides structural load path

21 for the flood boundary protecting Unit 2 turbine

22 building. It also provides tornado, missile,

23 hurricane, you know other related protection to Unit

24 2 turbine building.

25 And for the control room the steel

1 supports the Unit 2 aux building and also provides
2 structural load path for the flood boundary for Unit
3 2 and the aux buildings. And finally, it provides
4 Appendix R ingress and egress routes as well.
5 So we will be managing those for the
6 periods --
7 MR. WOOTTEN: Excuse me a second. David
8 Wootten speaking again.
9 Unit 3 is cast austenitic stainless steel
10 so that would be buttering, okay, where it connects to
11 the vessel. Unit 2 is carbon steel so there would not
12 be buttering on Unit 2. And we were talking about
13 Unit 3.
14 DR. SHACK: Yes. Okay. So Unit 3 does
15 have the Alloy --
16 MR. WOOTTEN: Alloy 600. 18282, right.
17 DR. SHACK: 18182 butters?
18 MR. WOOTTEN: Yes, that's correct.
19 DR. SHACK: But there's no discussion then
20 in your TLAA of any time dependent or stress corrosion
21 cracking behavior for your leak-before-break
22 associated with the stress corrosion cracking of those
23 welds?
24 I'll discuss it with the staff with the
25 SER comes up.

1 MR. WOOTTEN: Okay.

2 MR. ROSEN: Now this is pretty clear then
3 that this site is going to have to be decommissioned
4 as a site rather than being able to take Unit 1 and
5 decommission it early, am I correct?

6 DR. WATSON: I don't really know the
7 answer to that question. It's likely to be the case,
8 obviously, because of the dependency upon the Unit 1
9 buildings. So I would say that that's the high
10 likelihood. I don't know if anybody, if Bill or
11 anybody has anything on that.

12 MR. ROSEN: My question is has it been
13 thought through yet?

14 DR. WATSON: It probably has. Does
15 anybody from Dominion have any further information on
16 that?

17 MR. CORBIN: This is Bill Corbin from
18 Dominion.

19 We've just completed what I would call a
20 safe store condition that we put Unit 1 in. And our
21 objective with safe store that that is the condition
22 that Unit 1 will stay in until Unit 3 is finally
23 decommissioned. So those buildings and structures are
24 just going to stay there. And then we will
25 decommission it as a site.

1 DR. WATSON: Okay. Also, appropriate Unit
2 1 fire protection equipment was reassigned as Unit 3
3 equipment when Unit 1 was defueled and has been
4 included in the scope. We talked a little bit about
5 that earlier.
6 And the equipment there is the diesel fire
7 pump. The electric fire pump was already under the
8 responsibility of Unit 3, but the diesel fire pump was
9 transferred responsibility to Unit 3. Two firewater
10 storage tanks, as Gary Komosky mentioned earlier, and
11 then a hydroneumatic tank, which is basically a big
12 surge tank and its associated jockey pump and the
13 associated piping, that's all been brought into scope
14 for license renewal.
15 Aging management programs. I touched on
16 this a little bit earlier. There are 28 aging
17 management programs going into the period of extended
18 operation, 27 of those are common and one is unique to
19 Unit 2. That's the boraflex monitoring program.
20 MR. BARTON: Does Unit 3 have one? I
21 couldn't find --
22 DR. WATSON: No. It does have boraflex,
23 but it's --
24 MR. BARTON: Right.
25 DR. WATSON: -- credit, so there's no need

1 to manage.

2 MR. BARTON: Why is there no need to have

3 a program on Unit 3?

4 DR. WATSON: Because we do not credit it.

5 MR. HENDY: This is Tom Hendy again.

6 Millstone Unit 3 uses boral as their

7 criticality agent to absorb neutrons. So although

8 there is boraflex in the pool, it is not credited for

9 maintaining criticality below .95.

10 MR. BARTON: Okay. Thank you.

11 DR. WATSON: The existing AMPs. I

12 understand the staff is going to be talking about

13 aging management programs, so I'm not going to spend

14 a great deal of time on it. This is kind of the way

15 we looked at it from the plant perspective and the

16 impact on the plant.

17 Of the existing AMPs that are okay as is,

18 meaning we did not have to enhance them in order to

19 make them acceptable for the period of extended

20 operation, we had 13 common AMPs and the boraflex

21 monitoring AMP for Unit 2, which is okay as is. That

22 means that 12 AMPs had to be enhanced in order to be

23 acceptable for the period of extended operation. And

24 then we ended up with two new aging management

25 programs.

1 Just a little bit of an example. We did
2 have some exceptions, and again I believe the staff is
3 probably going to address is. But just to give the
4 audience an idea of some of the exceptions that we had
5 to take to GALL, which I did not approach on this
6 slide.
7 Some of the more common ones where we were
8 of a different revision than the GALL. GALL was
9 written at a fixed point in time and, obviously, we
10 moved on. So we have upgraded to later revisions of
11 the EPRI TR for chemistry control, for instance. So
12 we had to show that as an exception.
13 Another big one which took a great deal of
14 time to define and characterize was the fact that
15 we're just of a different code year now than GALL when
16 we were going through with GALL. So we had to
17 characterize all the differences between the code
18 case, even though we were in compliance with 10 CFR
19 50.55(a). So that was another exception that caused a
20 great deal of effort to be put forth.
21 And then there are other miscellaneous
22 types of exceptions. Maybe we used a different
23 guidance document than GALL and we would have
24 reconcile that to satisfy the staff.
25 MR. BARTON: What I was most concerned

about is your fuel oil chemistry.

DR. WATSON: Yes.

MR. BARTON: Where you say it meets GALL intent -- I forget the words, the magic words. But then you take six exceptions. And my question, I guess, was to the staff did you find that acceptable fuel oil chemistry program when it took exceptions to GALL.

DR. KUO: Staff will discuss that, though, when the staff is making their presentation.

MR. BARTON: Okay.

DR. WATSON: I guess to sort of address that just a little bit, you know one of the exceptions for instance would be that we stayed with an older standard. The new standard will allow you to go to a .8 micron filter. But we were using .3 micron filters. So we kept that. So that would be an example of one of the things that we used.

We don't use biocides or stabilizers and--

MR. BARTON: And I had a question about that. That seems to me unusual that you don't in storage tanks where the fuel sits for long periods of time, you go through weather transients from summer to winter and yet you don't add anything. Does your supplier add anything before he delivers the fuel? Is

1 that the answer here?

2 DR. WATSON: We have very, very strict

3 requirements on what we accept for the fuel quality.

4 And it's not unusual for us to reject a tank that

5 comes in.

6 And the staff asked the same questions and

7 had the same concerns and we had to produce a lot of

8 evidence here. What we found is after many, many,

9 many years of operations went into the tanks, took a

10 look around at the tanks, and they looked brand new.

11 There was no indication of problems from water or

12 anything else. And so we felt like we were doing the

13 right thing and we don't want to introduce any other

14 kind of component that may change what we've been

15 doing. We've been highly successful and it's

16 intentional.

17 MR. BARTON: Can you give me the name of

18 your fuel supplier? I want to use him on my boat.

19 CHAIRMAN SIEBER: I don't think that works

20 that way.

21 MR. BARTON: It doesn't work? Okay.

22 CHAIRMAN SIEBER: I wonder, though, you

23 know the fuel oil additives are a preventive measure

24 as well as a corrective measure.

25 MR. BARTON: Right.

1 CHAIRMAN SIEBER: And, you know, it's like
2 getting a flu shot. You know, you don't know when
3 you're going to get microbes that start to live inside
4 your fuel tank.
5 MR. BARTON: Right. Right.
6 CHAIRMAN SIEBER: And you may want to look
7 at that very carefully.
8 DR. WATSON: Right. Understood. And I
9 think maybe a combination between that and what we're
10 doing for our tank inspection programs is what
11 satisfied the staff. Because we do go in there and
12 look at those tanks and do get -- that's good
13 verification of what the results are of how things
14 have been going.
15 CHAIRMAN SIEBER: And you do get water on
16 the bottom of the tank, I presume?
17 DR. WATSON: I don't -- I'll defer to Gary
18 Komosky.
19 CHAIRMAN SIEBER: Absolutely.
20 DR. WATSON: You know, we don't have any
21 signs of MIC -- we don't have any signs of MIC, you
22 know, which is the biggest concern and so forth. So
23 I don't know, Gary, have we found any water in the
24 bottom of the tanks, or do you know?
25 MR. KOMOSKY: Not to my knowledge. The

1 tanks are dewatered on a regular basis. And when that
2 happens, they do look for it, but I'm not aware of any
3 water that's been found. I mean, that doesn't mean
4 that there isn't any, it's just that we haven't been
5 appraised of that.
6 CHAIRMAN SIEBER: Right.
7 MR. KOMOSKY: We do monitor the quality in
8 the tanks on a regular basis also. We circulate the
9 fuel oil in the tanks and take samples and send them
10 off and get them tested and where they look for water
11 and sediment and microbes and, you know, the whole
12 list of quality attributes that are required by the
13 ASTM spec.
14 MR. ROSEN: Sort of curious language that
15 you use there for a minute. You said the tanks are
16 dewatered periodically but we haven't been appraised
17 of it. Now who is doing the dewatering? I presume
18 it's your maintenance staff?
19 MR. KOMOSKY: Yes.
20 MR. ROSEN: And you just haven't looked at
21 the records, I guess. They would --
22 MR. KOMOSKY: Correct.
23 MR. ROSEN: -- naturally write down what
24 they found when they did it.
25 DR. WATSON: Right.

1 MR. KOMOSKY: That's correct.

2 DR. WATSON: The staff had questions of

3 us. We looked into it. That's why when I responded to

4 you I said I don't know of any. And I understand the

5 questioning attitude as to whether that's reality or

6 not. But we did look and we did ask the questions, and

7 we did go through records. And we just didn't find

8 any examples of it. So, that's all I can say.

9 MR. ROSEN: You mean they're not recording

10 that they found water at the bottom of the tank?

11 DR. WATSON: They would if they found it

12 as part of the process in dewatering.

13 CHAIRMAN SIEBER: I think you're hoping

14 that?

15 DR. WATSON: Yes. I can't say for sure.

16 I'm not reading the procedure to say that.

17 CHAIRMAN SIEBER: We're probably beating

18 the issue to death, but if you have an atmospheric

19 vent on a tank, you're going to have some moisture.

20 MR. ROSEN: If there happens to be any

21 moisture around. If you're not in the desert.

22 CHAIRMAN SIEBER: True. Okay. Why don't

23 we move on.

24 DR. WATSON: Okay. The AMPs that are okay

25 as is, meaning they did not require further

1 enhancement are listed here. I guess I'd like to point
2 out that the third bullet down is both the integrity
3 AMP, and if you read the draft SER you'll know that --
4 I shouldn't say "if you." In reading the draft SER
5 you might have noticed that we didn't initially have
6 a volting integrity AMP. It was we were doing all of
7 the activities required for bolting integrity, but
8 that was part of our ISI systems, components and
9 supports program. And the staff had difficulty
10 determining where we were doing all those activities
11 as part of that program.
12 We had difficulty trying to explain that
13 to them. So instead, we just broke that out of the
14 systems, components and supports ISI and made it its
15 own program, just like it is in GALL so that we could
16 demonstrate that we were doing all the activities that
17 were required.
18 There is an open item, I believe,
19 currently on this bolting integrity. So it's listed in
20 the "OK as is" because at the time I was making the
21 presentation it looked pretty good. So its status is
22 kind of in that in quotes mark at this point in time.
23 MR. BARTON: I have a question on bolting
24 integrity. The thing I found unusual is you don't
25 have any program for your bus ducts. Maybe I don't

1 understand how your bus duct is constructed, but I
2 thought that there was some mechanical bolting in bus
3 ducts and somebody did have a fire because of loose
4 bolts, but yet you don't address --
5 CHAIRMAN SIEBER: Yes. Some fell off.
6 MR. BARTON: -- anything in your bus
7 ducts.
8 DR. WATSON: Right, and the staff
9 questioned us considerably on that. And, in fact, we
10 have Don Duncan here we brought with us anticipating
11 that you may want some more detail on that. So I'll
12 ask Don to get up and speak to that.
13 MR. DUNCAN: My name is Don Duncan. I'm
14 with Dominion.
15 The bus ducts that's in scope of license
16 renewal is the outside bus duct is such that it's all
17 welded construction with no bolted connections. All
18 the other bus duct are nonsegregated bus ducts that
19 are bolted but they're in an air conditioned
20 environment. And they're only short runs of probably
21 215 feet. They have shown no signs of any problems
22 with overheating or any bolting programs. And we feel
23 that this was the same situation that we had on North
24 Anna and Surry, and they don't require any further
25 management.

1 DR. WATSON: But what you're saying, Don,
2 is that we don't have the conditions for the event
3 that was being discussed earlier, correct?
4 MR. DUNCAN: That's correct. I think we
5 looked at that. That was at the Diablo Canyon
6 project. And that was actually a very heavy loaded
7 bus duct which also ours are also very lightly loaded.
8 So you don't have the stresses there. Also they had
9 some other things that came into view such as the
10 failure of a transformer that was connected to that
11 bus duct plus very high loading.
12 DR. WATSON: Dirt as well, I think, right?
13 Foreign material?
14 MR. DUNCAN: I'm not sure that foreign
15 material played a part. But also they had some other
16 deficiencies as far as the plate that was used for
17 bolting was not the full plate.
18 I'm not sure what type of bolting
19 configuration, but we have bolting that uses the
20 Belleville washers which also give you a better
21 connection as well.
22 DR. WATSON: Thank you. Moving on.
23 Existing AMPS that did require enhancement
24 are listed on this slide here. Again, just to give
25 you some examples of enhancements, like, I'll just go

1 a little bit down the list.

2 Battery rack inspections. That's a plant

3 specific program, but we had to bring more battery

4 racks into the program.

5 Buried pipe inspection. There we ended up

6 having to commit, you might have seen in the

7 commitments list, to first we will take opportunistic

8 inspections, as we call them. In other words, if we

9 get an opportunity to dig up buried pipe, we will take

10 a look at the site condition of that buried piping.

11 If not, then we've committed to taking a look at --

12 well, we've already identified the material and

13 coating combinations and we will do a representative

14 sample dig for those material and coating

15 combinations.

16 Again, that was something that was

17 difficult for us to eventually commit to because we

18 really haven't had the opportunity to dig up much pipe

19 except when we were doing a design change. So we just

20 dug up the pipe there, and that pipe was in excellent

21 shape. We would not expect to have to do much digging

22 up because the coating is being very effective, but we

23 did end up agreeing with the staff's recommendation

24 that we do a baseline inspection on this buried

25 piping.

1 MR. BARTON: You know, I got a big problem
2 with these AMPs that required enhancement because when
3 you read the table of commitments and you read the
4 AMP, you're lead to believe that sometime between now
5 and extended operation you're going to do something.
6 And my problem is, you know, why don't you revise the
7 AMP and start doing it now and there's no footnote or
8 anything that indicates that you will do that. And
9 there's several of these programs that you ought to be
10 doing.
11 You also identified somewheres in the LRA
12 that there is no there is no need for or you couldn't
13 identify any need for one time inspection. But yet if
14 I look at some of these AMPs, like buried pipe, and if
15 you don't have any -- you still haven't committed to
16 do a one-time sample inspection prior to extended
17 operation, which a lot of other applicants have done.
18 DR. WATSON: Those are both very good
19 points. The first point, we at Dominion agree with
20 you a 100 percent. We do not plan to wait to just the
21 period or just prior to the period of extended
22 operation.
23 MR. BARTON: You can't tell that from
24 reading --
25 DR. WATSON: I do have some slides at the

1 end. And if I could discuss that at the end, I might
2 be able to address that more completely.
3 MR. BARTON: Okay.
4 DR. WATSON: In the second case, like say
5 the buried pipe inspection --
6 MR. BARTON: Your buried pipe program,
7 Fire Protection Program, you're going to change
8 something.
9 DR. WATSON: Right.
10 MR. BARTON: You're going to change
11 maintenance procedures and start looking at equipment,
12 but you never know when it's going to happen. So it
13 could happen the day you're going to go to the extent
14 -- I don't understand --
15 DR. WATSON: Well, we didn't actually
16 commit to what's called the one-time inspection
17 program where we grabbed all these systems and put
18 them in one place as a one-time inspection program.
19 Instead, in the individual programs we committed to
20 doing base-line inspections, which is effectively the
21 same thing.
22 MR. BARTON: Okay.
23 MR. ROSEN: But you still didn't say when?
24 DR. WATSON: No. Not --
25 MR. ROSEN: And that you're going to talk

1 about later on?

2 DR. WATSON: Yes, I do have to talk about

3 that later on. When I get to the commitments I'd like

4 to discuss that.

5 And then we add two new AMPS. Electrical

6 cables not subject to 10 CFR 50.49 EQ requirements.

7 And we were doing some of these activities, but not in

8 any kind of a real formalized way. So we have in fact

9 built that program for license renewal.

10 MR. BARTON: Have you started implementing

11 that program?

12 DR. WATSON: We have not officially

13 started implementing that program, no. The state of

14 that program is currently a program description in the

15 LRA.

16 MR. BARTON: Right. See, the LRA talks

17 about medium voltage cables not subject to EQ

18 requirements and some are susceptible to submergence.

19 And the words in the LRA say that you're going to

20 manage these effects by dewatering and inspections.

21 But then when you look at AMP there's nothing about

22 dewatering. And I don't know when you're going to

23 start your inspections. So I guess I got to ask:

24 What are you doing for the last 20 plus years on these

25 cables? Nothing?

1 DR. WATSON: Both of those are good
2 questions, and I have answers for them.
3 In the case of --
4 MR. BARTON: I've got to stop asking these
5 good questions.
6 CHAIRMAN SIEBER: That's why they're good
7 questions, you got answers.
8 DR. WATSON: They're good because I have
9 answers, exactly. Okay.
10 We have been actually going in for quite
11 some time and doing the dewatering process.
12 We have kind of a unique setup at
13 Millstone where these ducts drain to vaults. And then
14 we look at those vaults and we pump those vaults out
15 as necessary to maintain and keep them dry.
16 MR. BARTON: But the AMP doesn't say that.
17 It should --
18 DR. WATSON: And that's your second point.
19 That's actually done in what's called our structures
20 monitoring program. Our structures monitoring program
21 evaluates those vaults.
22 MR. BARTON: Okay.
23 DR. WATSON: And so it goes in there and
24 it says in that program, if you'll look at that, it'll
25 say --

1 MR. BARTON: Got water, pump it out?

2 DR. WATSON: Right. And not only pump it

3 out, but if that water was to a level that could

4 submerge those cables, you got to go back over and do

5 the testing that's required by this program. So the

6 hooks are there.

7 MR. BARTON: Okay.

8 DR. WATSON: Tom?

9 MR. HENDY: There are actually three

10 different non-EQ cable programs. The first one is a

11 new program. There's another one that is specifically

12 dedicated to underground medium voltage cables. That's

13 the one that involves dewatering and the pumping of

14 the cable vaults.

15 So if you were looking at the aging

16 management program that generally describe the non-EQ

17 cabling, it would not be described in that program.

18 It would be described in a different program.

19 Chapter 11 E3 program for underground medium voltage

20 cables.

21 MR. BARTON: Okay.

22 DR. WATSON: And that really is the way

23 GALL is designed, that's why we set it up that way.

24 MR. HENDY: Correct.

25 MR. BARTON: Thank you.

1 DR. WATSON: And then finally, we have an
2 Infrequently Accessed Areas Inspection Program. I
3 believe it was two slides earlier. No. The previous
4 slide, one of the programs that's listed is called the
5 General Condition Monitoring Program. And the other
6 one that I'd like to talk about Work Control Process.
7 Those programs give us a lot of opportunity to look at
8 what's out there in the plant.
9 The General Conditions Monitoring Program
10 is a very robust program where we take credit for the
11 plant equipment operators out there in the plant doing
12 their walkdowns. And I'm not just talking about
13 rounds where they check temperatures and pressures and
14 that sort of thing. They actually do walkdowns of the
15 plant to check the conditions.
16 MR. BARTON: How do they document those
17 walkdowns?
18 DR. WATSON: It's in the procedure. They
19 have forms that they document. And they write
20 condition reports whenever they see anything that's
21 questionable at all. And, in fact, that helps us to
22 feedback into our Boric Acid Control Program because
23 they, obviously, will see that boric acid leakage and
24 so forth even before a specific inspection is ever
25 conducted.

1 MR. BARTON: In that program you say the
2 operators do this twice a day. Is that because you're
3 on 12 hours shifts?
4 DR. WATSON: Yes. That's correct.
5 MR. BARTON: If you'd go back to 8 hour
6 shifts, you'd do it every shift?
7 DR. WATSON: Yes. That's correct, we
8 would.
9 MR. BARTON: So this is a shiftly check
10 and you're on 12 hour shifts?
11 DR. WATSON: That's correct.
12 Also we take advantage of the HP techs
13 being out there doing surveys. And we take advantage
14 of the system engineering doing their health reports
15 and their system walkdowns. So there's an opportunity
16 to look at the plant. We take advantage of that. We
17 do have to enhance that program. Notice it's under
18 this list.
19 MR. BARTON: Yes.
20 DR. WATSON: To make sure that we really
21 focus our attention on what are you really looking for
22 for aging management, what are do you expect to see
23 out there, what do we want to hear about, and that
24 sort of thing. It's easy to see boric acid residue
25 and report that, but what other things are we looking

at? How much rust is enough rust or not? And that's--

MR. BARTON: Who is responsible for your Boric Acid Corrosion Program? What group on site?

DR. WATSON: We have an engineering programs, technical programs.

MR. BARTON: That's engineering is responsible for it.

DR. WATSON: It's engineering. That's correct.

MR. BARTON: I was confused, because you had a boric acid issue and ISI did something, so I didn't know who owned the programs. Engineering owns it?

DR. WATSON: That's correct.

MR. BARTON: Okay. Thank you.

CHAIRMAN SIEBER: Do you have a training program that teaches operators what to look for when they make rounds?

DR. WATSON: Yes, we do. And that program will be modified. That's part of our enhancement. The description of that program will be modified and so an additional training will be provided to the operators on other aging management or aging effects to be looking for than what they might just normally

1 look for.

2 CHAIRMAN SIEBER: And when will that

3 training be developed and completed?

4 DR. WATSON: Again, I don't have a

5 specific date but that training is going to be a

6 sooner rather than later training. Again, when I get

7 to these slides we'll talk. I don't want to put you

8 off, I mean, but I will talk about that in a little

9 more detail.

10 The Work Control Process and General

11 Condition Monitoring Process are two programs that

12 need to have training for aging management. And

13 really even if you look at this economically, I know

14 safety is number one, but look at it economically. It

15 doesn't make sense to let the plant deteriorating in

16 any way shape or form, therefore it behooves us to get

17 these folks trained on what to look for now. And we

18 know that. And part of as a benefit of the license

19 renewal process you don't wait for ten years to get to

20 the period of extended operation, you start now

21 because there's a benefit to that.

22 CHAIRMAN SIEBER: Well, I keep thinking

23 that the plants, one of them is more than 20 years old

24 and the other one is getting close to 20 years old.

25 And you probably should have had a program on day one.

1 DR. WATSON: Well, our General Condition
2 Monitoring Program does that. But license renewal put
3 it under the microscope to see if there is something
4 here that we can even bring out that they may not be
5 looking for. They report rust. They report leakage.
6 They report residue. They report something, a support
7 that might be bent; I mean they report anything that
8 does not look normal and pristine. But we will
9 actually have specific training in light of license
10 renewal for them to understand all the systems that
11 were brought into scope and what to look for for those
12 systems.
13 CHAIRMAN SIEBER: My advice would be to
14 put this on your priority list and not wait until the
15 extended period of operation.
16 DR. WATSON: Understood. Agreed.
17 CHAIRMAN SIEBER: You should have this in
18 place now. I think it's very important. You know, I
19 spent some time as an operator myself.
20 DR. WATSON: Right.
21 CHAIRMAN SIEBER: And I can promise you I
22 didn't walk by messes without writing it down, but
23 some folks sometimes overlooked things. And setting
24 the standards is important, you know.
25 DR. WATSON: That's correct.

1 CHAIRMAN SIEBER: And you can see it if
2 you go from one plant to another, you know.
3 DR. WATSON: Yes. Agreed.
4 The Infrequently Accessed Areas
5 Inspections Program was a program we had to add for
6 license renewal. And it was really our catchall. If
7 we were not going to get to look at structures or
8 components fairly often, as would be the case with our
9 General Condition Monitoring and our Work Control
10 Process Program, we needed to be able to specifically
11 ensure that we did look in the areas that would be
12 less frequently accessed, such as the Unit 3
13 demineralizer alley where, obviously, it's very, very
14 high rad so you wouldn't have people walking through
15 there to check, you know getting down in the vault and
16 see what the condition is. So we had to construct a
17 program for license renewal for a case like that to
18 ensure that we did inspect those areas.
19 MR. BARTON: Why are the emergency diesels
20 not accessible?
21 DR. WATSON: They are accessible. Really
22 what may not be clear in the application --
23 MR. BARTON: They're in that program?
24 DR. WATSON: Yes.
25 MR. BARTON: As inaccessible.

1 DR. WATSON: What it is is the top floor
2 where the exhaust silencer is located. Nobody really
3 goes there. It's very accessible, but nobody really
4 goes there. So what this program did was say you got
5 to go there. We have to make sure that we
6 intentionally go up there to take a look.
7 MR. BARTON: The operators can inspect the
8 diesel on their rounds, but they can't --
9 DR. WATSON: They would not normally go up
10 and walk up into that area of the silencer.
11 MR. BARTON: Okay. All right.
12 CHAIRMAN SIEBER: I guess once you've seen
13 a muffler --
14 MR. BARTON: Yes, mufflers all look the
15 same, especially if they're from Midas.
16 DR. WATSON: And these are the reactor
17 vessel TLAA USE values, USE and RTpts values for Unit
18 2, Unit 3. 54.3 foot-pounds for Unit 2. And 190.5
19 degrees fahrenheit for the RTpts. And for Unit 3 the
20 upper shelf energy value is 58.8 foot-pounds and the
21 RTpts value is 134.7 degrees fahrenheit.
22 MR. ROSEN: Now P.T., did Millstone just
23 decide to do this by themselves, go to 90 percent
24 instead of 80 percent or is an ISG that's been
25 changed, something changed?

1 DR. KUO: No. We haven't had a time to
2 change it yet, but we have let everybody know that we
3 are going to look for these numbers for 54 factors.
4 MR. ROSEN: So they got a message.
5 DR. KUO: Right.
6 MR. BARTON: Okay. Good. Because I'm
7 pleased to see it done this way.
8 DR. WATSON: Well, as the commercial says-
9 -
10 MR. ROSEN: Because you know I've had a
11 problem with 80 percent capacity factors when the
12 records are clearly not that low.
13 DR. KUO: Right.
14 CHAIRMAN SIEBER: Continue to keep
15 checking, though, to see if it's consistent.
16 DR. WATSON: Okay. Now we finally got to
17 the long awaited license renewal commitments slide.
18 The commitments were documented in the --
19 MR. ROSEN: Could you go back?
20 DR. WATSON: Sure.
21 MR. ROSEN: I'm sorry.
22 On the upper shelf energy and the RTpts,
23 these numbers are well within the screening numbers.
24 CHAIRMAN SIEBER: Yes.
25 MR. ROSEN: And to what do you attribute

1 that?

2 DR. WATSON: I don't if I have an answer

3 for that. Paul or anybody on our team.

4 I mean, design is going to have some

5 component to it, but I don't really know.

6 CHAIRMAN SIEBER: Chemical composition

7 should be the answer.

8 DR. WATSON: Design, operating parameters

9 and so forth. So I can't really say.

10 DR. SHACK: I mean, you haven't adopted

11 any flux reduction programs or anything like that?

12 DR. WATSON: No, not to my knowledge.

13 DR. SHACK: Just good chemistry.

14 MR. ROSEN: Good chemistry of the

15 materials, the construction?

16 CHAIRMAN SIEBER: Of the weld metals. Yes.

17 MR. ROSEN: Well, maybe we could have a

18 little further discussion of that.

19 DR. KUO: Yes. Later on the staff has a

20 discussion.

21 MR. ROSEN: The staff can discuss that?

22 DR. KUO: Right.

23 MR. ROSEN: Okay.

24 DR. WATSON: Okay. Commitments. There

25 are currently, as you see, 37 commitments for Unit 2

1 and, coincidentally, 37 for Unit 3. We originally
2 submitted 26 including one SAMA-related commitment. Of
3 those 26, 8 needed to be modified. So that brought us
4 down to 18 of our original commitments that were
5 actually acceptable. And then 11 were added,
6 including an additional SAMA-related commitment for
7 Unit 2.
8 For Unit 3 we had 26 original commitments.
9 Nine were modified, so 17 original ones stayed as is.
10 And then 11 were added including one SAMA commitment.
11 And here's the slide that I know we'll
12 have some discussion on. Millstone will load the
13 license renewal commitments into a commitment tracking
14 system following the issuance of the final SER because
15 they have changed and continuing to change. And it's
16 a possibility that they will still change until we get
17 to the point where the staff is satisfied with the
18 commitments and the final SER is issued. At that point
19 in time right after that we will enter those into our
20 Equipment Tracking System -- excuse me. Our
21 Commitments Tracking System and make all the
22 appropriate assignments.
23 And then we have a final bullet that says
24 Millstone will implement the commitments prior to the
25 period of extended operation or sooner.

1 MR. BARTON: So it's within the next 20
2 years?
3 DR. WATSON: Yes. Well, within the next
4 10 years for Unit 2, 20 years for Unit 3.
5 MR. BARTON: That's probably the minimum
6 you could possibly say.
7 DR. WATSON: Right. And right now we do
8 not have -- I mean with putting together the license
9 renewal application, answering all the RAIs and so
10 forth, it is difficult to find the amount of time to
11 completely schedule every commitment. In fact, some of
12 the commitments have changed so we would have to
13 change out what we originally scheduled and so forth.
14 Though, I will assure you is what we are doing at this
15 point of time we've already marked up numerous
16 procedures. We're starting our implementation process
17 now. We are putting together a plan first to load it
18 into a five year plan and then beyond that will show
19 when these commitments are going to be implemented for
20 Units 2 and 3. We are not waiting the period of
21 extended operation. In fact, we're getting the word
22 out to the plant.
23 About a month ago I got a call from one of
24 the engineers, said he was talking to a maintenance
25 guy who was talking about the fact that we're going to

1 have to start doing some inspections on some
2 equipment. And actually said, well, we don't have to
3 worry about that until 2013/2014, probably.
4 MR. ROSEN: Yes. See, that's the only
5 thing --
6 DR. WATSON: But the engineer corrected
7 him right there. Called me about it and said, hey,
8 you know you got to make sure you talk to the
9 maintenance guys because I told him right then and
10 there we're not waiting. We have to start doing this
11 right now.
12 But then it hit me that from an economic
13 standpoint that makes sense, too.
14 MR. ROSEN: Sure it does.
15 DR. WATSON: We've tank inspection
16 programs, for instance, we got a lot of inspections
17 that we have to do on tanks. We added more tanks to
18 the program. You cannot -- we could not wait to the
19 period of extended operation and then just before try
20 to do all these inspections, because we'd have to have
21 extended outages, we'd increase critical path time.
22 From an economic standpoint alone if we didn't even
23 consider safety, which we would, but from an economic
24 standpoint alone you cannot wait because you cannot
25 afford the lost revenue and the lost time that would

1 result from waiting and not planning all of these
2 inspections.
3 MR. ROSEN: That's a plant-centered view.
4 One of the other views is from the regulator point of
5 view. He's got to inspect the commitments and he
6 doesn't want to do the inspections of all your
7 commitments in 20 years starting and have this huge --
8 DR. WATSON: Exactly.
9 MR. ROSEN: AS their normal inspections go
10 forward, they'll put a check on a box that says now as
11 implemented commitment 9 for license renewal. And by
12 the time you get into the period, it's all done.
13 DR. WATSON: That is correct. And we
14 already have an example, at least one example I can
15 think of, and I think it was with our tank inspection
16 program, we've already modified our current program
17 right now for what we were going to do for license
18 renewal for ten years from now -- our committed to do,
19 I should say, for license renewal ten years from now.
20 We're doing it now.
21 MR. BARTON: Well, I think what would
22 satisfy me would you'd see a plan that shows where
23 these commitments fall out, when they're going to be
24 implemented between now and extended operation and in
25 what sequence, what priority do you take on them.

1 Like, you know, inspections programs with maintaining
2 the maintenance procedures, you know some of the other
3 ones that are probably more critical to get
4 implemented early rather than later.
5 DR. WATSON: Right.
6 MR. BARTON: But where is that plan? And
7 that's the discomfort I've got with your commitment
8 program.
9 DR. WATSON: I understand that. And
10 that's the same request that's come from my
11 management, and I'm working on that right now. And I
12 do not see any reason why we would not -- in fact, I'm
13 certain we would want to share that with our resident
14 inspection so they would know where we would stand so
15 he can plan his inspections.
16 CHAIRMAN SIEBER: Yes. Well,l there's two
17 sides to looking at one time inspections. The reason
18 why you do them is to be able to identify and measure
19 degradation. So let's say you build a plant, start it
20 up and a year later you do your one time inspection
21 expecting to see degradation or determine that isn't
22 going to occur in the next 60 years. That would be
23 wrong, obviously.
24 DR. WATSON: Right.
25 CHAIRMAN SIEBER: On the other hand, I

1 agree that you don't want to let everything pile up
2 until the day before the extended period of your
3 license occurs. You need to spread that out, but you
4 have to use common sense as to what you're going to
5 accomplish in the process of measuring age-related
6 degradation.
7 DR. WATSON: Your operation --
8 CHAIRMAN SIEBER: So, you know, you're
9 stuck with two goals that are sort of conflict.
10 DR. WATSON: A little competing.
11 CHAIRMAN SIEBER: And the way to deal with
12 it is to manage it properly and find out, you know,
13 what makes operational sense and what makes management
14 sense from the standpoint of accomplishing what you
15 set out to do.
16 DR. WATSON: That's the exact type of
17 dialogue that we have been having with the plant and
18 the management has been having with us. When you plan
19 these things out, don't do something too early just
20 because it's convenient. Make sure it makes sense and
21 make sure you do it in enough time for us to respond
22 if anything comes out of it so it makes sense.
23 CHAIRMAN SIEBER: Well, the key people in
24 part of the decision making is the plant operators.
25 DR. WATSON: Yes.

1 CHAIRMAN SIEBER: And the system
2 engineers.
3 DR. WATSON: Maintenance. That's correct.
4 CHAIRMAN SIEBER: And maintenance folks.
5 DR. WATSON: Yes.
6 MR. AITKEN: This is Paul Aitken.
7 I'd just like to add, too, from our North
8 Anna and Surry experience, you know, we had a list of
9 commitments and we're progressively working off those
10 as we speak. So they're coming off the list. We're
11 prioritizing, as you suggest, because it's important.
12 And, obviously, you've got to look at those inspection
13 opportunities, those windows, ten year ISIs and you
14 got to plan all around that.
15 So as we move forward with Millstone we're
16 going to have a fleet-wide approach and we're going to
17 take lessons learned from Surry and North Anna, apply
18 them to Millstone and beyond.
19 CHAIRMAN SIEBER: And I agree that that's
20 important. That's a good way to do it.
21 Okay. Go ahead. This is the end, right?
22 DR. WATSON: That's right.
23 MR. ROSEN: I have one more question that
24 didn't come up naturally. In the final safety
25 analysis report supplement Appendix A you state that

1 the NUREG-1801, the GALL report, doesn't recognize
2 risk-informed in-service inspection programs as
3 acceptable alternatives to the more conventional
4 programs. And I assume you are doing a risk-informed
5 in-service inspection?
6 DR. WATSON: We are doing that on Unit 3.
7 Tom, can we get that for Unit 2 as well
8 or--
9 MR. HENDY: Unit 3 has approval as we
10 speak. Unit 2 they're going through an RAI process
11 and they are on the verge of getting approval for that
12 risk-informed program as well.
13 MR. ROSEN: So you're actually doing in
14 one unit and about to be doing in both units risk-
15 informed in-service inspection. And what your
16 statement is in the final safety analysis report is
17 that the GALL report doesn't recognize that practice,
18 and in fact requires you to respond about your in-
19 service inspection program as if it was a conventional
20 program. My question is to the staff, really, is if
21 that's true then why and shouldn't it be corrected by
22 issuance of an interim -- an ISG or included in a
23 pending revision of GALL?
24 We can't have in one part of the agency a
25 process which improves licensee's risk-informed

1 inspection programs and another part of the agency a
2 process which says you can't take credit for it.
3 That's that regulatory incoherence thing that we rail
4 about.
5 So I'll give you a chance to talk about it
6 now or later, if you choose.
7 DR. KUO: Well if you want, I can talk
8 about it now. I don't think there's any conflict here
9 because when we talk about the ISI program, we are
10 talking about the current operation. The agency
11 endorses the ISI program from either deterministic or
12 risk-informed. And it's through 50.55(a). Okay.
13 That's for the current operating, daily operation.
14 However, license renewal what we are looking for is an
15 aging management program separate from current
16 operation.
17 The reason that in GALL endorsed certain
18 addition of code is because we reviewed the
19 requirements in that addition that we thought are good
20 attributes for an acceptable aging management program.
21 And therefore, in GALL, in the introduction right
22 there in the front we say whenever the applicant to
23 takes an exception, either in addition to the
24 different addition or something else, the requirement
25 that the staff will have is for them to compare the

1 attributes in their program or exceptions with the
2 requirements in GALL. It has nothing to do with what
3 they are doing in the ISI or in this case, they choose
4 to use risk-informed ISI. That's separate approach.
5 MR. ROSEN: Somehow that's a very mystical
6 answer. I just don't understand why a licensee could
7 not say our program is a risk-informed version of the
8 in-service inspection program. It's been approved by
9 the staff for implementation our units on such-and-
10 such, references the SERs and therefore, we intend to
11 continue to implement that through the extension
12 license term. And that is not consistent with GALL,
13 but that's what we're doing.
14 DR. KUO: Well, I give you --
15 MR. ROSEN: Rather than do the adverse,
16 which is to show that it remains consistent with GALL.
17 DR. KUO: Well, I give you one example.
18 In the deterministic space, the ASME code does not
19 cover the small-bore piping less than four inches. In
20 the licensee space we actually took exception. We
21 asked the applicant to provide aging management
22 program for small-bore piping. That is not ASME code,
23 okay.
24 So we cannot simply endorse the ASME code
25 without looking at our requirements that we think for

1 license renewal or is required for license renewal.
2 You think risk-informed ISI, if they
3 compare their program with the GALL program and they
4 are consistent, we will be happily accepted. But if
5 they are different, then they will have to show that
6 they are equivalent to the basis that we have set.
7 MR. ROSEN: So you're saying that
8 Millstone could have chosen to say we're using risk-
9 informed inspection and it's not entirely consistent
10 with GALL, and where it's not in these three areas,
11 like for instance inspection of small-bore piping
12 we've added an element of so-and-so to our program?
13 DR. KUO: Yes. Yes, sir.
14 MR. ROSEN: Maybe this is semantics, but
15 I'm not sure it is.
16 DR. CHANG: Dr. Rosen, if I may add
17 something to it. As part of the audit activity on
18 site, the audit team did review their risk-informed
19 ISI program and make sure that risk-informed ISI is
20 properly used to select inspection locations, but not
21 used to eliminate inspections. So small-bore piping
22 are inspected, thus for the Millstone specific, you
23 know, it's verified. But from a generic point of
24 view, risk-informed ISI is not covered in GALL right
25 now. But I have talked with the team which implemented

1 the revised GALL or the new GALL to be posted
2 September 30 this year, we will consider that when the
3 team resumes discussion to see which area expand into
4 it to make the new GALL to be closer to perfection.
5 MR. ROSEN: Very good. Well, that's really
6 all I wanted to hear, Tanny, is that you're going to
7 take this into account and maybe clarify what GALL
8 will or will not include.
9 DR. CHANG: Yes. The GALL update team is
10 sitting among the audience.
11 DR. KUO: As we said earlier, in this
12 revised GALL we are trying to take lessons learned and
13 incorporate in to the revised version of it. So this
14 may be one of the subjects they are considering.
15 DR. CHANG: So we have it both ends. For
16 Millstone specifics audit team audited. For the
17 future for all the plants, the GALL updating to cover
18 that.
19 MR. ROSEN: My question was mainly for the
20 future, not so much for this.
21 DR. CHANG: Okay.
22 MR. ROSEN: Okay.
23 CHAIRMAN SIEBER: Does the Subcommittee
24 have any further questions? If not --
25 MR. BARTON: No more good questions.

1 CHAIRMAN SIEBER: That's good.

2 Thank you very much. And I next, I guess,

3 the staff. We're a few minutes late, but I'd like to

4 stick to the agenda and do the scoping and screening

5 methodology results and the onsite inspection results.

6 DR. KUO: Yes. As I said, Mr. Johnny Eads

7 and Mr. Mike Modes will be making the presentation.

8 MR. EADS: Just give me a second here to

9 find it here on the hard drive. Tanny, you might have

10 to help me out.

11 CHAIRMAN SIEBER: Are we in trouble?.

12 MR. EADS: No, not yet.

13 CHAIRMAN SIEBER: Not yet.

14 MR. EADS: Good afternoon. My name is

15 Johnny Eads. I'm the senior project manager within

16 license renewal. And it's my pleasure to present the

17 staff's presentation related to the SER with open

18 items which we issued on February 24th of this year.

19 I'm pleased to have Mr. Michael Modes with

20 me today. Mike was going to present the NRC

21 inspection results for license renewal that we

22 completed.

23 Let me acknowledge a couple of things up

24 front. I have quite a few slides here, 52 slides. My

25 intention is to move very quickly through these

1 slides. The slides are intended to make the record
2 complete. For those who didn't have an opportunity to
3 ask questions, it shows what was included.
4 If you want to slow me down, please feel
5 free to slow me down, but I plan on moving fairly
6 quickly.
7 Second, I want to acknowledge the members
8 of the staff who are back there in the audience that
9 I am going to depend on to answer questions. This is
10 an over a 1,000 page document. I am not the expert on
11 all 1,000 pages. I heavily rely on the staff for those
12 answers, and I have a nice list of people here who for
13 each section if you have a question, we'll draw into
14 them. I rely heavily on the audit team. And when I
15 make my Chapter 3 presentation, Dr. Ken Chang will
16 join, and I'll have that.
17 There will be questions that you ask that
18 I won't have the answers for. Where that occurs,
19 we'll gain them for the record, read the transcript
20 and provide you responses off the record.
21 With that, let me get started.
22 As an overview, there were two license
23 renewal applications submitted by letter dated January
24 20th. One for Unit 2 and one for Unit 3. I know
25 those of you who have gone through that paper

1 recognize the volume of that. It's a two volume set
2 for each plant. We did review both separately. I'm
3 not going to go into the discussion of the differences
4 between Unit 2 and Unit 3. I thought the applicant
5 did quite well there.
6 The site, again, speaks for itself. The
7 licensee has covered the expiration dates. Again,
8 their request before the staff is for operating
9 license extensions 20 years beyond the current
10 expiration dates.
11 CHAIRMAN SIEBER: That's a saltwater site,
12 right?
13 MR. EADS: They take an intake off of
14 Niantic Bay and discharge. The plant itself is located
15 on the north shore of Long Island Sound.
16 CHAIRMAN SIEBER: Pretty salty.
17 MR. EADS: Yes. I believe that water is
18 salt or brackish, at least.
19 CHAIRMAN SIEBER: Okay.
20 MR. EADS: As quick overview for the SER
21 with open items. There were six open items which I
22 will speak about individually as we get to them on the
23 topic. There were six confirmatory items which I'm
24 not going to speak in detail about, but I can tell you
25 that information has been provided by the utility on

1 those six items that we would expect to close those
2 six out.
3 There are three license conditions. They
4 are the standard license conditions that you've seen
5 in the last few applications. There's nothing new
6 there.
7 As a result of our review there was
8 additional systems and components brought into the
9 scope and now subject to AMR. So the staff review did
10 result in additional items above and beyond what the
11 original LRA called out.
12 There was one new AMP added as a result of
13 the review, and that was the bolting integrity AMP,
14 which I'll cover in more detail later.
15 We completed a scoping and screening
16 methodology audit, which is our standard process. We
17 used a standard process. Talked about GALL audits and
18 regional inspections. Again, nothing special.
19 This slide, number 6 gives you a listing
20 of those audits and site visits and inspection
21 activities that were completed. I won't read them to
22 you, but I would make note of the AMP GALL audit.
23 You'll notice that on the May 3rd, that was a ten day
24 audit, we do the large volume on material. Even
25 though we stuck with the same routine schedule, we

1 were required to stay on site through the weekend and
2 work ten days in a row to complete that activity. So
3 a large amount of material needed to be reviewed. It
4 did it upon the same schedule, though. We didn't skip
5 or take shortcuts.
6 In section 2.1 the scoping and screening
7 methodology. I said we did have an audit by our DIPM
8 folks. It came out on May 3rd. And reviewed the
9 methodology that Millstone had employed. There were
10 questions that were raised that were not able to be
11 responded to at the time of that. We had RAIs. And
12 there is one current open item in the SER related to
13 nonsafety criteria, I'll call that (a)(2) criteria.
14 I'd like to spend my time talking about that issue, if
15 I might. It's probably the most important thing to
16 talk about.
17 CHAIRMAN SIEBER: How many RAIs did you
18 have total? Roughly?
19 MR. EADS: We intentionally did not keep
20 track of the total number of RAIs. So, I do not know
21 the number of RAIs. I should tell you that there has
22 been a --
23 CHAIRMAN SIEBER: They've all been
24 answered?
25 MR. EADS: -- drive to lower the number

1 RAIs. And so that has been a metric that has been
2 measured. I believe we needed to ask all the
3 questions that needed to be asked, so we purposely did
4 not track the number of RAIs that were asked because
5 we were not going to be driven to avoid a question
6 based on a metric. So we asked all the questions that
7 needed to be asked. I do not know the number of total
8 RAIs that were asked.
9 CHAIRMAN SIEBER: Well, the reason why I
10 asked the question is it is a metric that I myself use
11 to determine how good the submittal, the application
12 was and how good the interaction is between the staff
13 and the applicant. And how forthcoming the applicant
14 is and how well organized they are. If you have to
15 ask a lot of questions. And you can sort of draw some
16 kind of a conclusion that the level of improvement
17 that one would expect would doing a number of these
18 reviews is not there.
19 MR. EADS: Well, let me just answer it two
20 bar. One, in looking at the application we found it
21 to be a very high quality, obviously written by an
22 organization that had gone through license renewal on
23 previous plants that knew what the questions would be
24 and provided those answers within the application.
25 CHAIRMAN SIEBER: Yes, that was pretty

1 clear.

2 MR. EADS: The other piece was to

3 understand that in the past where the staff review is

4 conducted through an RAI process, that's a 100 percent

5 metric on the communications between the staff and the

6 applicant.

7 CHAIRMAN SIEBER: Right.

8 MR. EADS: However, in this case with 90

9 percent of the Chapter 3 review being done on site in

10 the form of an audit, those RAIs did not take place.

11 And so for the audit team there were zero RAIs

12 formally on the docket and there were no particular

13 open items associated with those audit items. And

14 that's really an indication: (1) of the quality of

15 the application, the quality of the materials on site

16 available for audit and the commitment by the

17 applicant to have members of their staff available to

18 directly interact with the audit team staff.

19 So I found that RAI numbers for the

20 Millstone case would be deceptive.

21 CHAIRMAN SIEBER: Well, I think it's

22 important that the staff be efficient, but in addition

23 for the staff to do its job, and I think the audit

24 process really helps that, that whole process because

25 it provides good interaction and rather than writing

1 letters back and forth. And so I can presume that
2 both applicants, licensees and the staff is benefiting
3 from the experience of having done a number of these
4 license renewals. And I think the quality is improving
5 as I read these documents.
6 MR. EADS: Well you read this SER you get
7 the feeling that there were a lot less RAIs than the
8 previous review we did a couple of months ago where
9 it's, you know, every paragraph was a couple of RAIs.
10 CHAIRMAN SIEBER: Right.
11 MR. EADS: Yes, I use it for the same
12 reason you do. You know, maybe the application is not
13 very good and that's why you got so many RAIs.
14 CHAIRMAN SIEBER: That's right.
15 MR. EADS: I use it for the same reason.
16 But it was hard to tell on this. But it looked like it
17 was pretty good.
18 CHAIRMAN SIEBER: Okay. Well, I think if
19 we were going to give praise, I think that there has
20 been constant improvement. I think the process is
21 maturing. And the efforts of the staff are focused on
22 the right kinds of things.
23 MR. EADS: Right.
24 CHAIRMAN SIEBER: And to me that's great
25 progress.

1 DR. KUO: Right. Later on --

2 CHAIRMAN SIEBER: And I congratulate the

3 staff for that.

4 DR. KUO: Later on when Ken makes his

5 presentation about audit, I will ask him to say a few

6 words about the communication between the audit teams

7 and the applicant's staff and roughly how many items

8 have been asked. I think he has some tracking there.

9 CHAIRMAN SIEBER: Okay.

10 MR. EADS: Okay. Let me continue.

11 CHAIRMAN SIEBER: Yes.

12 MR. EADS: Again, the open item is where

13 I want to spend my time talking.

14 The RAI raised by the onsite audit had two

15 pieces to it. The first was a discussion of equivalent

16 anchor definition used to evaluate the non-safety-

17 related piping attached to safety-related piping, that

18 portion of (a)(2) scoping. The second half of the RAI

19 was the criteria for non-safety-related fluid

20 containing components with low energy systems that are

21 spatially oriented such that failure of that non-

22 safety system could effect the safety-related

23 equipment. Those two questions we can talk about in

24 a little bit of detail.

25 When we first went on site, the licensee

1 as part of their application had made statements that
2 for license renewal they had defined an equivalent
3 anchor as one set of rigid restraints in each of the
4 three orthogonal directions.
5 CHAIRMAN SIEBER: Right.
6 MR. EADS: The staff questioned as part of
7 the audit did you indeed capture that equivalent
8 anchor as part of the scope and could we go out into
9 the field and see those equivalent anchors. And it
10 was obvious that in lieu of actually identifying an
11 equivalent anchor in the field, the utility had as an
12 original point included all anchors and supports
13 within a particular room or building with the scope.
14 In other words, instead of acknowledging it's this
15 anchor or these set of three anchors that form the
16 equivalent anchor, we're just going to include them
17 all within the scope of the review, any that were in
18 the building. Well, on first blush that sounds
19 conservative, but it is not for two very good reasons.
20 One, perhaps a piece of pipe just passes
21 through a building, it doesn't change direction.
22 Obviously then even though you included every support
23 in that building if that pipe didn't turn, you didn't
24 catch the equivalent anchor point.
25 The second, let's say that run of pipe

1 terminated very quickly into a major piece of
2 equipment where there was not a full set of equivalent
3 anchor prior to it reaching that piece of base-mounted
4 equipment.
5 So those are two examples of where what
6 seems like a very broad and conservative definition of
7 equivalent anchor turned out not to be the case. So
8 the audit team challenged that. Millstone had came
9 back and reviewed their philosophy. Gave us six
10 bounding criteria that would be based on their current
11 design basis that would bound this non-safety to
12 safety piping interaction. Those criteria were
13 submitted. The staff reviewed that criteria. There
14 were additional questions raised. I can tell you that
15 remains an open item because we haven't formally
16 accepted their position. I should tell you also that
17 just recently, as recent as April 1st, they submitted
18 on the docket their full description and their basis
19 for these six criteria that's undergoing staff review.
20 And the feedback I've received, it's been very
21 positive. So it looks like we're going to close out
22 that open item based on this April 1st letter.
23 As a result of that RAI and that open
24 item, we did bring eight additional Unit 2 systems
25 into scope and many additional components in Unit 2

1 and 3 were also brought into scope.

2 Those Unit 2 systems that were brought

3 into scope new, I've listed there and I won't read

4 them.

5 Stepping through the other scoping

6 criteria. Section 2.3 on mechanical. You see there a

7 list of the individual areas we looked at. There was

8 one open item identified related to the reactor vessel

9 plan leakage detection line. The applicant originally

10 did not include that line into scope. That issue has

11 come into question. It really hinges on is that leak

12 detection line part of the pressure boundary or not.

13 We had many a discussion on that issue.

14 And in this April 1st letter, the utility has now

15 agreed to add that item into scope. So this open issue

16 now I would consider it resolved.

17 In Section 2.4 on structures, again

18 there's a list of structures there. We did have a

19 series of RAIs. There are currently no open items in

20 it that area and our review is complete.

21 In 2.5 electrical systems, those are three

22 commodity groups that were broken out. The staff

23 completed its review. Again, a series of RAIs, but

24 there are no open issues in 2.5 for electrical.

25 And as a conclusion of summary of scoping

1 and screening, their methodology we believe does meet
2 the requirements of 10 CFR Part 54 and the results
3 included all structures, systems and components within
4 the scope of license renewal and subject to aging
5 management review.
6 So I'm not going to talk about scoping and
7 screening unless there are questions. I'm going to
8 move right into the NRC inspection process.
9 We did complete scoping and screening
10 inspections, aging management inspection. The optional
11 third inspection was not required, and as part of Mike
12 Modes presentation we're also going to talk about the
13 ROP data for the plant.
14 And with that, Michael, I'll let you click
15 through the next few slides.
16 MR. MODES: Go ahead and click.
17 MR. EADS: Okay.
18 MR. MODES: You made me sit here.
19 The license renewal inspection program
20 followed the Manual Chapter 2516 and the previous
21 revision of 71002 for Region 1. That was the last
22 application of the two part inspection process.
23 The site specific inspection plan was
24 generated and for inspectors it is one of the rare
25 times where we get to share the inspection plan prior

1 to our arrival on site as a public document. And it is
2 scheduled nominally to support NRR safety review. We
3 tried to get in the middle of the review process so
4 that there are hand offs of issues. Regrettably, we
5 got right in the middle of the 54.4(a)(2) issue and
6 had to back out of that part of scoping. And that's
7 okay. That's why we started the revision process for
8 the inspections.
9 The inspection team consisted of one team
10 leader, yours truly, and four team members. Region 1
11 always tries to assemble at least one structural, one
12 electrical, one mechanical and one system engineer.
13 That's someone with operational experience or if we
14 think it's important, a fire protection engineer. And
15 in this case we succeeded in getting that mix.
16 My background is metals, metallurgy and
17 NDE/ISI. So we try to get a really broad compliment.
18 Since we have learned through the process
19 of finding economy in the inspection process, since we
20 now know that the audit team does such a comprehensive
21 job on the front end, in this case what we tried to do
22 is what we call the back end. So here the inspectors
23 walked down all the systems. They spent an enormous
24 amount of time with system engineers interviewing
25 personnel, walking through rooms, trying to locate

1 boundaries, etcetera. We had an awful lot of
2 cooperation from the site in order to do this trying
3 to schedule people who are working front shift, back
4 shift, night shift. And it was really a smooth
5 inspection in regard to all the cooperation we got.
6 We got through it pretty quickly.
7 We break that out into mechanical,
8 electrical and structural. Try to stay with the
9 strength of the inspectors. Some of the systems we
10 looked at was the Unit 2 aux feedwater, Unit 3 safety
11 injection, the 2 and 3 main steam, 2 and 3 chemical
12 column control, feedwater, RHR; the big systems.
13 In electrical we looked at the 4160, the
14 480 volt not in scope, we tried to test the scoping.
15 And also the 120 volt sold state relays and plant
16 process computer, which is not in computer. I'm
17 sorry, the plant process computer is not in scope. The
18 480 is. I misspoke.
19 What we tried to do is take their criteria
20 and find out why they knocked out one system. It's a
21 test in reverse.
22 For structures, SBO, EDGE and fuel tank,
23 vault containment, etcetera. A lot of walking down for
24 those.
25 As far as containment, walking inside was

1 unavailable. We were there while they were running.
2 They have extremely comprehensive digital record and
3 the inspector who has been at this for 30 plus years
4 was very satisfied with the record. Showed in it
5 everything that he needed to see.
6 Next slide.
7 The objective, of course, is to confirm
8 that the applicant has included all the appropriate
9 systems, structures and components.
10 And it was conducted in July. We
11 concluded the applicant's scoping and screening
12 process was successful in identifying those SSCs
13 requiring an energy management review.
14 Next one.
15 DR. SHACK: How many license renewals has
16 this team participated in these kind of reviews
17 before?
18 MR. MODES: Well, the team -- it's a mix.
19 You know, you grab people as you can. We're doing
20 inspections all the time. You know, 70 days on the
21 road every year. I've done every one for Region I.
22 I've also done Oconee. So I've lead them all. And I'm
23 happy to report that the structure engineer, Shura
24 Shigari, has done them all too. So there are two guys
25 there with a lot of experience as far as the

1 inspection. Trying to bring those puppies along.

2 CHAIRMAN SIEBER: Let me ask a structural

3 question. There's been a recent issue with whiting

4 cranes, polar cranes and so forth, about potential

5 deficiencies in design and the strength of those. Is

6 that inside the structural and mechanical scope or do

7 you consider a crane an active component?

8 MR. MODES: Well, a crane certainly is

9 active.

10 CHAIRMAN SIEBER: Parts of it.

11 MR. MODES: Sure.

12 CHAIRMAN SIEBER: The rail is not. Maybe

13 the bridge is not.

14 MR. BARTON: That's right. There are

15 passive components.

16 MR. EADS: The cranes are in scope, and

17 you'll see discussions within the SER, obviously, on

18 the load handling and lifting devices.

19 CHAIRMAN SIEBER: Okay.

20 MR. EADS: Because there are many passive

21 components within those --

22 CHAIRMAN SIEBER: Well, my question --

23 MR. BARTON: Jack's question is more

24 specific.

25 CHAIRMAN SIEBER: Yes. My question is

1 since the whiting crane and the manufacturer suggests
2 inspections and perhaps modification, the question is
3 once that done?
4 MR. MODES: Well, it certainly wasn't
5 embraced here.
6 CHAIRMAN SIEBER: Okay.
7 MR. MODES: That would be part of our
8 normal 50.55(a) process and, of course, OSHA
9 requirements which we have a memorandum of
10 understanding with.
11 CHAIRMAN SIEBER: Yes.
12 MR. BARTON: Does the site have whiting
13 cranes?
14 MR. MODES: I don't know.
15 MR. BARTON: Does the site know?
16 MR. KOMOSKY: This is Gary Komosky.
17 I can speak to Unit 2. Unit 2 has a P&H
18 crane, polar crane. I'm not sure what's on Unit 3.
19 MR. EADS: Okay. We could continue.
20 MR. MODES: The aging management program
21 inspection was conducted over two weeks, September
22 13th and September 27th to October 1st. It included
23 such programs as the flow-accelerate corrosion
24 program, the previously mentioned battery rack, the
25 Fire Protection Program. That one was interesting

1 because in the area of fire seals rather than having
2 monitoring or trending, they have a fix-it-now program
3 so it obviates the need for the monitoring. So they
4 remediate immediately any of the fire seals they find
5 degraded.
6 We also did -- the list goes on. Boric
7 acid, primary chemistry control, general condition
8 monitoring, etcetera.
9 We tried to get all of the common ones,
10 and as many of the single ones we could. Obviously,
11 between travel and stuff you only get about six days
12 to knock this off.
13 We didn't find anything alarming. We had
14 a public exit meeting on the 20th in the Waterford
15 Town Hall. Fortunately or not fortunately, it was Red
16 Sox v. Yankees. So nobody showed up.
17 CHAIRMAN SIEBER: There's always next
18 year.
19 Let me ask you question. Now you did a
20 sampling process in order to do your audit. And in a
21 scoping and screening audit a good result for your
22 inspection would be that the licensee has identified
23 everything that should be in scope. And did you find
24 things like a boric acid tank that should have been in
25 scope but wasn't in scope?

1 MR. MODES: No, sir.

2 MR. EADS: Well, let me just -- since I

3 happened to have found that one during the inspection,

4 let me answer that question.

5 CHAIRMAN SIEBER: Yes, the answer is yes.

6 MR. EADS: That went to the second open

7 issue. When the team leader wasn't looking, no.

8 Mike, fortunately, invited mein on that inspection and

9 I had a chance to do some field walkthroughs myself.

10 I challenged as the DIPM audit people had

11 identified a question related to low energy fluid-

12 filled systems, I challenged that to look for examples

13 of where the utility had used engineering judgment to

14 eliminate systems. And we did a walk down and it's the

15 -- I'll call it the inspector's luck. I walked down

16 a system that was not supposed to be normally filled

17 with water, this batching tank. In fact, the

18 experience of the individual who had done that system

19 level screening or scoping, he had thought that that

20 procedure called for that tank to be dry. When we went

21 out in the field --

22 CHAIRMAN SIEBER: It wasn't.

23 MR. EADS: -- to challenge that, and it

24 was full. And the reason it was fill --

25 CHAIRMAN SIEBER: You used the tap test.

1 MR. EADS: -- was because the procedure
2 had been changed to, I guess, improve the speed of
3 batching so that that tank remained full. And so,
4 obviously, the evaluation which said there would be no
5 fluid in it wasn't correct. So, as a result, the plant
6 did initiate the CR. That component was added to
7 scope.
8 Again, that was an issue that the DIPM
9 team had identified with low energy fluid-filled
10 systems.
11 CHAIRMAN SIEBER: My real question is now,
12 now that we've had the introduction, if you do an
13 inspection that is basically a sampling and you find
14 deficiencies, what criteria do you use to conclude
15 that you ought to expand the scope of the inspection
16 because you found a significant number of
17 discrepancies in the sample that you chose?
18 MR. EADS: Well, let me just answer that
19 for this particular case. Because of the one example
20 found, we challenged them to look at all examples in
21 the field at those low energy systems. And, in fact,
22 as a result of that review they eliminated this use of
23 engineering judgment as a criteria on, I'll call low
24 energy systems, and adopted basically the same process
25 they had for their high energy systems. Which was, if

1 it is in the vicinity or the room of safety-related
2 equipment, that item was added into the scope of
3 license renewal unless there was a specifically
4 designed wall, barrier, cubical that physically
5 prevented water from exposing itself onto safety-
6 related equipment.
7 So from the one example the issue was
8 raised to a much broader issue. And the utility
9 performed that review and added -- that was part of
10 additional components being added into scope as a
11 result of that.
12 CHAIRMAN SIEBER: So the licensee
13 concluded that -- went the extra step to determine
14 what the root cause was of that single failure and did
15 a reexamination on their own initiative to remedy that
16 which I presume, I would cause the staff not to
17 conclude that they needed to expand the scope of the
18 inspection because of that?
19 MR. AITKEN: This is Paul Aitken.
20 I'll just add that the tank that Johnny
21 had identified on his walk down, we did do an extended
22 condition. We looked at other tanks.
23 CHAIRMAN SIEBER: Great.
24 MR. AITKEN: There was a change in
25 operation of that tank in recent history. It was just

1 a mindset that the individual, you know -- hey, it
2 happens. And as Johnny said, that was identified. We
3 did go off and look at other tanks. But as the
4 questioning continued with the spatial orientation, in
5 the use of that judgment we determined that we needed
6 to be a lot more conservative. And what we ended up
7 doing was added significant amount of equipment to
8 scope.
9 CHAIRMAN SIEBER: Yes. I'm not contesting
10 what the applicant did. I just wanted to know how the
11 staff reacted to those things and what actions they
12 take. And I think that the actions that were taken
13 were appropriate.
14 So I have no further questions on that
15 subject.
16 MR. EADS: Okay. Mike, you want to go on?
17 MR. MODES: As far as their current
18 performance, they're in a green. I'm an itinerant
19 inspector, so I don't spend a lot of time at each
20 individual site. So I contacted the senior and asked
21 him what would you tell the ACRS. And he gave me a
22 list.
23 Basically, he said that Unit 2 was
24 previously in a regulatory response column last spring
25 crossing GREEN to WHITE for plant trips. But they've

1 been doing a lot of equipment restoration. They've
2 been very active. He listed the digital steam
3 generator feed, intake structure repairs, charging
4 system redesign, new vessel head and the new
5 pressurizer planned for '06. And he said, though, they
6 are very active and they are very aggressive trying to
7 bring that plant around, they still have some
8 remaining challenges such as operator workarounds for
9 SI tank leakage.
10 And he said Unit 3 being a newer plant has
11 run previously many times breaker-to-breaker so that
12 they haven't -- so he said if I had five just to do a
13 sound byte, he said the licensee is making
14 expenditures on Unit 2 equipment, replacement,
15 repairs, updates and performance is improving. The
16 licensee needs to maintain focus in order to prevent
17 Unit 3 from ending up in the same condition as Unit 2.
18 And as far as the matrices, you can see them up here.
19 MR. BARTON: So the material condition,
20 right?
21 MR. MODES: For?
22 MR. BARTON: For the material condition?
23 MR. MODES: Yes. What is --
24 MR. BARTON: You're talking material
25 condition?

1 MR. MODES: Yes. Yes. I'm talking material
2 condition.
3 MR. BARTON: Do you have any idea how many
4 operator walkarounds are outstanding?
5 MR. MODES: No. No.
6 MR. BARTON: Okay.
7 MR. ROSEN: Mike, you said something that
8 I want to bore in on. You said SI tank leakage. I
9 don't think you mean that. Do you mean the valves?
10 SI injection valves or the tanks themselves?
11 MR. MODES: The tanks appear to be
12 leaking. I don't -- this is the detail I have. I can
13 get more detail for you.
14 MR. ROSEN: Because those are passive
15 components?
16 MR. MODES: Yes, I know.
17 CHAIRMAN SIEBER: Yes, they are.
18 MR. MODES: I can get more details if
19 you're interested.
20 MR. ROSEN: I think we ought to hear some
21 more about that.
22 MR. MODES: Okay. All right.
23 CHAIRMAN SIEBER: Okay.
24 MR. EADS: Okay. With that, we are done
25 with the scoping and screening and the inspection

1 portion. We're prepared to move on to aging management
2 reviews, although I would suggest a small break.
3 CHAIRMAN SIEBER: I'll accept that
4 suggestion. Why don't we come back at 25 minutes
5 until 4:00.
6 MR. EADS: I'm sorry. What was that time
7 again?
8 CHAIRMAN SIEBER: Or 25 minutes -- what
9 time is it?
10 MR. BARTON: Twenty-five minutes to 4:00.
11 CHAIRMAN SIEBER: Twenty-five minutes to
12 4:00. Yes.
13 MR. BARTON: Fifteen minutes from now.
14 How's that.
15 CHAIRMAN SIEBER: Okay. So we're at
16 recess right now.
17 (Whereupon, at 3:19 p.m. a recess until
18 3:35 p.m.)
19 CHAIRMAN SIEBER: So if everyone would
20 take their seats. This Subcommittee meeting is back
21 in session.
22 MR. EADS: Okay. Very good.
23 CHAIRMAN SIEBER: And I'd like to move on
24 to the aging management program review and audit.
25 Johnny, go ahead.

1 MR. EADS: Thank you very much.

2 Again, I'll be joined up here by Dr. Ken
3 Chang, who is my audit team leader, and I have alloted
4 him seven slides to give you topics for that. But I'm
5 going to step through these slides I have fairly
6 quickly.

7 CHAIRMAN SIEBER: Okay.

8 MR. EADS: This is how Chapter 3 is
9 organized in the SER. It's the standard sections.
10 I'll go each one of those sections. Again, the
11 description of the audit process. Again, standard
12 process.

13 I would note on that first bullet the
14 parenthesis 90 percent assigned to the audit team.
15 That is different. Previous applications you've seen
16 40 percent, 50 percent. Here on the Millstone review
17 with their Surry/North Anna background, we're up in
18 the 90 percent range.

19 The applicant has already laid out their
20 AMP, 28 and two of them new.

21 The AMP audit itself I'll turn over to Dr.
22 Chang starting with slide 25.

23 DR. CHANG: All right. You went through
24 very fast. I wasn't prepared yet.

25 MR. EADS: Don't wait for me.

1 DR. CHANG: Yes. I'd like to follow
2 through Johnny's leadership trying to whip through
3 this as quick as I can. But if you have any question,
4 please stop at anytime.
5 CHAIRMAN SIEBER: You can count on that.
6 DR. CHANG: For Millstone we did, although
7 in Johnny's slide it say we did three audit and then
8 plus the exit meeting. But actually we can say it's
9 four audit.
10 In the exit meeting we take a day and a
11 half there to wrap up all the loose ends and make sure
12 everything is clear. So even the exit meeting is sort
13 of an audit. So in that sense, the audit conducted
14 between March 29th and September sometime -- I forgot
15 the exact date.
16 The audit team in the AMP audit there was
17 three NRC staff and six contractors. And the
18 contractor supporting us on this activity is ISL. But
19 in the subsequent AMR audit the number of NRC staff
20 goes up and the contractors participating goes down.
21 So mainly we're just trying to do a more efficient
22 operation, but with all ends covered. And we also
23 switched people. After AMP we switch different people
24 to do AMRs for their expertise area.
25 So in other words, we're not taking this

1 lightly. Just hey here's a team, you go from the
2 beginning to the end. We adjust the team for the best
3 work product.
4 I'm not going to go through the audit
5 formation, all this. You know, we cover it several
6 times.
7 A little earlier a question was asked
8 about RAIs, questions and all this. It's not my turn
9 to talk so I did not jump in. But Dr. Kuo kind of give
10 a lead into that already.
11 The applicant supported us with what we
12 called database or daily lists of questions and
13 answers. The audit team, the purpose is not to
14 generate RAI and not to generate RAI. The audit's
15 team purpose is to look at the technical issues, the
16 logistics to see if they fit, they make sense. If they
17 don't make sense, we ask questions. If they provide
18 good questions, we finish. If they don't provide
19 questions, the right answer, we just continue to go
20 on. Because we have members in all the teams which
21 are very inquisitive, which is good nature of being
22 the auditors.
23 Out of the four audit times, the four
24 times audit, we generate 205 questions. Okay. Most
25 of them are technical questions. And out of the 205

1 questions it's all closed now. The way it's closed
2 involves roughly 42 items resulting in supplements.
3 Some additional items involve modification
4 on the basis document. The modification on the basis
5 document doesn't request RAI supplements. So although
6 the audit team did not generate any RAI, the audit
7 team put a lot of questions to bed, improving the
8 quality of the application, and increase the
9 confidence the public should have if some of you see
10 how we do the audit. It's very warm discussion. It's
11 very lovely.
12 You know, sometimes one question can go on
13 for one hour.
14 MR. EADS: He meant "lively" not "lovely."
15 DR. CHANG: Oh, I'm sorry. Lively. Did I
16 say wrong. But that serve a purpose. Now can wake
17 everybody up.
18 Later on after I go through the slides, I
19 come back to the fuel oil chemistry programs, which
20 was asked before. But that is not on the slide, we
21 put that in.
22 I'd like to present some examples to you
23 regarding what auditing was focused on and what kind
24 of exception, resolution, accepting of exceptions we
25 based on.

1 The first program I'd like to talk about
2 is buried pipe inspection program. This program is
3 consistent with GALL, with the exceptions. Mainly
4 there are two exceptions.
5 One exception is cathodic protection
6 system was not trended versus time. The second
7 exception is there was not an establishment of
8 preventive measures during the initial installation.
9 How this exception would be acceptable.
10 Now the applicant proposed baseline
11 inspections and also modified the maintenance and work
12 control process, procedure to make this exception
13 acceptable. And the second exception is establishing
14 of preventive measures during the initial
15 installation. Relating to that -- I'm sorry, I did it
16 in reverse way. Strike that and start over again.
17 The baseline inspection was implemented to
18 take care of not establishing the preventive measures
19 during the initial installation. The opportunistic
20 excavation or focused inspection and changing of
21 maintenance and work control procedures are being done
22 to overcome the -- to justify the exception for not
23 having the cathodic protection system trended versus
24 time. Those being reviewed by the audit teams and
25 found acceptable.

1 The second program I'd like to describe
2 the non-EQ inaccessible medium voltage cables. It's
3 again consistent with the exception.
4 DR. SHACK: Ken, I don't want to
5 interrupt, but what does it mean not establishing the
6 preventive measures during initial installations
7 There are no protective coatings or the cathodic
8 protection system wasn't operative?
9 DR. CHANG: Robert, can you go to page 27
10 or so of the SER and read what the detail involved.
11 Page 3-27 probably. I have highlighted it. Sorry
12 that I cannot memorize everything.
13 MR. HSU: The applicant take exception and
14 it says this element in the National Association of
15 Corrosion Engineering standard RPO 16996 control of
16 external corrosion of underground or submerged
17 metallic piping system may not have been utilized
18 during the installation because this standard was
19 established in 1996 and during the installation that's
20 prior to 1996. So they did not meet this standard.
21 DR. CHANG: Okay. Now memory comes back.
22 The applicant proposed monthly/quarterly
23 checking. And also based on operating experience. The
24 audit team is adequate.
25 MR. BARTON: Monthly and quarterly

1 inspections.

2 DR. CHANG: Bill, am I right?

3 Monthly/quarterly checking. Not inspection. Checking.

4 MR. BARTON: Checking of what?

5 MR. KOMOSKY: The checking is of the

6 cathodic protection system.

7 This is Gary Komosky again.

8 We committed to opportunistic and

9 eventually if we don't look at all the environmental

10 and material combinations, we will look at each one of

11 those with a specific excavation prior to the period

12 of extended operation.

13 DR. WATSON: I think for a matter of

14 clarification, though, it's not that we didn't use

15 protective coatings. It's that we didn't use the

16 coating -- we couldn't verify that the coatings were

17 applied per that standard, is that correct?

18 MR. KOMOSKY: That's correct.

19 DR. WATSON: Okay. So we did use

20 protective coatings.

21 MR. KOMOSKY: Oh, absolutely.

22 DR. CHANG: Thank you.

23 The next example is non-EQ inaccessible

24 medium voltage cables, which in GALL is the E3

25 program. It's consistent with GALL with the one

1 exception; the engineering evaluation to address the
2 condition of the cable was not complied with with
3 GALL.
4 The resolution for this issue is do sample
5 testing of cables prior to the period of extended
6 operation and also cables to be tested to demonstrate
7 water treeing will not prevent cables from performing
8 intended function. And this applies not only submerged
9 cables, also the cable with high moisture content was
10 also covered.
11 An additional thing is the layout of the
12 piping, layout of the cable is such that the main hole
13 is located at the low points, which increase the
14 validity of the cable testing.
15 A third program I'd like to talk about is
16 the Bolting Integrity Program. Originally ISI program
17 was used, was credited for performing the Bolting
18 Integrity Program checking. But it was only done for
19 the RCS bolting, which is Section 3.1. There's no
20 program was credited to manage cracking initiation and
21 growth due to the SSC or cyclic loading for bolting in
22 Sections 3.2 through 3.5. So in other words, this
23 portion is lacking.
24 The resolution of that is the applicant
25 agreed to develop new bolting integrity AMP to cover

1 3.1 through 3.6, all systems. It was recorded as open
2 item 3032.18-1 and 2. But this item is successfully
3 closed by April 1st, 2005 letter.
4 MR. EADS: Let me speak to that for a
5 moment, if I could. I'm sure you've had a chance to
6 read the two open items on the Bolting Integrity
7 Program. The first was related to loss of preload on
8 non-class one bolting and the second related to the
9 referencing of a particular EPRI code that's
10 referenced in GALL versus the EPRI code that they used
11 for good voltage practices at Millstone.
12 The applicant has submitted that
13 additional information that we required on the April
14 1st letter. I should tell you, though, that that
15 letter is still under review. And in fact, I've
16 received feedback that we'd like a further
17 clarification. So the staff is not done with that
18 particular item. So this open item, particularly the
19 first one is not closed. It will probably result in
20 additional information needing to be submit on the
21 docket. But I should say we've come a long way since
22 we first began where there was no bolting integrity
23 AMP at all. And I should say that they've created a
24 single AMP as opposed to having the material through
25 the ISI program or through their maintenance

1 procedures. So we've come a long way on bolting, but
2 we're not done yet.
3 CHAIRMAN SIEBER: From a bookkeeping
4 standpoint, the single AMP is the better approach I
5 think.
6 MR. EADS: Yes. What we've seen is a
7 trend in license renewal applicants with Millstone
8 probably being the last of that, I hope, where
9 industry has not seen it necessary to develop a
10 specific separate bolting integrity AMP. I hope that
11 with Millstone as an example, others as they proceed
12 forward will see the benefits to having a single
13 program and we'll see more of those as we go forward.
14 CHAIRMAN SIEBER: Thank you.
15 DR. CHANG: We arrived this status through
16 a conference at the site with audit teams, applicant's
17 staff and also the NRC headquarter staff altogether.
18 And when we talk and talk, we find out this is the
19 best way.
20 And then the next program I'm going to
21 talk about is the Fire Protection Program. It is
22 consistent with GALL program N-26 and N-27. The
23 exception is that there is no aging effect require
24 management in the AMR for halon and carbon dioxide
25 systems.

1 The enhancement or the resolution to this
2 problem and to this is that the baseline inspection
3 that would be used for the buried fuel oil piping and
4 components, and also testing or replacement of the
5 representative sample of sprinkler heads will be done
6 so therefore there's nothing will be more than 50
7 years of operation. Okay. At appropriate time you're
8 either testing or replace, and that is recorded as a
9 commitment in the RAI
10 MR. ROSEN: Okay. I don't see how that
11 addresses the question requiring management to --
12 MR. EADS: Hey, that's the resolution to
13 that exception.
14 MR. ROSEN: How can the replacement of a
15 sprinkler head and the inspection of buried piping
16 address the problem of not having halon and carbon
17 dioxide system leaking effect? Those are different
18 things.
19 MR. EADS: Hey, let me just say, that's my
20 fault on this particular slide that used the word
21 "resolution" there certainly implies that it's to
22 resolve that exception. That was not Ken's intent.
23 That was a --
24 MR. ROSEN: So they're going to do those
25 things listed on the resolution, but they still have

1 this exception?

2 DR. CHANG: They will do things as program

3 enhancement.

4 MR. ROSEN: Yes, but what about the

5 exception that they're not consistent with GALL for

6 the halon and carbon dioxide aging effect.

7 DR. CHANG: To address that, that would be

8 a baseline visual inspection will be performed to

9 determine whether there's aging effect and

10 requirement--

11 MR. AITKEN: This is Paul Aitken.

12 Just to clarify. That's not really

13 connected. I guess what we're trying to say or I think

14 Ken's trying to say is for halon and carbon dioxide

15 being an inert gas, we just through the aging

16 management review process did not identify an aging

17 effect requiring management for those systems.

18 Now, the GALL program has it identified as

19 something that requires management. So we had to take

20 an exception to that fact. Okay. But through our

21 aging management review process we didn't see the need

22 to manage those systems for aging.

23 MR. ROSEN: And the staff has accepted

24 that?

25 DR. CHANG: Yes.

1 MR. ROSEN: As an exception to GALL?
2 They're not going to -- this applicant has made a case
3 that's acceptable to the staff that halon systems and
4 carbon dioxide systems don't have aging effects and
5 the staff has accepted that?
6 MR. BARTON: Well, that'd set a precedent
7 for the rest of license applications.
8 MR. ROSEN: You would think.
9 MR. AITKEN: Well, I think there are other
10 utilities that have taken a similar -- I don't think
11 we're the first ones to do that. For North Anna and
12 Surry, I know we did the same thing. And I'm sure
13 other utilities have done the same thing. Anytime you
14 have an inert gas, you wouldn't apply an aging effect
15 to that.
16 MR. BARTON: Then why is it still in GALL?
17 DR. KUO: Well, let me just read the one
18 or two sentences from the SER. This may or may not
19 answer your concern. Okay.
20 What this says here in the SER is that the
21 staff determined that the internal involvement
22 components or ar or gas. Dry air or gas involvements
23 do not have aging effect associated with metallic
24 components. Apparently they have a dry air, gas
25 involvements. Is that correct?

1 MR. AITKEN: That's correct. That's
2 correct.
3 DR. KUO: So that's the reason why I guess
4 the staff accepts that exception.
5 CHAIRMAN SIEBER: You don't take any steps
6 to dry the air. It's the air that's in the room that
7 goes in through the nozzle, right?
8 MR. AITKEN: That's halon.
9 CHAIRMAN SIEBER: On the other side of the
10 shut off valve. But not throughout the system.
11 MR. ROSEN: I guess I end up with a
12 question about GALL, about whether or not aging
13 effects for halon and carbon dioxide systems should be
14 included.
15 DR. KUO: Dr. Rosen, we get back to you.
16 MR. ROSEN: Okay.
17 DR. KUO: Later on.
18 CHAIRMAN SIEBER: Well, it's something
19 that you ought to look at.
20 DR. CHANG: Okay.
21 CHAIRMAN SIEBER: Okay.
22 DR. CHANG: Okay. All those examples are
23 with exception to GALL. But my presentation will not
24 be complete without talking one without exception.
25 The Metal Fatigue of Reactor Coolant

1 Pressure Boundary Program is consistent with GALL.
2 AMP X.M1. Why I want to talk about this program is
3 this is a very powerful program which the PRA depends
4 on and also which will give you an opportunity to
5 recalculate fatigue usage factor if original
6 assumption is too conservative.
7 So what I found there, what the auditing
8 found is the six fatigue sensitive locations
9 recommended in NUREG/CR-6260 were monitored.
10 For Unit 2 all the locations have CUFs
11 less than one.
12 For Unit 3 four out of the six components
13 are projected to exceed CUF of 1.0 during the period
14 of extended operation and will be managed by this AMP.
15 Now, I'm talking about the fatigue calculations. I'm
16 not talking about the environmental factor or the PRA.
17 No, as we all know, the design calculation -- fatigue
18 calculation are very conservative. If you have
19 monitoring data, those conservatives can easily be
20 removed and put usage factor where there is current
21 design basis or the future operation for the
22 environmental effects, those can all be used. So
23 those four components would be managed by the fatigue
24 monitoring program.
25 In addition, the team went into very

1 retail of reviewing the operating experience, of when
2 they occurred, condition reports, resolution of the
3 condition reports. And we find that the section of
4 Unit 2 spray piping was replaced because some of the
5 original design transients was not considered in the
6 design analysis. And this eventually lead to a
7 replacement for a section of the spray piping. But
8 this also tells the monitoring program is effective in
9 identifying problems and also the seriousness of the
10 applicant to face the problems which may be identified
11 by fatigue monitoring program.
12 CHAIRMAN SIEBER: Just a quick question.
13 Was there something physically defective about the
14 pipe or was there something defective about the
15 analysis?
16 DR. CHANG: No. The piping was not
17 defective. And the only reason is when you -- the
18 spray -- is a spray -- the spray line transients is
19 controlled by the delta T.
20 CHAIRMAN SIEBER: Right.
21 DR. CHANG: And if you don't consider the
22 proper delta T due to the inadvertent of various
23 spray, then the analysis may not be conservative.
24 When you put those conditions in there, the usage have
25 to go up. But those conditions never occur.

1 CHAIRMAN SIEBER: Yes.

2 DR. CHANG: So when you consider the
3 operating transients, the delta T goes way low. But
4 for conservative purpose for the design conditions you
5 replace the delta T, there's no argument. You
6 replacing the pipe, there no argument.

7 CHAIRMAN SIEBER: Okay.

8 DR. CHANG: Moving to 3.1. I'm not going
9 to talk a lot about the AMRs but just bring a few
10 examples for discussion purposes.

11 The first example I like to talk is the
12 loss of fracture toughness in CASS piping. Originally
13 the applicant states that the loss of fracture
14 toughness is not an aging effect require management
15 based on LBB. In other words, it says LBB can
16 substitute the requirements on this item. LBB can
17 replace the flaw tolerance evaluation. But through
18 two or three times of discussion, and one of the
19 discussions is involving the applicant's consultant.
20 We come to the agreement that the flaw tolerance
21 evaluation or an enhanced volumetric inspection have
22 to be performed. And when you do that it's consistent
23 with the GALL.

24 So right now this is a commitment. And the
25 status of commitment, I don't know. I cannot speak to

1 it.

2 CHAIRMAN SIEBER: Okay.

3 DR. CHANG: The next example on the AMRs

4 is Unit 2 steam generator steam nozzle flow

5 restrictors. Originally Flow-Accelerated Corrosion

6 Program AMP was credited to manage the steam generator

7 nozzle flow restrictors. But the fact is this FAC

8 program cannot do that function. So the resolution of

9 that is the applicant submitted a license renewal

10 application supplement restating that the loss of

11 material of flow restrictors are addressed by video

12 inspection and Venturi ID measurements performed as

13 part of the Steam Generator Structural Integrity

14 Program, which makes sense.

15 MR. EADS: Okay. Ken.

16 DR. CHANG: Yes.

17 MR. EADS: With that, I'm going to take it

18 back over if that's okay.

19 DR. CHANG: Yes. Sure.

20 MR. EADS: Any questions for Ken before I

21 continue. We're not done with him. He's going to sit

22 right here, but I'm going to work our way through the

23 rest of the Chapter 3 if that's all right.

24 DR. CHANG: But before you take over, I

25 need to address the fuel oil.

1 MR. EADS: Okay. Yes. Please.

2 DR. CHANG: Is that a program of interest?

3 MR. ROSEN: Oh, yes.

4 DR. CHANG: Okay. The Fuel Oil Chemistry
5 Program, as Dr. Rosen said or maybe another member I
6 may remember wrong, has six exceptions. A program
7 with six exceptions and still plan to be consistent
8 with GALL. That, obviously, requires a lot of
9 attention from the audit team and happens to be that
10 audit team member who handled this AMP and also lead
11 the discussion of these six exceptions are sitting
12 among the audience. So, I will try to cover the six
13 exceptions. And if at any point I cannot go to that
14 deep, I mean I don't feel shame of asking him to
15 support me.

16 I have to remove my glasses, otherwise I
17 cannot read.

18 MR. BARTON: Bifocals.

19 CHAIRMAN SIEBER: Yes. Gee, I'm just the
20 opposite of. If I take mine off, I can't read.

21 DR. CHANG: Okay. Let me try to quickly
22 go through the six exceptions. The first exception is
23 that Millstone do not use additives to the fuel oil.
24 And the audit team reviewed and discussed with the
25 applicants. And based on the review of the operating

1 experience and determination that mitigation of the
2 effect of MIC and fuel oil breakdowns has not
3 necessitated the use of fuel oil additives. In other
4 words, the applicant did consider whether they should
5 use the additives but it was determined it's not
6 required. So the audit team accept that resolution.
7 Number two exception is the sampling and
8 testing of dewatering is performed semiannually,
9 whether that's adequate. The audit team member
10 requested talking to the maintenance people, to the
11 operating people to decide whether the condition says
12 "like new" condition of the tank internals and lack of
13 water found in the fuel oil tank, is that sustainable?
14 And the audit team member even ask reports, data and
15 review the data during that one week. And decided
16 that what applicant claims is valid.
17 Did I say it right, Faraday?
18 MR. SABA: Yes, that's right.
19 DR. CHANG: Now Faraday Saba, member of
20 ISL is a member of the team who diligently digging
21 into the six exceptions and causing the applicant
22 enough trouble to explain every one of them.
23 MR. EADS: Ken, I don't know if we're
24 going to have time to go through each one of those
25 exceptions.

1 DR. CHANG: Yes.

2 MR. EADS: Is there a particular one

3 that's of interest of the others, or is that

4 satisfactory.

5 DR. CHANG: Two more exceptions. I just--

6 the standards --

7 MR. BARTON: What are they? Just what are

8 they?

9 CHAIRMAN SIEBER: Just tell us what they

10 are.

11 MR. BARTON: Just tell us what they are.

12 DR. CHANG: Okay.

13 MR. BARTON: The ones that you haven't

14 covered.

15 DR. CHANG: There are two more, two more

16 exceptions is related to ASTM standards and also one

17 of them is another standard. The version that the

18 applicant used is more conservative, more restrictive

19 than the ones being required by the GALL.

20 CHAIRMAN SIEBER: Good enough.

21 MR. BARTON: Okay.

22 MR. EADS: Thank you, Ken. Appreciate

23 that.

24 As a result of questions asked on other

25 licensees who have been here for Subcommittee

1 meetings, I went ahead and added a few slides. And
2 this is one that I think you'd be interested in. A
3 question comes up, do they have any coupons ready to
4 pull out during the period of extended operation. For
5 Unit 2 they have made the commitment that at least one
6 of the three standby capsules will be withdrawn and
7 tested during the period of extended operation.
8 Now for Unit 3 they don't have that luxury
9 of having extra capsules in place. But capsule W will
10 be withdrawn when it receives the neutron fluence
11 equivalent to 60 years. And so those are the
12 commitments we've extracted.
13 I'm going to now talk about the individual
14 sections 3.2 through 3.6.
15 For 3.2 there are five different ESF
16 systems groups. It says five for both Units 2 and 3.
17 Those are five different systems because you got a CE
18 plant versus a Westinghouse plant.
19 There are nine AMPS that manage the aging
20 effects related to the ESF components. And the staff
21 did not identify any open items related to those
22 systems.
23 CHAIRMAN SIEBER: All right.
24 MR. EADS: And Section 3.3., here's the
25 bulk of our work. Unit 2 had 46 different auxiliary

1 systems. Unit 3 had 52 different auxiliary systems.
2 Again if you're interested, you can read individually
3 about them.
4 There were 14 AMPs that managed the aging
5 effects of those systems. And the staff did not
6 identify any open items associated with those.
7 In Section 3.4, the steam and power
8 conversion. There were 17 Unit 2 systems and 11 Unit
9 3 systems. Nine different AMPs managing those aging
10 effects. Again, the staff did not identify any open
11 issues related to those.
12 And 3.5 for containment structures and
13 component supports. There were 6 different structural
14 groups. Managing the aging through 12 different AMPs
15 and, again, the staff did not identify any open
16 issues.
17 Not to say there weren't questions, not to
18 say there wasn't discussion during the open items.
19 CHAIRMAN SIEBER: I have a question about
20 containment. Unit 3 is a Stone & Webster-designed
21 subatmospheric containment. And it's basically a
22 concrete shell with a pretty thin liner that's welded
23 to studs that are fit into the concrete. And when you
24 start up the plant, before you start up the plant you
25 draw a vacuum in the containment, partial vacuum which

1 tends to cause the liner to come away from, pull in
2 from the concrete which to me creates stresses and
3 situations that may or may not have been analyzed by
4 the designer. Typically you've told me that on
5 containments of that construction they do an
6 inspection to determine if any of the studs broke, if
7 any of the liner has really substantially pulled away
8 from the containment concrete. And my question is does
9 Millstone Unit 3 personnel conduct such an inspection?
10 Is that an aging mechanism that should be managed?
11 MR. EADS: I could tell you that there is
12 extensive history of both Millstone units related to
13 the containment liner; the membrane associated with
14 that liner, the tendons that are located in that area.
15 CHAIRMAN SIEBER: That's Unit 2.
16 MR. EADS: I don't know that I could
17 summarize all of that myself. I would look to someone
18 else if you're looking for all that detail.
19 CHAIRMAN SIEBER: Well, the question is is
20 there an aging management program or not that
21 recognizes that phenomenon in Unit 3?
22 MR. EADS: I believe the short answer is
23 yes. I'll ask the applicant if they have someone there
24 available. Otherwise, the staff either -- well, let me
25 try the applicant since they're handy right at the

1 moment.

2 MR. HENDY: This is Tom Hendy.

3 There is the IWE/IWL program, Containment

4 In-Service Inspection Program that does the visual

5 examinations of the liner as part of the five year

6 plan. That would be the program that would manage the

7 effects of aging.

8 CHAIRMAN SIEBER: Do you have channels

9 welded over the liner integrity welds?

10 MR. HENDY: I can't answer that question.

11 CHAIRMAN SIEBER: Which was a typical

12 Stone & Webster technique that was used earlier than

13 Unit 3. So you can't do anything about this?

14 MR. EADS: For the sake of the court

15 reporter, again, would you identify the person and

16 give --

17 MR. HENDY: This is Tom Hendy.

18 They're on the back side.

19 CHAIRMAN SIEBER: Back side of the liner?

20 Yes.

21 DR. KUO: I don't know if that answers

22 your question or not, Mr. Chairman, but let me --

23 CHAIRMAN SIEBER: It really doesn't.

24 DR. KUO: Okay.

25 CHAIRMAN SIEBER: You could look at the

1 containment integrity test as an indicator of a
2 failure of containment. But most people do the
3 mapping. And from that do some kind of an engineering
4 analysis that says that the liner will maintain this
5 integrity.
6 DR. KUO: Yes. When people do structural
7 integrity tests, they do observe if there's any cracks
8 in the concrete.
9 Let me also just supplement what the
10 applicant just mentioned. That yes the containment
11 enter the IWE/IWL provision in the ASME code. Also,
12 that mechanism that you just talked about should be
13 part of the design. When we designed the containment
14 liner the suction -- the pressure is considered in
15 general.
16 CHAIRMAN SIEBER: Yes.
17 DR. KUO: Now if that's not detailed
18 enough, then I want to ask my technical reviewer to
19 talk about that.
20 CHAIRMAN SIEBER: Well, the interesting
21 thing is that when the plant is operating normally
22 that liner is being pulled away from the concrete. On
23 the other hand, when you go and run your containment
24 integrity tests or if you have an accident, you're
25 pushing it the other way.

1 DR. KUO: Correct. Correct.

2 CHAIRMAN SIEBER: And so it's important

3 that it maintain its integrity.

4 DR. KUO: But that --

5 CHAIRMAN SIEBER: The Appendix K test or

6 the Appendix J test actually does test that

7 phenomenon.

8 DR. KUO: Yes, sir. Yes, sir.

9 MR. BARTON: Well while we're on liners,

10 why don't we have an AMP for protective coatings?

11 MR. AITKEN: This is Paul Aitken.

12 We have accredited protective coatings.

13 We just assume down to the base metal. So we didn't --

14 we never used protective coatings in the evaluation of

15 aging management. We just assumed worse case that it

16 wasn't there.

17 MR. BARTON: That's strange.

18 CHAIRMAN SIEBER: Well, if it is there now

19 and comes off, it goes through the sump.

20 MR. BARTON: How about the sump pump.

21 Yes. Goes through the sump, which is not a good thing.

22 MR. EADS: I'll tell you what, it's really

23 one of those cases where we're not going to be able to

24 answer that question while I'm sitting right here.

25 Let me take that question back.

1 MR. BARTON: Take it back to the full
2 Committee, whatever the Chairman wants to do with it.
3 But I think it needs an answer.
4 MR. EADS: We'll bring back an answer
5 either back to this Committee or to the full
6 Committee.
7 CHAIRMAN SIEBER: I think it's an issue
8 that needs to be resolved.
9 MR. EADS: Okay. Thank you.
10 CHAIRMAN SIEBER: And it'll either get
11 resolved here or it'll get resolved when you resolve
12 the sump.
13 DR. KUO: Yes. I will get back to you.
14 Yes. Real soon.
15 MR. EADS: Okay. Very good.
16 Again, a common question in Subcommittee
17 meetings has been values on inaccessible concrete as
18 far as the aggressive limits of pH, chlorides and
19 sulfates. That table, I think, speaks for itself as
20 far as the values. You can see there's significant
21 margin to the limits.
22 In the electrical and I&C area, there were
23 three component groups. There were three AMPs that
24 managed those component groups. The staff did not
25 identify any open issues in the area of electrical and

1 I&C components.

2 With that, I'm ready to move out of

3 Chapter 3 and into our favorite discussions of TLAAs.

4 Okay.

5 Again, this is probably one of those times

6 where I am going to step you through this list,

7 particularly when it relates to Section 4.5. Some of

8 these are not the typical ones you'd see in a

9 submittal. 4.5 you've got concrete, containment

10 tendon prestress. 4.6 containment liner plate and

11 penetration fatigue analysis. And then under 4.7 we

12 will have four plant specific TLAAs we'll talk briefly

13 about when we get to them.

14 For the reactor vessel neutron

15 embrittlement, of course, for Millstone there were

16 four analysis that are affected by the neutron

17 irradiation embrittlement. Those are the four listed

18 there.

19 Common question, the utility's already

20 covered their values which are listed at the bottom of

21 this chart. This table shows the results of the

22 staff's independently calculated values. You can see

23 there's a reasonable comparison to that. We do have

24 experts in the back who can answer more detailed

25 question.

1 DR. SHACK: Well, I did have a question.

2 MR. EADS: Okay.

3 DR. SHACK: I mean, the results seem to be

4 fine. I was a little surprised to find that there

5 seemed to be a large number of requests for additional

6 information to cover the material discrepancies in the

7 material and the fact that the fluences were being

8 calculated by a method that wasn't consistent with the

9 Reg. Guide. And that seemed unusual. I hadn't noticed

10 that in previous license renewals.

11 MR. ELLIOT: This is Barry Elliot.

12 And you're right. For Unit 2 they did not

13 do it in accordance with Reg. Guide 1.190. Unit 3

14 they did do it according to the guide.

15 So what the staff did is we know what they

16 did, and we put in a factor, our own factor, to

17 increase the fluence to take into account that they

18 didn't use the correct methodology. That it would be

19 bound --

20 DR. SHACK: And it said it effect the P-T

21 limit for the current operation.

22 MR. ELLIOT: It affects everything. It

23 affects the P-T limit.

24 DR. SHACK: Yes. It would.

25 MR. ELLIOT: It affects the PTS

1 evaluation. I could go through all three of those.
2 If you want me, I will.
3 DR. SHACK: No. But I mean under their
4 current operation do they have to review their tech
5 spec now for their P-T limits or are --
6 MR. ELLIOT: They're revising their P-T
7 limits now.
8 DR. SHACK: Okay.
9 MR. ELLIOT: For the current -- for Unit
10 2.
11 DR. SHACK: And the discrepancy --
12 CHAIRMAN SIEBER: And they don't have to
13 for Unit 3?
14 MR. ELLIOT: Excuse me?
15 CHAIRMAN SIEBER: They don't have to for
16 Unit 3?
17 MR. ELLIOT: No. Unit 3 is fine. The
18 neutron fluent there was fine.
19 DR. SHACK: How about the discrepancies in
20 the material chemistry? That also seemed to be
21 unusual that their chemistries are different then you
22 have in the database? Or does that just happen?
23 MR. ELLIOT: That just happens sometimes.
24 You know, if you get more data, you know --
25 DR. SHACK: Well, whose data is better?

1 MR. ELLIOT: I have to read the SER.
2 Whatever we said is our best data. So that's the
3 answer.
4 MR. EADS: Okay. Thank you, Barry.
5 MR. ROSEN: I had a simpler question,
6 which was looking at the upper shelf energy and the
7 PTS data, the plant is far away from the screening
8 criteria. And I wanted to know why that was so; to
9 what do you attribute that?
10 MR. ELLIOT: Yes. I went through the data.
11 I'll explain it to you.
12 MR. ROSEN: Okay.
13 MR. ELLIOT: The next slide is the PTS
14 slide.
15 MR. ROSEN: Right. Screening criteria
16 being what, 270 --
17 MR. ELLIOT: Right. And it turns out both
18 of these vessels are made by Combustion Engineering.
19 CHAIRMAN SIEBER: Right.
20 MR. ELLIOT: But they're made at two
21 different periods of time.
22 CHAIRMAN SIEBER: Right.
23 MR. ELLIOT: One is maybe, probably, in
24 the '60s and the other one was probably made in the
25 '70s.

1 The earlier one was Unit 2. And when I
2 look at the data, as you know, the RTpts value is
3 dependent on fluence, chemistry, margin term and an
4 initial property.
5 MR. ROSEN: Chemistry of the weld
6 material?
7 MR. ELLIOT: Chemistry of the weld
8 material. Chemistry of the plate, too. Those are the
9 four factors that go into the RTpts value.
10 In the case of Unit 2 it was made in the
11 period of time where there were pretty high copper --
12 not high copper, but moderate copper. So you would
13 have thought that it would have be copper-limiting,
14 but it isn't. The plates are limiting here. And the
15 reason for that is that Combustion Engineering has
16 very low initial properties. But what makes this even
17 very special and different than most Combustion
18 Engineering plants, like Palisades which has a very
19 high value, this has very low nickel welds. So the
20 chemistry factor is lower than we would normally see
21 for plants of the same vintage, such as Palisades.
22 That's why this plant for Unit 2 is such a low -- is
23 a value of 197 versus 270. It's because it has a very
24 low nickel for the welds.
25 And the reason that the plates are

1 limiting is it has a high initial property, much
2 higher than the welds.
3 Unit 3 has even better properties. It
4 looks like they got their act together at Combustion
5 Engineering for this vessel. Because not only does it
6 have low nickel, it has low copper. And so it looks
7 like they're going to have copper coated electrodes so
8 they don't even --
9 MR. ROSEN: Something special.
10 MR. ELLIOT: It was made during the period
11 of time where they knew what thy were doing and --
12 because we're so low copper here there's no -- it
13 looks like there's no coating.
14 So in one -- so that's why these values
15 are so low.
16 And, again, the plate is plate-limiting.
17 It has a high initial RTndt for the plate and a low
18 initial RTndt for the welds.
19 MR. ROSEN: Okay. Now going back to USE,
20 could you go back to 43? Does all that apply to why
21 your USE has got plenty of margin?
22 MR. ELLIOT: The upper shelf energy is not
23 dependent on the nickel. It's dependent on
24 unirradiated properties and the copper.
25 CHAIRMAN SIEBER: Right.

1 MR. ELLIOT: And, again, these coppers for
2 Unit 2 are not that high. They're high, .25/.27 range
3 and that's -- but in the case of Combustion
4 Engineering, they use a Linde 1092 flux which gives a
5 very high upper shelf energy to start with. So that's
6 why they don't really have a -- they usually don't
7 have an upper shelf energy problem versus, let's say,
8 a B&W plant which has very low start for upper shelf
9 energy.
10 MR. ROSEN: Well, I think this 59 value is
11 the highest I've seen at 60 years with 54 EFPYs.
12 MR. ELLIOT: Well, that's because this has
13 such a low copper. The difference is that Unit 3 has
14 .05 copper, which is very, very low. And that's why
15 it's such a high value. It is so very low copper.
16 MR. ROSEN: Okay. So it has an
17 explanation.
18 CHAIRMAN SIEBER: Okay. Thank you.
19 MR. EADS: Thank you, Barry.
20 Section 4.3 is metal fatigue. Again, the
21 TLAA there were subpieces there; fatigue of the Class
22 1, the non-Class 1 and the environmental assisted
23 fatigue. We do have staff in the audience prepared to
24 go into further details if there are questions.
25 Otherwise, I'm going to move on to 4.4.

1 4.4 is EQ, electrical equipment. The
2 staff reviewed that particular TLAA and concluded that
3 it was satisfactory.
4 CHAIRMAN SIEBER: Okay.
5 MR. EADS: 4.5, again, the next two slides
6 are really detailed that the Committee has asked about
7 in the past. The first slide shows the prestress
8 forces projected for 40 and 60 years of operation.
9 Again, I don't possess the technical ability to answer
10 a lot of questions on that. But, again, we have the
11 tech staff in the audience who can.
12 And the trending graph, which has been
13 asked for the past, we went ahead and provided it here
14 on a slide for you so you can see it. That is the
15 trending graph provided by the applicant.
16 The next to the last set of TLAAs is
17 Section 4.6, which are the containment liner plate and
18 penetration fatigue analyses. The staff concluded
19 that the applicant did use a conservative estimate in
20 the number of load cycles for the period of extended
21 operation. And that that assessment of fatigue life of
22 the liner plate and penetrations is acceptable.
23 Finally getting to 4.7. This is the
24 collection of the four different plant specific TLAAs.
25 The first deals with the crane load limit for which,

1 again, there were no open items described.

2 Reactor coolant plump flywheel.

3 The third was for Unit 2 specifically, and

4 it's on the reactor coolant pump Code Case N-481. And

5 that particular open item has been written because

6 material has been submitted, however the staff is

7 continuing its review and requested that additional

8 information be submitted. The applicant is still

9 preparing that information. Once we have that

10 information in house, we can complete our review. But

11 as it stands right now, the staff's review is

12 incomplete pending the submittal of additional

13 information by the applicant.

14 On the last item, the lead before break

15 analysis, again, we have a staff individual in the

16 audience with us. She'll be happy to answer questions.

17 There is an open item related to leak

18 before break and it really goes to what systems are

19 covered under leak before break or not. The applicant

20 has provided a response to that issue. That

21 information is currently ongoing on its review. I

22 can't speak to its acceptability at this point,

23 though. But we're not waiting on anything from the

24 applicant.

25 DR. SHACK: My question again is why

1 there's not an open item on the high nickel weld for
2 the leak before break in Unit 3?
3 MR. EADS: Let me ask Andrea Keim to come
4 to the microphone there.
5 MS. KEIM: I think that's more of a
6 generic issue that the industry and staff are working
7 on together. And it's going to be handled as a
8 current licensing issue.
9 DR. SHACK: Well, I'm just a little
10 surprised not to see a mention of it to say that
11 you'll resolve it however MRP and the staff decide to
12 resolve it.
13 There was a good discussion of it in the
14 Farley SER. You know, I'd dig out the Farley one and
15 fire it back at them again.
16 MS. KEIM: Okay.
17 MR. EADS: Okay. We'll take that as a
18 comment. We will look at for the final SER when we
19 issue it in August and we come back to the whole
20 Committee.
21 CHAIRMAN SIEBER: Okay.
22 MR. EADS: Thank you, Andrea.
23 Conclusions. If we're ready to go to
24 conclusions.
25 The staff has concluded that there was

1 reasonable assurance that the activities authorized by
2 the renewed licenses will continue to be conducted in
3 accordance with the current licensing basis. And that
4 any changes made to the Millstone current licensing
5 basis in order to comply with 10 CFR 54.29(a) are in
6 accord with the Act and the Commission's regulations.
7 I have to add the caveat that's pending
8 resolution of the open items for which we have not
9 closed out and the completion of those confirmatory
10 issues.
11 CHAIRMAN SIEBER: Do you believe that the
12 open items will be closed properly?
13 MR. EADS: I'm certain they will be closed
14 properly before we grant a license, if we grant a
15 license.
16 CHAIRMAN SIEBER: Okay.
17 MR. EADS: If they're not satisfactorily
18 closed, of course you know what the result will be as
19 far as granting that extension. So there is a bit of
20 time pressure involved with getting these items
21 resolved. I think I've seen that in the April 1st
22 letter where the licensee has been discussing these
23 issues over the last 12 months and has decided to take
24 a position in conformance with the way the staff wants
25 to go.

1 I think right now we have information that
2 we have to review that's in house or we're waiting on
3 them for. I don't see any items that I would call
4 showstoppers at this point that would prevent us from
5 getting to that conclusion.
6 MR. AITKEN: This is Paul Aitken from
7 Dominion.
8 I would say the same thing. I think that
9 everything is resolvable at this point in time. We
10 don't expect anything to prevent this from happening.
11 CHAIRMAN SIEBER: There's no confusion as
12 to what's required?
13 MR. AITKEN: Well, it's just
14 clarifications. And as we move through the discussion
15 and dialogue we'll get there.
16 CHAIRMAN SIEBER: Okay. Well, it's
17 important that the open items be properly closed to
18 the satisfaction of the staff. And, obviously, you
19 would not issue a license extension nor would we let
20 you --
21 MR. EADS: We understand that.
22 DR. KUO: I'm sure you won't let us do
23 that.
24 CHAIRMAN SIEBER: -- under the
25 circumstances.

1 MR. EADS: Certainly, that will be covered
2 by me at the full Committee meeting when I talk about
3 the resolution of each of these open items in detail.
4 CHAIRMAN SIEBER: Okay. Good. Thank you.
5 MR. EADS: And that concludes my
6 presentation.
7 CHAIRMAN SIEBER: Okay. Somehow or other,
8 we have gained some time. And what I'd like to do now
9 is call upon Ms. Nancy Burton of the Connecticut
10 Coalition Against Millstone for a statement that
11 expresses her viewpoint on this particular matter.
12 MS. BURTON: Thank you, Mr. Sieber.
13 Shall I sit here?
14 CHAIRMAN SIEBER: Yes. And use the
15 microphones so that the court reporter can faithfully
16 reproduce what you say and so that we can hear you.
17 And I'd like to welcome you here.
18 MS. BURTON: Thank you very much.
19 CHAIRMAN SIEBER: This is a public meeting
20 and it's important when members of the public believe
21 they need to make statements, that the opportunity be
22 provided.
23 MS. BURTON: I thank you all. Thank you
24 very much for the opportunity --
25 CHAIRMAN SIEBER: Yes, you can sit down if

1 you like. It may be more comfortable or stand,
2 whichever way.
3 MS. BURTON: If you don't mind. Okay. I
4 think I can project a little better if I'm standing.
5 I'm Nancy Burton. And I'm here on behalf
6 of the Connecticut Coalition Against Millstone. And
7 I'm speaking, therefore, on behalf of thousands of
8 people of the state of Connecticut against relicensing
9 of Millstone Units 2 and 3.
10 I have submitted as of yesterday some
11 preliminary comments. I'm not sure if you all had an
12 opportunity to see them.
13 MR. ROSEN: We have them.
14 MS. BURTON: With various attachments.
15 And in addition to those, I have what we might call
16 the showstopper of this event, a photograph of Zachary
17 M. Hartley in the first grade. And I'd like to make
18 sure I have enough copies to distribute to all of you.
19 This young fellow was born in 1997. That
20 was the year that Northeast Utilities caught a fish in
21 Niantic Bay that was contaminated with cesium-137.
22 According to their own analysis, the cesium-137 came
23 from the plant. And we believe that that plant made
24 that boy very, very ill. He was born with jaw bone
25 cancer. This is the *Norwich Bulletin* front page story

1 that ran recently, March 11, 2005. He had to have his
2 jaw bone removed when he was 14 months of age. He had
3 a tumor the size of an orange removed from his jaw --
4 from his face. And he's been under steady medical
5 surveillance ever since then.
6 His mother swam in Niantic Bay regularly.
7 It's not posted for hazardous materials or radioactive
8 waste byproducts. And the materials that we have
9 submitted to you we have listed, we have compiled a
10 listing of radionuclides, toxic chemicals, heavy
11 metals that Northeast Utilities admitted that it was
12 discharging into the bay, into its 8,000 foot mixing
13 zone that year.
14 And in consequence of the information that
15 Zachary's parents gave us and with the information
16 that Dr. Helen Caldicott, whom I hope many of you
17 have heard of. Dr. Caldicott is a world renowned
18 pediatrician, co-founder of Physicians for Social
19 Responsibility, and she is an authority on the health
20 effects of low-level ionizing radiation. She perused
21 Zachary's medical records and came to our press
22 conference in Connecticut on March 10th of this year.
23 And she said that there was a very strong case to be
24 made for a link between the Millstone radiological and
25 chemical emissions routinely into that bay and the

1 condition that afflicted this poor young fellow,
2 Zachary.
3 I was asked recently if there are other
4 cases like Zachary's that we know of from this area.
5 And I had to say that I was very sorry, but we keep
6 picking up more and more anecdotal data, and it's not
7 limited to people. It's not limited to the woman who
8 had skin cancer confined to her feet. This was a
9 woman who spent her summers wading in the shore near
10 Millstone. She died.
11 It's not confined to the little girl who
12 summered in the beach area and then went to
13 Pennsylvania and has now gone through three surgeries
14 for thyroid cancer, which her doctors say is very,
15 very rare but is of a kind that has been seen around
16 Chernobyl in the Ukraine.
17 Neither Zachary nor that girl with the
18 thyroid cancer are picked up on the Connecticut Tumor
19 Registry. So that when the NRC, for instance, goes to
20 consider whether these dangerous malfunctioning plants
21 should be relicensed for another 20 years, the
22 information they get from the Connecticut Tumor
23 Registry is incomplete, inaccurate and probably
24 extremely misleading. They don't keep records of
25 pets.

1 We know of a Millstone worker, formerly,
2 in site maintenance department who developed a tumor
3 in his brain along with two other colleagues who
4 developed brain cancers round about the same time in
5 the 1990s. They were fired because of their cancers.
6 And their unit was dismantled because Northeast
7 Utilities didn't want to be saddled with the bad rep
8 of having its site maintenance people come down, and
9 two of them have succumbed to brain tumors.
10 That particular gentleman was given a dog
11 to cheer him up after he got his terrible diagnoses.
12 And he would take that dog down to the Niantic Bay and
13 trot it around. The dog splashed in the water and at
14 age 1½ died from incurable osteosarcoma of the spine,
15 an inoperable condition. Very rare. The doctors in
16 Massachusetts hadn't seen anything like that before.
17 We know that you are saying that you are
18 employing a standard in relicensing consideration here
19 that assumes that there is adequate surveillance and
20 monitoring of Millstone on a daily basis and that
21 operational matters are properly dealt with. And so
22 you are excluding them pretty much from your review
23 here. And I've heard that that is the way the game is
24 going.
25 Well, I don't know if you are aware that

1 there was an inspection by the NRC last year that
2 ended December 31, 2004, and it included an inspection
3 of the fire protection system, a lot of systems, but
4 it specifically sampled a number of locations at Unit
5 2, including the turbine building. And the findings of
6 that report were that there were no findings of
7 significance.
8 Well, two weeks later, January 14, 2005,
9 a fire broke out in the turbine building of Unit 2.
10 And it was so significant that it lead to a
11 stationwide evacuation, which I understand is
12 unprecedented. All nonessential personnel were
13 ordered evacuated from the plant because the fire in
14 the turbine building implicated the entire security
15 system for the site, or so we were told by an insider
16 at the plant. In other words, the entire site because
17 of this fire after all was pronounced well by the
18 inspectors of the NRC, disabled the interior security
19 so that personnel movements could not be accounted for
20 as well as boundary security which we know in these
21 post-9/11 days is nothing to play with.
22 We learned about the inspection of the
23 turbine building as we perused the inspection reports
24 for the year 2004. I don't know if you gentlemen have
25 had an opportunity to do that. But I would suggest

1 that that is proper homework before you consider
2 further what is before. Because for the past year
3 inspections at Millstone have led to conclusions by
4 the NRC that the same conditions that were occurring
5 and going out of control in the 1990s leading to the
6 unprecedented shutdown of the whole station for three
7 years, the final shutdown of Unit 1, three year
8 shutdown of Unit 2, two year shutdown of Unit 2
9 because of systemic problems that were not corrected.
10 The NRC recently went so far as to say
11 that the operators of Millstone don't even seem to be
12 understanding simple reactor processes, and they give
13 examples in these reports. I have cited some of those
14 examples in my April 5 letter. We have also brought to
15 your attention a listing of highlights of the graded
16 conditions that we culled just from inspection reports
17 from last year. And we all know that fewer and fewer
18 things are reported as the industry is being more and
19 more successful in waiving surveillance standards, in
20 extending the time between surveillance and so forth.
21 We believe that if you will seriously
22 review the operational history of Millstone just last
23 year, that you will be driven to reconsider everything
24 that is set forth in this SER, because it's based on
25 an assumption that all is well on a routine basis at

1 Millstone.

2 I don't want to overstay my

3 visit here, but I want to highlight an issue that is

4 alarming to the community of southeastern Connecticut.

5 And I don't see it being addressed anywhere in the

6 SER. And it was addressed by the NRC inspectors last

7 year, for instance, when they found at Millstone

8 Dominion had allowed the staff, main staff monitor to

9 become degraded. That was only one of dozens and

10 dozens and dozens of instances of conditions important

11 to safety, health and protection of the public that

12 were allowed to become seriously degraded last year.

13 I would like to leave with you a copy of

14 an article that appeared in the Hartford Courant

15 recently, March 4, 2005. And this article is

16 addressed to principally 2001, '02 and '03

17 radiological effluent reports filed by Dominion with

18 the NRC. The environmental part of the relicensing

19 team confined itself to those three years in its

20 consideration as to whether or not there should be

21 relicensing of Millstone. We do not understand why

22 they confined themselves to those three years. But

23 given that they did, we're shocked that they don't

24 mention the extraordinarily high levels of strontium-

25 90 found in goat milk sampled five miles north

1 northeast of Millstone.

2 Now, if any of you are familiar with the

3 levels of atmospheric weapons testing leading to

4 concentrations of strontium-90 in milk in Connecticut,

5 you will know that the concentration of strontium-90

6 in goat milk in the year 2001 at one point was twice

7 that. Twice that. And we know that atmospheric bomb

8 testing cannot account for that.

9 Since that time there have been other

10 occasions when the strontium-90 elevations have been

11 highly, highly elevated. And we believe based on

12 information provided to us by experts that there can

13 be no accounting for this other than the routine

14 radiological emissions from Millstone. And based on

15 information that was filed by Dominion with the NRC,

16 we are lead to believe that testing for strontium-90

17 from the stack has been discontinued at Dominion.

18 Dominion is relying on goats. Goats five miles from

19 the plant to be new monitors for radiation in this

20 community. This is absurd.

21 Today I heard, I came in a little late,

22 but I heard Dominion say that as far as many

23 unresolved and open issues, Dominion is willing to

24 weld them shut with making commitments to the NRC.

25 This is all very, very nice. But over 35 years there

1 have been commitments to the public, the public has
2 been betrayed by the operation of this nuclear power
3 plant.
4 You probably do not know because you're
5 doing the environmental aspect. But there was an
6 indigenous species of fish that was plentiful in the
7 period of time before Millstone began operations. It's
8 now virtually extinct. You can't find those fish
9 anymore. The Niantic winter flounder. And
10 Connecticut DEP marine fisheries people seem to
11 believe that the main culprit, primary culprit is
12 Millstone. Well, come on, let's have them back.
13 Let's bring back the fish. Because there was a
14 commitment 30 years ago that this plant was not going
15 to have a monstrously degrading effect on the
16 environment.
17 You can't seriously be considering
18 allowing it to operate for decades more when they've
19 driven this fish population to extinction. How can
20 you do that when you know about the case of Zachary M.
21 Hartley?
22 I probably have exceeded my 15 minutes.
23 But I want to leave with the message that we believe
24 that the NRC and Dominion owe to the community to live
25 up to a commitment of protecting the health and safety

1 of the public. They cannot do that in their current
2 operations.
3 I want to just quickly mention the
4 refurbishment. I believe with regard to
5 refurbishment, that Dominion withheld information from
6 the NRC. And that as a result of that and our coming
7 forth with this information, you need to go back in
8 this whole process and consider the need for
9 Millstone, the probable need for Millstone to convert
10 from once-through cooling system to a closed cooling
11 system. I understand that Dominion recently purchased
12 the Braden Point Plant in Massachusetts. That plant
13 was ordered to convert, it was initially a closed
14 cooling system, became open once-through and
15 devastated the fish population. As a result of that,
16 the EPA recently ordered it to convert back to a
17 closed cooling system. So they are very familiar with
18 that and the EPA can order that. And we are going to
19 be pressing our Connecticut DEP to do that when and if
20 they ever consider renewing the Clean Water Act
21 permit. The last one was issued in 1992, it expired
22 in '97. They've been operating on an expired illegal
23 permit now for eight years. When the state gets
24 around to reconsidering that issue, we will press very
25 hard for a conversion.

1 Therefore, we represent to you the strong
2 probability that the plant will have to convert. That
3 is a major, major refurbishment. It has not been
4 considered by any report I've seen of the relicensing
5 staff of the NRC. And it's a major, major oversight.
6 So if the plant did convert to a closed
7 cooling system, it wouldn't need to shutdown to avoid
8 the effect that we believe occurred here from
9 radiological and chemical discharges to the Niantic
10 Bay and the shoreline communities of Connecticut.
11 Most toxic chemicals would not need to be employed
12 because the system would use fresh water as opposed to
13 salt water. And at the same time, it would help to
14 spare the fish and it would help reduce the thermal
15 effect.
16 We are going to be campaigning in the
17 coming weeks to persuade our Connecticut legislators
18 and local officials to close the beaches in the
19 southeast Connecticut near Millstone and post
20 hazardous warning signs that swimming there is
21 hazardous to living things and dangerous to unborn
22 children. In the alternative, Millstone can be
23 closed. But Zachary and his family and we don't
24 believe you can have Millstone operating under its
25 current rules and people swimming in the beaches and

1 using recreational facilities in the state without
2 suffering dangerous exposures to their health.
3 Calculate the cost of that against the
4 cost of producing this energy and converting green and
5 clean energy. Just the other day I signed up for 100
6 percent clean energy in Connecticut, no nuclear
7 energy. It's going to be coming, so please don't worry
8 that in Connecticut the lights won't go on when people
9 flick the switches. If you look at the numbers from
10 the Connecticut Citing Council we don't need
11 Millstone. Other generators have come on line
12 sufficient in electric generation to take the place of
13 Millstone. During that three year controversial
14 shutdown in the 1990s, the three units at Millstone
15 were shut, Connecticut Yankee; all four nuclear
16 reactors in Connecticut were shut for two years and we
17 had no blackouts or brownouts. So we don't need it.
18 We don't want it. And please don't relicense it.
19 Thank you.
20 CHAIRMAN SIEBER: Okay. Thank you very
21 much.
22 MS. BURTON: Questions?
23 CHAIRMAN SIEBER: Appreciate you coming in
24 and providing us with your thoughts and information on
25 this.

1 I would point out that many of the issues
2 that you talk about are current operating issues as
3 opposed to license renewal issues. And there is a
4 mechanism within the staff to deal with current
5 operating issues. And if you were to -- if you have
6 grave concerns and you were to wait until the period
7 of extended license operation, you would live with
8 those concerns for a long period of time. So you may
9 want to look at the options that are available to you
10 to work with the NRC and have your concerns aired.
11 MS. BURTON: Well, I appreciate that
12 commitment. But even though the NRC found that last
13 year Dominion was operating by cutting corners,
14 consistently violating technical specifications left
15 and right, not knowing how to do basic things the NRC
16 in its wisdom reduced its surveillance schedule for
17 next year. If that is what we are concern to, I would
18 say that that is not sufficient to protect the public.
19 CHAIRMAN SIEBER: Yes.
20 MS. BURTON: But I don't think I was
21 understood with regard to one of my comments. You are
22 assuming under I believe 10 CFR 54.21(a) that routine
23 operations are being adequately monitored and
24 maintained by existing programs. I'm telling you here
25 today bluntly based on NRC's own reports that that is

1 not the case.

2 So for you to springboard from that faulty

3 assumption into a much larger environment of unknowns

4 is not justified. And these conditions and problems

5 that have been exposed in the NRC staff for review are

6 just -- the staff is just hopeful that in the future

7 Dominion will live up to its commitments. Well, the

8 present practice is showing that it is not and the

9 public is unnecessarily subject to health and safety

10 peril.

11 CHAIRMAN SIEBER: Okay. Thank you very

12 much. Appreciate it.

13 At this time I'd like to ask our members

14 if there are any issues that we should examine further

15 at this point in time, recognizing that this is an

16 interim review and part of that would be whether there

17 is a sufficient basis to write an interim letter.

18 Bill, can I have your comments, if any?

19 DR. SHACK: No. There seem to be a number

20 of open issues that the staff is working to resolve.

21 CHAIRMAN SIEBER: And they must be

22 resolved.

23 DR. SHACK: They must be resolved.

24 CHAIRMAN SIEBER: Right.

25 DR. SHACK: But I don't see any particular

1 showstoppers here.

2 CHAIRMAN SIEBER: Okay. John?

3 MR. BARTON: The containment coating issue

4 I think is maybe one of those referred to, but I think

5 that needs to be addressed.

6 CHAIRMAN SIEBER: Hold your mike down.

7 MR. BARTON: Oh, I'm sorry.

8 CHAIRMAN SIEBER: Yes.

9 MR. BARTON: I should know that by now.

10 The containing coating issue.

11 Most of the things that I came up in the

12 reviews have an answer today. A concern is that, you

13 know, if applicants say the right thing, if they're

14 not going to wait the extended period to implement a

15 lot of these programs, which you didn't get that from

16 the material.

17 CHAIRMAN SIEBER: That's right.

18 MR. BARTON: So if they're going to

19 implement those programs as they say, prior to, that

20 resolves many of the issues I've got.

21 CHAIRMAN SIEBER: Well, it's good to hear

22 the licensee say that. And, of course, now that

23 they've said it and there's a transcript and the staff

24 has heard it, we will expect them to do what they said

25 they are going to do.

1 But you're right, the application nor the
2 SER, neither of those are the basic official record of
3 the licensee action shows that. And it's not clear to
4 me that it ought to show that. On the other hand, I
5 consider it an obligation by Dominion now to live up
6 to the --
7 MR. BARTON: To its commitments. That's
8 true.
9 CHAIRMAN SIEBER: -- commitments it's
10 made. Okay. Appreciate it.
11 Steve?
12 MR. ROSEN: Yes, a few things, Jack.
13 CHAIRMAN SIEBER: All right.
14 MR. ROSEN: I guess the comment I made
15 about the risk-informed in-service inspection programs
16 not being credited as acceptable alternatives to
17 conventional programs; the staff needs to take that to
18 heart and have another look at the GALL and maybe
19 consider an ISG at some point.
20 I heard P.T.'s explanation, but I really
21 didn't follow it exactly. So anyway, I think, that's
22 to me it's still an open issue.
23 I think that the staff needs to provide
24 the Committee with a better discussion of the basis
25 upon which they provided a 54.17 exemption for Unit 3

1 to allow early filing. On the basis of their current
2 dates they should not have filed before November 25,
3 2005.
4 CHAIRMAN SIEBER: Right.
5 MR. ROSEN: The end of this year.
6 All the units at the site are different.
7 To try to say that one unit that had operated earlier
8 than another unit provided sufficient operating
9 experience just doesn't cut it with me.
10 CHAIRMAN SIEBER: I don't think that's --
11 I agree with you.
12 MR. ROSEN: The units are too different
13 for that. There may be some basis for the 53.17
14 exemption I believe there is, but it certainly wasn't
15 provided today.
16 On the point you just were discussing with
17 John, I feel that the licensee really needs to provide
18 the Committee with a better description of their
19 phase-in schedule for the implementation of the
20 commitments. It's not that hard. Other plants have
21 done it. They've given us charts, Gant charts or
22 showing us when they're going to have these various
23 commitments and in a management kind of way get the
24 feel that you're getting feedback that they will in
25 fact take care of that problem. And I don't think

1 they've done a good enough job that way. I would
2 expect to see that.
3 There was a question raised about safety
4 injection tank leakage. We've never seen or heard
5 about safety injection tank leakage before now. If
6 it's check valve leakage from the safety injection
7 tanks, that's a different matter.
8 CHAIRMAN SIEBER: That's a different
9 issue.
10 MR. ROSEN: We've heard about that before.
11 We know what that is. But tank leakage --
12 CHAIRMAN SIEBER: I take it the tank
13 leakage that they're referring to is the accumulators.
14 MR. ROSEN: Yes.
15 CHAIRMAN SIEBER: Right.
16 MR. ROSEN: That's what I'm thinking. But
17 I've never heard of accumulator tanks themselves
18 leaking. And if that were so, then we would need to
19 hear a lot more about that.
20 MR. AITKEN: Just to clarify that. The
21 tank itself, the vessel itself is not leaking. The
22 vessel itself is not leaking.
23 MR. ROSEN: It's a fitting or a weld?
24 MR. AITKEN: A check valve leakage.
25 CHAIRMAN SIEBER: You have a nitrogen

1 connection and you have a check valve --

2 MR. ROSEN: What is leaking is the fluid

3 in the tanks into the RCS tube, the check valves?

4 MR. AITKEN: The other way around. From

5 the RCS into the tank. It was couched --

6 CHAIRMAN SIEBER: Into the --

7 MR. AITKEN: It was characterized as a

8 workaround. So you can imagine the operators were

9 operating on the shift and now they get high level

10 alarms on their safety injection accumulators.

11 CHAIRMAN SIEBER: So they have to drain.

12 MR. AITKEN: So they have to then drain

13 the tanks down. They have to declare it inoperable,

14 drain the tanks down. And so that's a workaround. So

15 that's --

16 MR. ROSEN: I'm familiar with that

17 problem.

18 MR. AITKEN: Okay.

19 MR. ROSEN: That's not a serious problem.

20 And I understand that happens at PWR plants. And can

21 be dealt with, but it's difficult but it's not a

22 serious problem. But the tank leakage itself would be

23 something that we would be concerned about.

24 MR. AITKEN: Absolutely.

25 MR. ROSEN: I'm glad you clarified that.

1 I just didn't get it there in the regular discussion.
2 CHAIRMAN SIEBER: It's so serious if the
3 tank itself was leaking, it's a violation of the ASME
4 code.
5 MR. AITKEN: Right.
6 CHAIRMAN SIEBER: So you would have to
7 deal with that.
8 MR. ROSEN: All right. Well, now I'm happy
9 having heard the description. I just didn't get that
10 during the meeting.
11 I guess one more point I'd like to make is
12 that I was a little bit surprised about the fact that
13 this halon and carbon dioxide systems aging effects
14 are included in GALL. And that's reasonable, but
15 Millstone has now convinced the staff, apparently,
16 that you don't have aging effects in halon and carbon
17 dioxide systems. And, therefore, I would expect that
18 they would take that to heart and staff would take
19 that to heart and revise the GALL so that we wouldn't
20 have to go through this or that they would provide a
21 basis why it still needs to be looked at. Because
22 there are certain circumstances under which you can
23 have aging effects in halon and carbon dioxide
24 systems. But those particular circumstances didn't
25 happen to be present at Millstone. And that would be

1 a clarification that we would need.

2 Those were the three or four things that

3 I wanted to bring up again.

4 CHAIRMAN SIEBER: Okay. Thank you very

5 much.

6 MR. BARTON: One other thing, Mr.

7 Chairman. Maybe at the full Committee since I'm

8 reviewing these documents, we just got them of

9 Connecticut Coalition.

10 CHAIRMAN SIEBER: Yes.

11 MR. BARTON: About the inspection and the

12 operating history, recent operating history when last

13 year or so. Maybe at the full Committee you'd want the

14 NRC staff to review those issues and explain their

15 ROP, their conclusion based on --

16 CHAIRMAN SIEBER: Right.

17 MR. BARTON: -- their inspections of last

18 year where some issues were classified as more than

19 minor and -- there were some other words in here also.

20 Since we don't get to review operating

21 history on this Committee as part of the function,

22 maybe we would like to have the NRC come in here and

23 explain the present and the current operating history

24 and last year's inspections and explain the ROP.

25 MR. ROSEN: Just give us an update through

1 the time of the meeting.

2 MR. BARTON: Yes.

3 CHAIRMAN SIEBER: Well, actually, on

4 Thursday we are going to have a Subcommittee report,

5 but I'm going to give that report as opposed to the

6 staff according to the agenda that was published.

7 MR. ROSEN: Well, I thought John was

8 asking for when Millstone comes back for the full

9 Committee.

10 CHAIRMAN SIEBER: Oh, for the final?

11 MR. BARTON: Yes.

12 MR. ROSEN: And have NRC give us an update

13 on operating.

14 CHAIRMAN SIEBER: Absolutely. I agree with

15 that.

16 MR. BARTON: Okay.

17 CHAIRMAN SIEBER: Okay. Any other

18 comments from members? If not, I appreciate the vast

19 attendance that we've had at this meeting and the

20 effort that the applicant and the staff has gone to to

21 provide the ACRS with information. And we do see

22 improvement in the safety evaluation reports as time

23 goes on. And I think the staff is to be congratulated

24 for that. And the improvement of the process so that

25 we can get the review work done without a tremendous

1 expenditure of unnecessary resources. So I think the
2 program is certainly following Part 54 and
3 accomplishing what it's intended to accomplish.
4 On the other hand, we are not done yet.
5 There will be a final SER. There are items that are
6 open that must be closed. And you get the opportunity
7 to meet with us again after we have fully considered
8 all that we've heard and perhaps do a little bit of
9 additional reading and study to make sure that we
10 fully understand and any comments that we might have
11 are properly expressed to you.
12 So with that, I thank everyone in
13 attendance, and particularly the applicant and the
14 staff for the effort they've put forward. And with
15 that, this meeting is adjourned.
16 (Whereupon, the Subcommittee was adjourned
17 at 4:59 p.m.)
18
19
20
21
22
23
24
25

CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Advisory Committee on Reactor Safeguards Plant License Renewal Subcommittee Meeting

Docket Number: n/a

Location: Rockville, MD

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Rebecca Davis
Official Reporter
Neal R. Gross & Co., Inc.

Dominion

Millstone Units 2 and 3

License Renewal Presentation to ACRS Subcommittee

April 6, 2005

Bill Watson
MPS LR Supervisor
Dominion Nuclear Connecticut

Dominion

Participants

- Bill Corbin - Director, Nuclear Engineering
- Paul Aitken - Innsbrook LR Supervisor
- Support Staff
  - Ben Rodill
  - Don Duncan
  - Dave Wootten
  - Rik Wells
  - Dave Gerber
  - Marc Hotchkiss
  - Charlie Sorrell
  - Gary Komosky
  - Tom Hendy

Dominion

Introduction

- Description of MPS-2 and MPS-3
- Background
- Operating Information
- Aging Management Programs
- RV TLAAs
- LR Commitments

Dominion

Description of Millstone Unit 2

- NSSS Supplier - Combustion Engineering, Inc.
  - 2-Loop design (2 hot legs and 4 cold legs)
  - 2 Recirculating Steam Generators (S/Gs)
  - 4 RCPs
- Architect/Engineer - Bechtel Corp.
- Initial Ops: 1975

Dominion

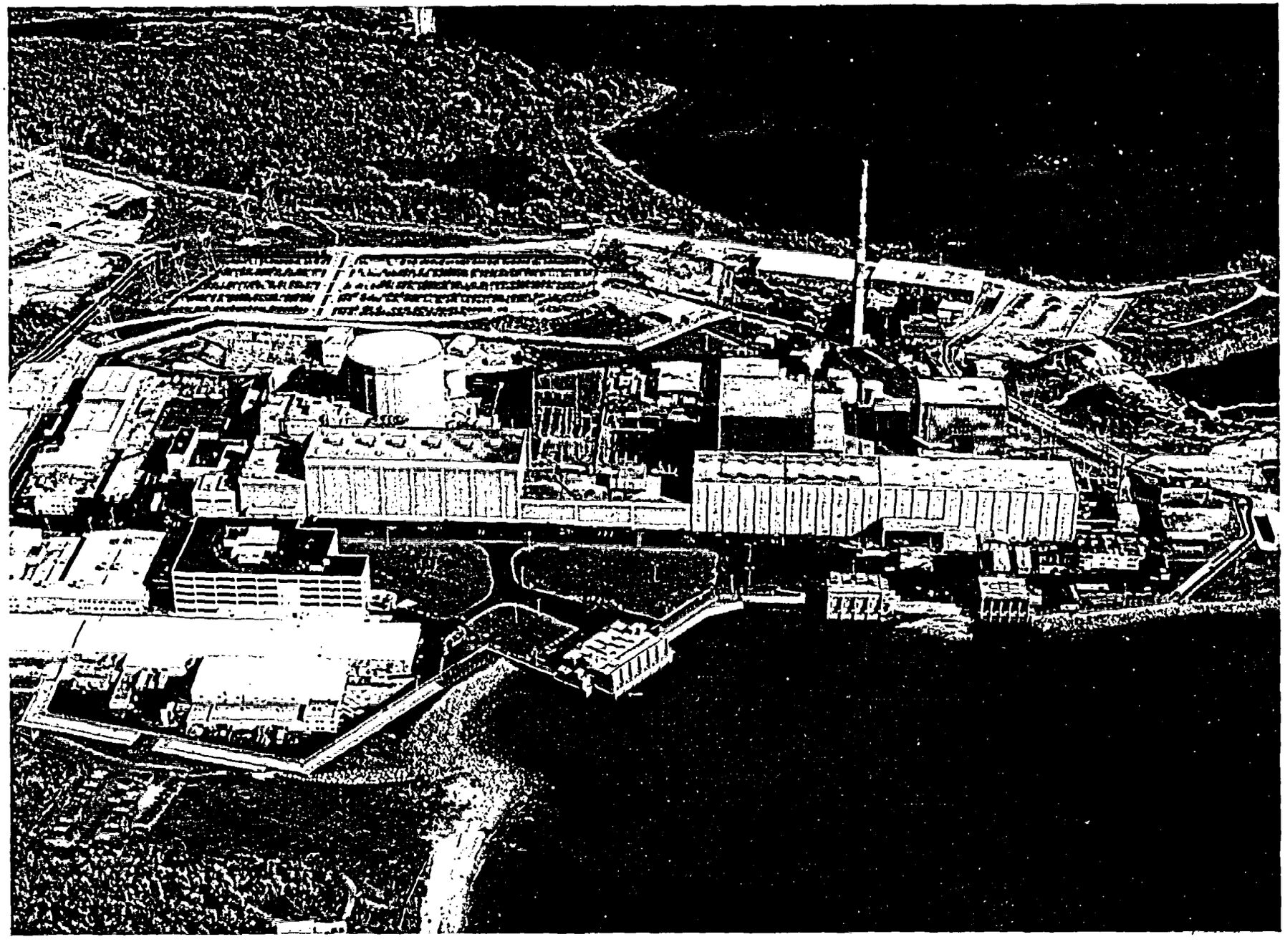
Description of Millstone Unit 3

- NSSS Supplier - Westinghouse Corp.
  - 4-Loop design
  - 4 Recirculating S/Gs
  - 4 RCPs
- Architect/Engineer - Stone and Webster Engineering
- Initial Ops: 1985

Dominion

Background

- Application Submitted - January 22, 2004
- Original License Expiration
  - Unit 2 - July 31, 2015
  - Unit 3 - November 25, 2025 (Exemption from 10CFR 54.17 granted by NRC)
- LRA process
  - Standard LRA Format
  - Extensive use of past precedence
  - Participated (post-pilot plants) in the Consistent with GALL Audits



Dominion

Millstone Units 2 & 3 Operating Parameters

Parameter	Unit 2	Unit 3
MWt	2700	3411
MWe	895	1195
Rx Inlet (°F)	549	557
Rx Outlet (°F)	600.5	617.2
Steam Flow(E6 lbm/h)	11.8	15

Dominion

Millstone Units 2 & 3 Similarities

- MPS Units 2 & 3 are located on a common plant site.
- Reactor Containments, and most major Category 1 structures founded on bedrock.
- Similarities in operating conditions, environments, and materials of construction yields similar aging effects for plant equipment.
- Common OE review process between Units 2 & 3.
- Majority of site programs are common.

Dominion

Millstone Units 2 & 3 Differences

- Unit 2 containment design includes a post-tensioning system of tendons with an access gallery.
- Unit 3 containment subfoundation is constructed of porous concrete which directs groundwater seepage to a dewatering system.
- System nomenclature not always consistent.
- System boundaries are inherently different.

Dominion

Millstone Unit 2 Operating History

- Unit 2 - Operating for 386 days since last refueling outage.
- Lower portions of the two S/Gs were replaced with corrosion resistant material (including tubes and tubesheet).
- RV Head is scheduled to be replaced in the 2005 RFO (Spring).
- Pressurizer is scheduled to be replaced in the 2006 RFO (Fall).
- Unit 2 does not have any bottom mounted instrumentation (BMI).

Dominion

Millstone Unit 3 Operating History

- Unit 3 - Operating 333 days since last refueling outage.
- RV Head not currently scheduled for replacement.
  - RV Head susceptibility ranking is in the lowest susceptibility category.
  - During 2002 RFO, the RV head visual inspection identified that there was no evidence of material degradation or RCS leakage.
- During 2004 RFO, the BMI visual inspection identified that there was no evidence of material degradation or RCS leakage.

Dominion

Millstone Unit 1

- Unit 1 is permanently defueled.
- Unit 1 SSCs were evaluated for affect on Units 2 & 3.
- Certain Unit 1 Structures were included in LR scope:
  - Turbine Building
  - Control Room/Radwaste Treatment Building
- Appropriate Unit 1 FP equipment was reassigned as Unit 3 equipment when Unit 1 was defueled and has been included in scope.

Dominion

Aging Management Programs

- 28 AMPs total
  - 27 common AMPs
  - Boraflex Monitoring is unique to Unit 2
- Existing AMPs okay as is
  - 13 common AMPs
  - Boraflex Monitoring for Unit 2
- Existing AMPs to be enhanced = 12
- 2 new AMPs

Dominion

AMPs Ok As Is

- Boraflex Monitoring (Unit 2 only)
- Boric Acid Corrosion
- Bolting Integrity
- Chemistry Control for Primary Systems
- Chemistry Control for Secondary Systems
- Closed-Cycle Cooling Water System
- Flow-Accelerated Corrosion
- Fuel Oil Chemistry
- ISI - Containment Inspections
- Reactor Vessel Surveillance
- Service Water System (Open-cycle Cooling)
- SG Structural Integrity
- EEQ
- Metal Fatigue of the RCPB

Dominion

Existing AMPs Requiring Enhancement

- Battery Rack Inspections
- Buried Pipe Inspection Program
- Fire Protection Program
- General Condition Monitoring
- Electrical Cables and Connectors not Subject to 10CFR 50.49 E.Q. Requirements, Used in Instrumentation Circuits
- Inaccessible Medium Voltage Cables not Subject to 10CFR 50.49 E.Q. Requirements
- Inspection Activities: Load Handling Cranes & Devices
- ISI-Systems, Components and Supports
- ISI-Reactor Vessel Internals
- Structures Monitoring Program
- Tank Inspections Program
- Work Control Process

Dominion

New AMPs

- Electrical Cables not Subject to 10CFR 50.49 Environmental Qualification Requirements
- Infrequently Accessed Areas Inspections

Dominion

RV TLAAs (USE & RT_{PTS})

- Unit 2 (54 EFPY – 90% capacity factor)
  - USE = 54.3 ft-lbs
  - RT_{PTS} = 190.5 °F
- Unit 3 (54 EFPY – 90% capacity factor)
  - USE = 58.8 ft-lbs
  - RT_{PTS} = 134.7 °F

Dominion

LR Commitments

- Commitments were documented in the LRA and modified as needed during NRC review.
  - 37 Commitments for Unit 2
    - 26 original (including 1 SAMA-related commitment)
    - 8 modified
    - 11 added (including 1 SAMA-related commitment)
  - 37 Commitments for Unit 3
    - 26 original
    - 9 modified
    - 11 added (including 1 SAMA-related commitment)

Dominion

LR Commitments (continued)

- MPS will load LR commitments into the plant commitment management system following issuance of the final SER.
- MPS will implement commitments prior to the period of extended operation or sooner.

Dominion

MPS License Renewal

Questions?

Millstone Power Station
Units 2 and 3
License Renewal Safety Evaluation Report with Open Items

Staff Presentation to the ACRS

Johnny Eads, Sr. Project Manager
Office of Nuclear Reactor Regulation

April 6, 2005

Overview

- Two License Renewal Applications submitted by letter dated January 20, 2004
- Unit 2 - Combustion Engineering design with two steam generators and four coolant loops
- Unit 3 – Westinghouse design with four steam generators and four coolant loops

Overview (continued)

- MPS located 3.2 miles west-southwest of New London, Connecticut, on the north shore of Long Island Sound
- Unit 2 OL expires July 31, 2015 and Unit 3 OL expires on November 25, 2025
- Requests operating license extensions 20 years beyond the current expiration dates

Overview (continued)

- SER with Open Items issued on February 24, 2005
  - 6 Open Items
  - 6 Confirmatory Items
  - 3 License Conditions
  - Brought into scope and subjected to AMR
    - Additional 10 CFR 54.4(a)(2) systems and components
  - 1 AMP added
    - Bolting Integrity Program

NRC Review Process

- Scoping and Screening Methodology Audit
- Consistency with GALL Audits
  - AMPs
  - AMRs
- Regional inspections
  - Scoping and Screening Inspection
  - AMP Inspection

NRC Review Process (continued)

- AMP GALL Audit
  - March 29 – April 1, 2004
- Scoping and Screening Methodology Audit
  - May 3 – 7, 2004
- AMR GALL Audit
  - May 3 - 13, 2004
  - June 7- 10, 2004
- AMP/AMR Audit Exit Meeting
  - July 13, 2004
- Regional Scoping and Screening Inspection
  - July 26 – 30, 2004
- Regional AMP Inspection
  - September 13 – 17, 2004 and September 27 – October 1, 2004

Section 2: Structures and Components Subject to Aging Management Review

- Section 2.1, Scoping and Screening Methodology
  - On-site audit May 3 - 7, 2004
  - Staff audit and review concluded that the applicant's methodology satisfies the rule
  - Open Item 2.1.3-1 related to NSR criteria pursuant to 10 CFR 54.4 (a)(2)

Section 2: Structures and Components Subject to Aging Management Review

- RAI 2.1-1 raised two issues:
  - Equivalent anchor definition used to evaluate non-safety-related piping attached to safety-related piping
  - Criteria for non-safety-related fluid containing components within low energy systems that are spatially oriented such that failure could effect safety-related components

Section 2: Structures and Components Subject to Aging Management Review

- Section 2.2 , Plant Level Scoping Results
  - Staff identified issues related to 10 CFR 54.4(a)(2) criterion resulted in eight additional Unit 2 systems and additional components for both Units 2 and 3 being brought into scope
  - Additional Unit 2 systems: aerated liquid radwaste, solid waste processing, turbine building closed cooling water, water box priming, auxiliary steam reboiler and deaerating feedwater, exciter air cooler, stator liquid cooler, and turbine lube oil.

Section 2: Structures and Components Subject to Aging Management Review

- Section 2.3, Scoping and Screening Results – Mechanical Systems
  - Reactor Vessel, Internals, and Reactor Coolant Systems (4)
  - ESF Systems (5 U2 and 5 U3)
  - Auxiliary Systems (46 U2 and 53 U3)
  - Steam and Power Conversion Systems (17 U2 and 11 U3)
  - Open Item 3.1.2-6, Scoping of the Rx vessel flange leak detection line

Section 2: Structures and Components Subject to Aging Management Review

- Section 2.4, Scoping and Screening Results – Structures
  - Containment
  - Structures and component supports
  - NSSS equipment supports
  - General structural supports
  - Miscellaneous structural commodities
  - Load handling cranes and devices

Section 2: Structures and Components Subject to Aging Management Review

- Section 2.5, Scoping and Screening Results – Electrical and Instrumentation and Control (I&C) Systems
  - Three electrical and I&C commodity groups subject to AMR
    - Cables and connectors
    - Electrical penetrations
    - Bus duct

Scoping and Screening Summary

- The applicant's scoping methodology meets the requirements of 10 CFR Part 54
- Scoping and screening results included all SSCs within the scope of license renewal and subject to AMR

License Renewal Inspections

- Scoping and Screening Inspection
- Aging Management Inspection
- Optional Third Inspection - not required
- Plant Reactor Oversight Process (ROP)

License Renewal Inspection Program Implementation

- License Renewal Manual Chapter – MC 2516
- License Renewal Inspection Procedure – IP 71002
- Site-specific inspection plan
- Scheduled to support NRR safety review
- Inspection team consisted of 1 team leader and 4 team members

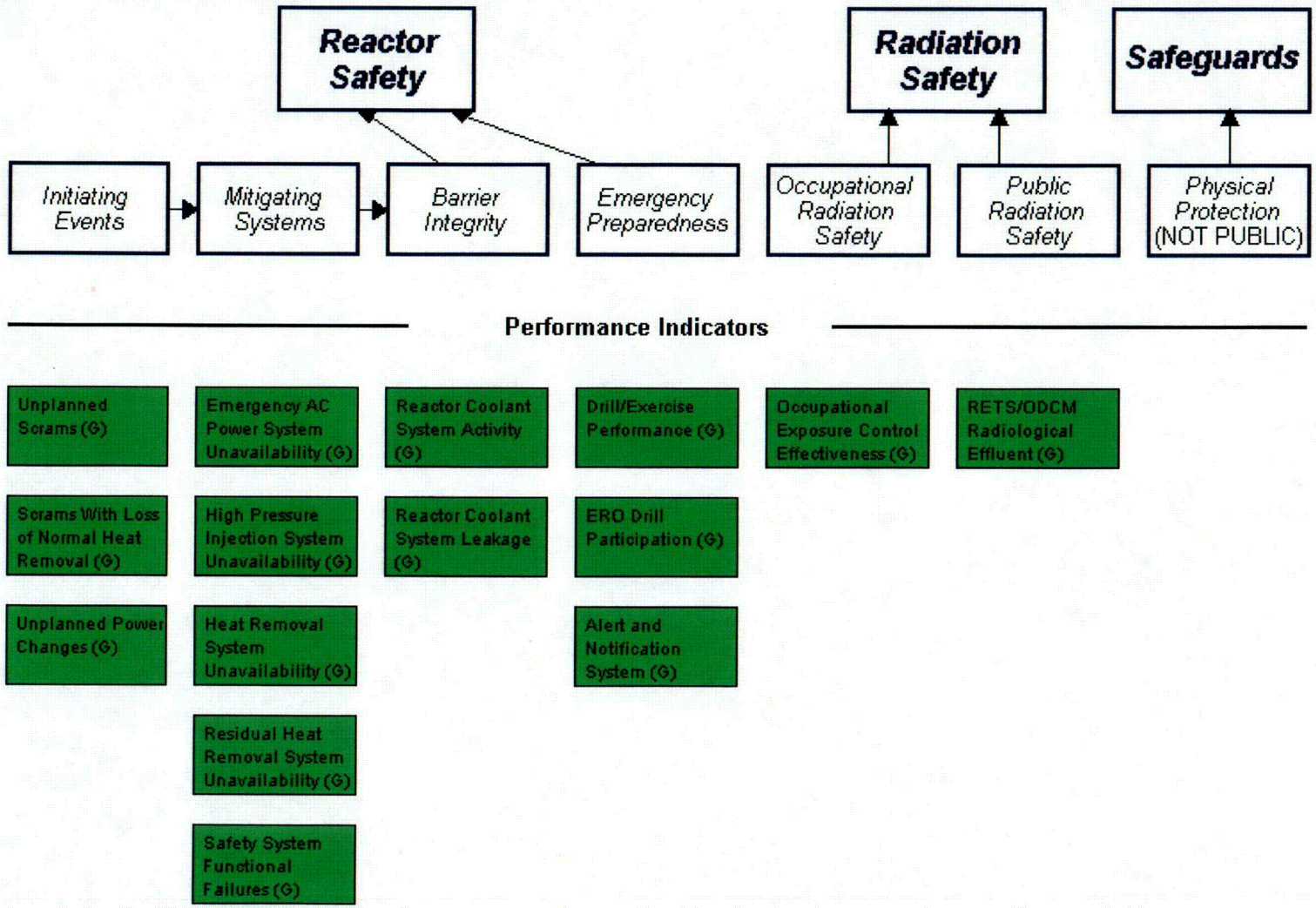
License Renewal Inspections

- Scoping and Screening Inspection
  - Objective: to confirm that the applicant has included all appropriate SSCs in the scope of license renewal as required by the Rule
  - Conducted July 26 – 30, 2004
  - Concluded that the applicant's scoping and screening process was successful in identifying those structures and components requiring AMR

Aging Management Program Inspection

- Objective: to confirm that existing AMPs are managing current age related degradation
- Conducted September 13 - 17, and September 27 - October 1, 2004
- Material condition of plant was being adequately maintained
- Proposed license renewal aging management procedures conformed to the method described in the LRA

Millstone Unit 2
4Q/2004 Performance Summary



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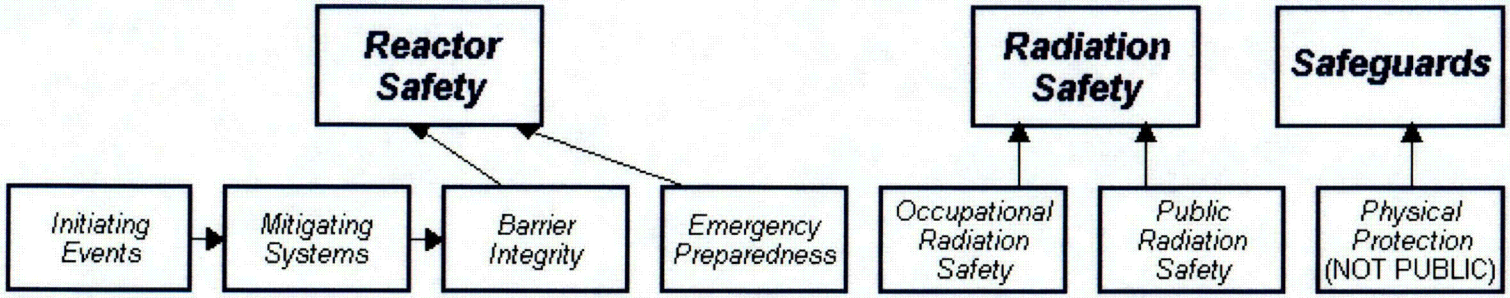
Millstone Unit 2
4Q/2004 Performance Summary



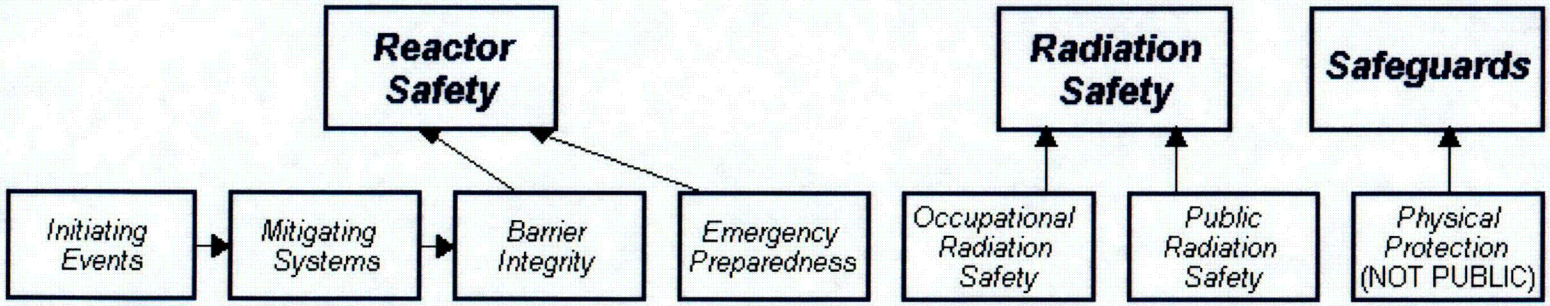
Most Significant Inspection Findings

4Q/2004	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	G	No findings this quarter
3Q/2004	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
2Q/2004	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
1Q/2004	G	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter

Miscellaneous findings

C02

Millstone Unit 3
4Q/2004 Performance Summary

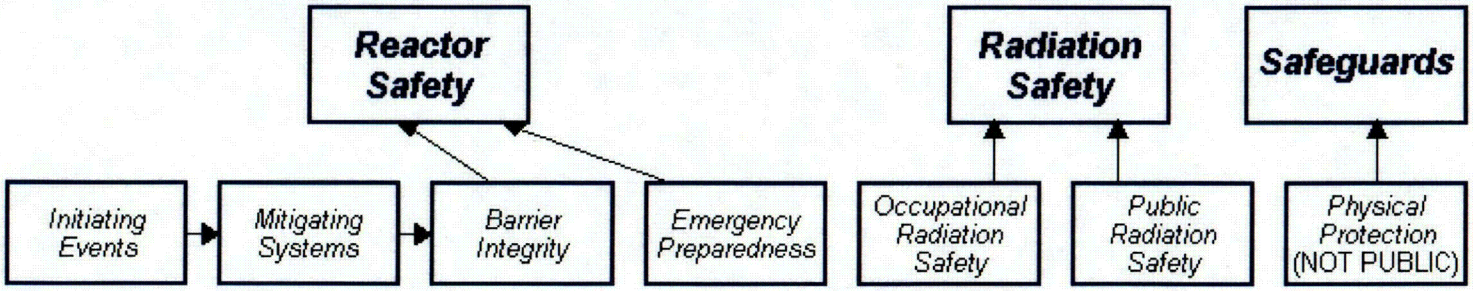


Performance Indicators

Unplanned Scrams (G)	Emergency AC Power System Unavailability (G)	Reactor Coolant System Activity (G)	Drill/Exercise Performance (G)	Occupational Exposure Control Effectiveness (G)	RETS/ODCM Radiological Effluent (G)
Scrams With Loss of Normal Heat Removal (G)	High Pressure Injection System Unavailability (G)	Reactor Coolant System Leakage (G)	ERO Drill Participation (G)		
Unplanned Power Changes (G)	Heat Removal System Unavailability (G)		Alert and Notification System (G)		
	Residual Heat Removal System Unavailability (G)				
	Safety System Functional Failures (G)				

C03

Millstone Unit 3
4Q/2004 Performance Summary



Most Significant Inspection Findings

4Q/2004	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
3Q/2004	No findings this quarter	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
2Q/2004	No findings this quarter	No findings this quarter	G	No findings this quarter	No findings this quarter	No findings this quarter
1Q/2004	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter

Miscellaneous findings

C04

Section 3: Aging Management Review Results

- 3.1, Reactor Vessel, Internals, and Reactor Coolant System
- 3.2, Engineered Safety Features Systems
- 3.3, Auxiliary Systems
- 3.4, Steam and Power Conversion Systems
- 3.5, Containment, Structures and Component Supports
- 3.6, Electrical and I&C Components

GALL Review and Audits

- Fully utilized consistency with GALL audits for AMPs and AMRs (90% assigned to audit team)
- Conducted on-site at MPS
- Staff review process described in SER Section 3.0.2
- GALL audit criteria
  - Consistency with GALL or previously approved staff positions
  - No associated emerging issues or ISGs under development

Aging Management Programs (AMPs)

- Total 28 AMPs
  - 26 Existing AMPs and 2 New AMPs
  - Consistent with GALL without exceptions or enhancements: 6
  - Consistent with GALL, with exceptions or enhancements : 18
  - Plant Specific - Not consistent with GALL: 4

AMP Audit

- Conducted March 29 – April 1, 2004
- Auditors included 3 NRC staff and 6 contractors
- Audited 7 attributes of the AMPs claimed to be consistent with GALL or previously approved staff positions
- Concluded AMPs were consistent with GALL
  - Examples of Audit Items

Buried Pipe Inspection Program

- Consistent with exceptions and enhancements
- Exceptions:
  - Cathodic Protection are not trended vs. time.
  - Establishing preventive measures during initial installation
- Resolution:
  - Baseline inspection - opportunistic excavation or focused inspections prior to the period of extended operation

Non-EQ Inaccessible Medium Voltage Cables

- Consistent with exception and enhancement
- Exception:
  - Engineering Evaluation to address conditions of Cables
- Resolution:
  - Sample Testing of Cables prior to the period of extended operation and not to exceed a 10 year frequency thereafter
  - Cables to be tested to demonstrate water treeing will not prevent cables from performing intended function

Bolting Integrity Program

- Originally, ISI was credited for RCS bolting.
- No program was credited to manage cracking initiation and growth due to SCC/cyclic loading for bolting in Sections 3.2 – 3.5
- Resolution:
  - A new bolting integrity AMP developed (Open Items 3.0.3.2.18-1 and -2)

Fire Protection Program

- Consistent with exceptions and enhancements
- Exceptions:
  - No aging effects requiring management for halon and carbon dioxide systems
- Resolution:
  - Baseline visual inspection of buried FP piping and components
  - Testing or replacement of representative sample of sprinkle heads

Metal Fatigue of Reactor Coolant Pressure Boundary Program

- Consistent with GALL AMP X.M1
- Six fatigue-sensitive locations identified in NUREG/CR-6260 are monitored
- Four of the six U3 components are projected to exceed CUF of 1.0 during PEO and will be managed by this AMP
- OE: A section of U2 spray piping was replaced because the original design analysis did not consider the auxiliary spray actuation transients

Section 3.1, Reactor Vessel, Internals, and Reactor Coolant System

- Reactor Vessel
- Reactor Vessel Internals
- Reactor Coolant System
- Steam Generator

Loss of Fracture Toughness in CASS Piping

- Originally, applicant states that loss of fracture toughness is not an aging effect requiring management based on LBB
- Resolution:
  - Applicant submitted LRA supplement committing to manage CASS piping/fitting with either enhanced volumetric examinations or a unit/component specific flaw tolerance evaluation.

Unit 2 SG Steam Nozzle Flow Restrictor

- Originally, the FAC program was credited to manage SG steam nozzle flow restrictor
- Resolution:
  - The applicant submitted LRA supplement restating that loss of material of flow restrictors are addressed by video inspection and venturi ID measurements performed as part of steam generator structural integrity program

Reactor Vessel Surveillance Program

- For U2 at least one of the three standby capsules will be withdrawn and tested during the period of extended operation
- For U3 Capsule W will be withdrawn when it receives a neutron fluence equivalent to 60-year fluence

Section 3.2, Engineered Safety Features Systems

- Unit 2 – 5 ESF systems
- Unit 3 – 5 ESF systems
- 9 AMPs that manage aging effects related to ESF system components

Section 3.3, Auxiliary Systems

- Unit 2 - 46 auxiliary systems
- Unit 3 - 53 auxiliary systems
- 14 AMPs that manage aging effects related to auxiliary system components

Section 3.4, Steam and Power Conversion Systems

- Unit 2 - 17 steam and power conversion systems
- Unit 3 - 11 steam and power conversion systems
- 9 AMPs that manage aging effects related to steam and power conversion systems components

Section 3.5, Containment, Structures and Component Supports

- 6 structural groups
- 12 AMPs that manage aging effects related to containment, structures and component supports components

Aging Management of In-Scope Inaccessible Concrete

	Aggressive Limit	MPS
pH	<5.5	6.10 – 8.06
Chlorides	>500 ppm	22 – 300 ppm
Sulfates	>1500 ppm	8 – 112 ppm

- Below grade environment is non-aggressive

Section 3.6, Electrical and I&C Components

- 3 component groups subject to AMR
- 3 AMPs that manage aging effects of electrical and I&C components

Section 4: Time-Limited Aging Analyses (TLAAs)

- 4.1, Identification of TLAAs
- 4.2, Reactor Vessel Neutron Embrittlement
- 4.3, Metal Fatigue
- 4.4, Environmental Qualification of Electrical Equipment
- 4.5, Concrete Containment Tendon Prestress
- 4.6, Containment Liner Plate and Penetration Fatigue Analyses
- 4.7, Other Plant Specific TLAAs

Section 4.2, Reactor Vessel Neutron Embrittlement

- Four analyses affected by neutron irradiation embrittlement
  - Neutron Fluence
  - Upper-Shelf Energy
  - Pressurized Thermal Shock
  - Pressure-Temperature (P-T) Limits

Reactor Vessel Upper Shelf Energy (USE)

Reactor Vessel USE	Acceptance Criteria (ft-lb)	MPS Unit 2 Staff Calculated Value (ft-lb)	MPS Unit 3 Staff Calculated Value (ft-lb)
Limiting Beltline Materials	≥ 50	52.9	59.0

- Based on ¼t neutron fluence values at the end of extended period of operation (i.e., 54 EFPYs)
- Applicant calculated USE values were 54.3 ft-lb for Unit 2, and 58.8 ft-lb for Unit 3

Pressurized Thermal Shock

Limiting Beltline Materials	RT_{PTS} Criterion (°F)	MPS Unit 2 Staff Calculated RT_{PTS} (°F)	MPS Unit 3 Staff Calculated RT_{PTS} (°F)
Lower Shell Plate C-506-1 (Unit 2) Intermediate Shell Plate B9805-1 (Unit 3)	≤ 270	197.9	134.7

- Applicant calculated RT_{PTS} were 190.5 °F for Unit 2, and 134.7 °F for Unit 3

Section 4.3, Metal Fatigue

- Fatigue of ASME Class 1 Components
- Fatigue of ASME Non-Class 1 Components
- Environmentally Assisted Fatigue

Section 4.4, Environmental Qualification (EQ) of Electrical Equipment

- Applicant's EQ Program consistent with GALL AMP, X.E1, "Environmental Qualification of Electrical Components"
- The staff concluded that applicant's continued implementation of EQ Program is adequate to manage the effects of aging on the intended function of electrical components

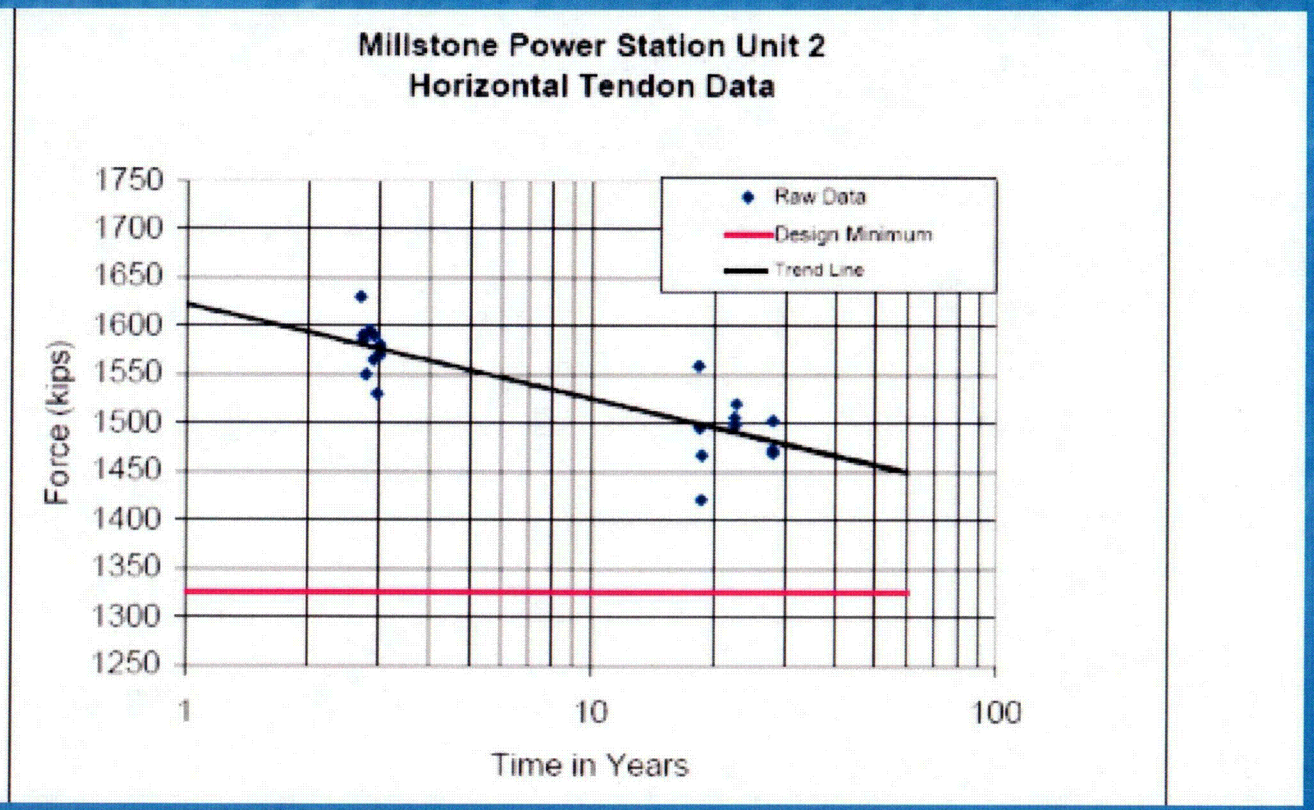
Section 4.5, Unit 2 Containment Tendon Prestress

- Pre-stress forces projected for 40 and 60 years of operation

Inspection Year	Dome Tendon Projected (kips)	Dome Minimum Value (kips)	Vertical Tendon Projected (kips)	Vertical Minimum Value (kips)	Horizontal Tendon Projected (kips)	Horizontal Minimum Value (kips)
40	1453	1343	1521	1339	1467	1325
60	1435	1343	1509	1339	1449	1325

Section 4.5, Unit 2 Containment Tendon Prestress

- Applicant provided trending analysis



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Section 4.6, Containment Liner Plate and Penetration Fatigue Analyses

- Staff concludes that the applicant used a conservative estimate of the number of load cycles for the period of extended operation
- Assessment of fatigue life of the liner plate and penetrations is acceptable

Section 4.7, Other Plant Specific TLAAs

- Crane Load Limit
- Reactor Coolant Pump Flywheel
- Unit 2 Reactor Coolant Pump Code Case N-481
  - Open Item 4.7.3-1(a)
- Leak-Before-Break Analysis
  - Open Item 4.7.4-1

Conclusions

- The staff has concluded that there is reasonable assurance that the activities authorized by the renewed licenses will continue to be conducted in accordance with CLB, and that any changes made to the MPS CLB in order to comply with 10 CFR 54.29(a) are in accord with the Act and Commission's regulations.

Staff Presentation to ACRS Subcommittee Regarding Millstone Power Station, Units 2 and 3 License Renewal Safety Evaluation Report with Open Items