ORIGINAL

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON REMAINING ISSUES RELATED TO PROPOSED RESTART OF MILLSTONE UNIT 3 -- PUBLIC MEETING

Location: Rockville, Maryland

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2 NUCLEAR REGULATORY COMMISSION

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4 BRIEFING ON REMAINING ISSUES RELATED

5 TO PROPOSED RESTART OF MILLSTONE UNIT 3

6 ***

7 PUBLIC MEETING

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9

10 Nuclear Regulatory Commission

11 Commission Briefing Room

12 One White Flint North, Room 1F-16

13 11555 Rockville Pike

14 Rockville, Maryland

15

16 Tuesday, June 2, 1998

17

18 The Commission met in open session, pursuant to

19 notice, at 8:05 a.m., the Honorable SHIRLEY A. JACKSON,

20 Chairman of the Commission, presiding.

21 COMMISSIONERS PRESENT:

22 SHIRLEY A. JACKSON, Chairman

23 GRETA J. DICUS, Commissioner

24 NILS J. DIAZ, Commissioner

25 EDWARD McGAFFIGAN, JR., Commissioner

1 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:
2 JOHN C. HOYLE, Secretary
3 SAMUEL J. COLLINS, Director, NRR
4 DR. WILLIAM TRAVERS, Director, Special Projects
5 Office, NRR
6 HUGH THOMPSON, NRR
7 EUGENE IMBRO, Deputy Director for ICAVP, SPO, NRR
8 PHILLIP McKEE, Deputy Director for Licensing and
9 Oversight, SPO, NRR
10 WAYNE LANNING, Deputy Director for Inspections,
11 SPO, NRR
12 STEPHEN G. BURNS, NRC Office of General Counsel
13 BRUCE KENYON, President and CEO, NNECo
14 MIKE MORRIS, Chairman, President and CEO, NU
15 MIKE BROTHERS, Vice President, Nuclear Operations
16 MARTIN BOWLING, Vice President, Technical Services
17 JOHN STREETER, Vice President, Nuclear Oversight
18 DAVID AMERINE, Vice President, Human Services
19 BRIAN ERLER, Senior Vice President, ICAVP Project
20 Director, Sargent & Lundy
21 DON SCHOPFER, Vice President and Verification
22 Manager, Sargent & Lundy
23 THOMAS SHERIDAN, First Selectman
24 TERRY CONCANNON, Nuclear Energy Advisory Council
25 JOHN MARKOWICZ, Vice Chairman

1 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:
2 (continued)
3 DEBORAH KATZ, President, Citizens' Awareness
4 Network
5 ROSEMARY BASSILAKIS
6 MARK HOLLOWAY, Citizen Regulatory Commission
7 GUY MENDENHALL, Citizen Regulatory Commission
8 RONALD McKEOWN, Friends of Safe Millstone
9 DAVID A. LOCHBAUM, Union of Concerned Scientists
10 DONALD W. DEL CORE, SR.
11 HARRY BLANK, Millstone
12 DAVE COLLINS, Millstone
13 GARY F. VERDONE, Millstone
14 MIKE MEEHAN, Millstone
15 JOSEPH M. AMARELLO, Millstone Employees Group
16 JERILYN M. DUEFRENE, Millstone Employees Group
17 MIKE KENNEDY, Millstone Employees Group
18 WILLIAM H. HONAN, Families of Southeastern
19 Connecticut
20 JENNIFER GUTSHALL, Alliance for Sustainable
21 Connecticut
22 SCOTT CULLEN, Standing for Truth About Radiation
23 THOMAS J. MASTRIANNA
24 PAUL BLANCHE, Consultant
25

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

2 [8:05 a.m.]

3 CHAIRMAN JACKSON: Good morning, ladies and
4 gentlemen. We are having an amplification problem and so I
5 am going to call on everyone in the room to be as attentive
6 as they can be and for every speaker to project as much as
7 they can. We hope to have the problem resolved within about
8 10 or 15 minutes, but our amplification, as you can tell, is
9 not working.

10 Can everyone hear me?

11 [Discussion off the record.]

12 CHAIRMAN JACKSON: Well, no one wants to hear the
13 opening remarks anyway --

14 [Laughter.]

15 CHAIRMAN JACKSON: -- so I will give them while
16 they are working on the amplification.

17 Good morning, ladies and gentlemen. This meeting
18 is the second of two scheduled Commission meetings to assess
19 readiness for restart of the Millstone Unit 3 plant.

20 The first meeting, held on May 1st, covered the
21 following items from the Restart Assessment Plant for
22 Millstone Unit 3 -- first, licensee progress to establish a
23 safety-conscious work environment and an effective employee
24 concerns program; second, licensee improvements to oversight
25 and quality assurance; and third, licensee resolution of

1 non-restart related issues and items commonly called
2 "backlog management."
3 The Staff had evaluated these issues to be
4 acceptable to support restart of Unit 3.
5 The Commission in its decision dated May 19th,
6 1998, agreed that the licensee had made appropriate
7 improvements such that these issues are acceptable to
8 support restart of Unit 3 subject to continued third party
9 oversight of the areas of employee concerns and
10 safety-conscious work environment and future inspection that
11 will measure the effectiveness of licensee actions related
12 to backlog management as well as oversight and quality
13 assurance.
14 Today's Commission meeting will cover the
15 significant remaining issues related to the Restart
16 Assessment Plan for Millstone Unit 3.
17 Issues to be discussed include the following:
18 one, the Independent Corrective Action Verification Program;
19 two, the actual Corrective Action Program; three, the
20 Operational Safety Team inspection; work planning and
21 controls; five, the significant items list; and six,
22 licensing issues.
23 The Commission will hear presentations today from
24 Northeast Utilities, the contractor associated with the
25 licensee's Independent Corrective Action Verification

1 Program, public official and interest groups, and the NRC
2 Staff.
3 Unit 3 has been shut down for approximately 26
4 months. All three of the Millstone units were placed on the
5 NRC's Watch List in January, 1996. The units were
6 recategorized as Category 3 plants in June of 1996. This
7 action necessitates Commission approval for restart of each
8 of the units.
9 There have been six previous Commission meetings,
10 held roughly quarterly, to assess the status of activities
11 at the site. The Commission is interested in comments,
12 evaluations, and conclusions from all participants today to
13 gauge how the licensee has addressed the critical areas
14 related to plant restart.
15 I particularly am interested in hearing comments
16 related to the number and significance of what are called
17 the Level 4 DRs, Discrepancy Report items, that do not
18 result in the plant being outside its licensing basis, and I
19 would like the NRC Staff in particular to discuss how it has
20 handled these in light of its criteria for scope expansion,
21 also the Level 3 DRs that were identified, and whether there
22 are any trends that have safety significance.
23 As I stated at last month's meeting, we have a
24 long day ahead of us, and it's longer today. The
25 Commission, with much help from the Office of the Secretary

1 has planned a schedule to maximize discussion of the issues
2 and to obtain a fair hearing from those on all sides of
3 these issues, and we look forward to an informative meeting.
4 I again ask for everyone's patience and to
5 project, and we have made available the display area off the
6 lobby in the 2 White Flint building as an overflow room
7 where anyone is invited to observe if they so desire.
8 Copies of the presentation material are available
9 at the entrances to the meeting, and unless my colleagues
10 have any opening comments, Mr. Morris, please proceed with
11 your presentation.
12 MR. MORRIS: Thank you, Dr. Jackson. Good morning
13 to you and your colleagues. We are happy to be here for
14 this second and very important meeting to touch on the
15 issues and give your our view of where Northeast Utilities
16 and the Millstone Station Unit 3 is, particularly to those
17 six issues.
18 I would like to thank you and your colleagues for
19 the conclusions that you reached after our May 1st meeting.
20 We obviously have read the conditions, understand them, and
21 have no trouble with them at all. We think that that will
22 help us continue to improve in the safety-conscious work
23 environment area and others and we appreciate that very
24 much.
25 Today you will hear from our team on occasion

1 talking about events in Mode 2 and events during plant
2 operation and plant power ascension, and I want to make
3 crystal clear to all of you that we aren't presupposing a
4 thing, but when we put together our presentation it just
5 made sense to speak in terms of those things, because some
6 events happen at those stages of bringing the units back
7 online, so I apologize to you and hope that you don't think
8 it's being presumptuous of our team, because we understand
9 the very critical vote that you still have to have on these
10 issues.
11 Lastly, let me simply say that the Northeast
12 Utilities team from our Board of Trustees through the
13 Executive Management, to Bruce and his team, understand our
14 obligation and are willing to dedicate ourselves to
15 fulfilling that obligation to this Commission, to the people
16 who work at Millstone Station, to the employees of our
17 company, and the people of Connecticut, and we thank you for
18 the many hours that you have devoted and dedicated to
19 understanding the situation and helping us better understand
20 the situation.
21 So with that I will turn this program over to
22 Bruce Kenyon and we will begin our presentation. Thank you.
23 MR. KENYON: Thank you and good morning.
24 The recovery of the Millstone Station, beginning
25 with Unit 3, has been an arduous undertaking. It has meant

1 changing leadership. It has meant raising standards and it
2 has meant bringing the performance of the organization into
3 conformance with these standards.
4 Among the many more specific issues, it has meant
5 re-establishing compliance with the licensing and design
6 bases and rebuilding the work environment such that it
7 properly satisfies the conditions of a safety-conscious work
8 environment.
9 The purpose of our presentation today is to review
10 the important remaining restart issues not reviewed at the
11 May 1st meeting. I understand that I have to audibly
12 indicate when we change slides until the microphone is
13 operable, so if I could have the next slide.
14 This slide shows the agenda for our portion of the
15 meeting. I will overview Unit 3's restart readiness. More
16 detailed presentations will be made by Mike Brothers and
17 Marty Bowling on the topics indicated, and then John
18 Streeter will present the conclusions of oversight. Next
19 slide.
20 Other NU representatives in attendance include, at
21 the table, Dave Amerine in case there are any further
22 questions on safety-conscious work environment; Frank
23 Rothen, our Vice President of Work Services, is in the
24 audience.
25 Also present are three members of our Board of

1 Trustees and its Nuclear Committee, Elizabeth Concannon, who
2 is our lead Trustee, as well as John Turner and Cotton
3 Cleveland.
4 We also have three members of the Nuclear
5 Committee Advisory Team present -- Phil Clark, who is
6 succeeding George Davis as Chairperson of ENCAT, Dominic
7 Monetta, and Tom Murley. Next slide --
8 CHAIRMAN JACKSON: Let me ask you one quick
9 question. Has your Board's Nuclear Committee concurred that
10 you are ready for restart?
11 MR. KENYON: The Board's Nuclear Committee has
12 closely followed what we are doing and observed our actions.
13 Our process does not involve at this point the Board
14 formally passing on our readiness, but ENCAT closely
15 watching what we are doing and ENCAT separately and
16 independently advising the Nuclear Committee has been our
17 process.
18 MR. MORRIS: And they have in fact come to that
19 conclusion. The Nuclear Committee of the Board meets every
20 other week and there is a tremendous amount of knowledge,
21 understanding of where we stand.
22 MR. KENYON: For my portion of the presentation I
23 will overview the Unit's readiness to restart, and then
24 recognizing that no plan to achieve restart readiness is
25 satisfactory without also having put in place the actions to

1 ensure the performance is sustained, and then as a longer
2 range measure a plan to achieve excellence, and I will be
3 addressing both of these issues, and finally I will review
4 the status of our restart readiness affirmation criteria.
5 Next slide.
6 As I have stated on several previous occasions,
7 the decline in performance of the Millstone Station was
8 largely reflected by performance declines in the 16 issues
9 listed on this slide. Consequently, the recovery of
10 Millstone's performance has been largely based on achieving
11 satisfactory performance in each of these important issues.
12 The status of these site issues has been addressed
13 in each of the briefing books we have sent you for this and
14 previous meetings.
15 At the May 1st meeting, I reported that all but
16 one issue, work control and planning, was satisfactory for
17 restart. The restraint on this issue was that we had not
18 yet achieved satisfactory levels of productivity. I am now
19 pleased to report that work control and planning, and thus
20 all 16 issues, are not satisfactory for restart.
21 CHAIRMAN JACKSON: Mr. Kenyon, which of these
22 issues do you feel have the greatest margin and which do you
23 feel have the thinnest? -- just from your personal
24 perspective.
25 MR. KENYON: I feel that all the issues are

1 satisfactory. The issues that we have worked the hardest on
2 recently have been work control and planning, where that was
3 getting an appropriate level of productivity. We have
4 worked hard on operations and the concern here, our people
5 are well trained, they have a conservative approach to
6 decision making. They have good command and control. But
7 what we have to focus on is that it has been two years, more
8 than two years, since the plant has operated and, thus,
9 evolutions that historically have been routine evolutions
10 are not necessarily routine evolutions today.
11 So we have endeavored to address that by -- for
12 appropriate evolutions, treating them as if we had never
13 done them before and, thus, very thorough briefings. We
14 have put additional licensed operators in the control room,
15 both at the senior level and at reactor operator level. We
16 have put unit management in the control room to ensure that
17 standards are being met and to reinforce those standards.
18 Oversight continues to watch. So, while I think we have
19 good operations, we are taking special care to ensure that
20 as we go forward. So I would identify that as one item.
21 I think one of our -- just to give you one at the
22 other end of the spectrum, and there are many that I could
23 pick from, but I am particularly pleased with oversight.
24 Oversight, I believe is playing a very strong, important and
25 valuable role in working with line management, helping to

1 sustain standards, helping to set standards, helping to
2 point out wherever performance dips from that. I think they
3 are functioning in a very cooperative -- and I don't mean
4 that in the negative sense, but they work closely with line
5 management. And in so doing, I think they are making a very
6 strong contribution to the performance of the station. So
7 that's one I would identify at the other end of the
8 spectrum.
9 Next slide. I now want to address the major
10 actions we are taking to ensure that performance is
11 sustained. It begins with having defined a very
12 conservative start-up and power ascension program. We will
13 continue to emphasize high standards and conservative
14 decision making. The power ascension program is divided
15 into five plateaus. We will hold at each plateau for
16 evaluation prior to moving to the next. Both unit
17 management and oversight will be on shift, as I indicated,
18 to monitor performance and to reinforce standards.
19 CHAIRMAN JACKSON: Is that around the clock?
20 MR. KENYON: Yes. And we will discuss testing
21 results with the NRC prior to moving to the next plateau.
22 Next slide. More generally, the sustaining
23 performance plan includes the following. It includes the
24 performance of key site issues being carefully monitored.
25 We will use approximately 90 performance indicators. The

1 use of these performance indicators is valued as a
2 systematic approach to tracking the performance of the
3 organization. The indicators are summarized in a quarterly
4 report, the first issue of which is included in Section 4 of
5 the briefing book.
6 A commitment to provide -- the sustaining
7 performance plan also includes a commitment to provide
8 performance reports to the NRC on a quarterly basis. It
9 includes extensive self-assessments by line management for
10 the purpose of identifying and correcting any weaknesses.
11 There have been 60 assessments so far this year. There are
12 another 115 planned for the balance of the year.
13 And, finally, there will be strong oversight with
14 good checks and balances. In part, this means a strong
15 nuclear oversight organization as I have described and they
16 will use a modification of their restart verification plan
17 to monitor performance on a going forward basis. It also
18 means that our Nuclear Safety Assessment Board will
19 critically review what is happening, and it means that EDCAT
20 as an agent for the Nuclear Committee will continue to
21 aggressively monitor what we are doing.
22 CHAIRMAN JACKSON: Does this mean that this is how
23 you plan to operate these plants or is this a plant that you
24 are putting into place to last for a finite period of time?
25 MR. KENYON: No, this is how we plan to operate

1 the plants.

2 CHAIRMAN JACKSON: Plan to operate the plants.

3 MR. KENYON: With the exception that as we go down

4 the road, I will not keep unit management on shift beyond

5 the power ascension program. I will not keep extra

6 operators on shift beyond the power ascension program. But

7 in terms of the strong role of oversight and that, I won't

8 keep oversight on shift forever either, but the overall

9 philosophy is certainly the philosophy we intend to follow.

10 We are very -- this next slide. We are very

11 committed to not having the continuing Unit 2 recovery

12 activities compromise in any way the ongoing performance of

13 Unit 3. This is achieved as follows. Unit 3 operations

14 will be maintained separate from Unit 2 recovery. Each

15 reports to a different officer who then reports to me.

16 Sufficient resources have been established to support both

17 Unit 3 operations and Unit 2 recovery.

18 And to provide increased confidence on this

19 matter, for the duration of the Unit 2 recovery, any

20 significant organization changes or resource reductions

21 affecting Unit 3, other than the planned phase out of

22 contractors, which is in progress, will be discussed with

23 the NRC in advance.

24 We have also made it clear to the various support

25 organizations that the operating unit has priority. And

1 while we do not expect to have financial resources further
2 constrained, should that eventuality arise, the pace of Unit
3 2 recovery will be slowed as opposed to constraining the
4 financial resources for the operating unit.
5 Now, just as it is important -- the next slide.
6 Just as it is important to maintain strong operational
7 performance, it is equally important to ensure that we
8 maintain and strengthen our Safety Conscious Work
9 Environment.
10 Particular actions which have been instrumental in
11 helping to achieve current Safety Conscious Work Environment
12 performance, and which will be maintained to ensure
13 sustained performance, are, first of all, the grouping of
14 the various people-related functions which includes Human
15 Resources, Safety Conscious Work Environment staff, our
16 Employee Concerns Program, Training. We have grouped all of
17 those under one officer, Dave Amerine. This has been very
18 effective and his, what he calls his people team, which are
19 representatives from these and other functions, meet daily,
20 the principal function being to discuss and handle any
21 emerging issues, so that continues.
22 We will continue with ERB to ensure there is a
23 very careful review of any proposed formal discipline or
24 staff reductions, including contractor reductions. The
25 leadership assessments and cultural surveys have been

1 important measurement and diagnostic tools. These will be
2 continued on a six-month interval. The next leadership
3 assessment was administered in the last two weeks. We will
4 have the results shortly.
5 And I think it is important to point out that the
6 Employee Concerns Oversight Panel, ECOP, which is an
7 independent group which reports directly to me, and which
8 assesses the effectiveness of the Employee Concerns Program
9 and, more generally, our Safety Conscious Work Environment
10 effectiveness also will provide continue vigilance.
11 CHAIRMAN JACKSON: Realizing, again, that the
12 specific forms that things take, you may decide should
13 evolve over time, but, again, are these elements, essential
14 elements of how you intend to maintain the Safety Conscious
15 Work Environment going forward? Or is this, again, a
16 program that is going to end at a specified date?
17 MR. KENYON: These are essential elements going
18 forward.
19 Next slide. Our long term commitment is to
20 achieve excellence and not simply sustain performance that
21 is acceptable for restart. We have prepared a rolling
22 three-year performance improvement plan to guide a
23 reference. The plan contains the vision, mission, values
24 and performance standards and it is built around the
25 following strategic focus areas.

1 Safety, which deals with nuclear, industrial and
2 radiation safety. It deals with human performance. It
3 deals with environmental and regulatory compliance.
4 Operating excellence, which I think is
5 self-explanatory.
6 Work environment, which deals with leadership,
7 Safety Conscious Work Environment, Human Resources
8 performance.
9 Organizational effectiveness, which includes
10 fiscal accountability and efficiency of resource
11 utilization.
12 And external relations which recognizes that
13 maintaining good communications with various external
14 constituencies is important to us going forward.
15 Next slide. During the transition from recovery
16 to operations, the plan is designed to have a near-term
17 focus on sustaining performance through self-assessment and
18 monitoring, and to begin selected initiatives toward
19 excellence. Overall strategies have been established. Work
20 is proceeding with implementing plans recognizing that full
21 implementation will not be achieved until Unit 2 recovery
22 has been completed. And KPIs have been established to
23 monitor performance and progress on all key improvement
24 initiatives.
25 CHAIRMAN JACKSON: KPIs being key performance

1 indicators?

2 MR. KENYON: Yes. Thank you. I try to avoid

3 those.

4 Finally, I want to review the status of our

5 restart readiness initiatives. Next slide, please. Restart

6 readiness affirmation criteria.

7 First, root causes for decline in Millstone

8 performance have been identified and corrected. This is

9 satisfactory and this was reviewed at our May 1st meeting.

10 Second, compliance with the licensing and design

11 bases has been restored. We believe this satisfactory and

12 it will be discussed in much greater detail in Mr. Bowling's

13 presentation.

14 CHAIRMAN JACKSON: Did that involve a lot -- many

15 technical specification changes?

16 MR. KENYON: Yes, it involved a number.

17 Can either of you quote the numbers?

18 MR. BROTHERS: Twenty-six.

19 MR. KENYON: Third, Safety Conscious Work

20 Environment has been established. This is satisfactory.

21 This was reviewed at our last meeting and Little Harbor has

22 issued an update which indicates even stronger results.

23 Fourth, self-assessment and corrective action

24 processes. Identify and resolve problems in a timely

25 manner. We believe this is satisfactory. The

1 self-assessment portion was addressed in our last meeting
2 and corrective action will be addressed by Marty Bowling's
3 presentation shortly.
4 Next slide. We are there. Fifth, unit and
5 support organizations are ready to resume operations. This
6 is satisfactory. One outstanding item had been work
7 planning and control. This was a productivity issue, that
8 is now satisfactory.
9 Sixth, the entire station is prepared to properly
10 support unit operations. This is satisfactory. One
11 outstanding item had been that the plan to ensure sustaining
12 performance had not been approved. It now is approved.
13 Seventh, management controls and oversight
14 measures are in place to prevent significant future
15 performance declines. This is satisfactory. This was
16 discussed extensively at our last meeting.
17 And eighth, restart readiness is affirmed using a
18 rigorous process. This is satisfactory, meaning that the
19 affirmation process is in place and that line management,
20 oversight and the NSAB have each affirmed readiness for
21 restart subject to satisfactorily concluding the remaining
22 work items required for Mode 2.
23 CHAIRMAN JACKSON: Now, will Mr. Streeter discuss
24 the findings from these evaluations?
25 MR. KENYON: Yes, he will.

1 This -- if there aren't any questions for me, I
2 would like to call on Mr. Brothers.
3 MR. BROTHERS: Thank you, Bruce. Good morning.
4 I am pleased to have the opportunity to present
5 what we believe is an excellent story. I intend to
6 demonstrate in this presentation that Millstone Unit 3 will
7 be ready to safely resume power operation in early June.
8 Next slide. My presentation today will be broken
9 down into the four major areas of readiness shown on this
10 slide. I will demonstrate that the unit is substantially
11 physically ready, that the unit is in compliance with all
12 regulations, that the organization is ready to support
13 operation, and, finally, that the unit is operationally
14 ready to return to power.
15 CHAIRMAN JACKSON: As part of your discussion,
16 could you give us some discussion about the issue with the
17 power operated relief valve?
18 MR. BROTHERS: Yes, I could do that now. One of
19 the items that came up in the operational safety team
20 inspection that occurred when we were transitioning into
21 Mode 3 was two lifts of what is called the power operated
22 relief valve. That was -- the first lift was in operation
23 of the master pressure control. The second lift was in the
24 -- on isolation of the valve.
25 We attributed this event, and I'll talk about,

1 there were five events, this is one of the four, to
2 primarily a lack of familiarity and the fact that we have
3 been shut down for greater than two years. But extensive
4 corrective action and training has taken place and, in fact,
5 one of the modifications we made changed the mode of
6 operation of that, it won't operate that way any more. It
7 wasn't for that purpose but it does do that.
8 CHAIRMAN JACKSON: Is that something that would
9 tend to only show up in this kind of a circumstances?
10 MR. BROTHERS: It would only show up if you were
11 switching from manual to auto or auto to manual in the
12 master pressure control, not something that is normally
13 during operation.
14 Next slide, please.
15 The first area of readiness that I will cover is
16 the area of physical readiness. This slide summarizes our
17 conclusion that Millstone Unit 3 is ready to safely resume
18 power operation. This slide makes the point that Unit 3 is
19 substantially physically ready, that the material condition
20 of the plant is very good, and that all prerequisites to
21 enter mode 2 or reactor start-up will be met in early June.
22 The next three slides are metrics supporting the
23 overall conclusion of this slide. One quick note with
24 regard to the metrics in this presentation. The metrics in
25 the presentation are up to date as of May 26th, which was

1 our submittal date. If there are any pertinent changes in
2 the actual data, I will update each metric with data up to
3 date as of this morning.
4 Next slide, please.
5 This slide supports the first bullet on the
6 previous slide; that is, all required modifications required
7 to resume power operation are physically complete.
8 CHAIRMAN JACKSON: Excuse me. So does that say
9 that there's some post-mod testing --
10 MR. BROTHERS: Yes.
11 CHAIRMAN JACKSON: -- that remains to be done?
12 MR. BROTHERS: Exactly correct. A few mods have
13 not had their final release to operations due to remaining
14 re-tests. Those are primarily constrained, so we have to
15 get in to do the re-test.
16 CHAIRMAN JACKSON: And how many?
17 MR. BROTHERS: Eight.
18 CHAIRMAN JACKSON: Eight.
19 MR. BROTHERS: All of these are scheduled in our
20 heat-up, start-up and power ascension program. As I have
21 pointed out in previous presentations, we have completed 224
22 modifications to restore complete compliance with our design
23 and licensing basis. Of the 224 mods, 182 involve physical
24 work and the remaining 42 involve documentation only.
25 Next slide, please.

1 This slide illustrates that we have completed
2 essentially all required tasks required to resume power
3 operation. As of today, we have 40 tasks remaining to
4 complete our readiness to enter mode 2.
5 As this slide shows, over the last two years and
6 two months, we have completed over 12,000 tasks, and I have
7 a breakdown of the 40 items that are remaining. They
8 primarily break down into three big buckets. One, we're
9 waiting on two tech spec implementations. Wave some issues
10 associated with steam generator tube rupture and SLCRS, leak
11 collection and recovery system that have to be resolved.
12 Those compromise the majority of the 40 remaining items to
13 demonstrate our readiness to go into mode 2.
14 CHAIRMAN JACKSON: Does Oversight have a view on
15 any of these open issues?
16 MR. STREETER: Yes. Yes, we do, Chairman. We are
17 following both of these and both of these items are on what
18 we call our mode 2 issues list that I'll discuss in my
19 presentation.
20 MR. BROTHERS: Next slide, please.
21 This slide shows that we have completed --
22 substantially completed our corrective maintenance backlog.
23 As of this morning, I'm pleased to say that the actual
24 numbers are 494 power block items and 253 maintenance rule
25 systems. So we have made good progress and have met the

1 goals in both power block and maintenance rule, corrective
2 maintenance work.
3 CHAIRMAN JACKSON: Let me ask, do you track for
4 yourselves these -- also in terms of manhour loading? I
5 mean, some tasks have more complexity than others, so the
6 straight numbers don't necessarily tell you everything. So
7 do you track how much time it would take to bring the
8 backlog down?
9 MR. BROTHERS: That's correct. That's how we
10 build the schedule, the rolling schedule, is by manhours.
11 Each of those tasks has an estimate that's put together by
12 the first-line supervisor which goes into the scheduled
13 planning in our twelve-week rolling schedule.
14 CHAIRMAN JACKSON: And so when you say twelve-week
15 rolling and you play that against manhours, is that to say
16 that -- what's your target in terms of how long it would
17 take to work off the backlog, your target goal in terms of
18 how much backlog and manhours you would expect to have?
19 MR. BROTHERS: I don't think it's going to be
20 possible to ever have zero backlog. We have --
21 CHAIRMAN JACKSON: No, no, no, I understand that.
22 But I'm saying, so the issue is what is your manhour target
23 in terms of what is a manageable size backlog?
24 MR. BROTHERS: I don't have a good answer for a
25 manhour target for backlog. I can get you that, but I don't

1 have it with me.

2 Next slide, please.

3 This slide summarizes the second area of

4 readiness, that of regulatory readiness. We measure our

5 readiness in this area by assuring that all required license

6 amendments will be implemented by early June, that all

7 significant items list items have been submitted to the NRC,

8 all NRC commitments are on track for completion in early

9 June, and that all of our 50.54 foxtrot significant items

10 required for a restart list will be completed prior to entry

11 into mode 2.

12 The next three slides will show metrics which

13 support each of the four bullets on this slide.

14 CHAIRMAN JACKSON: What do you call foxtrot items?

15 MR. BROTHERS: Those are the items that, in

16 question 1 of the 50.54 foxtrot letter, were required to

17 document those items.

18 CHAIRMAN JACKSON: Oh, F is foxtrot.

19 MR. BROTHERS: Yes.

20 CHAIRMAN JACKSON: Okay.

21 [Laughter.]

22 CHAIRMAN JACKSON: I just want to make sure we're

23 all talking from the same page.

24 MR. BROTHERS: I apologize.

25 One of the things we've insisted upon in our plant

1 for our operations people is to use the alphanumeric
2 alphabet, and so we try to emulate it in management as well.
3 Next slide.
4 This slide was deleted. The reason it was deleted
5 is because it did a poor job of representing our current
6 status with regards to license amendments. Independent of
7 this slide, I'll put the current status with regard to
8 license amendments.
9 During this shutdown, we have submitted 24
10 amendments to our technical specifications. We previously
11 talked about 26. Those are two anticipated 9118 USQs
12 associated with steam generator tube rupture and SLCRS.
13 We have received approval for 23 of these
14 amendments. The one remaining license amendment request
15 requiring approval involves our resolution to the
16 pressurizer overflow concern which could result in what is
17 referred to as the inadvertent safety injection.
18 Next slide. We have submitted all 216 packages
19 which correspond to the 86 zones on the Millstone Unit 3
20 specific attachment to Manual Chapter 0350. The last
21 package, our compliance with NUREG 0737 or the Three Mile
22 Island Action Plan was submitted in late May.
23 To date, the quality of packages, as verified by
24 numerous internal and external inspections, has remained
25 high.

1 Next slide, please.

2 CHAIRMAN JACKSON: They are all closed?

3 MR. BROTHERS: No, they are not. I believe the

4 staff will be reporting on closures in the SECY letter that

5 came out as well.

6 Next slide, please.

7 This slide shows that we have completed

8 essentially all of the NRC commitments that are required for

9 restart. As of today, the actual remaining number is nine.

10 We define a commitment as a written statement that's

11 docketed, a verbal statement to take specific action agreed

12 to by an officer or an NRC requirement.

13 In addition to completing current commitments, we

14 have completed a review of the entire Millstone Unit 3

15 docket to verify that all commitments have been adequately

16 dispositioned.

17 CHAIRMAN JACKSON: Are these nine, remaining nine,

18 are any of them new commitments or are they just answers to

19 old issues?

20 MR. BROTHERS: They come up new. For instance, we

21 have a weekly phone call with your staff and the SPO, and if

22 we -- if it rises to that level, it becomes a commitment at

23 that point.

24 CHAIRMAN JACKSON: And what's holding them up? Is

25 it engineering or --

1 MR. BROTHERS: Primarily plant conditions and the
2 resolution of the remaining 40 ARs I talked about earlier.
3 CHAIRMAN JACKSON: Okay.
4 MR. BROTHERS: When the ARs close, those 40, these
5 nine will close as a matter of course.
6 Next slide, please.
7 This slide demonstrates that we have essentially
8 completed all of the significant items required for restart.
9 As of today, there are 34 items remaining out of a total
10 population of over 4,500. In addition to the items required
11 for restart, we have continued to complete deferrable items
12 as I reported at the May 1st meeting. At this time, we have
13 completed approximately 70 percent of deferrable items.
14 Next slide, please.
15 The third area of readiness is organizational
16 readiness. This slide summarizes some of the more important
17 aspects that make up our determination that Millstone Unit 3
18 is soon to safely resume power operation. Mark will cover
19 our corrective action program following my presentation.
20 The next several slides will focus on departmental
21 assessments of readiness, the procedure upgrade program and
22 our own current high-level of procedure compliance.
23 Next slide, please.
24 CHAIRMAN JACKSON: Your back-up slide shows two
25 yellow areas. Could you describe them?

1 MR. BROTHERS: This slide has one area, one area
2 yellow.
3 CHAIRMAN JACKSON: Okay.
4 MR. BROTHERS: It's on the next slide coming up.
5 CHAIRMAN JACKSON: Okay.
6 MR. BROTHERS: This slide shows our current
7 organizational assessment. At the May 1st Commissioners'
8 presentation, I reported that all departments except work
9 planning and outage management were satisfactory to support
10 power operation.
11 This slide, as I said, was submitted on May 26.
12 At that time, work planning was ready -- was not yet ready
13 based upon our own rigorous metrics. During the week of May
14 18th, we conducted a stand down as a result of a reactor
15 coolant system valve program that I will discuss in some
16 detail in just a moment. The resultant negative impact on
17 schedule adherence caused us to go yellow. This week, and I
18 will talk about it in the next slide, they will work to
19 support restart along with all other Millstone Unit 3
20 organizations.
21 CHAIRMAN JACKSON: Now everybody can hear you.
22 [Laughter.]
23 MR. BROTHERS: Next slide.
24 This slide shows that for the week of May 18th, we
25 did not meet our online work management goals of greater

1 than or equal to 75 percent of planned schedule starts,
2 greater than or equal to 70 percent of schedule completions.
3 As I stated on the previous slide, this was
4 directly attributable to the stand-down that we imposed on
5 the workforce to reemphasize our standards.
6 Last week's performance was again essentially a
7 goal. These goals will continue to be raised as our
8 performance with regard to schedule adherence continues to
9 improve. Our current performance, while not world class, is
10 acceptable to support unit restart.
11 Next slide.
12 As I stated earlier, the procedure upgrade program
13 is complete for Millstone Unit 3. This program will cover
14 approximately five years and 4,000 procedures. The adequacy
15 of the program has been inspected and validated by ourselves
16 and the Nuclear Regulatory Commission.
17 Next slide.
18 Our current level of procedural compliance is very
19 good. As this slide shows, in December, we did exceed our
20 goal of less than or equal to .5 errors per one thousand
21 hours of work. Management attention was correctly applied
22 and satisfactory performance has been maintained for the
23 last four months. In my view, this is an excellent example
24 of the proper use of a well-designed performance indicator.
25 This extended outage has inculcated the use of

1 performance indicators into the organization. As we resume
2 power operation, performance indicators, as Bruce said, will
3 continue to be a key management tool for identifying trends,
4 both good and bad, in the Millstone unit in station
5 performance.
6 Next slide, please.
7 The fourth area of readiness and the one which
8 pulls all the other areas together is the area of
9 operational readiness. This slide summarizes the major
10 components which make up our assessment that Millstone Unit
11 3 is operationally ready to safely resume power operations.
12 They are the physical condition of the plant as it directly
13 affects the ability of the operators to operate, evidenced
14 by temporary mods, et cetera; operator performance start-up
15 and power ascension program, and finally training.
16 Next slide.
17 This slide shows that we are on track to meet our
18 goal of less than or equal to 15 temporary mods. As of
19 today, we have achieved our goal. The actual number of
20 installed temporary modifications is 15, and four will be
21 removed in the near future.
22 CHAIRMAN JACKSON: Has Oversight reviewed this?
23 MR. STREETER: Yes.
24 MR. BROTHERS: Next slide, please.
25 Operator work-arounds are meeting our goal of less

1 than or equal to ten. The actual number is ten.

2 Next --

3 CHAIRMAN JACKSON: Is there a consistent

4 definition, do you think, in terms of what an operator

5 work-around is?

6 MR. BROTHERS: Yes. We use the INPO definition,

7 which is, to put it succinctly, is anything in the plant

8 that could inhibit the ability of the operator to operate

9 the plant in either normal or transient conditions.

10 CHAIRMAN JACKSON: And that's your definition?

11 MR. BROTHERS: That's correct.

12 Next slide, please.

13 We are also meeting our goal of less than or equal

14 to ten control room deficiencies. The actual number is

15 seven, of which zero are older than six months.

16 CHAIRMAN JACKSON: When you talk about operator

17 work-around and/or control room deficiencies, is there a

18 risk gradation on these?

19 MR. BROTHERS: Each one of them is reviewed, and

20 if, in fact, it has any risk associated with it, it can't be

21 carried on the program. In other words, they have to be

22 worked immediately. The priority system in our trouble

23 report system sets that, and so anything that has

24 significant risks on it will not ever show up as a tracked

25 item.

1 CHAIRMAN JACKSON: Do you ever use PRA to arrive
2 or, you know, to help make that decision about the risk?
3 MR. BROTHERS: Yes, we do.
4 CHAIRMAN JACKSON: Okay.
5 MR. BROTHERS: Next slide, please.
6 This slide shows our current percent of low
7 significant precursors to total human errors. Our
8 aggressive internal goal is to have greater than or equal to
9 95 percent of all human errors to be of a low significance
10 precursor type. As I've said before, it's desirable to keep
11 this percentage high so that corrective actions can take
12 effect at a lower level prior to an actual event on the
13 significance ladder.
14 Our performance level for the month of May was 92
15 percent. Although this is a good percentage, we have had
16 several events of an operational or organizational type
17 which we are addressing. The next two slides summarize the
18 events and our managerial response to increase the
19 operational focus of our organization.
20 Next slide, please.
21 As this slide indicates, our initial transition
22 out of Mode 5 did not meet our expectations. We have
23 performed a causal factor analysis of the events and
24 determined that while there is no common route cause, the
25 fact that the unit has been shut down for greater than two

1 years results in virtually every evolution which occurs in
2 the mode greater than mode 5 being a first-time evolution.
3 The operational safety team also pointed out that
4 some of our operational programs, like the lock valve check
5 list, breaker alignments, et cetera, while not resulting in
6 safety problems, do not meet industry best practices.
7 FInally and most significantly, our repairs to a
8 packing leak on a reactor coolant system valve did not meet
9 our standards.
10 CHAIRMAN JACKSON: In that case, was an engineer
11 not listened to or did you just not plan adequate
12 contingencies?
13 MR. BROTHERS: I think the best thing for me to do
14 is to talk about in general, the results, the interim
15 results of the independent review team and just go over
16 those with you, if you would like.
17 CHAIRMAN JACKSON: Sure.
18 MR. BROTHERS: I have some back-up slides
19 associated with the valves, if you would like to have the
20 details, but I --
21 CHAIRMAN JACKSON: Why don't you just talk.
22 MR. BROTHERS: Okay. The results of the
23 independent review team indicate that the areas that broke
24 down in maintenance -- there was an overconfidence in the
25 ability to deal with a familiar or common activity, and

1 operations did not take a leadership role in dealing with
2 the 132 issues, not proactive or aggressive. Engineering
3 raised DISTEM separation, your point, but the appropriate
4 engineering and maintenance supervisory management was not
5 proactive in following up and holding them accountable for
6 resolution.
7 Work control and management lacked the leadership
8 role in controlling the work activities. In the case of the
9 management team, incomplete communications in the management
10 team, spotty and poor communications. And finally, what
11 I'll get to when I get back to my text is my take on the
12 whole instance. But what we had was an organizational
13 failure. Enough information was there that the independent
14 review team and the event review team together confirm that
15 we had adequate indication of DISTEM separation and didn't
16 act correctly on it.
17 CHAIRMAN JACKSON: So it was a learning moment?
18 MR. BROTHERS: Yes.
19 Okay. I'm back on slide number 37.
20 As I said, although the team made the correct and
21 conservative decision to correct this minor leak and the
22 team made the correct and conservative decision to
23 depressurize the reactor coolant system to work on the
24 valve, all of the possible problems were not anticipated and
25 contingency plans were not in place when the repair was

1 attempted.

2 Fundamentally, although the organization had the
3 plant in the right conditions to perform the repair, the
4 sacrosanct nature of the reactor coolant system was not
5 appreciated by my team. Just as there is a zero law of
6 thermodynamics, my priority is the maintenance of the three
7 barriers of reactor safety, the fuel clad, reactor coolant
8 system, and the containment. The purpose of our unit-wide
9 stand-down and the organizational changes was to reinforce
10 these priorities to our organization.

11 Next slide, please.

12 This slide summarizes the high level actions that
13 we are taking to enhance the operational focus of our
14 organization. We have placed unit management on shift with
15 clearly identified roles and responsibilities to reinforce
16 our conduct of operation standards. We have made additional
17 senior reactor operator and reactor operator personnel
18 available for shift augmentation for key evolutions. These
19 key evolutions come from our review of our heat-up and power
20 ascension procedures to identify first-time evolutions.

21 We have assigned one shift managers the
22 responsibility of coordinating the return to 100 percent
23 power. To that end, this shift manager has been removed
24 from his rotating shift assignment and now resides in our
25 work planning department as a key interface between unit

1 management and the operating shift.

2 Industry benchmarking against our operational

3 programs such as our lock valve checklist, how we document

4 vendor supplied equipment and how we document electrical

5 switches, et cetera, and valve reliance will be

6 accomplished.

7 Finally, the formation of an operational support

8 organization with the purpose of consolidating operational

9 programs and eventually unit support programs will solidify

10 our performance against a clear set of operational

11 principles.

12 Next slide.

13 Our start-up and power ascension program is in

14 place and has been reviewed by the Institute of Nuclear

15 Power Operations and the NRC. This slide gives the

16 highlights of that program. Suffice it to say that our

17 return to 100 percent power will take into account that we

18 have been shut down for over two years. The shifts will be

19 augmented with additional licensed staff. Unit management

20 will be on shift to ensure compliance with our expectations

21 for conduct of operations. Nuclear oversight will be on

22 shift as an independent agent assessing our performance and

23 pre-arranged assessments of our ability to continue power

24 ascension along with communications with the Nuclear

25 Regulatory Commission will occur at 30 percent, 50 percent,

1 75 percent and 90 percent power. Contingency shutdowns are
2 also included after each of these assessments.
3 Our return to 100 power will be controlled and
4 deliberate. After 26 months, there is simply no point in
5 rushing.
6 Next slide.
7 This slide summarizes the training that has been
8 conducted for our operating crews. We have conducted
9 detailed training on all modifications which have an impact
10 on how operation configures or operates the plant.
11 We have conducted extensive training on our
12 start-up of power ascension programs as discussed
13 previously. Finally, the trio of reactivity management,
14 conservative decisionmaking and conduct of operations
15 familiarization has been completed or all licensed and
16 non-licensed operating personnel. This training is aimed at
17 the raising of standards, and each session was kicked off by
18 myself or another senior manager within Unit 3.
19 Next slide. Back one, please.
20 Slide 41.
21 We firmly believe that Millstone Unit 3 is ready
22 to safely resume power operation. Within the area of
23 physical readiness, the material condition is very good.
24 All required modifications are physically complete. And we
25 have met our goals for corrective maintenance backlogs.

1 In the area of regulatory readiness, we have
2 received and implemented all but one of our required
3 technical specification amendments. We have submitted all
4 manual chapter 350 significant items list packages for
5 enclosure. We have reviewed our NRC commitments and cleared
6 all but nine of those required for restart. We have
7 completed all but 34 of the 50.54 foxtrot significant items
8 required for restart.
9 Organizationally all departments are assessed as
10 ready to support power operations. Our procedure upgrade
11 program is complete, and our procedure compliance rate is
12 very good.
13 CHAIRMAN JACKSON: Let me ask you a question
14 since, you know, we've talked a lot about corrective actions
15 and maintenance, and your use of KPIs -- key performance
16 indicators. Have you -- and maybe you haven't had the
17 opportunity to do this -- but have you thought about whether
18 the way you -- the indicators you've used -- whether they in
19 fact conform with the kind of indicators that perhaps you
20 should use relative to the maintenance rule?
21 I had a discussion with another licensee about
22 this that there's a maintenance rule, that in a sense it
23 changes the focus. But people seem to still use the same
24 indicators as if there isn't a maintenance rule, and so have
25 you had an opportunity to think about that, or is that a "to

1 be done"?

2 MR. BROTHERS: I don't think we've fully done it

3 as much as we should. We have a few indicators that

4 directly relate to maintenance rule performance, and we have

5 a monthly maintenance rule system A1 status report.

6 However, it's not completely throughout the performance

7 indicators.

8 Another point that I think along that point is

9 that there are performance indicators that can -- if used

10 incorrectly can drive incorrect behavior, and you have to be

11 careful that you don't manage the indicator versus manage

12 the right process. So we're very careful about that as

13 well.

14 CHAIRMAN JACKSON: Okay.

15 MR. BROTHERS: In the area of operational

16 readiness we have met our goals for temporary mods, operator

17 workarounds, and control room deficiencies. Operator

18 performance is being closely tracked and it is acceptable to

19 resume power operations. Our startup and power sensor

20 program is in place, and all required training for our

21 operation crews has been completed.

22 In summary, the plant is in excellent physical

23 shape. As Marty will show, we are in compliance with the

24 design and licensing basis. Our organization is adequately

25 staffed, qualified, and trained to support the resumption of

1 power operations, and our Operations Department is ready to
2 resume operational control of the unit to begin our safe
3 return to 100-percent power.
4 If there are no further questions, I'll turn it
5 over to Marty Bowling to discuss corrective action and
6 ICAUP.
7 CHAIRMAN JACKSON: Thank you.
8 MR. BOWLING: Good morning. For the past year and
9 one-half I've been discussing the status and effectiveness
10 of corrective actions at Millstone. Today I'm pleased to
11 report to you that corrective actions are sufficiently
12 healthy and robust at Millstone to support the safe
13 operation of Millstone Unit 3.
14 Next slide.
15 I have used this slide in previous meetings to
16 depict the robustness of corrective actions for Millstone 3
17 and to provide you our internal self-assessment of the
18 process elements and individual attributes that in aggregate
19 result in effective corrective action. At our May 1 meeting
20 I discussed a number of these attributes. Of the remaining
21 attributes I have provided the performance indicator or
22 status which supports the restart of Millstone Unit 3 as
23 backup information in your package.
24 Today I would like to focus on engineering quality
25 and effectiveness. I will also be addressing the point that

1 you raised in your opening remarks with respect to our
2 assessment of the Level 4 discrepancy.
3 CHAIRMAN JACKSON: Okay. Why are tentative issues
4 area yellow and the unit organization --
5 MR. BOWLING: The two elements, unit
6 organizational readiness was discussed by Mike --
7 CHAIRMAN JACKSON: So it comes out --
8 MR. BOWLING: The work control --
9 CHAIRMAN JACKSON: Okay.
10 MR. BOWLING: Based on that self-assessment, and
11 the repetitive issues I'd like to discuss. In fact, this
12 topic is tracking but is not yet satisfactory. And that's
13 the elimination of repetitive issues.
14 I first want to emphasize on the next slide that
15 our engineering and technical efforts during this recovery
16 have overall been very effective. This slide provides a
17 number of key engineering, technical, and program issues
18 that have been addressed and resolved during this recovery.
19 In many cases this required getting program ownership and
20 management support prior to being able to resolve the
21 technical issue.
22 I am particularly pleased by the raising of
23 standards in the safety evaluation program area. This was
24 accomplished through upgraded procedures, management focus
25 and involvement, and by increasing the knowledge level of

1 the engineering personnel performing safety evaluations.
2 The standards have been set and reinforced by our
3 plant operating review committee, and the Nuclear Safety
4 Assessment Board. However, this is an area that we still
5 want to improve, and therefore we are currently providing up
6 to three additional days of supplemental training primarily
7 to site engineering personnel involved in the preparation of
8 50.59 safety evaluations and screens.
9 The remaining items on this slide are now
10 acceptable for Unit 3 restart. Each item continues to
11 receive management and nuclear oversight monitoring.
12 Next slide.
13 However, even with these successes, management is
14 still focusing on and providing attention to two key areas.
15 Mike has already discussed the operational area, and I will
16 discuss engineering quality and standards on the next slide.
17 I want to again state that our engineering quality
18 is acceptable for identifying and addressing issues that are
19 important to safety and which assure conformance to the
20 design and the licensing basis. Nevertheless,
21 attention-to-detail issues with calculational accuracy and
22 administrative procedural compliance continue to occur.
23 To address this situation, a number of steps are
24 being taken. First, our engineering management recognizes
25 and is taking ownership for these issues, is now providing

1 coaching and followup to raise the standard of what is
2 expected. This coaching will be provided to our principal
3 engineering contractors as well.
4 To further raise the standard, I have established
5 an engineering quality board made up of myself and the
6 directors of each engineering department. Our purpose is to
7 monitor quality and set the standards. I am also personally
8 meeting with the various engineering managers to raise
9 expectations and standards.
10 Second --
11 COMMISSIONER DIAZ: Just for you and Mr. Brothers,
12 because you're bringing the issue of engineering now, we
13 just went through an issue of about -- in which I guess the
14 conclusion was that you know you recognized the problem but
15 did not follow through, and I wrote something down that I'm
16 going to repeat to you, Mr. Brothers, that you said that
17 there didn't seem to be proper respect for the three
18 barriers for fission products release. And how does that
19 incident overall indicate the present quality of your
20 organization to be able to follow through issues of such a
21 nature?
22 MR. BROTHERS: Okay. I'd like to answer that
23 first, and I'll give you the answer I've given other people
24 associated with that. This did not meet our standards.
25 However, the argument that I call my bounding argument is

1 that the organization put the plant in the right condition
2 to conduct the maintenance. The fact that it was in Mode 5
3 and depressurized mitigated the organizational breakdown
4 that did occur. So that is the bounding argument that I
5 have.
6 After this in fact took place, we've made several
7 direct enhancements in association with our preventive
8 maintenance and monitoring system. We had a stand-down of
9 the unit that took place for about five days to reinstitute
10 that. The entire management staff met with every person who
11 works on Millstone Unit 3 in groups of working departments
12 to reiterate those standards, and we believe we have our
13 hands running. The follow-on activities associated with the
14 valve were handled very well.
15 COMMISSIONER DIAZ: Is there a level of
16 consciousness necessary for your engineering people to
17 systematically address issues of this nature with the proper
18 care?
19 MR. BROTHERS: I guess there is. I would not,
20 although the system engineer did bring it up, he did not use
21 our RP4 process, which is our corrective action process.
22 Had he done that, the formality of the response would have
23 been preordained. However, he did in fact raise it to a
24 sufficient number of people that it still should have been
25 handled.

1 MR. MORRIS: But I think there has been, and this
2 is the point that Mike's trying to make, that with the
3 stand-down and with the discussions that we have all had
4 with the Millstone team on this issue that we have raised
5 the awareness of what processes should have been used and
6 how to handle it. So we started right, didn't do well in
7 the middle, but we've done well in the after-event
8 evaluation and recalibration of the team, and we hope that
9 that sends a signal to you and others that we're prepared to
10 deal with these issues and make sure that everyone is
11 sharing the standards that we're trying to implement.
12 Bruce and Mike and the Millstone team are working
13 day and night at raising that, and as you can imagine, it
14 takes time for that kind of an approach to sink into
15 everybody. But Dr. Jackson said this was a learning moment.
16 It was a learning day or week, but it was a learning event,
17 and I hope that's good. We treated it as such. We wished
18 that it would have been different.
19 I think the maintenance conclusion that we thought
20 it was a simple matter, it's an inch-and-a-half line, you
21 know, when you think about the things you could work on in a
22 station, you know, we probably went at it without the right
23 degree of concern because of that. It looked familiar.
24 Packing a valve looked familiar. But we've learned, and the
25 standards are forever being raised.

1 MR. BOWLING: And, Commissioner Diaz, back to the
2 point I made before your question, our engineering
3 management recognizes what the standard is now, and between
4 them and myself we're personally setting that standard in
5 the engineering organization.
6 COMMISSIONER DIAZ: In other words, the bottom
7 line, when one of these things happens and there is a risk
8 associated with any of the barriers, a light bulb is
9 supposed to go on. I'm just asking whether a light bulb is
10 coming on.
11 MR. BOWLING: We are making that point.
12 COMMISSIONER DIAZ: All right.
13 MR. MORRIS: It's working better than the audio
14 system here today.
15 [Laughter.]
16 MR. MORRIS: Now I retract that statement.
17 [Laughter.]
18 COMMISSIONER McGAFFIGAN: One of the issues that
19 Mr. Lockbaum raised at the last Commission meeting had to do
20 with what the role of contractor support and engineering
21 might be after restart, after the ICAVP program formally
22 concludes. I've looked at his testimony, I'm not sure
23 whether he's going to say it again this afternoon, but he
24 thought there might be a role, an enduring role for Sargent
25 & Lundy type activity; perhaps not as formal as it's been.

1 Do you see a need for any sort of external help as you go
2 forward?
3 MR. BOWLING: I do not, and a lot of my remaining
4 remarks will go to that issue.
5 Continuing on with our addressing engineering
6 quality, and I can't overemphasize that management --
7 setting proper management expectations right from the top
8 are critical to making sure the light bulb does turn on.
9 Second, though, engineering workloads need to be
10 rebalanced and levelized. The primary cause of the quality
11 issues has been the tremendous amount of engineering work
12 required during this recovery. This will be accomplished
13 through organizational realignments to more effectively
14 utilize our engineering resources. These realignments are
15 being planned for implementation after Millstone 3 safely
16 returns to power operation. The realignments will have as a
17 specific objective a focus on operational engineering
18 support and backlogs.
19 In addition, the design and configuration control
20 functions will be consolidated into one engineering
21 department.
22 Detailed action plans are also being developed to
23 address specific self-assessment findings, as well as the
24 ICAVP identified process weaknesses.
25 The ICAVP final report, which I'm sure Sargent &

1 Lundy will discuss during their presentation, recommended
2 several engineering enhancements in the areas of data
3 management, process efficiencies, engineering quality and
4 configuration control.
5 In addition, we have been binned and trended the
6 ICAVP DRs, as well as our own condition reports, to identify
7 the need for additional process enhancements, and to further
8 raise our standards.
9 With respect to the ICAVP self-assessment
10 feedback, I believe these results are providing us
11 additional insights in understanding our strengths and
12 weaknesses. I have discussed some of the weaknesses and
13 strengths. In my opinion, we have a strong and safe
14 operation.
15 Finally, we are using our engineering assurance to
16 measure our self-assessment nuclear oversight. I will get
17 back to that, and our efforts. Thank you.
18 CHAIRMAN JACKSON: Let me ask a question.
19 How do you judge engineering quality? Things come
20 to my mind such as risk resolution. How do you judge?
21 MR. BOWLING: We want to use a combination of
22 three elements. First is performance indicators, which can
23 include repetitive issues, particularly design issues, the
24 number of higher significant condition reports. So that's
25 the first area, is to get a proper or a set of indicators

1 that you can set a goal, set the standard, and then measure
2 your performance against it.
3 Second is the use of self-assessment, and this is
4 internal within engineering. We also have an engineering
5 assurance section whose primary focus is to look at
6 engineering quality, and then we have the nuclear oversight
7 self-assessments. So that's the second element.
8 CHAIRMAN JACKSON: Okay. The point is, do you
9 have performance-oriented criteria or indicators? See,
10 because in a certain sense -- okay. I guess inherent in
11 your indicators, is that what you're telling me, because --
12 MR. BOWLING: Yes.
13 CHAIRMAN JACKSON: -- because one could argue that
14 having indicators and doing self-assessments is how you do
15 it, but the issue is, you know, what's the focus in terms of
16 the result.
17 MR. BOWLING: Well, we use the engineering quality
18 board to set the goals for the indicators and then to
19 monitor the performance.
20 If I could have slide 47.
21 At the May 1st meeting, I briefly discussed the
22 review we conducted in response to several design
23 modification issues -- most notably, the RSS orifice
24 modification and resultant damage to the expansion joints
25 during testing.

1 In retrospect, it turned out to be a very complex
2 issue -- and we all missed it. By we, I mean Westinghouse,
3 Stone & Webster, the expansion joint vendor, Flextronics,
4 Sargent & Lundy, the ICAVP contractor and, most importantly,
5 NU.
6 As a result, we have performed a comprehensive
7 root cause and then expanded our review by assessing an
8 additional 194 physical modifications performed during this
9 outage.
10 Key causal factor areas addressed in the review
11 included adequacy of the design, testing and vendor
12 interfaces. To this scope was added a review of level 1
13 design-related condition reports.
14 Finally, we reviewed the twelve RSS related
15 modifications in aggregate to confirm design and licensing
16 requirements. Nuclear Oversight independently reviewed
17 these results, along with making their own technical
18 assessments.
19 No significant new issues were found. The overall
20 conclusion was that the design process and technical quality
21 was adequate. The ICAVP contractor provided additional
22 assurance by reviewing the final RSS modifications and
23 reaching a consistent conclusion.
24 Next slide.
25 The response to the ICAVP DRs demonstrates

1 acceptable engineering quality. Recognizing the
2 arm's-length communication protocol requirement which was
3 established to insure independence between NU and the NRC
4 and ICAVP contractor, 78 percent of the DRs were responded
5 to about the need for additional follow-ups. Of the
6 remaining 22 percent, over two-thirds of the follow-up were
7 due simply to a need for additional information or
8 clarification of what was being asked by Sargent & Lundy or
9 being provided by NU.
10 A better measure of the quality of the NU
11 responses are provided in the last two items on this slide.
12 The key measure of quality is the number of initial DR
13 responses that required the need for additional corrective
14 action by NU in order to be acceptable to the ICAVP
15 contractor. Only four percent of the DR responses by NU
16 were in this category, including three level 3 DRs.
17 As I will discuss in the next two slides, the
18 Millstone Unit 3 engineering effort has been effective in
19 both identifying and addressing the safety significant and
20 the DB/LB conformance issues.
21 This slide shows the number of reportable issues
22 identified during the recovery and their safety significance
23 based on risk-informed insights. Most were self-identified
24 by the Unit 3 engineering effort. The ICAVP process has
25 been very useful by providing additional assurance and a

1 higher level of confidence that all of the safety
2 significant issues have been identified.
3 Our engineering effort to restore the design and
4 licensing bases was comprehensive. Nonetheless, the ICAVP
5 process did find additional issues. This slide shows the
6 breakdown of discrepancy reports identified by the ICAVP
7 contractor. Of the 974 confirmed DRs, over one-third were
8 either determined to be non-discrepant or previously
9 identified by NU after further review.
10 Of the remaining two-thirds, 20 -- this slide
11 indicates 18, but there have been a couple since submitted
12 -- of the remaining two-thirds, 20 have been determined to
13 be level 3 DRs, which are DB/LB issues of low safety
14 significance. Only one of these was determined to be
15 reportable under 50.73. This demonstrates that the
16 Millstone Unit 3 engineering effort was effective in
17 identifying the LB/DB issues.
18 With respect to the large number of level 4 DRs
19 confirmed by the ICAVP contractor, I would like to make
20 several observations.
21 First, as I have said at previous meetings,
22 although we have done a reasonably effective job of
23 engineering, it is not perfect. Our own inattention to
24 detail has contributed to some of the identified level 4
25 DRs.

1 Second, the Millstone Unit 3 Configuration
2 Management Review was a graded safety review. This means
3 that once reasonable assurance was obtained that there was
4 no safety, regulatory, DB or LB issues, the review was
5 stopped. Therefore, in addressing the level 4 DRs, we have
6 used trending and self-assessment to determine if, in
7 aggregate, these findings represent a significant
8 programmatic weakness in the graded safety review approach
9 that we took. We have not found this to be the case.
10 As you know, we are committed to addressing each
11 of the level 4 findings. In addition, we will be raising
12 the standards on attention to detail issues so that over
13 time, these type of minor errors will be corrected.
14 Third, we have used self-assessment including
15 trending of the Level 4 DRs to expand the scope of our
16 engineering reviews. I have indicated on this slide the
17 principal areas where additional reviews were conducted in
18 order to ensure that the Millstone Unit 3 design and
19 licensing basis has been adequately restored.
20 A timeline for these reviews as well as other
21 self-assessments conducted during the last two years is
22 provided as a backup in your slide package, but as an
23 example you will note the fifth item on this slide, which is
24 calculational control. We looked hard at this area in
25 October of 1997 as a result of our own self assessments, as

1 well as the ICAVP findings and discrepancy reports. Based
2 on these reviews, we strengthened the calculational control
3 area by assuring that the key calculations of records were
4 identified and properly utilized when making changes.
5 Calculational control is also enhanced by the
6 incorporation of Unit 3 calculations into the automated
7 passport system.
8 Finally, we have provided guidelines for
9 periodically reviewing and updating key calculations. This
10 corrective action has been completed.
11 COMMISSIONER DIAZ: Let me go back to the same
12 issue again.
13 Obviously you have a serious -- a good
14 organization of elements in here and my question is do you
15 believe after all of this time, and there's a lot of time
16 that you have, that your Engineering organization has
17 developed into a safety-conscious Engineering organization
18 that is capable of providing the engineering safety
19 standards for Millstone Unit 3 to operate the maintenance
20 modifications, et cetera, et cetera?
21 MR. BOWLING: Yes, I do, and the reason for that,
22 as I move through this briefing, is that the Engineering
23 organization has found the safety significant issues. They
24 are capable of finding and understanding what is the design
25 and licensing basis and have been able to effectively

1 restore that and to maintain that.

2 COMMISSIONER DIAZ: Okay. You are telling me that

3 in the case of the restrainer in the line and the case of

4 the primary coolant leak that really at least a significant

5 part of the lightbulb came on?

6 MR. BOWLING: Yes, and that is where we're at now

7 is down below these levels to the attention to detail, to

8 the sensitivity of the impact on operations and driving

9 those points into the standard of the organization.

10 COMMISSIONER DIAZ: And do you believe that the

11 Operations and Maintenance organizations have confidence

12 that the Engineering organization has the right safety

13 awareness?

14 MR. BOWLING: I believe they do, in my --

15 MR. BROTHERS: I would concur with that. We have

16 an example going on right now today in which what is holding

17 us up to be ready to go into Mode 3 is work on a nonsafety

18 pressure control valve associated with the electric main

19 feed pump.

20 We found the valve had some washout, some

21 below-minimum welds. The valve is not in use during normal

22 operation. Operations asked the question to Engineering,

23 can we go forward without doing a weld buildup on the valve.

24 Engineering said you cannot, and so we are doing that weld

25 buildup at this time and that is the type of thing that we

1 have at all times.

2 COMMISSIONER DIAZ: Thank you.

3 MR. BOWLING: Slide 53, please.

4 The corrective actions necessary to restore DB/LB
5 conformance that was identified by the ICAVP process are
6 substantially completed. This slide shows the status of
7 correcting the confirmed Level 3 and 4 DRs.

8 The few remaining Level 3 DR assignments will be
9 completed prior to entry into Mode 2.

10 The remaining Level 4 corrective action
11 assignments will be completed as committed to in our
12 deferred items Backlog Management Plan discussed at the May
13 1st Commission meeting. However, you can see that a
14 substantial amount of the Level 4 DR corrective action
15 assignments have already been completed.

16 A comprehensive effort has been made to restore
17 the design and licensing basis for Unit 3. An equally
18 comprehensive effort is being placed on maintaining
19 compliance with DB, LB and regulatory requirements. This
20 effort has consisted of establishing programs and
21 implementing procedures, organizational realignments and
22 focus, assigning ownerships, and providing comprehensive
23 training.

24 For example, several thousand site personnel have
25 now received configuration management training. To provide

1 additional assurance in maintaining DB/LB, two new
2 organizations, Engineering Assurance and Unit Configuration
3 Management teams, were established and are now fully
4 functioning.
5 Finally, the ICAVP process along with the NRC's
6 OSTI and 40-500 inspections have provided additional
7 assurance that configuration control is effective and can be
8 maintained. Next slide, please.
9 In summary, it is our assessment that the
10 engineering design and technical adequacy of the work that
11 went into restoring the Unit 3 design and licensing basis
12 was adequate. The Millstone 3 engineering design review was
13 comprehensive and was expanded as necessary based on our own
14 self-assessments.
15 These reviews identified the safety significant
16 and DB/LB conformance issues. The corrective actions
17 necessary to restore the design and licensing basis
18 conformance and to comply with the license regulations in
19 the FSAR have been substantially completed. The few
20 remaining Level 3 DR assignments will be addressed prior to
21 entering Mode 2.
22 The configuration management and 50.59 safety
23 evaluation training has been provided to a large segment of
24 the Millstone workforce. Periodic and supplemental training
25 is being provided. The necessary programs, processes, and

1 procedures along with clear ownership and organizational
2 roles, are in place to maintain DB/LB conformance and
3 regulatory compliance.
4 We will be realigning our organization
5 post-restart to further strengthen configuration management,
6 consolidating all DB/LB control activities into one
7 department.
8 Engineering resources and talent are sufficient to
9 support the safe operation of Unit 3 and the recovery of
10 Unit 2. Engineering management is committed to raising
11 standards, and you have my personal commitment on that.
12 Next slide.
13 In conclusion, the NRC's August 14th, 1996
14 Independent Corrective Action Program order can be closed
15 for Millstone Unit 3. The basis for this conclusion has
16 been docketed with the NRC and provides the basis for future
17 operation of Unit 3 in accordance with its license
18 regulation in the FSAR.
19 Our assessments have confirmed that a robust and
20 effective Corrective Actions Program is in place that has
21 addressed the root causes of the Millstone performance
22 decline, resolve technical issues, supports the
23 safety-conscious work environment, and has restored
24 conformance to the design and licensing basis and compliance
25 with the NRC regulations.

1 An effective self-assessment program that I
2 discussed at the May 1st meeting supplements and reinforces
3 the Corrective Actions Program.
4 Our Backlog Management Plan submittal provides the
5 commitment and the necessary oversight to address the
6 post-restart backlogs. Backlog status will also be provided
7 quarterly to the NRC.
8 The ICAVP process has provided the public
9 additional assurance and a higher confidence that Millstone
10 can be operated in conformance with its design and licensing
11 basis. The ICAVP process has also independently validated
12 that Millstone 3 Engineering was effective in restoring the
13 design and licensing basis for the 88 key maintenance rule
14 systems.
15 As a final point, I want you to know that I am
16 personally confident that Millstone is now ready to support
17 the safe operation of Unit 3.
18 If there are no further questions, I will turn
19 this over to John Streeter.
20 MR. STREETER: Good morning. My presentation will
21 address Nuclear Oversight's independent assessment of the
22 readiness of Millstone Unit 3 for safe, event-free service.
23 Oversight's conclusion is that Millstone 3 is
24 ready for restart.
25 There are two things I would like to point out at

1 the outset and then I'll run through my presentation.
2 Number one, this conclusion as to readiness for restart is
3 contingent upon completion of all the items on Nuclear
4 Oversight's Mode 2 issues list that I'll refer to
5 periodically.
6 Secondly, a theme that has run throughout our
7 presentations, and will go throughout mine, is although we
8 are saying we are ready for restart, there is not one of
9 these areas that we as a team do not realize that we need to
10 make further improvements, and we are committed to work
11 together to continuously improve our performance.
12 The results of our intensive assessments confirm
13 that progress in meeting the restart success criteria for
14 the 16 key issues is satisfactory to support restart.
15 Limited aspects of the success criteria that have not been
16 achieved at this time are being carefully tracked by us on
17 the Mode 2 issues list to successful completion. All of
18 these issues are constraints to entry into Mode 2.
19 Oversight has reached agreement with line
20 management on each one of these Mode 2 issues as this time
21 to successfully resolve them, and I am personally committed
22 and involved in assuring their satisfactory resolution.
23 We continue to participate with line management in
24 holding the workforce accountable to high performance
25 standards by Oversight closely monitoring the work

1 activities and reinforcing performance standards. We will
2 assure continued progress toward achieving excellence in all
3 phases of our performance.
4 As has been the case with earlier key milestones,
5 Oversight will have a voice in making decisions on power
6 level changes during startup and power ascension.
7 The Nuclear Oversight Restart Verification Plan
8 that we have spoken of frequently in our briefings of you
9 assesses key issue program effectiveness using industry,
10 NRC, and NU management standards and expectations. Areas
11 needing improvement are routinely provided to the line to
12 achieve excellence in performance.
13 Oversight also assesses the collective impact and
14 significance of emerging issues which sometimes offer
15 additional performance perspectives.
16 For example, a recent NORVP process conclusion was
17 that there were no Mode issues in the area of the conduct of
18 operations, whereas a collective assessment of a series of
19 operational events that Mr. Brothers has talked about
20 earlier identified some Mode 2 issues which we are now
21 following.
22 Oversight maintains the Mode 2 issues list, which
23 consists of items that must be resolved as a condition of
24 our approval and concurrence of entering into Mode 2. It is
25 a living document. Issues are added and deleted based on

1 emerging issues and resolution progress.

2 A project manager has been assigned by me to

3 follow the issues and he provides daily information to line

4 management. He also meets with me on the status of these

5 issues several times a week to status them and to understand

6 if proper resources are being dedicated to the resolution.

7 Oversight will continue to use the nuclear

8 oversight restart verification plan results in conjunction

9 with the Mode 2 issues list as the basis for our decision on

10 the readiness to proceed into Mode 2.

11 You will recognize this slide as an update of the

12 nuclear oversight restart verification plan results that we

13 have routinely presented to you in past briefings. This

14 information was current as of Friday, May 15. Progress has

15 been made since that time which is reflected in our results

16 of this past Friday, May 29. That time, training, conduct

17 of operations, and materials all achieved a green status.

18 The remaining yellow areas are engineering and mode changes.

19 The area of mode changes will not achieve a green status

20 until all of the issues on the Mode 2 issues list have been

21 resolved.

22 Although all areas --

23 CHAIRMAN JACKSON: Excuse me. What were the

24 issues that kept materials yellow up until this past Friday?

25 MR. STREETER: Primarily the area of assuring that

1 parts installed in safety application had the proper
2 qualifications.
3 CHAIRMAN JACKSON: And so what happened as of last
4 Friday to turn that to green?
5 MR. STREETER: That issue has been resolved where
6 the review -- the line conducted the review of the work
7 history of safety-related applications of parts. They
8 identified those parts that did not have the proper
9 pedigree. And there were some approximately 50 of those I
10 believe, and of those, they have all been determined to be
11 acceptable for operability.
12 MR. BOWLING: John, if I could add --
13 CHAIRMAN JACKSON: Excuse me a second. Have you
14 determined that the methodology for making those judgments
15 is equally acceptable?
16 MR. STREETER: Yes.
17 MR. BOWLING: I'm sorry.
18 CHAIRMAN JACKSON: That's okay.
19 MR. BOWLING: What John was conveying is our -- it
20 was keeping this open in a series of responses to the NRC
21 staff on one of the COL item issues in order to get that to
22 closure, so this has basically been a series of responses to
23 the NRC staff on the adequacy of the qualification of parts
24 and materials in the plant, and we have resolved those
25 issues.

1 CHAIRMAN JACKSON: Okay. You have resolved them
2 relative to the, again, the specific parts and materials, or
3 you have resolved them relative to your methodology for
4 making --
5 MR. BOWLING: Both.
6 CHAIRMAN JACKSON: Judgments? And the NRC staff
7 concurs with that, as far as you know?
8 MR. BOWLING: As far as I know.
9 MR. STREETER: As far as we know.
10 COMMISSIONER DIAZ: Why isn't training a Mode 2
11 issue? I understood from all the presentations that you
12 still are a little bit concerned about people being a little
13 rusty because you've been shut down two years. What made
14 you decide that training is no longer a Mode 2 issue?
15 MR. STREETER: Commissioner, training -- the
16 training aspect that you see on this slide includes all
17 those areas that related to operator performance, and I'll
18 talk to you specifically here in a second, as well as all of
19 the training department.
20 In our observations of the training department as
21 a whole, including operational training, is that they have
22 made sufficient progress in resolving Mode 2 issues to where
23 we believe that they are -- they're sufficiently ready for
24 restart. Keeping in mind that there's no way I'm
25 representing this as a top-caliber performance, as I would

1 not in any of these areas.

2 COMMISSIONER DIAZ: Okay. Would you -- in all of

3 that, how would you place the training status of the

4 operating crew?

5 MR. STREETER: How I would characterize that is in

6 our oversight of the operations activities we have

7 determined that all of the training that should have been

8 conducted has been conducted. Additionally as a result of

9 these operational events that occurred there was a

10 determination made that we needed some what we call

11 just-in-time training to refresh people's recollection and

12 to avoid repetition of these kinds of events we've confirmed

13 and we attended some of that training and we're convinced

14 that that was conducted.

15 Now I would also say that between now and Mode 2

16 we are watching very closely operations performance, and

17 should we see the need for additional training in there, we

18 will discuss that with the line, and I'm sure that we will

19 reach agreement to do whatever is necessary.

20 COMMISSIONER DIAZ: Okay. Thank you.

21 MR. STREETER: In the following slide -- pardon

22 me -- on the right-hand side I failed to point out you'll

23 see a little annotation there with -- a lower-case "m" with

24 a circle around it. Those are just to indicate to you those

25 areas where we have Mode 2 issues on this -- Oversight's

1 Mode 2 issues list. Now you note some of those areas are
2 green. So one can't simply go by the color and say it's a
3 go-no go. You can still have one that appears satisfactory
4 restart, but there may be an issue, and there are in some of
5 these cases issues that still have to be resolved before
6 proceeding.
7 What I'd like to do now is in the next few slides
8 focus on those areas that are yellow which generally means
9 those that are in need of the most improvement, and those
10 that are designated with the "m."
11 Since last Friday I will mention that there are
12 two additional areas that should be so annotated with an
13 "m," and that's in the areas of fire protection and
14 environmental monitoring. And this just illustrates the
15 living list concept of this Mode 2. This is the way it is
16 today. It could change tomorrow. It could get smaller; it
17 could get larger. But we will assure through this list that
18 all issues that need to be resolved prior to entering Mode 2
19 are so done.
20 So in the following slides I'll talk about the --
21 what you see up there is the yellow areas, and those
22 designated with an "m."
23 CHAIRMAN JACKSON: Let me stop you for a second.
24 You said this is a living designation. And how do you
25 decide -- how do you go about deciding whether some issue is

1 a Mode 2 issue or not? I mean, either it is -- I mean, this
2 goes kind of drawing from Commissioner Diaz's comments about
3 the training -- I guess I'm confused about how you decide
4 that something is a Mode 2 issue?
5 MR. STREETER: If we could take that training,
6 just to illustrate the point. First it's important for me
7 to tell you that the people that we have on -- who are
8 looking at operations activity specifically, they're very
9 well qualified people on this round-the-clock coverage.
10 They have experience from a lot of plants in looking at
11 these activities. Most of them are previous --
12 CHAIRMAN JACKSON: No, no, what I'm trying to get
13 at is whether if something gets this little annotated "m"
14 because you think it's an important issue to be in the green
15 before you go to Mode 2 --
16 MR. STREETER: I was --
17 CHAIRMAN JACKSON: Or do you feel that it's
18 because there's something that comes up, and then that makes
19 it a Mode 2 issue? That's what I mean by what are your
20 criteria for deciding if something is a Mode 2 issue?
21 MR. STREETER: It's based on our experience and
22 judgment.
23 CHAIRMAN JACKSON: So you don't have any criteria?
24 MR. STREETER: That's what I was -- criteria other
25 than I alluded to the restart success criteria. That is

1 one. Of course if we -- there were issues on our Mode 2
2 list that are necessary for compliance with our tech specs
3 that we will be going into when we go into Mode 2. So that
4 would be a criteria. As far as performance standards go,
5 it's all of the attributes that are in our nuclear oversight
6 restart verification plan. So we have a lot of criteria
7 that we look at to make these judgments.
8 MR. KENYON: Let me try and add to that, Chairman
9 Jackson. What oversight has participated in setting the
10 standards, and then on an ongoing basis it evaluates
11 performance against the standards, and it can judge for a
12 period of time that something appears to be satisfactory,
13 and then there can be an event or there can be an assessment
14 that shows well, whereas we thought this was okay, now we
15 think otherwise, and thus it becomes an issue for Mode 2.
16 So that's the point that John was making on this
17 being a living. The standards aren't moving around, but you
18 are -- on an ongoing basis they are evaluating the
19 performance of the organization against the standards. They
20 are constantly looking. So when something materializes
21 because they've looked at something they haven't looked at
22 before or because there's a performance event or whatever,
23 that can become an issue if it's a serious departure from
24 the standard we have set. So there are the standards, there
25 is the ongoing view, and things come on and off the list

1 based on performance.

2 CHAIRMAN JACKSON: Okay. Because one could argue,

3 you know, why are not all of these on slide 60 Mode 2

4 issues, and then they may or may not pop up depending on

5 whether something comes up. That would have been -- that

6 would have given me more comfort. Or to say that you

7 actually have some specific criteria for determining when

8 something in fact is a Mode 2 issue as opposed to something

9 that's buried through this plan, that plan, this list, that

10 list. So --

11 MR. KENYON: They all are Mode 2 issues; what he's

12 showing is what are the open issues.

13 CHAIRMAN JACKSON: But that's the question. He

14 didn't say that. You just did. Okay. Thank you.

15 MR. KENYON: Yes.

16 MR. STREETER: Slide 61, please. Moving to the

17 area of operations, based on the Nuclear Oversight Restart

18 Verification Plan and results, control room observations,

19 this 24-hour coverage and other oversight assessment,

20 oversight concludes that operations is ready for restart.

21 The status changed from yellow to green in the most current

22 assessment, but we still see the need for considerable

23 improvement.

24 Oversight is determined that the restart success

25 criteria be met and we are tracking Mode 2 issues to

1 resolution. The principal issues outstanding at this point
2 are configuration control and operator performance.
3 I mentioned to you in the May 1st Commission
4 briefing that oversight was providing around the clock
5 presence in Unit 3 until we complete start-up and power
6 ascension activities. That coverage continues to be
7 provided by very capable individuals, most of whom were
8 previously licensed or certified operators. Oversight will
9 continue to maintain the 24-hour coverage until operations'
10 performance justifies reduced coverage.
11 Next slide, please. Oversight is satisfied with
12 the preparations for the Unit 3 start-up and power
13 ascension. We have reviewed and concurred in the start-up
14 and power ascension plans, reviewed the procedures, assessed
15 the training in those procedures, and will be following
16 procedure implementation.
17 To take advantage of industry experience, we
18 brought in an oversight staff member from another plant that
19 had recently restarted from an extended recovery outage to
20 provide us with advice on areas to monitor. We have also
21 had SROs from other plants likewise advise us. Further, we
22 have added a person experienced in operation assessment to
23 coordinate our around the clock operations coverage and
24 staff that effort with the experienced people I previously
25 alluded to.

1 There are no oversight Mode 2 issues related to
2 start-up and power ascension. As I indicated earlier,
3 oversight will maintain the 24-hour plant coverage
4 throughout the power ascension program. This not only
5 includes observation of the control room but maintenance and
6 other plant activities as well. Oversight will concur in
7 decision making on raising power levels as Unit 3 progresses
8 through the power ascension stages.
9 Oversight concurs that the corrective action
10 program is ready for restart. Our assessments indicate the
11 work force supports and implements an effective corrective
12 action program. The restart success criteria have been met
13 and there are no Mode 2 issues in this area. Oversight will
14 continue to monitor the identification, evaluation, closure
15 and effectiveness of corrective actions for continuing
16 improvement.
17 The restart success criteria for configuration
18 management and regulatory compliance have been met.
19 Oversight concurs that compliance with the Unit 3 licensing
20 and design basis has been restored and that the areas of
21 configuration management and regulatory compliance are ready
22 for restart. Several Mode 2 issues have been identified,
23 are being tracked to resolution. Over sight will continue
24 to monitor compliance with the licensing and design basis.
25 Sixty-five, please. Oversight believes

1 engineering is ready for restart. We are not saying we are
2 content with engineering's performance, neither is the line,
3 but performance has progressed to a satisfactory level.
4 Engineering has been the subject of extensive oversight
5 reviews and we have observed performance deficiencies such
6 as lack of attention to detail in some engineering
7 activities. All of these deficiencies have been or are
8 being addressed to our satisfaction.
9 To ensure that an appropriate level of line
10 management focus continues in the engineering area,
11 oversight is meeting frequently with the engineering
12 director to address the engineering issues on the oversight
13 Mode 2 issues list. We expect that this interaction will
14 continue through start-up and power ascensions.
15 There are some Mode 2 issues and these are being
16 tracked to resolution, including issues related to training
17 for engineers and conducting operability determinations,
18 safety evaluations, screenings and such activities. We will
19 continue to maintain an intense level of oversight of
20 engineering performance during and after restart and power
21 ascension, with particular emphasis focused on areas such as
22 configuration management and design and systems engineering.
23 The status of the training area changed from
24 yellow to green on May 29th. Oversight has determined that
25 the restart success criteria have been met. There are no

1 Mode 2 issues for training. Oversight is currently
2 maintaining a substantial presence to monitor
3 self-assessment activities, corrective action and systems
4 approach to training within the training organization.
5 CHAIRMAN JACKSON: So let me repeat, let me get
6 you again here. Tell me precisely what occurred to go from
7 yellow to green on May 29th, vis-a-vis training?
8 MR. STREETER: It was improvements in the
9 self-assessment approach, implementation of corrective
10 actions. Those are the two areas.
11 CHAIRMAN JACKSON: Have any of your operators
12 complained relative to feeling adequately trained?
13 MR. STREETER: I have -- I am not knowledgeable of
14 any comments along that line.
15 MR. BROTHERS: The only item that came up in terms
16 of training was, as we talked of the power operated relief
17 valve, there was a general discussion as we probed into it,
18 but I wouldn't attribute that to training. It was never
19 identified as an evolution that was difficult and that
20 training has been enhanced.
21 MR. STREETER: Sixty-seven, please. Oversight
22 concludes that the materials area is ready for restart. It
23 is another area whose status recently changed from yellow to
24 green. The Mode 2 issue that was being tracked to
25 resolution was resolved yesterday and it was the last

1 remaining Mode 2 issue list for materials. Oversight will
2 continue to monitor this area for further enhancements.
3 There are some other areas that I have not covered
4 at this point that have outstanding Mode 2 issues, and those
5 are emergency preparedness, environmental monitoring and
6 fire protection, each with an issue.
7 In total, there are 18 issues on the nuclear
8 oversight Mode 2 issues list. The majority of those relate
9 to engineering, approximately half of them. There's another
10 group in regulatory compliance. And probably one of the
11 most substantive areas that we have to resolve in the Mode 2
12 issues list is operator performance, following that, make
13 sure that we remain competent in the performance prior to
14 entering Mode 2.
15 The Nuclear Oversight Restart Verification Plan
16 has been an invaluable tool in improving performance and
17 preparing for the safe, event-free return to service of Unit
18 3. Consequently, we intend to continue the use of this tool
19 and focus our intensive efforts already in progress on the
20 operational aspects of Unit 2 and to assess the Unit 2
21 recovery efforts.
22 NORVP will be revised by June 26th. By reflecting
23 the progress we have made at Millstone in our NORVP
24 experiences, it will enable us to more smartly direct our
25 resources to those areas in need of most attention.

1 In conclusion, oversight believes Millstone 3 is
2 ready for restart. Our intensive Nuclear Oversight Restart
3 Verification Plan reviews confirmed that progress toward
4 meeting the restart success criteria is satisfactory to
5 support restart. Elements that have not yet been fully met
6 are being closely tracked to successful completion by
7 oversight. We maintain a continuing review of Mode 2 issues
8 which must be completed to our satisfaction before we will
9 give our final approval to proceed into Mode 2.
10 During our assessments, we have continued to
11 emphasize line management and oversight performance
12 expectations. I am confident that this approach will lead
13 to an excellent level of performance in all areas.
14 Oversight will continue to maintain around the clock review
15 of operations and activities during start-up and power
16 ascension. We will not reduce our coverage until we are
17 satisfied that performance merits a reduction.
18 Finally, we will concur in the power level change
19 decisions as we proceed in the start-up and power ascension
20 towards safe, event-free, full power operations.
21 If there are no questions, I'll turn it back over
22 to Mr. Kenyon.
23 CHAIRMAN JACKSON: No, I do have a question. I
24 just want to be sure I understand what you mean on Slide 60.
25 You are not saying that these issues are not important to

1 going to Mode 2. When you have the M's, you mean something
2 specific has popped up on the radar?
3 MR. STREETER: That's correct.
4 CHAIRMAN JACKSON: Is that what you are --
5 MR. STREETER: That's correct.
6 CHAIRMAN JACKSON: Okay. Because all of them are
7 important.
8 MR. STREETER: All of them are vitally important.
9 CHAIRMAN JACKSON: Okay.
10 MR. KENYON: Chairman Jackson and Commissioners, I
11 believe that Millstone Unit 3 is ready for restart subject
12 to completing the remaining Mode 2 items. The significant
13 issues resulting in the performance decline at Millstone
14 have been addressed. We have worked diligently and with
15 great effort to regain the trust and confidence of our
16 employees, the NRC and the general public. The essential
17 lessons have been learned.
18 We pledge that should the Commission authorize the
19 restart of Unit 3, we will resume operations with
20 conservatism, vigilance and a profound respect for the
21 public safety, which is our responsibility. We respectfully
22 seek your approval of our restart readiness. This concludes
23 our presentation.
24 CHAIRMAN JACKSON: Thank you. Mr. Morris.
25 Any further questions from any member?

1 [No response.]

2 CHAIRMAN JACKSON: Thank you very much for your

3 presentation.

4 We will now hear from the representatives from

5 Sargent & Lundy, if you could come forward, please. Thank

6 you.

7 Okay. We will -- we have lost our sound again.

8 The meeting will come to order, please. Thank you

9 MR. ERLER: I can talk pretty loud anyway, so

10 hopefully everybody can hear until they correct the sound.

11 Good morning, Chairman Jackson and Commissioners,

12 I am please to talk to you on Sargent & Lundy's review of

13 Northeast Utilities' Millstone corrective action program.

14 With me is Don Schopfer, Verification Manager for

15 our review. Sargent & Lundy, I am pleased to report, has

16 completed the review and this has been an extensive in-depth

17 review covering many aspects of the plant, from system to

18 performance, licensing, control processes, operation and

19 testing. I believe it is one of the most comprehensive

20 verification programs to date.

21 S&L has put a team of our experts for over a year

22 reviewing documents, inspecting the plant and its

23 operations, making sure of the in-depth understanding of the

24 performance and the corrective action. It has been done

25 under an open protocol to allow full review of each step by

1 the general public. To date, we are ready to review with
2 the Commissioner the results, as we have done in the past.
3 Don Schopfer, the Verification Team Manager will be
4 presenting the results of our review.
5 MR. SCHOPFER: Good morning. Thank you. In terms
6 of background, just very briefly, before we get to the
7 conclusions of the overall review, I would like to go over
8 the objectives of the ICAVP as described in the order that
9 was issued in August of 1996.
10 The objectives were to verify that for the
11 selected systems that Northeast Utilities' configuration
12 management plan had identified and resolved existing
13 problems with the design and licensing basis. That
14 Northeast Utilities had documented and utilized the design
15 and licensing basis for those systems. And that Northeast
16 Utilities had established programs, procedures and processes
17 for effective to configuration management in the future.
18 As described in Commission Paper 97-003, the ICAVP
19 was performed in a three-tiered process. Those tiers were
20 structured to take care of various pieces of the overall
21 scope of the ICAVP. Tier 1 was to verify that the systems
22 meet the licensing and design basis and system
23 functionality. Tier 2 was to verify that the system design
24 parameters relied on to mitigate the consequences of
25 postulated accidents analyzed in the FSAR were consistent

1 with the performance of the current system configuration.
2 And Tier 3 was a verification that configuration control
3 processes have not introduced changes that have put the unit
4 in non-conformance with its licensing and design basis. The
5 bulk of that review process that we have performed was the
6 Tier 1 system review.
7 The scope of the review, as Brian mentioned, was
8 very significant. We did a detailed review of four system
9 groupings and those groupings consisted of 15 of the 88
10 maintenance rule group 1 and 2 systems. We also did a
11 limited review of 51 interfacing systems with a special
12 emphasis on electrical and I&C. The electrical system feeds
13 from the safety related bus to the individual component was
14 reviewed in its entirety and the I&C signals to and from
15 interfacings systems to the selected systems were reviewed.
16 In addition, Tier 1 reviewed some 1500 corrective
17 actions that Northeast Utilities had identified during their
18 configuration management plan.
19 Tier 2 reviewed some 230 critical characteristics
20 of 22 accident mitigating systems that are used and analyzed
21 for accidents, analyzed in the FSAR.
22 And Tier 3 reviewed 11 different change processes
23 and the implementation results of those processes on the
24 more recent time frame, and we reviewed 284 past changes
25 that were done under previous time frames and systems and

1 processes, and 71 other corrective action documents, meaning
2 a selected sample outside of the 15 systems.
3 CHAIRMAN JACKSON: Let me take you back to the
4 Tier 1 system. Early on in the process there was a lot of
5 talk about the number of systems and so in conclusion, you
6 know, coming to this point, you are satisfied in terms of
7 your review of the 15 systems, that that's comprehensive
8 enough, and with the interfaces, that it appropriately
9 covers what needs to be covered and allows you to answer or
10 address the objectives of the ICAVP order?
11 MR. SCHOPFER: Yes.
12 CHAIRMAN JACKSON: And did anybody on your team
13 feel any need to go deeper into any of the systems?
14 MR. SCHOPFER: Well, the first question, yes, I
15 think the selection was adequate. The grouping of the
16 systems made it such that we had an electrical system, we
17 had an HVAC system, we had two mechanical systems, and, of
18 course, the boundary discussions and the interfaces that
19 were set up covered much more than that besides the systems
20 in particular. So I think we did have a very broad view of
21 systems within the plant that reflected their overall --
22 NU's overall configuration management process.
23 And you asked if anybody felt the need to go
24 deeper.
25 CHAIRMAN JACKSON: Or broader.

1 MR. SCHOPFER: Good. Because the deeper,
2 absolutely not. We went as deep as I think we could
3 possibly go. As far as broader, no, I don't think we felt
4 that there was anything not touched, any specific area not
5 touched with the variety of systems that were purposely
6 selected that way by the staff. And so we did not have any
7 issues of thinking that we weren't covering certain areas,
8 because I think we did cover all areas.
9 CHAIRMAN JACKSON: Okay. Thank you.
10 MR. SCHOPFER: Next slide, please. This slide
11 shows the grouping of systems. The terminology that I have
12 used in the past and will use is down at the bottom of the
13 page, and the systems that are included in those groupings
14 are included above. The service water system, the quench
15 spray and recirculation spray systems and the refueling
16 water storage tank included in the grouping RSS. Three HVAC
17 systems, under our terminology HVACs "slickers" which is
18 supplemental leak -- leakage collection and release system,
19 the aux. building, HVAC, the safety related portion of the
20 aux. building HVAC and the diesel generator ventilation --
21 diesel generator room ventilation system.
22 And then under the electrical included, the diesel
23 engines and generator and all supporting auxiliary systems,
24 including the sequencer for the diesel loading sequence and
25 the 4160 volt electrical system.

1 Our process identified findings during our review
2 and we termed those findings discrepancy reports or DRs.
3 Those were issued to Northeast Utilities under the protocol
4 and to the NRC staff, the NEAC and the public via the web
5 site. We closed DRs based on NU's response, after reviewing
6 their response, their proposed corrective action and, in
7 some cases, depending on the nature of the corrective
8 action, we actually looked at the implementation of the
9 corrective action, if it was an engineering type of analysis
10 or calculation that had to be done. If it was a relatively
11 minor corrective action, and many of those were deferred, we
12 just looked at the corrective action plan.
13 The DRs were closed in various categories. They
14 were -- confirmed DRs were those that were not previously
15 identified by Northeast Utilities' configuration management
16 plan, an agreed discrepancy. There were also discrepancies
17 that, after further review by NU and Sargent & Lundy, based
18 on their response, identified that NU had previously
19 identified it in their configuration management process and
20 we were unable to determine that initially. And then there
21 were discrepancy reports that were later termed
22 non-discrepant based on further information provided by NU.
23 CHAIRMAN JACKSON: As you went through this
24 process, let me make sure I understand, was your focus on
25 the degree to which NU or the NU configuration management

1 plan made similar identifications of DR type issues? Or was
2 your focus on the proposed solution or on the actual
3 solution?
4 MR. SCHOPFER: Our focus in initially identifying
5 the DR was to identify a discrepancy -- that we thought was
6 a discrepancy. We did not -- we started to, and then we
7 found it very difficult and very time-consuming, to try to
8 see if they had previously identified this issue. They were
9 much better at determining if it had been previously
10 identified than we were, so we went away from spending an
11 inordinate amount of time trying to determine if they had
12 previously identified it. So in terms of identifying,
13 writing the DR, if we found a discrepancy with the design or
14 licensing basis, or one of the other issues, we wrote that.
15 If they had previously identified it, they would tell us
16 that and we would verify that that in fact had been the
17 case.
18 Then the focus then was, if it was an agreed or
19 confirmed discrepancy not previously identified or not
20 non-discrepant, then our focus was to look at what they
21 proposed to fix, to correct the identified issue.
22 CHAIRMAN JACKSON: Then you said in some limited
23 circumstances looking at the actual resolution.
24 MR. SCHOPFER: Right. If the corrective action
25 was to re-do an analysis, especially to support

1 acceptability of something or to ensure that it was in fact
2 functional, we would review that analysis. In many cases
3 where the Level 4's, which we will talk about, were minor,
4 much less significant, we did not intend to look at those
5 revisions of calculations or those revisions of drawings or
6 field minor changes, those kinds of things.
7 The next slide shows the significance level that
8 we identified for each DR. This provides the NRC staff
9 definitions that we have used in the ICAVP for those
10 significance levels.
11 In level 1, a discrepancy report was identified
12 when the system does not meet its design and licensing basis
13 and cannot perform its intended function, meaning that both
14 trains of a redundant system would be unable to perform that
15 function, and there were none of those. We'll get to it in
16 a minute.
17 Level 2 was similar except that one train of a
18 redundant train was not able to perform its intended
19 function as opposed to both trains.
20 Level 3 was a design and licensing basis issue,
21 but the system in some manner did not meet its design and
22 licensing basis, but the system was capable of performing
23 its intended function. That's a, as Mr. Bowling mentioned,
24 a design and licensing basis issue of relatively low
25 significance.

1 Level 4 was a discrepancy that did not impact
2 Northeast Utility's Millstone 3 design and licensing basis,
3 but there were errors in calculations, errors in drawings,
4 those kinds of issues that were not directly impacting the
5 licensing basis.
6 To summarize, the 974 valid preliminary DRs that
7 were issued to the staff, to Northeast Utilities and to the
8 NEAC and issued on the Website, 971 of them have been --
9 resolutions have been accepted and closed by Sargent &
10 Lundy. There are three remaining DR resolutions pending at
11 this time. Two resolutions are confirmed, with one of those
12 -- excuse me -- two resolutions are confirmed pending a
13 completion of the calculation and corrective actions
14 associated with that, and that, I believe, is due early this
15 week; and one NU resolution was not accepted by the staff --
16 excuse me -- was not accepted by Sargent & Lundy and not
17 agreed to by Northeast Utilities, and we referred that to
18 the NRC staff resolution.
19 CHAIRMAN JACKSON: What was that issue?
20 MR. SCHOPFER: This was an issue of some drain
21 valves associated with the filter housing unit on the SLCR
22 system. The valves were not identified as seismically
23 qualified and safety grade valves; they were non-safety and
24 our finding identified that we thought they should be
25 seismically qualified and safety related.

1 CHAIRMAN JACKSON: Okay.

2 MR. SCHOPFER: And that is the only DR out of the
3 nearly thousand where we were unable to reach resolution.

4 Of the 971 acceptable and closed resolutions,
5 approximately -- not approximately; these are the correct
6 numbers -- 620 were confirmed discrepancies, 100 of the DRs
7 were previously identified by NU and 251 were, in fact,
8 non-discrepant conditions based on further information and
9 review.

10 Of the 620 confirmed discrepancies, 20 are
11 confirmed level 3s and 600 are level 4s, and of the three
12 additional ones, the -- there is one level 3 that is
13 pending, one level 4 that is pending. Both of those relate
14 to the same calculation and corrective action that is going
15 on. That calculation will resolve both of these and the one
16 level 3 unresolved which we talked about a few minutes ago.

17 Based on our review, we have identified a number
18 of conclusions per the report, and I would like to go
19 through those now.

20 I've structured this with the overall conclusions
21 and supported by the conclusions associated with the various
22 tier 1, 2 and 3 reviews and the individual conclusions that
23 support this overall conclusion.

24 We did conclude that NU's confirmation management
25 plan has, in fact, been effective in identifying and

1 resolving the deficiencies in the Unit 3 design and
2 licensing basis. The number of confirmed level 3
3 discrepancies in that number was 20 at this point and
4 potentially 22, depending on the resolution of the other
5 items, was small in comparison to the number of design and
6 licensing basis requirements that were identified and
7 reviewed on the selected systems, and that number is well
8 into the 2,000's.
9 Secondly, the selected systems are considered to
10 be in conformance with their design and licensing basis and
11 are considered capable of performing their intended
12 functions, and third, we believe that NU has established
13 programs, processes and procedures to maintain effective
14 configuration control of their design and licensing bases in
15 the future.
16 CHAIRMAN JACKSON: With the second bullet, do you
17 mean the selected systems are considered to be in
18 conformance with their design and licensing basis and/or are
19 considered to be capable, since you did have some number of
20 findings, albeit small?
21 MR. SCHOPFER: Well, all the findings, all the
22 level 3 findings that were, in fact, design and licensing
23 basis issues have been corrected --
24 CHAIRMAN JACKSON: So that's what that statement
25 really means.

1 MR. SCHOPFER: Yes.

2 CHAIRMAN JACKSON: So as of today, that is a

3 correct statement.

4 MR. SCHOPFER: With the exception of those two

5 that are --

6 CHAIRMAN JACKSON: Except the two that you

7 mentioned. Okay.

8 MR. SCHOPFER: The one pending and the one -- in

9 fact, other than those, they are.

10 CHAIRMAN JACKSON: Okay. Thank you.

11 COMMISSIONER DIAZ: They were always capable of

12 performing their intended function.

13 CHAIRMAN JACKSON: Right.

14 MR. SCHOPFER: And I should reemphasize, there

15 were no level 1 or level 2 findings.

16 CHAIRMAN JACKSON: Right.

17 MR. SCHOPFER: They were always capable of

18 performing their design function.

19 CHAIRMAN JACKSON: So that's what I mean when I

20 say and/or --

21 MR. SCHOPFER: Yes.

22 CHAIRMAN JACKSON: -- capable of performing that.

23 Okay.

24 MR. SCHOPFER: We have conclusions to support the

25 overall conclusion on each of the tiers, and tier 3, because

1 of its size and how that review was done, is broken up into
2 various segments of the review process.
3 Under tier 1, we had a system review, a
4 configuration, management -- excuse me -- configuration
5 review which was, in fact, a walkdown of the field
6 conditions against the design basis, and we have an O&M,
7 operations and maintenance and testing review section, and a
8 modification review for all of the selected systems and a
9 corrective action review. Those are all pieces of the tier
10 1 review and our conclusions under each of those.
11 Under the system review, we conclude that unit 3
12 design and licensing basis is supported by the design output
13 documents and the design process documents, and that the
14 upper tier system level engineering drawings and the design
15 process documents are technically adequate and the design
16 bases for topical areas are adequately implemented, topical
17 areas meaning fire protection high energy line break,
18 flooding, those kind of things, where we did selected
19 reviews in certain areas.
20 Areas where we believe that improvement would
21 enhance the configuration of management process for
22 Northeast Utilities in the future -- I would like to mention
23 a few of those here on the slide.
24 The PMMS and PDDS databases -- and I probably
25 can't tell you the exact, but the plant maintenance and

1 design component databases -- contain a sufficient number of
2 errors of omission so as to render the data suspect for
3 design input and makes it more difficult for using that
4 information for design input.
5 I should note before I go through the rest of
6 these that these are conclusions that were based on the
7 numbers of level 4 or total discrepancies, but if you look
8 at the numbers, they're primarily level 4 discrepancies in
9 these areas, and none of the areas that we, as I said
10 before, that we are talking about has rendered anything not
11 functional or outside the design or licensing basis.
12 The second area that could --
13 COMMISSIONER DIAZ: Excuse me. You did use the
14 word suspect. Would you like to clarify what that means?
15 MR. SCHOPFER: I'm sorry?
16 COMMISSIONER DIAZ: You used the word suspect when
17 you said that the errors render the system suspect.
18 MR. SCHOPFER: There are pieces of the database
19 that are safety related qualified and pieces that are not,
20 but the database has-- it is not completely validated and
21 has information that makes -- a significant number of items
22 that were found in error or incomplete, that makes it
23 perhaps not as useable as it could be for effective
24 configuration management.
25 COMMISSIONER DIAZ: Okay. But you said level 4,

1 that the errors that were associated with a level 4 were of
2 a minor variety such that the have no impact on the overall
3 safety evaluation of the system from an engineering
4 viewpoint. Is that still correct?
5 MR. SCHOPFER: That's correct.
6 COMMISSIONER DIAZ: Okay. So I'm trying to put
7 those two things together.
8 MR. SCHOPFER: Well, the point is that if there is
9 information that's not useable and people do use it -- it's
10 valid, it's data that's there -- you can make errors
11 propagate through the design process.
12 COMMISSIONER DIAZ: But the error still will be at
13 a small level.
14 MR. ERLER: I think the emphasis has to be on the
15 -- you would want to make sure that you go back and verify
16 that data rather than use it as your design basis decision
17 as you move forward. That's the recommendation.
18 COMMISSIONER DIAZ: Okay. All right.
19 MR. SCHOPFER: And there were no instances where
20 the use of this data caused a design and licensing basis
21 problem.
22 The second item is that the procurement -- the
23 component procurement specifications and vendor drawings
24 have not been consistently kept up to date throughout the
25 last several years through the process.

1 The third item is an issue that I think Mr.
2 Bowling talked about also, is that there were a number of
3 instances where design inputs -- where incorrect design
4 inputs were used which indicated a calculation control
5 problem. This concern was related to primarily mechanical
6 sizing calculations and some electrical calculations.
7 The condition appeared to be due to the fact that
8 voided or superseded calculations were not completely
9 controlled in the past, so that incorrect input would be
10 used, and I think NU has addressed that in their new
11 calculation control process.
12 We had also identified a number of minor
13 discrepancies in both older, perhaps original design and new
14 calculations or relatively new, I should say. We revised
15 calculations in the errors -- calculation quality. Again,
16 that was discussed earlier. They could improve the
17 calculation quality, the accuracy issues that Marty talked
18 about.
19 The next bullet -- the next two items generally go
20 together. There were a number of issues on the HVAC systems
21 that were identified where the design and licensing basis
22 was not as clearly documented on the HVAC systems as they
23 were on other systems. There were some issues that related
24 to compliance with regulatory guide 1.52 which is related to
25 filter housing units, and we think the improvement of

1 defining that licensing basis and commitments in that area
2 would help solidify the design and licensing basis for those
3 systems and those components.
4 CHAIRMAN JACKSON: Now, HVAC systems often are
5 systems with plant-specific designs; is that correct?
6 MR. SCHOPFER: Yes. Very much so.
7 Next slide, please.
8 The next component of the configuration, the tier
9 1 review included a configuration review, and this was the
10 comparison of the as-installed condition of the plant with
11 the design.
12 Our conclusion there is that the as-installed
13 plant condition is consistent with the design output
14 documents, that the modification installation was in
15 accordance with the design packages and the plant physical
16 drawings are generally in conformance with the upper tier
17 system level engineering drawings.
18 Again, there were some areas where we think
19 improvements would enhance their configuration management
20 future, and there were three areas, again primarily
21 resulting from level 4 DRs, there were inconsistencies
22 between the cable and raceway database and the electrical
23 design documents related to tray covered data and conduit
24 support data.
25 CHAIRMAN JACKSON: But no cabling needed to be

1 re-routed?

2 MR. SCHOPFER: No. Again, this is database issues

3 not unlike the earlier discussion under the system review.

4 There were a number of undocumented attachments to

5 supports, though none of these undocumented attachments

6 affected the structural adequacy of the support and many

7 resulted from original design and construction. The

8 findings indicated that there may be some control mechanisms

9 to be looked at to prevent future recurrence of that type of

10 an issue.

11 There were a number of occurrences of component

12 tagging and labeling issues that were identified -- again,

13 nothing significant that would cause an operator action of

14 any kind.

15 Under the operations and maintenance and testing

16 conclusions, we concluded that selected systems have been

17 operated and maintained within the design and licensing

18 basis, and programs are in place to reasonably expect this

19 performance to continue in the future.

20 We also identified that some of the processes in

21 the areas of maintenance and testing place a high reliance

22 on the skill and performance of the individuals involved in

23 the process rather than a more rigorous procedure-driven

24 process-driven approach.

25 CHAIRMAN JACKSON: Did you view that as a

1 weakness?

2 MR. SCHOPFER: Yes. Yes. But we found again no
3 instances where that condition related to causing the plant
4 to be outside its design and licensing basis.

5 The modification review identified that the -- and
6 concluded that the design of the plant modifications was
7 technically adequate and the configuration control was, in
8 fact, maintained, and that the modifications have been
9 installed and implemented consistent with the design
10 packages and the procedures in effect at the time the
11 modifications were processed.

12 The final piece of the tier 1 review was the
13 corrective action review, and we have concluded that NU has
14 adequately initiated and implemented corrective actions
15 needed to restore the design and licensing basis for
16 Millstone Unit 3.

17 CHAIRMAN JACKSON: And this actually draws on your
18 own judgment that the configuration management plan was the
19 same for all of the systems, even beyond those that you
20 specifically reviewed; is that right?

21 MR. SCHOPFER: Yes, that's correct. And that's
22 based on the fact that this review, besides looking at those
23 1,500 corrective actions, we looked at the implementation of
24 those corrective actions and some additional corrective
25 actions outside the scope of that.

1 The tier 2 review again was the accident
2 mitigating systems, and our conclusion is that the accident
3 mitigating systems are capable of performing their
4 safety-related functions during postulated accidents.
5 Tier 3, three pieces to it -- we concluded that
6 the current Millstone changed processes as reviewed by the
7 ICAVP, and that was eleven processes, are adequate for
8 maintaining the design and licensing basis of the plant on a
9 going-forward basis.
10 We also concluded that NU is adequately following
11 their current change processes, and that's as a result of
12 our implementation review to see that they actually did what
13 their procedures say they do.
14 For the past changes reviewed, Northeast Utilities
15 has made changes that are technically adequate without
16 adversely affecting the plant design and licensing basis.
17 CHAIRMAN JACKSON: So you speak to the current
18 change processes, so they have changed?
19 MR. SCHOPFER: Yes. This tier 3 review looked at
20 both the current processes on a process review and then an
21 implementation review to see how well they've done in
22 implementing that, and it looked backwards ten years to the
23 commercial operation.
24 CHAIRMAN JACKSON: Okay. Thank you.
25 Questions, please?

1 COMMISSIONER DICUS: Yes, I have a question. I
2 think Northeast Utilities indicated that an independent
3 verification program of the nature that Sargent & Lundy has
4 been providing would not be necessary in a going-forward
5 mode. Do you concur with that assessment?
6 MR. SCHOPFER: Yes, I do.
7 COMMISSIONER DICUS: Thank you.
8 CHAIRMAN JACKSON: Commissioner?
9 COMMISSIONER DIAZ: Yes. You have been able to be
10 at what I'll call at a point where you can judge whether
11 engineering is actually placing the proper safety priority
12 on issues. What is your conclusion regarding the
13 performance of the NU engineering department as being able
14 to determine that an issue is safety related and deserves
15 proper attention?
16 MR. SCHOPFER: I guess the -- and clearly our
17 intention with NU was limited to the DRs.
18 COMMISSIONER DIAZ: Right.
19 MR. SCHOPFER: But the corrective actions that
20 they took related to the DRs was by and large appropriate.
21 We did have back and forth on a number of DRs, but generally
22 that was getting to the discussion of the right issue,
23 making sure that they understood what we brought them and
24 vice versa. So I think once the issue was clearly
25 understood, their corrective actions related to the

1 technical issues were sound and appropriate judgments made.
2 COMMISSIONER DIAZ: Specifically on the ability to
3 determine or discriminate that an issue is of safety
4 importance or not, that judgment you believe is there and it
5 is acceptable?
6 MR. SCHOPFER: Yes. I think the indication of
7 that is the number of DRs that were issued and responded to
8 with the initial number of level 3s, and as I've said at
9 previous briefings, level 3 was more or less a default
10 level, if we didn't know the impact of the condition of the
11 plant, on the design and licensing basis calculation or
12 another activity, and the results or the responses from NU
13 did go to the heart of that and made the appropriate
14 judgments as to what was, in fact, safety related and safety
15 significant and which ones were not.
16 COMMISSIONER DIAZ: Okay. Thank you.
17 CHAIRMAN JACKSON: Commissioner McGaffigan?
18 Well, thank you very much. We have become so
19 efficient that we have created a problem for ourselves, and
20 because we do have public notices that say how we're going
21 to structure our meeting, we're essentially left with no
22 recourse but to take the break until one o'clock. So we
23 will, instead of having an hour-and-a-half break, have a
24 two-and-a-half-hour break.
25 Thank you very much.

1 [Whereupon, the public meeting was recessed to
2 reconvene at 1:00 p.m., this same day.]
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1 AFTERNOON SESSION

2 [1:11 p.m.]

3 CHAIRMAN JACKSON: Good afternoon, everyone. We
4 seem to have recovered our ability to speak.
5 We're now going to begin a session where we hope
6 to hear from various public officials, public interest
7 groups, and individuals with interests and concerns relative
8 to Millstone Unit 3 potential restart.
9 We will begin with Mr. Thomas Sheridan, who's the
10 first selectman, aka the mayor, of the town of Waterford.
11 MR. SHERIDAN: Thank you, Dr. Jackson, and good
12 afternoon everyone. And thanks for the opportunity to say a
13 few words in support of the startup of Unit 3.
14 When I appeared here on May 1 I addressed the
15 impact the shutdown had on the plant and our local community
16 and the importance of the safe operation of Millstone
17 Station to the economic and environmental well-being of our
18 community and indeed the State. But today I want to focus
19 my discussion on changing attitudes and perceptions within
20 the community.
21 As an elected public official, I'm obliged to
22 represent the views of my constituency. I would not be able
23 to come before you today if I did not have personal
24 confidence in the improvements made at the Millstone site.
25 That knowledge comes in part from my participation as a

1 member of the Millstone Advisory Council.

2 In May '97 Bruce Kenyon approached a number of
3 community-minded individuals with diverse backgrounds to act
4 as an advisory council to improve the dialogue between
5 Northeast Utilities and the community. As first selectman
6 of Waterford, the community which you know is the host
7 community, I felt a responsibility to participate in this
8 council.

9 From the beginning, Northeast Utilities was
10 responsive to local members' questions and concerns. As a
11 group, we explored a number of significant issues, including
12 the adequacy of the ICAVP, leadership challenges and changes
13 and improvements, and the quality of training at the plant.
14 I was continually impressed by Northeast Utilities'
15 openness, willingness to allow us to pursue various issues,
16 and responsiveness to feedback from council members --
17 indeed, even allowing individual members of the committee to
18 observe control-room operations on an unscheduled basis.

19 Now I want to make a point here. This is new
20 management I'm talking about. I'm not talking about former
21 management. This is a changing attitude that existed there
22 since Bruce Kenyon and his new team came on board. While
23 some of the feedback offered by the council was highly
24 critical, even aggressive at times, I witnessed no or very
25 little defensiveness on the part of Northeast Utilities

1 management. Indeed, they welcomed our input.

2 At a recent community breakfast, which is a

3 quarterly event, a quarterly event held by Northeast

4 Utilities for members of the local community, I asked Mr.

5 Kenyon publicly what his intention was with respect to the

6 continuation of the Millstone Advisory Council meetings

7 following the restart of Unit 3. He indicated that he had

8 found the dialogue to be exceedingly helpful and important,

9 and that he wanted to continue the effort. My personal

10 experience has been that this management team under Bruce's

11 leadership is willing to listen. They have learned a great

12 deal, and I hope will continue to learn, and they are

13 willing to be responsive to the community.

14 My perceptions have been confirmed by the comments

15 also from the Millstone employees who live and work in the

16 community and participate in local government and community

17 events. Many have expressed confidence in this management

18 and have reported on the many positive changes that have

19 occurred at the station over the last two years. Employees

20 seem to recognize not only their right to raise issues but a

21 growing confidence in their ability to effect change. These

22 comments reflect a major departure from general employee

23 attitude witnessed only two years ago.

24 I want to add also that we have in Waterford

25 basically a volunteer government. We have an enormous

1 number of volunteers. Many of them are Millstone employees.
2 And their attitudes are important, and they're a good
3 sounding board, and we certainly hear and see a lot from
4 their involvement, and they are very supportive of the new
5 change and the new attitudes at the Millstone Point plants.
6 I also see a growing confidence on the part of the
7 larger community with regard to the regulatory process. We
8 are a better informed, more aware, and more vigilant
9 community because a public-minded citizenry has raised
10 questions about safety issues, and the Nuclear Regulatory
11 Commission has given repeated opportunities to all who wish
12 to provide comment.
13 Being able to ask questions, to obtain answers,
14 and on occasion to express discontent with regulators and
15 their regulatory process has allowed us as citizens to
16 participate fully in the recovery process. Ultimately I
17 believe that the public meeting process, a hallmark of our
18 democracy, will prove to have served our community well. I
19 am hopeful that an enlightened community led by a number of
20 active public citizens groups will continue to provide a
21 valuable check and balance on both Millstone operations and
22 the regulatory performance.
23 Recently officials, local elected officials from
24 surrounding communities, came together to sign what we call
25 a statement of support and reconciliation. That statement

1 was sponsored by the Friends of a Safe Millstone, or as it
2 is known, FOSM, F-O-S-M, a local community group founded to
3 support a safe operation at Millstone. Although FOSM
4 founder Ron McKeown may discuss his efforts when he sits
5 before you this afternoon, I believe it provides evidence of
6 the changing attitudes within the local communities
7 regarding Millstone Station.
8 The statement included a number of agreements
9 including the recognition of local officials that it is in
10 the interest of the region to have a safe operation and a
11 financially viable utility company. I don't believe that
12 two years ago any of us, any of those elected officials who
13 signed, that is, would have been able to sign this document
14 in good conscience.
15 Although this has been a painful and difficult
16 process, it has strengthened all of us. Northeast Utilities
17 is a better company, managed by a principled leadership who
18 believes in openness and communications. The Nuclear
19 Regulatory Commission is a stronger regulator with an
20 increased awareness of the need for aggressive external
21 oversight and public responsiveness, and we are a stronger
22 community because we have learned that we can make a
23 difference in influencing matters of public health and
24 safety.
25 As we go forward, I believe we can gain both

1 confidence and maturity in our expanded and independent
2 roles. In light of these changes, I ask that you authorize
3 the safe startup of Millstone Unit 3.
4 I would like to make one other comment, if I may,
5 that once the plant is started up, it's my hope, and I think
6 I speak for all of the people in our community, and indeed
7 surrounding communities, that NRC maintains a strong
8 presence at Millstone to make sure the plants are operated
9 safely. We do not want to go through this event again.
10 Thank you very much.
11 CHAIRMAN JACKSON: Thank you very much.
12 Commissioner Diaz?
13 Thank you very much.
14 MR. SHERIDAN: Thank you.
15 CHAIRMAN JACKSON: Let me call forward on behalf
16 of the Nuclear Energy Advisory Council the honorable Terry
17 Concannon, if he's here today, and Mr. John Markowicz, the
18 vice-chairman.
19 [Laughter.]
20 CHAIRMAN JACKSON: I apologize. I know how I'd
21 react if it happened to me. So please --
22 [Laughter.]
23 MR. MARKOWICZ: Terry with a "T."
24 CHAIRMAN JACKSON: Accept my apology. Welcome.
25 MS. CONCANNON: That's all right, Chairman.

1 Jackson. It wouldn't be the first time it's happened to me.
2 I had a letter that clearly addressed me as a woman the
3 other day, but the secretary put "Mr. Terry" at the top of
4 the letter.
5 CHAIRMAN JACKSON: In case it's any consolation to
6 you, you know, I go around and around about being Chairman,
7 Chair, Chairwoman, Chairperson. So I understand what you
8 mean.
9 MS. CONCANNON: Good afternoon, Dr. Jackson and
10 Commissioners. Thank you for the opportunity to participate
11 in this public briefing prior to the Commission considering
12 authorization for the restart of Millstone 3. And my name
13 is Terry Concannon. I am the State representative for the
14 34th assembly district in the Connecticut legislature. And
15 I am a resident of the town of Haddam.
16 Since its inception on August 1, 1996, I have been
17 cochair of the State Nuclear Energy Advisory Council, or
18 NEAC, which was established pursuant to Public Act 96-245.
19 And with me today is vice-chair of the council, John
20 Markowicz.
21 NEAC was created in response to the concerns of
22 the citizens in southeastern Connecticut who were variously
23 alarmed, angry, confused, and somewhat frightened by the
24 developments at the three Millstone nuclear power-generating
25 plants in Waterford. The three were placed on the NRC watch

1 list on January 31, 1996. A history of safety violations
2 and the intimidation of employees, compounded by the
3 ineffective and arrogant approach of management, created
4 these problems for the public. In addition, the public had
5 lost confidence in the ability of the NRC to monitor and
6 enforce corrective action standards.
7 The NEAC was created as an independent council of
8 14 members to ensure that the health and safety of the
9 public, particularly those living within a five-mile radius
10 of the nuclear plants, is protected. Our charge is strictly
11 advisory, but we do interact on a regular basis with the
12 public, the utility, NRC staff members, and the engineering
13 firms contracted to carry out the independent corrective
14 action verification program. And we communicate with the
15 State government.
16 To date we have issued two annual reports. This
17 is our most recent one. The 14 members have diverse
18 backgrounds, some nuclear, scientific, and engineering, and
19 others in business. Their perspectives vary according to
20 the pros and cons of nuclear-generated power, and this adds
21 diversity and credibility to the council.
22 We believe it to be important that we retain our
23 objectivity, both real and perceived. When the council
24 embarked on this task, we had no idea of the magnitude of
25 the undertaking. We conjectured that quarterly meetings

1 might suffice, but that initially it would be better to hold
2 them on a monthly basis. As the process became clearer, our
3 schedule developed, and the intensity was much greater than
4 anticipated.
5 The dedication shown by our members has been
6 remarkable, and attendance by one or more at any and all
7 meetings of the NRC, NU, and/or the contractors more than
8 100 in number to this point has taken place. Thus we are
9 well informed as we have observed the progress over the past
10 22 months.
11 Four of our members signed the communications
12 protocol by the NRC. That enabled us to observe closed
13 meetings, to monitor phone calls between NU and the
14 contractors, and to attend meetings with Sargent & Lundy,
15 the Millstone 3 contractor, the NRC and NU in Chicago.
16 In addition, one member became mad -- badged --
17 [Laughter.]
18 MS. CONCANNON: -- so that he could enter the
19 plant unescorted at any time and he has been performing a
20 monitor watch in the Millstone 3 control room on a regular
21 basis including visits during off hours since December.
22 Today we have been advised to address the
23 principal issues remaining to be evaluated by the Commission
24 including the ICAVP, the Corrective Action Program, and the
25 results of the NRC's Operational Safety Team Inspection or

1 OSTI.

2 First, I will address the ICAVP and tie it in with

3 the Corrective Action Program, as we have seen it.

4 We became intensely involved with the ICAVP from

5 the start. Due to the skepticism of the public, we

6 questioned the independence aspect of the program. Since

7 the utility is paying the operator, is it possible for the

8 latter to be truly objective? We asked this in Connecticut

9 and we asked it in Chicago.

10 It became apparent that the contractor has a great

11 deal at stake, most of all it's reputation in the industry.

12 In our travels we also ascertained that the eyes of the

13 nuclear industry are focused on the outcome of Millstone's

14 efforts. Thus it would seem that independence and a

15 thorough review by the contractor of Millstone's ability to

16 establish adequate design basis and design controls are of

17 the essence.

18 Nevertheless, our Council has some reservations

19 and chose to delete the word "independent," calling it the

20 CAVP.

21 Comment. During the process of the CAVP our

22 observations have noted a consistent business-like style to

23 communication, whether over the table at a meeting or over

24 the telephone. An arms-length posture has been maintained

25 between the utility and the contractor.

1 Next came our involvement in the selection of
2 systems to be reviewed by the contractor in the first of
3 three levels in the audit plan. This was attended to
4 address the public concerns about the possible leak of the
5 list of systems to licensee ahead of the CAVP review. We
6 were invited to select two of the four functional groups of
7 systems for the Tier 1 review. A subcommittee of the
8 Council determined a method to guarantee a random selection,
9 and the names of the two systems were drawn out of a hat by
10 members of the public at a regularly scheduled NEAC meeting
11 in Waterford.
12 Comment. This process worked well and we
13 appreciated our inclusion, as reflected in the policy
14 released by the Executive Director of Operations, James
15 Taylor, on January 3rd, 1997.
16 It soon became apparent that the matter of the
17 discrepancy reports posed a problem. The public needed to
18 be able to understand the significance level of the
19 discrepancies being identified by the CAVP.
20 At first, it was easy to read and assimilate them
21 as they were published, but their numbers grew rapidly. In
22 response to these concerns and in response to our request,
23 the criteria for categorizing the relative significance of
24 these DRs was established.
25 Comment. This has facilitated the process in a

1 remarkable fashion. Everyone involved is familiar with the
2 significant levels and it has cut down on lengthy verbiage.
3 It has also got to know where Millstone 3 is concerned that
4 no confirmed Level 1 or Level 2 DRs have been found. This
5 means at the least that the systems reviewed are capable of
6 performing their intended function.
7 I shall also comment that we were totally
8 surprised by the DRs that have been made. When we were
9 hazarding a guess about the possible number before the
10 reviews began, we thought that some 250 to 300 might be
11 expected. That the number should have reached 1100 is an
12 indication in our estimation of how far the Corrective
13 Action Program at Millstone 3 had been permitted to
14 deteriorate. By the same token, it is also a measure of how
15 thoroughly Sargent & Lundy performed the review.
16 We were also talking today and thought that if
17 very few had been found, that might have also been
18 questionable, so there is a balance.
19 I have monitored phone calls between Sargent &
20 Lundy and NU on a random basis with occasional assistance
21 from my Co-Chair, Evan Woollacott. These same calls have
22 been monitored by the NRC Staff from the Special Projects
23 office. The communications have retained a constructive
24 businesslike tone as efforts are made to get additional
25 information so that problems can be resolved.

1 Several times I have felt that the NU team has
2 been overly enthusiastic or too determined to have its point
3 of view accepted. Thus, I was glad to hear the Sargent &
4 Lundy representatives hold firm to their position when
5 necessary.
6 We have also found it reassuring that there are
7 some discrepancy reports for which no agreement could be
8 reached between Sargent & Lundy and NU regarding the
9 Corrective Action Plan. The NRC has had to step in to help
10 resolve the situation in some 18 cases. Out of the 1100 DRs
11 issued by the contractor, some 20 plus remain to be closed
12 before restart as of May 26th. That is when I finalized
13 this statement.
14 The fact that less than 30 are expected to be
15 confirmed at Level 3, not meeting the licensing and design
16 basis, is less than 3 percent of the total, and from what I
17 understand today, the figure is 19.
18 NEAC is concerned that the corrective actions be
19 taken and has been assured that the outstanding items will
20 be appropriately tagged for identification purposes, as we
21 suggested, and that all corrective action will be completed
22 prior to the end of the next refueling outage.
23 The end of the CAVP is in sight. Some thousands
24 of hours and thousands of documents later, a picture of
25 Millstone 3 and its conformity and/or lack thereof to its

1 design and licensing basis has emerged. Of the 88 safety
2 and/or risk significant systems, a comprehensive review was
3 made of the design and licensing basis of 15 systems and
4 portions of 51 interfacing.
5 In addition, a validation of the critical design
6 characteristics for accident mitigation included 22 systems.
7 The results should enable the contractor and the
8 Commission to assess the restart capability of the plant in
9 concurrence with other essential criteria such as the
10 Employee Concerns Program.
11 The Operational Safety Team Inspection -- NEAC
12 members observed the OSTI entrance briefing, public exit
13 meeting, and several intermediate events. The team leader
14 and the 13 other members of the inspection were professional
15 and thorough. Significantly, this was the first time we had
16 met them and can certainly note that they provided a fresh
17 perspective to the Millstone 3 inspection process.
18 At the exit meeting and a subsequent NEAC public
19 meeting, NU officers have provided the status of aggressive
20 initiatives to correct the operator performance and system
21 valve alignment issues that were identified as deficiencies.
22 Lastly, we can reinforce the observations made by
23 Vice Chairman John Markowicz on May 1, '98 -- one, the
24 Corrective Action Verification Program as established by the
25 NRC has been comprehensive in nature and has been performed

1 at Millstone 3 in a credible arms-length manner by Sargent &
2 Lundy; two, Northeast Utilities has exhibited significant
3 and sustained improvement in management and in the manner in
4 which problems are addressed, whether they be of a personnel
5 or functional nature; three, in order for public confidence
6 to be fully restored in the safe operation of Millstone 3,
7 continued oversight and vigilance on behalf of the NRC will
8 be necessary. It's vigorous oversight will be required to
9 ensure that any possible future regression at the plant will
10 be prevented in a timely fashion. This is important so that
11 the NRC retain the improvement in public perception that is
12 the result of its substantial investment in Millstone and
13 its openness and availability to the public in the
14 surrounding area.
15 This completes my remarks on behalf of the NEAC,
16 and I thank you for your kind attention.
17 CHAIRMAN JACKSON: Thank you. Let me ask you two
18 questions.
19 One is based on your observations through the
20 process, would you put the "I" back in, and if so, why so,
21 and if not, why not?
22 MR. MARKOWICZ: Could I answer that, because I was
23 kind of the leader of what I call the "independence wars."
24 We could call it the "not so" -- we could have
25 called it the "almost independent."

1 I think what we were talking about with the word
2 "independence" is the difference between independence as we
3 have come to learn, it is defined by the regulator, and
4 independence as perhaps we would more commonly understand
5 it.
6 I think arms-length is very appropriate. I think
7 that to be truly independent you would have had to
8 functionally and financially separate it from the utility,
9 but from my personal opinion as a soldier of the
10 independence wars, it's good enough.
11 CHAIRMAN JACKSON: And my second question -- and I
12 appreciate the diligence and your speaking specifically to
13 the topics at hand, but my overarching question is net, what
14 do you feel are the major lessons learned out of all of
15 this?
16 MS. CONCANNON: The lessons learned by NU?
17 CHAIRMAN JACKSON: The whole process.
18 MS. CONCANNON: The whole process --
19 CHAIRMAN JACKSON: Right, that we should take away
20 and that we should take into consideration. Anything beyond
21 what you have already said?
22 MS. CONCANNON: I think the diligence of the NRC
23 is tantamount -- or paramount to this whole enterprise, that
24 the public does look for reassurance and I think we have
25 come a long way, but we have been in the midst of it. For

1 people outside, how much do they truly know? -- and we have
2 done our best to communicate this, but I think that your
3 participation, your oversight, and interest are important
4 MR. MARKOWICZ: I would like to say for the record
5 that credibility is precious and it is very difficult to
6 restore, and it comes at a very, very large price both in
7 terms of the amount of time and effort required to restore
8 it functionally, but more importantly the time and effort
9 required to reinvent it within the public which you serve.
10 I would say in addition to that that if you were
11 to ask me personally my position regarding the restart of
12 Millstone 3 I would answer it like this. I live a mile
13 away. I have a family. I understand the dangers. I also
14 understand the restrictions and the possibilities of nuclear
15 power.
16 If you authorize the restart of Millstone 3, I am
17 not moving.
18 CHAIRMAN JACKSON: Thank you. Commissioner Diaz?
19 COMMISSIONER DIAZ: Yes. As an independent
20 advisory council, you have had the opportunity for many
21 months, and I guess you even have somebody badged that goes
22 into the control room, what do you gauge from the workers of
23 the plant, their opinion on the ICAVP and the corrective
24 action? Do you get feedback from the workers, not the
25 management, from the workers of the plant and if you do,

1 what is that feedback?

2 MS. CONCANNON: We have had feedback, perhaps not
3 as much we might have liked. Time has also limited our
4 ability to go through the plant but I have met them outside
5 the plant as well as inside, and I feel that there is a
6 feeling of optimism and a feeling of commitment on the part
7 of the workers, and that -- a feeling of team spirit.

8 MR. MARKOWICZ: I can speak a little bit, because
9 I have attended some of the workshops that have occurred
10 pursuant to the Memorandum of Agreement and I think I kind
11 of expressed this to you the last time, that we were the
12 first, because of the independence issue, at those meetings
13 that when questions arose between the utility and the
14 contractor with the regulators sitting in the middle that
15 the reaction on the part of the utility to the questions
16 from the contractor was as I described, a "deer in
17 headlights" kind of look -- like oh, is that what you
18 wanted? And that kind of confirmed to us that the process,
19 the independence that you strove for, that we hoped would
20 also be achieved, what I characterize as "arms-length" was
21 achieved, that this fear that there would be this handshake
22 behind the scenes, that information wasn't going to be
23 readily shared, and therefore we the public could not trust
24 the results of the process -- which is what the independence
25 discussion was really all about -- I felt reassured that

1 that process was going to continue.

2 Moreover, there was the feeling in the public in

3 the beginning that the systems would be leaked to the

4 contractor and therefore you couldn't trust the process from

5 that perspective because NU would always know what would be

6 looked at, so by allowing -- I think by the regulator

7 keeping a distance from NU on the selection of their

8 functional systems and then allowing us to basically pick

9 two systems out of a hat not only added credibility to the

10 process that the information wasn't shared but also I think

11 put to bed this issue why you didn't make it 88 systems.

12 Well, in fact you did, because if the utility

13 didn't know which systems were being picked out of a hat,

14 and they are all in the hat, they have to have all 88 ready,

15 so by going and looking at 15 and then 51 and 22, however

16 you want to name the numbers, I think you have, at least in

17 my mind, and I think in the minds of the members of the

18 Nuclear Energy Advisory Council, restored the credibility of

19 the process and the process is fundamental to the

20 credibility of the regulator, and in the end result that is

21 what we have to trust -- the regulator and the people and

22 the process that you regulate.

23 COMMISSIONER DIAZ: Thank you.

24 CHAIRMAN JACKSON: Thank you. Commissioner

25 McGaffigan.

1 COMMISSIONER McGAFFIGAN: I have no questions.
2 CHAIRMAN JACKSON: Thank you very much.
3 MR. MARKOWICZ: Thank you very much.
4 MS. CONCANNON: Thank you very much.
5 CHAIRMAN JACKSON: I call forward, representing
6 the Citizens Awareness Network, Ms. Deborah Katz, President,
7 and Ms. Rosemary Bassilakis. Good afternoon.
8 MS. BASSILAKIS: Hellos.
9 MS. KATZ: Good afternoon. We are little less
10 nervous this time, but not much.
11 CHAIRMAN JACKSON: You didn't seem nervous last
12 time.
13 MS. KATZ: Well, we want to thank you for having
14 us come back and talk. What we decided is we are not going
15 to address technical issues because there are a number of
16 people after us who will do that. But what we wanted to
17 talk about is what ordinary people experience, because
18 that's what we are. And even though we may come here to
19 talk about nuclear reactors, that's where we come from, we
20 come from reactor communities.
21 We are opposing the restart of Millstone at this
22 point. We are concerned with the issues of systemic
23 mismanagement that still exist after two years at the
24 reactor. Little Harbor has said that this reactor cannot
25 stand alone. That is of great concern to us in terms of the

1 chilled work atmosphere.

2 We are also concerned that a number of the issues
3 that Sargent & Lundy raised in terms of issues of
4 improvement were found in the 7007 document years ago, and
5 that they haven't been fully addressed. The issues that
6 individuals are carrying around information rather than a
7 process being established. In cases of an accident, this is
8 really dangerous and it does not give us much sense of
9 comfort. These have come up repeatedly. The idea that
10 there are still organizational breakdowns, and this is a
11 nice Lessons Learned and a learning experience, but we are
12 in the communities where learning experiences are taking
13 place and that does not comfort us. They should have their
14 act together, you know.

15 And what I have to say, you know, I have worked at
16 a lot of jobs, and you go to a job and you have a
17 probationary period and you either do your job after that or
18 they fire you. They don't continue the probationary period.
19 I mean I would like to find a place like that, but I
20 haven't. But it's as if that is what is going to happen in
21 this situation, is that Millstone will be extended after two
22 years another probationary period. We think that is
23 unacceptable.

24 We believe, and I want to go to the Focus '98
25 because that's part of this, because we in fact got the

1 2.206 petition and the Commission's response 5:00 o'clock
2 yesterday just before we left, and the issue that you
3 raised, it being a poor choice of words, well, yes, that's
4 true. But this is after two years. This isn't right when
5 it happened and you could say, God, that is poor choice of
6 words, we have to work with them. But this is after two
7 years of intense work and millions of millions of dollars
8 being put in this program, they are still using the same
9 language. And either this is an issue of incompetence, or
10 an issue of recalcitrance, or that what NU believes is that
11 a superficial adherence to the rules and regulations is sort
12 of all that is required. And what we are concerned about is
13 that the NRC will accept a superficial adherence, and that's
14 not good enough for the people because our lives are at
15 stake in this process.
16 So we believe Northeast Utilities' license should
17 be revoked at this point. That they have had two years to
18 pull themselves together and they could not do it. That's
19 the truth. Remember when we talked last time, you said,
20 well, how long would you give them? They passed a test here
21 and they did that, and it was all structured around restart.
22 And when we left, we said wait a second, they didn't pass,
23 and they didn't pass the chilled work atmosphere till one --
24 MS. BASSILAKIS: April.
25 MS. KATZ: In April. So that, to us, is a

1 statement that they have not pulled themselves together and
2 that they are still suffering from poor engineering. And
3 what is of more concern to us is that there is a question of
4 poor NRC oversight in all of this, and the issues go beyond
5 Millstone to us, because the issue is of systemic
6 mismanagement in New England reactors at this point.
7 At Rowe, Yankee Rowe was allowed to operate with
8 deteriorating safety margins in terms of its reactor vessel,
9 and they -- the NRC was going to allow Yankee Atomic to run
10 the reactor with a one in 10,000 chance of an accident
11 instead of one in a million. Connecticut Yankee had no
12 operating backup systems when it closed down, and they
13 hadn't operated for 28 years. Maine had serious systematic
14 cable separation problems that were known for decades by the
15 NRC, and nothing was done about it.
16 Vermont Yankee, and I am handing in a 2.206
17 petition to the Commission today that we have put in on the
18 systemic mismanagement. I won't throw it on the table.
19 CHAIRMAN JACKSON: Thank you.
20 MS. KATZ: We are trying to be very careful. The
21 systemic mismanagement at Vermont Yankee, which are the same
22 issues that are coming up here at Millstone, the same issues
23 at Maine Yankee, Connecticut Yankee. As I said last time,
24 Pilgrim has been fine, but they are coming up with the same
25 problems, as is Seabrook. This is a systemic problem in New

1 England and it has to do with the NRC's lack of adequate
2 regulation.
3 If NU is allowed to restart, the people will have
4 felt that the NRC has failed them. I mean at this point the
5 NRC's credibility in reactor communities is deteriorating.
6 It will be non-existent if NU is allowed to go up, needing
7 as much help as it does.
8 And what I want to just talk about is the systemic
9 failure of the regulator to regulate. This has yet to be
10 addressed. The people who were involved in the regulation
11 of New England reactors are still regulating those reactors.
12 No one has been fired. Nothing has happened to change this
13 situation. And this issue is important to us. It is not
14 just we are anti-nuclear or we have an agenda.
15 You know, I live four miles from Rowe and around
16 15 miles from Vermont Yankee. We live in a poor rural
17 community. My kids swam in the river that the effluent from
18 the reactor was dumped in, that paper bleaching mills dump
19 their waste in, that herbicidal spraying took place in.
20 Issues of environmental justice are real and immediate to us
21 in this.
22 My community is ravaged by an epidemic of disease
23 at this point, that we fear is related to all the dumping
24 that took place. We have a tenfold increase in Down's
25 Syndrome. We have statistical significance in non-Hodgkin's

1 lymphoma, breast cancer, multiple myelomas. We are ravaged.
2 So that these are real issues to us.
3 And the issue that we have relied on the NRC to
4 protect us and our children is essential, and if you fail
5 us, what do we have? And that's what I want you to think
6 of. What do we have as ordinary citizens? We are not a
7 corporation, we don't have a lot of money. We don't have
8 anything.
9 So that the issue of your doing Millstone restart
10 will have a chilling effect in reactor communities for
11 ordinary citizens in terms of whether you are going to do
12 your job, and whether you are going to correct the systemic
13 mismanagement.
14 Now, I want to make clear that this problem did
15 not start on your watch, but it has been found on your
16 watch. And the question is whether you will rectify it or
17 not. Whether you are going to send a clear message.
18 And you have asked very good questions, and I have
19 some questions for you that I want -- I don't necessarily
20 expect you to address at this moment, but I want to raise.
21 Why, after two years, can't Millstone stand on its own?
22 After two years and millions and millions of dollars, and
23 two consulting firms, why can't it do it?
24 Why, after two years, are they still using these
25 words and using bad judgement, and repeating the same

1 mistakes in engineering? Why are reactors throughout New
2 England suffering the same systematic mismanagement
3 problems? And why has the NRC not investigated its own
4 Region to correct its own systemic mismanagement?
5 MS. BASSILAKIS: Hello. My name is Rosemary
6 Bassilakis, and I live one mile from Haddam Neck, I live
7 there with my husband and two teenage children. And I want
8 you to know when conversations come up about nuclear
9 reactors in Connecticut, people shake their heads and say,
10 you know, how could the NRC let this happen? You see, we
11 have not only the Millstone reactors, but we have Haddam
12 Neck, which is also operated by Northeast Utilities.
13 My community and other surrounding communities are
14 currently littered with radioactively contaminated concrete
15 blocks, soil, scaffolding, tools, and other materials.
16 These contaminated materials were allowed to leave Haddam
17 Neck reactor over the past 20 years. Such lax radiological
18 controls and lax NRC oversight is unconscionable.
19 Northeast Utilities is currently scrambling, with
20 the NRC at their heels, to not only locate and remediate
21 these materials at hundreds of off-site locations, but also
22 they must try to decipher what the doses were to members of
23 the public, including children. And these materials,
24 contaminated materials, were allowed to leave the reactor
25 over the past 20 years, and now they are throughout

1 surrounding communities.

2 Most recently it was determined that the wide
3 range stack monitoring equipment at Haddam Neck reactor are
4 non-conservative by up to 15 percent, and at this point in
5 time the NRC can't even assure us that their stack releases
6 were within compliance. These findings come after the
7 reactor permanently shut down. These findings come after
8 the NRC lifted the confirmatory action letter that was put
9 on Haddam Neck until they increased their radiological
10 control program. These findings come after the NRC did a
11 historical site assessment that assured Haddam Neck's
12 releases were in compliance.

13 And I -- you know, I know you might think, well,
14 what does Haddam Neck have to do with it? But I want you to
15 understand that Northeast Utilities operated Haddam Neck.
16 And Haddam Neck, in fact, was reason enough alone to revoke
17 Northeast Utilities' license.

18 Now, if the NRC was an effective enforcer, the
19 tragic occurrences at Haddam Neck wouldn't have occurred.
20 And, similarly, had the NRC done their job, the entire
21 Millstone debacle would have been mitigated years ago.

22 Now, we all have enough understanding of the
23 history of Millstone so that we don't need to go into it,
24 but the sheer fact that Millstone Unit 3 is still after two
25 years not ready to start up without Little Harbor

1 baby-sitting, and the fact that numerous serious violations
2 are still surfacing in very current inspection reports are
3 validation of how excessive and how irreparable the damage
4 was and the mismanagement at that reactor.
5 Now, some of the most recent inspection reports
6 show such things as the TMI action plan requirements are not
7 being met, fire barrier degradation, FSAR inaccuracies and,
8 you know, there is still this operator training which is an
9 issue. And this has been an historic issue, this isn't a
10 new issue. This started back with Millstone 1 with, you
11 know, the operators failing their examination, and it
12 continues still after two years.
13 Your agency's effort to date in the attempt to get
14 Unit 3 back on line further lessens your credibility with
15 the public. Your actions suggest that you just as
16 schedule-driven as NU rather than a tough enforcer. Now one
17 might expect this of NU because their job is to make money,
18 they are a corporation, but we don't expect this from the
19 NRC. Your sole job is to really protect the community as
20 well as to protect nuclear workers.
21 Now, the Special Projects Office was set up at
22 Millstone and it is comprised of the very same inspectors
23 who were around when the fall of Millstone occurred. The
24 same people are responsible for giving you the okay on
25 restart, that is completely unacceptable to us.

1 The Special Projects Office has already given the
2 green stamp of approval on NU's Nuclear Oversight Department
3 that we spoke about last meeting. This approval comes even
4 though the Focus '98 document surfaced as recently as
5 January, and even though there has been a recent shakeup of
6 managers in that department. Mr. Streeter is brand new, the
7 vice president just left about two months ago, and so did
8 another department head, Mr. Anon. I mean these are all
9 recent shakeups within the department and yet we are getting
10 the green stamp of approval on that whole office, and this
11 is acceptable.
12 In regards to the ICAVP, when the public -- you
13 know, when it first surfaced, the public demanded criteria
14 because of our concerns with subjectivity in interpreting
15 the inspection results. We were clearly told that a large
16 number of Level 4 DRs would probably warrant an increase in
17 scope. Now, in the most recent SECY, which we received on
18 Saturday, the Special Projects Office implies that a large
19 number of DRs, Level 4 DRs is of no surprise, that it is
20 inconsequential. Well, this is wrong. And the ICAVP scope
21 should have been increased a long time ago, not a decision,
22 you know, up at this last minute, should we increase the
23 scope. It should have been decided a long time ago and it
24 should have been increased, because these Level 4 DRs, you
25 can assume they exist throughout other systems, as well as

1 the Level 3 DRs.

2 I want to mention that within the past couple of
3 days we received these documents, two inspection reports,
4 the most recent SECY report, as well as a director's
5 decision. There's no way we can possibly digest this type
6 of information and be able to respond to it in a meaningful
7 manner. And I just wanted to mention that. It's very
8 difficult. We don't have experts that we can dispatch and
9 say take a look at the reports and give us a summary. We do
10 it.

11 Now in regard to the most recent -- the leaky
12 valve, the botched leaky valve repair, where the necessary
13 equipment was in Delaware, I'm sure we're all aware, Dr.
14 Jackson was quoted in the newspaper as saying that the
15 management's response to this event was a good sign. This
16 is comparable to a person doing a lousy gymnastic routine
17 and because they didn't fumble on the dismount, they get a
18 standing ovation. With all due respect to Dr. Jackson,
19 these types of comments, if they're in fact true -- which,
20 you know, they were in the paper -- if they're in fact true,
21 they sort of even further degrade our confidence in the NRC,
22 and makes a clear message that NU can do no wrong in a
23 sense.

24 And aside from the technical issues, which there
25 are many of, NU has only been getting passing grades from

1 Little Harbor, as Dudley just said, for a very short period
2 of time. But even in addition to that, there's other
3 reasons why we really believe NU should have its license
4 revoked. NU is currently being investigated by the NRC for
5 making false statements under oath. This is currently going
6 on by your agency. Furthermore, Northeast Utilities is
7 being investigated by the FBI, by the Department of Justice,
8 and by the Connecticut Department of Environmental
9 Protection. Would you want a person on trial for drunken
10 driving to drive a school bus. Would you let this happen?
11 I would doubt it.
12 Now NU wants to get Unit 3 back on line by July 1
13 so as to continue to collect $13 million a month from
14 Connecticut ratepayers. That's their deadline. If they
15 don't get Unit 3 back on line by July 1 at 95-percent power,
16 they're out of the rate base. So we can understand their
17 schedule-driven nature. But what is the NRC's hurry? Given
18 that the entire nation is watching, just how your agency
19 deals with Millstone, and given that your agency's
20 credibility as a tough and effective regulator is at stake,
21 it's time that your agency bare its teeth and show that it
22 is not a lapdog. We are asking that you revoke Northeast
23 Utilities's license to operate nuclear reactors.
24 COMMISSIONER DICUS: Thank you.
25 Commissioner Diaz.

1 COMMISSIONER McGAFFIGAN: I'm going to make a
2 statement, because I think I -- I disagree with much of what
3 you've just said. You made a political statement. There
4 wasn't -- we have just put Northeast Utilities through I
5 think the most enormous undertaking. And our staff has
6 integrity. It is not correct that every person is the same
7 people. Our staff has integrity as regulators. They have
8 overseen this process. You have the SECY paper that
9 outlines their conclusions. But the notion that we are a
10 lapdog because we will not revoke a license arbitrarily and
11 capriciously is something I just fundamentally disagree
12 with, and I'll say that as you leave the table.
13 MS. BASSILAKIS: I understand. But we're coming
14 from people who live in the communities, and had the NRC
15 been a tough enforcer, as I was saying, then this wouldn't
16 have occurred. It wouldn't have occurred at Haddam Neck
17 with radioactive materials being strewn throughout our
18 communities, and the whole Millstone issue wouldn't have
19 occurred.
20 COMMISSIONER McGAFFIGAN: Well, it's not the time
21 to debate that, but I'd be happy to talk to you about Haddam
22 Neck, and I believe that the material that got offsite your
23 own Department of Environment has made it very clear that
24 the consequences were less than a millirem per year to any
25 individual that they've thus far been able to find. So it's

1 just not -- but whatever you want to --

2 MS. BASSILAKIS: The issue is more about the fact

3 that the systemic mismanagement at Millstone -- that the

4 regulator has to bear a degree of responsibility, which I

5 will say again is not at your watch. But we believe it

6 needs to be investigated to be understood so it won't happen

7 again. And that's part of why we're raising this, to show

8 also the systemic problem that goes beyond Millstone.

9 Because we're concerned for all of Region I at this point.

10 COMMISSIONER McGAFFIGAN: I believe our job is to

11 judge Mr. Kenyon and his team and the results that they

12 have -- as the Chairman often says, the results they have

13 achieved thus far in preparing Unit 3 for restart, and

14 that's what we're about to do. But you're throwing in past

15 history going back decades, and we're judging an enormous

16 process that we've just gone through, I think probably one

17 of the most enormous processes this agency has ever

18 undertaken, and the people who -- both on our side, the NRC

19 staff side, and the utility, what they've been able to do.

20 And you have the staff paper. The staff paper

21 says that they believe that the utility is ready to restart,

22 and I did not hear anything in your statement that addressed

23 any of the staff's fundamental conclusions, other than to

24 throw out political points, but not specifics --

25 MS. BASSILAKIS: Well, we raise that other people

1 would raise technical specifics, and they will come along.
2 MR. McGAFFIGAN: We'll hear them.
3 COMMISSIONER DICUS: That's all right. If I could
4 here inject at this point in consideration of the time, we
5 do appreciate your comments, but I think perhaps we do need
6 to move on. We have several people who do want to comment,
7 and we certainly want to leave time for them to do so.
8 Again, thank you very, very much.
9 MS. BASSILAKIS: And thanks for the opportunity.
10 COMMISSIONER DICUS: I think the next group that
11 will come before us is the Citizen Regulatory Commission, I
12 believe represented by Mr. Mark Holloway.
13 MS. BURTON: Excuse me. May I raise a point of
14 order at this time. I'm Nancy Burton, and I'm an attorney,
15 and I have been representing the CRC, including involving
16 matters pending before the Nuclear Regulatory Commission. I
17 note that Dr. Jackson has absented herself from the meeting,
18 and I would request, given that the personal sacrifice that
19 was involved I know on the part of the Citizens Regulatory
20 Commission to send a representative here, that we sit here
21 and bide our time and await Dr. Jackson's return.
22 COMMISSIONER DICUS: I'll ask our counsel to
23 perhaps address your point. I might say, though, that Dr.
24 Jackson was called away, but we do have a quorum of the
25 Commission here, and I believe it is appropriate that we do

1 continue. But if you would address the issue.

2 MR. BURNS: Yes, that's at the option of the

3 Commission. There's a quorum present, and the meeting can

4 proceed in the manner the Commission decides.

5 COMMISSIONER DICUS: Okay. Do we need to formally

6 decide that at this point, or do --

7 MR. BURNS: No.

8 COMMISSIONER DICUS: We have the quorum --

9 MR. BURNS: Yes.

10 COMMISSIONER DICUS: And we can proceed.

11 MS. BURTON: Perhaps you could determine how soon

12 Dr. Jackson will return.

13 COMMISSIONER DICUS: I don't know, but I also will

14 note that this is a reported meeting, so the transcript will

15 be available.

16 MS. BURTON: I've made my objection.

17 COMMISSIONER DICUS: Please proceed.

18 MR. HOLLOWAY: I'd like to thank the Commission

19 for the opportunity to address you today. My name is Mark

20 Holloway. I currently live in Waterford, Connecticut. I've

21 been a resident of southeastern Connecticut my entire life.

22 I am employed by EG&G Services as an analyst and task

23 manager in the Systems Engineering and Design Department,

24 working primarily in the areas of combat control and sonar

25 system development for nuclear submarines.

1 Since 1995, September as a matter of fact, I've
2 been a member of the CRC. During its formation in August of
3 1996 I was appointed to the Connecticut Nuclear Advisory
4 Energy Council, and remain a member to this day. However,
5 I'd like to make very clear that my comments today do not
6 represent the viewpoint of the Nuclear Energy Advisory
7 Council, but are reflective of a position of the CRC.
8 I'm not an elected official worried about property
9 tax bases, nor am I a local business or civic leader
10 concerned about the consequences of NU's economic problems.
11 I've never been employed by a utility, nor have I ever
12 worked for a utility regulatory agency. My and the CRC's
13 general lack of any vested interest in the economics and
14 politics of the restart of Millstone 3 probably make our
15 observations as unbiased and independent as possible.
16 During the last three years the CRC has attended
17 dozens of meetings and read thousands of pages concerning
18 the Millstone power station. Over two years of plant
19 shutdown, multiple changes in management and millions spent
20 to improve the physical plant condition had given us some
21 hope that corrective action, problem solving, and generally
22 most of the issues had reached a level that would support
23 the public confidence in a proper restart. Sadly, some
24 recent events show us it's not the case.
25 When I'm making this statement, I'm not really

1 talking about events that occurred in the distant past or
2 1996 or even '97, for that matter, but to serious situations
3 that occurred in 1998. And one interesting thing, as I was
4 listening to the Northeast Utilities presentation is I saw
5 their slide with a number of areas, and I just started
6 writing down and comparing some points that I was about to
7 make with those areas in which they said they had achieved a
8 state of proper readiness.
9 Let's take emergency planning. During a recent
10 emergency preparedness inspection of the Millstone Point 3
11 postaccident sampling system, the PASS system, on February
12 23 through 26, 1998, NU was cited by the NRC for failure to
13 demonstrate the ability to report results of a containment
14 air sample within three hours, and deletion of a USFAR
15 annual commitment to sample a sump liquid. Now that shows
16 to me a weakness in emergency planning, and what I'd like to
17 do is kind of point out various other areas. I'm by no
18 means am going to report every area or every incident in
19 here. I think that would probably take a day and a half.
20 And I don't have that kind of time. I know you don't,
21 either.
22 Corrective action. Recirculation circulating
23 spray system. That's a longstanding issue that popped up
24 again. Recent repeated attempts to resolve water hammer
25 problems with equipment modifications resulted in material

1 breakdown and consequently piping damage from the metal
2 shards. Proper engineering and corrective action practices
3 initiated from the beginning could have solved this problem
4 before it reached this level of magnitude.
5 Let's talk a little bit about procedure quality
6 and adherence to that. The MOV calculation errors.
7 Measures were not established to assure that the design
8 basis of safety-related MOVs were correctly translated into
9 specifications, drawings, procedures, and instructions, that
10 certain MOV design based thrust calculations were incorrect.
11 There's a problem there.
12 We have some configuration management issues,
13 remaining problems with the updating the FSAR. An NRC
14 report dated just May 28, 1998 points out at NU has not
15 completed significant items relating to updating of the
16 FSAR. Specifically I believe the item is SIL-38, but I
17 might be mistaken on that number. We just got the report.
18 Another corrective action issue, the leaking valve
19 in the primary cooling system. Let's talk about today.
20 This was first discovered in mid-April 1998. Several
21 attempts to correct the problem failed. The part necessary
22 to fix the free sail was not even around. In fact, it was
23 in Delaware as of mid-May. A decision has been made to
24 delay repairs until the next refueling.
25 How about environmental compliance? Illegal

1 discharges? On at least four occasions in 1998, and I don't
2 get a chance to see all the LERs, but I am familiar with
3 these and personally have a copy, materials were improperly
4 discharged into Long Island Sound, resulting in LERs issued
5 and reports to the State DEP. This seems to be an
6 oft-repeated scenario is there's presently some legal
7 litigation pending that charges NU with the illegal dumping
8 of chemicals, including known carcinogens, into Long Island
9 Sound.
10 Let's talk some more about configuration
11 management. A number of DRs. Sargent & Lundy has issued a
12 staggering amount of DRs, depending on the count, probably
13 around a thousand, against Millstone 3. An inordinate
14 number of DRs have involved calculation errors. These DRs
15 have, for the most part, been Level 4, but the sheer number
16 and the fact that 20 percent of the initial resolutions,
17 proposed NU resolutions, have been rejected by Sargent &
18 Lundy, reflect a real difficulty in configuration
19 management.
20 As I said, this is just a sample, but amazingly
21 they still seem to be in kind of a problem discovery mode.
22 After being on non-operational status for a couple of years,
23 this is incredible. I mean you look at some of the bar
24 charts that I saw in your presentation, there's a lot of
25 flatline stuff there. There's not a movement, positive

1 movement there. Some of them do show improvement.

2 I want to say at this time that I have seen some

3 improvement in Northeast Utilities' handling of almost

4 everything. My big problem is that I haven't seen and the

5 CRC hasn't seen the degree of improvement that would cause

6 us to have confidence in this restart. There's still a lot

7 of stuff out there.

8 The State of Connecticut has recently enacted

9 deregulation legislation which will no doubt cause all our

10 potential energy suppliers to look at every way possible to

11 cut costs in order to compete.

12 Many of the NU's problems with past performance

13 can be directly attributable to management's attempts at

14 cost-cutting.

15 There are a lot of us around who believe that

16 deregulation and nuclear power are not a good mix.

17 Therefore, it is imperative that the NRC hold nuclear

18 generation facilities, the companies that operate these

19 facilities, to very stringent standards, even more than

20 ever, because we are going to see two things happening

21 simultaneously: the aging of this country's reactors and

22 the deregulation spreading across the nation.

23 I am very sensitive to the budget issues that the

24 NRC has in these areas too, but it's like you've got to be

25 tougher than ever and any judgment would have to be made on

1 a more conservative basis than ever in the opinion of the
2 CRC.
3 Mr. Bowling mentioned that he had -- they have a
4 need to rebalance the engineering workload after the
5 restart. This to me is a real indicator of the tremendous
6 amount of work that had to be done going into the situation.
7 I don't think anybody including myself, and I a
8 sure probably the NRC and Northeast Utilities are in this
9 category, really knew how many things needed to be fixed
10 before shutdown. I think we really have to look at an
11 aggressive schedule and say NU might operate by an
12 aggressive schedule but the NRC, and Dr. Jackson told me
13 this herself and I believe here, is not concerned with the
14 economics of the situation.
15 I think an approval for restart at this time would
16 be sending the wrong message and that I really -- really, I
17 live very close to the plant myself, and I'd sleep a whole
18 lot better if we took some more time to solve some of these
19 problems.
20 CHAIRMAN JACKSON: Thank you very much.
21 MR. HOLLOWAY: Thank you.
22 CHAIRMAN JACKSON: Commissioner Dicus.
23 COMMISSIONER DICUS: No.
24 CHAIRMAN JACKSON: Please.
25 COMMISSIONER DIAZ: Yes. I want to see if you can

1 define, because we need to understand, from the safety
2 perspective what is the degree of improvement that you
3 believe will be adequate in an industrial complex of this
4 magnitude that has the tremendous amount of oversight that
5 it has on it.
6 You say you are not satisfied with the degree of
7 improvement. I just want to know whether there is something
8 specific that you want to say, from the safety viewpoint --
9 we are not concerned with other things -- but safety. What
10 impacts on safety?
11 MR. HOLLOWAY: From a safety viewpoint I think
12 that invariably situations occur during an operational
13 scenario that are going to require your attention. That is
14 normal.
15 When you go into that operational scenario, if you
16 haven't cleared up enough of your backlog of items that
17 might have been deemed to be somewhat less safety
18 significant, that does not -- that to me says that those
19 things are going to be back-burner type issues, so I worry
20 very strongly about the amount of deferred work, about items
21 being put off till next refueling.
22 I think a lot of little things add up to big
23 things, and I think that -- this is my fear in the
24 situation.
25 COMMISSIONER DIAZ: Okay, so it is no single

1 specific safety issue that you would say we should not
2 consider at this point, the restart of Millstone 3, but is
3 the aggregate of many little things, the Level 4s, and
4 some --
5 MR. HOLLOWAY: Repeated violations -- I am
6 particularly bothered by the repetitiousness of some of
7 these problems, where things have been kind of longstanding
8 and they are sort of popping up and re-occurring, like the
9 recirculation spray system.
10 COMMISSIONER DIAZ: Okay, thank you.
11 MR. HOLLOWAY: Thank you very much.
12 CHAIRMAN JACKSON: Commissioner McGaffigan.
13 COMMISSIONER McGAFFIGAN: No questions.
14 CHAIRMAN JACKSON: Thank you very much.
15 Appreciate it.
16 Before I call the next person forward, I realize
17 that I have stepped out and it was unavoidable, and it may
18 be unavoidable for others, on the Citizens Awareness Network
19 presentation. I apologize for that.
20 We would not continue the meeting if there were
21 not a quorum but I will review the transcripts of whatever I
22 have missed before I render my own personal judgment in
23 these matters -- so I just wanted to let you know that.
24 Let me call forward Mr. Ron McKeown, representing
25 the Friends of a Safe Millstone.

1 MR. McKEOWN: Good afternoon.

2 CHAIRMAN JACKSON: Good afternoon.

3 MR. McKEOWN: Thank you for inviting us. I am
4 very sorry I was not able to make it last time. Marvin
5 Scott, our Community Coordinator, has had -- his wife has
6 had a serious accident and that is why he is not with me
7 today.

8 Friends of a Safe Millstone has been in existence
9 since October-November.

10 Our main purposes have been to support the
11 employees in their work, to give credit where credit it due,
12 to attempt to bring a level of appropriateness, fairness and
13 truth in the public discussion, and to highlight that NU is
14 a major and important force in the area.

15 Our mantra is not "Millstone, My Millstone Right
16 or Wrong" -- up-front, if the plant isn't safe, and it's not
17 safe for our public, Friends of a Safe Millstone would want
18 it closed forever. We have had 6900 communications either
19 through web page, e-mail, fax, phone or mail that has come
20 from the public.

21 None of us who are very active in it are
22 technicians in nuclear power.

23 I, myself, used to be a Safety Director for the
24 American Red Cross. In fact, I used to write a newspaper
25 column for 17 newspapers called "My Safety" -- but our

1 communication has been real solicited and tried to separate
2 out people who worked for Millstone and their families. We
3 have attempted to get a sense of what the public who are not
4 pro-nuclear and who are not anti-nuclear, what they think
5 and what they feel.
6 I happen to be a PTA President and a Cub Master of
7 the largest Cub Scout pack in the country and a Boy Scout
8 leader. I meet with a lot of people in the region on a
9 daily basis. FOSM gets between 20 and 28 e-mails and phone
10 calls a day. We administratively can't handle getting back
11 to everybody, but we have received communications from 6900
12 people.
13 Three years ago there is not a prayer in God's
14 world that I would be here.
15 The voices and whispers of darkness about
16 Millstone were evident. They were evident on the baseball
17 fields. They were evident at PTA meetings.
18 Last year, beginning in April or so of last year,
19 verbiage by employees was very evident about confusion and
20 about safety and about training. They didn't like it.
21 Then something happened last summer. All of a
22 sudden all of this safety talk and all of this training
23 talk, all the confusion and anxiety and near-hostility about
24 it stopped, and some time late fall we saw -- and this is
25 what precipitated Friends of a Safe Millstone coming

1 about -- we saw that something different was happening. The
2 confusion, the anxiety, the tension by employees when they
3 were standing with their friends over a baseball game and
4 they were talking with their spouses and their kids and
5 their neighbors routinely seemed to break.
6 I was not involved in the process at that time,
7 and I couldn't really tell you at the time what caused it,
8 but it was clear and evident.
9 Since that time, and we have tried to get a handle
10 on how to say it and what we have seen about the safety
11 issue -- when you get a graduate degree or you get a degree
12 if you never had one before, or the first Master's you get,
13 all of a sudden you don't think you are an expert, all of a
14 sudden you -- you kind of get to a place of enlightened
15 professionalism, but you also recognize how much you don't
16 know and somehow you take a deeper breath and you are more
17 open-minded.
18 When we have had roundtable discussions at my home
19 among FOSM volunteers, the things that we hear is that all
20 of a sudden the employees are thinking differently. All of
21 a sudden the employees have somehow it is as if they have
22 gotten a graduate degree in Nuclear Energy and there's been
23 a heightened level of professionalism about who they are and
24 what they do. They are more proud than they have ever been
25 in our 12 years of living in the region about being part of

1 the nuclear industry. That is absolutely clear and evident.
2 They volunteer more now. They volunteer to teach
3 energy. They volunteer to teach merit badges more. Now
4 what magical thing that means I am not sure, but all I know
5 is that it seems to have been precipitated by the actions
6 and the firm hand that the NRC has had in this process.
7 There seems to be a resurgence of normalcy. The
8 dark whispers we had three or four years about money and
9 profit driving operations, supplies, materials -- we have
10 not heard that and I have been surprised we have not heard
11 that because one would think with the pressing needs and
12 pressing realities, you would hear it.
13 I would like to give you a handle on what we
14 believe the mainstream public really believes about this
15 process. The mainstream public by and large is very
16 ignorant about nuclear power. Most people over the age of
17 30 were not taught nuclear power and nuclear energy in
18 school.
19 We had public meetings in New England, just like
20 every other part of the country, where if it is a pool
21 issue, three or four hundred people will come out. If the
22 taxes are going to go up one mill rate, and people are upset
23 and angered by it, there's a zillion people there.
24 Sometimes we have had to go to a different system to
25 incorporate the numbers of people that come out when they

1 are concerned.

2 Yesterday, I had the opportunity to drive my
3 father-in-law to the beach, which is right across the bay
4 from Millstone. He is elderly, and as we were sitting
5 there, having an ice cream, it dawned on me how I could best
6 suggest to you what the real public believes, and I will
7 leave it to your own judgment.

8 People in southeastern Connecticut love their
9 families and love their homes and cherish their children.
10 If they were incensed, if they felt betrayed by you, they
11 would do what any of us in this room would do -- they would
12 show up at meetings in droves.

13 They would protest. This is mainstream
14 citizenry -- what they would do. They would be more
15 incensed than a 1 mill increase in taxes.

16 I have for you today -- this is a sign from
17 McCook's Beach, across the way from Millstone Point.
18 Yesterday there were 105 mothers and children playing on the
19 beach. If they felt it was filled with radioactivity or
20 they thought that right nearby plants and fruit that were
21 growing you couldn't eat, or if they thought you were doing
22 a shameful job, they wouldn't be playing on the beach, going
23 in the water with the most important thing in their lives.

24 The firm hand of the NRC has been felt in the last
25 two years. I wasn't involved in the process at all, but

1 prior to that I sensed there were troubles or management
2 control issues, but the here and now of it is this. I do
3 not believe for the life of me that one of those mothers or
4 one of those children yesterday that were on this beach and
5 right across the way from Millstone, if they did not think
6 there was a firm hand of control and rectification by the
7 NRC, they wouldn't be there.
8 Like Mr. Markowicz, I'm not going to move either,
9 and I live just as close.
10 Recently, on the same sand, just feet away, all --
11 as Mr. Sheridan said, many, many -- 100 percent of all the
12 government leaders that we invited to the beginning of the
13 process of reconciliation and bringing together, 100 percent
14 of those government leaders said yes, they would come and do
15 that. They praised in that document the whistleblowers, the
16 job of the NRC, the job of the new management, the Citizens
17 Regulatory Commission, and citizens in general. The process
18 of rectification and reconciliation is beginning. It's very
19 clear that right now, the here and now of it, that the firm
20 hand of the NRC is respected.
21 I thank you on behalf of our 4,250 members, and
22 maybe sometime tomorrow, I'll be on the beach. But thank
23 you again.
24 CHAIRMAN JACKSON: Okay. Thank you very much.
25 What's the breakdown, can you say, of your

1 membership between those who are Millstone employees and
2 those who are not?
3 MR. McKEOWN: We consciously carved out as we --
4 we carved -- we have about 2,100 additional
5 Millstone-related members. In our numbers, we do not use
6 those. We don't even tabulate those. It's somewhere,
7 2,000, 2,300 Millstone employees, workers, contractors or
8 spouses or family members. Then we have 4,250 over there
9 who are what I call mainstream citizenry. I could not give
10 you a guarantee that some of them didn't slip in there, but
11 we consciously did our best. In our numbers, we tried never
12 to blend the two numbers together. Again, we're not
13 technicians, we have a sense of what we hear and we have a
14 sense of what the process is doing.
15 CHAIRMAN JACKSON: Okay. Thank you.
16 MR. McKEOWN: Thank you.
17 CHAIRMAN JACKSON: Commissioner Dicus?
18 COMMISSIONER DICUS: No.
19 CHAIRMAN JACKSON: Commissioner Diaz?
20 Commissioner McGaffigan?
21 Thank you very much.
22 Let me call forward on behalf of the Union of
23 Concerned Scientists Mr. David Lochbaum. Good afternoon.
24 MR. LOCHBAUM: Good afternoon.
25 Slide 2, please.

1 According to NOrtheast Utilities, more than 180
2 physical changes to the plant, 450 changes to the updated
3 FSAR, and more than 2,000 configuration management items
4 have been completed in the last two years at Millstone Unit
5 3. Over 100 licensee event reports have been submitted,
6 including nearly 20 having moderate or high safety
7 significance.
8 Several of the modifications and LERs involved
9 problems dating back to the original construction of the
10 plant, while the remainder involved problems introduced
11 since that time. By any yardstick, considerable progress
12 has been made fixing plenty problems.
13 What does this volume of work tell us about the
14 condition of this facility when it last operated in March of
15 1996? That's not just an academic question; its answer is
16 directly relevant to your restart deliberations.
17 The question itself was first asked nearly three
18 years ago. In August 1995, George Galatis and we the people
19 submitted a 2.206 petition contending that because Northeast
20 Utilities willfully neglected longstanding safety
21 deficiencies, it lacked the corporate ethics to safely
22 operate Millstone.
23 We think this petition initiated a chain reaction
24 which led to the March 1996 cover story in Time Magazine and
25 the shutdown of all three Millstone units. Absent that

1 sequence of events, we sincerely believe that Millstone
2 would be operating today with inadequate safety margins.
3 That's our opinion and we understand that the
4 Commission and the NRC staff may not agree. That's fine.
5 That debate is not germane to today's agenda. But what is
6 germane is that fact that the Galatis petition remains
7 unresolved two and a half years later.
8 The huge volume of work completed by Northeast
9 Utilities suggests strongly that Mr. Galatis was right. We
10 do not understand how the NRC can contemplate allowing
11 Millstone Unit 3 to restart with this petition still open.
12 It's not the only thing we don't understand about
13 the NRC's actions at Millstone. The NRC ordered NU to
14 obtain an independent evaluation of its corrective action
15 program. Sargent & Lundy was selected as the independent
16 corrective action and verification program contractor for
17 Unit 3.
18 Slide 3, please.
19 The NRC's special projects office established a
20 four-level ranking scheme for Sargent & Lundy's findings
21 along with possible NRC responses to those findings. Level
22 1 findings were the most significant and level 4 findings
23 are the least significant under this scheme.
24 Slide 4, please.
25 Sargent & Lundy's findings were classified as

1 level 4 when the, quote, system meets licensing design basis
2 but contains minor calculational errors or inconsistencies
3 of an editorial nature. End quote.
4 The special projects office stated response for
5 level 4 findings was, quote, multiple examples could result
6 in expansion of ICAVP scope to evaluate for similar errors,
7 inconsistencies in other systems. End quote.
8 Slide 5, please.
9 According to Sargent & Lundy's data, 158 of its
10 level 4 findings involved calculational problems.
11 Calculation problems caused more level 4 findings than the
12 next three causes combined. 158 findings would seem to
13 constitute multiple examples warranting the NRC to probe
14 further; yet Special Projects Office elected not to follow
15 its own stated intentions.
16 Why not? Perhaps you should ask them. When the
17 public asks that question, Mr. Imbro replied that while
18 there were, indeed, numerous calculational problems, none
19 were safety significant and none affected equipment
20 operability.
21 Even if this were so, it contradicts Special
22 Projects Office stated protocol. By definition, no level 4
23 finding could be safety significant or affect equipment
24 operability. If it were safety significant or affected
25 equipment operability, then it cannot be a level 4 finding.

1 Thus, we suspect strongly that Special Projects Office was
2 unwilling or unable to stand behind its stated action for
3 level 4 findings. In other words, Special Projects Office
4 seems to have misled the public either by developing a
5 criterion with no chance of ever triggering the specified
6 action or by not taking the additional action that was
7 required by that criterion.
8 As bad as those implications are, it gets worse.
9 The root cause for the RSS orifice modification fiasco was a
10 calculation problem. The results from this bad calculation
11 were then used in a 50.59 safety evaluation that came up
12 with the wrong answer. Ultimately, all four RSS pumps were
13 rendered inoperable during what was intended to be
14 non-destructive testing; thus, a calculation problem
15 directly contributed to equipment inoperability in one of
16 the most risk-significant systems at the plant.
17 Sargent & Lundy had reviewed the RSS orifice
18 modification before the problem became self-evident. Had
19 they discovered the problem during that review, a level 1
20 finding would have been generated. Recall that the
21 criterion for a level 1 finding is that "System does not
22 meet licensing design basis and cannot perform its intended
23 function." The RSS system, with all four of its expansion
24 joint liners demolished, satisfied that criterion. NU is
25 extremely fortunate that Sargent & Lundy failed to identify

1 the problem.

2 Slide 6.

3 Speaking of failing to identify problems, in
4 January of 1986, the NRC issued Northeast Utilities an
5 operating license for Millstone Unit 3. That issuance
6 followed the NRC's determination that the facility met all
7 applicable regulatory requirements and that there was
8 reasonable assurance that the facility would be operated and
9 maintained in accordance with these requirements.

10 The extensive remediation in the past two years
11 demonstrates that neither criterion was satisfied. If
12 further proof is needed, the $2.1 million fine imposed on
13 Northeast Utility last December for more than 50 violations
14 of safety regulations, some of which dated back to 1986,
15 should satisfy any skeptic.

16 How does that history affect today's restart
17 deliberations? During the May 1st Commission briefing, many
18 of the public presenters, including UCS, advocated measures
19 intended to provide margins above and beyond the restart
20 criteria. If confidence existed that the NRC could detect
21 declining performance and would take action to prevent
22 troubled plants from operating with inadequate safety
23 margins, then the public would not feel the need for these
24 kind of measures.

25 But no reasons exist for the public to have such

1 confidence. The NRC tracks, trends, charts, watches, and
2 may soon begin coloring plant performance; yet the NRC lacks
3 objective criteria to determine when performance at a
4 troubled plant has declined to the point that it must be
5 shut down. That was a key conclusion of the GAO report
6 issued in May of 1997. We feel that GAO's conclusion was
7 valid then and, more importantly, remains valid today.
8 Slide 7, please.
9 According to all the testimony by NU, the
10 independent contractors and the NRC staff, NU has satisfied
11 all the criteria for restart of Unit 3. Even if this were
12 so, it only addresses one of the two questions before you.
13 That question is whether the facility and its operator meet
14 all applicable regulations. The second equally important
15 question is whether the plant will be operated in compliance
16 with regulations in the future.
17 We remain truly concerned that the NRC staff lacks
18 both the criteria and the resolve to trigger the shutdown of
19 this facility in a timely manner if its performance falls
20 short of regulatory requirements. We cannot predict with
21 any degree of certainty what NRC's regulatory performance
22 will be after the restart of Millstone Unit 3, but neither
23 can the NRC staff. Everybody hopes that it will be better
24 than in the past, but what if it is not?
25 We build nuclear power plants with massive

1 containments and emergency systems for accidents that no one
2 thinks will happen because public health and safety must be
3 adequately protected even if they do occur. Likewise,
4 adequate protection demands that the NRC staff have the
5 wherewithal to shut down Millstone when it fails to meet
6 regulatory requirements.
7 History and ample circumstantial evidence strongly
8 suggests that the NRC staff in general and the Special
9 Projects Office at Millstone is not meeting this vital
10 adequate protection standard. Therefore, the Union of
11 Concerned Scientists respectfully urges you not to allow
12 restart of Millstone Unit 3 until you and the public in New
13 England have reasonable confidence that the NRC staff can
14 and will step in and stop declining performance at a
15 troubled nuclear power plant. Allowing Millstone Unit 3 to
16 restart without that confidence would simply be repeating
17 the mistake made by the Commission in January of 1986.
18 Please don't repeat that injustice to the people of
19 Connecticut.
20 There were no winners at Millstone. The licensee,
21 its employees, its stockholders, its ratepayers, the
22 citizens living around the plant, the nuclear industry and
23 the NRC all lost. There cannot be a repeat of a regulatory
24 meltdown at Millstone Unit 3 or any other nuclear power
25 plant. Worse yet, there cannot be an accident at any plant

1 operating with inadequate safety margins as the three units
2 at Millstone operated for so many years.
3 Thank you.
4 CHAIRMAN JACKSON: Let me ask you three questions,
5 Mr. Lochbaum. The first question is give us some specifics,
6 if you will, relative to your statement that the special
7 projects office is not operating or adhering to the adequate
8 protection standard.
9 MR. LOCHBAUM: I think the the Level 4 DRs that we
10 cited in the presentation. Beyond that, when the training
11 memo issue came up in July of last year, we were concerned
12 that NU's investigation and bringing in Admiral Carr to look
13 at that wasn't really going to get to the hard core of the
14 matter, was whether these people were discriminated against.
15 The focus of that inquiry was to determine whether those
16 people did the actions that warranted that response, that
17 corrective action, disciplinary action.
18 The concern we raised to Mr. McKee was that that's
19 only half the question. What has to be done is get
20 everybody, every employee at Millstone who did those
21 transgressions, suffer the same kind of disciplinary action.
22 That's the way you determine whether it was retribution or
23 not. That was not looked at. So I know Carr just concluded
24 that most of the employees had done the behavior that
25 warranted that disciplinary action; didn't look at whether

1 everybody else who was guilty of the same misdeeds suffered
2 some kind of disciplinary action. So it didn't really get
3 to the core of the matter of whether these people were
4 harassed or intimidated and retaliated against.
5 The issue was raised to Mr. McKee before that
6 investigation started, and then it was dismissed without
7 much of recourse.
8 We had the same issue with corrective actions
9 where we felt that the high rejection rate between Sargent &
10 Lundy and Northeast Utilities was disturbing. When it was
11 raised to Dr. Travers, I asked him if he had ever asked
12 Sargent & Lundy if they were satisfied with the response to
13 the corrective -- the resolutions. And this was last fall
14 some time. The answer was it never occurred to him to ask
15 that question because they were waiting until all the
16 corrective actions were done and the answer was done. But
17 that would be like taking a multiple choice test in school,
18 where if I answered B and the teacher says no, and I answer
19 C, the teacher says no, eventually I can get 100 on any test
20 that way. And that was the same way that special projects
21 was allowing the corrective action process to be evaluated.
22 So we -- there's been a history of raising
23 concerns and then really just not being addressed.
24 CHAIRMAN JACKSON: Let me ask you the second
25 question. You indicated that the second issue before the

1 Commission is whether Millstone 3, Unit 3, will be operated
2 in compliance with the regulations. Now I noted that
3 Sargent & Lundy's final slide states that they feel the
4 processes are adequate, you know, blah, blah, blah, on an
5 ongoing basis. Do you feel that their conclusion addresses
6 your item (b) in terms of the go-forward position?
7 MR. LOCHBAUM: It addresses part of it. It
8 addresses the part about does Northeast Utilities have the
9 structure in place to prevent declining performance, and I
10 would agree with Sargent & Lundy that they have at this
11 point that mechanism in place. But the second question is
12 really if, for whatever reason, that performance were to
13 decline in the future, will the Commission or will the NRC
14 step in and stop that. And Sargent & Lundy didn't address
15 that, that is beyond their scope. That's the true concern
16 we have with the second question.
17 CHAIRMAN JACKSON: Let me ask you this question
18 relative to that. Now it is true that the Millstone plants
19 ended up being shut down for various operational reasons.
20 Nonetheless, the NRC issued orders to effect improvement,
21 and do you believe that NU, for what improvement you will
22 admit that they may have made, that they would have been as
23 effective in identifying and correcting the issues or the
24 problems in the absence of the orders?
25 MR. LOCHBAUM: No. That brings the Commission --

1 those orders were very helpful in guiding or coercing or
2 getting NU down that pathway. So that without that, they
3 wouldn't be to the point where they are today.
4 CHAIRMAN JACKSON: And so is your concern that the
5 Commission would not similarly step in if it felt that there
6 were declining performance on a go-forward basis? Or is the
7 standard that you feel the plants should be shut down and
8 the Commission should do that?
9 MR. LOCHBAUM: Well, I don't -- I think the
10 problem is that there isn't that standard, there isn't that
11 criteria. If you look at NRC Manual Chapter 0350 for
12 restart of the plants, it -- although it's loosely defined
13 in what needs to be done, and on a case-by-case basis,
14 there's the ability to define what that process is, there's
15 -- nowhere have I seen was there a process identified for
16 what it takes to shut down a plant on a bad performance.
17 We've tried to develop an empirical data base by ourselves
18 where we can rate things to figure out what does and does
19 not constitute that, and we can't even figure that one out.
20 So that it's very difficult to figure out what causes, other
21 than media attention, NRC -- or plant shutdowns, and that's
22 not the right standard, we think.
23 CHAIRMAN JACKSON: I do agree with one statement
24 you made, which is --
25 MR. LOCHBAUM: I knew I'd get one eventually.

1 [Laughter.]

2 CHAIRMAN JACKSON: -- that it was media attention

3 which led to the actions that were taken. But -- and we'll

4 leave it at that.

5 MR. LOCHBAUM: Okay.

6 CHAIRMAN JACKSON: Commission Dicus?

7 COMMISSIONER DICUS: No questions.

8 CHAIRMAN JACKSON: Commissioner Diaz?

9 COMMISSIONER DIAZ: Yes. I believe that in

10 response to the second question, you have concern of what

11 will happen and, you know, what type of device or matrix or,

12 you know, do we have. And you said that you tried to look

13 at it and you couldn't find one way of doing it, and that's

14 probably the right answer. There is no single way of doing

15 it because we never look at one single little device or a

16 series of little devices. We are always looking at this

17 umbrella of adequate protection of health and safety, and it

18 is impossible for us to say whether we will respond to it

19 next six months.

20 I think the Commission and the Staff have shown

21 that we have responded to it in this case, even though it

22 was great demands, but -- and there's an issue that keeps

23 coming around, it's how far do you go in this democratic

24 system into a licensee. How much do you go into a private

25 citizen's life. We are a regulatory agency, which you know

1 very well, and we have a set of regulations that we have to
2 abide by, and we go many times beyond those regulations to
3 provide adequate protection of health and safety. We do not
4 control the future behavior of the licensee. It is not
5 possible for us to establish policies that will go at how
6 somebody will behave.
7 What we can do, and we are listening to you and
8 everybody, is establish requirements that are according to
9 law and that we can actually use and implement in a
10 day-to-day basis, and occasionally a month-to-month basis,
11 that would provide that adequate protection and standards.
12 If there is something else that we could do, I
13 would really like to know, because I just don't.
14 MR. LOCHBAUM: Well, you said you can't control
15 the future performance of licensees. I think you do have
16 that chance with Millstone Unit 3 at the moment. I think
17 that's the purpose of this hearing. You can control their
18 future performance with a no vote. But beyond that issue,
19 the question was adequate protection standards.
20 There are evidences that the NRC has taken actions
21 in controlling the plants with troubles, Salem, Millstone,
22 there are plenty of examples. I don't need to go through
23 them. The concern we have -- and I think it was echoed in
24 the GAO report or independently derived in the GAO report,
25 is that sometimes the NRC waits too long to take those

1 actions. I think the fact that the NRC actions are taken
2 means that you are not overstepping the bounds, and you
3 aren't going too far into the licensee's house, perhaps
4 waiting too long. And I think --
5 COMMISSIONER DIAZ: Well, that might be true, but
6 I want to disagree at the beginning when you said we can
7 control. That's the issue. I don't want to control. I
8 want to regulate. I want to regulate effectively and to
9 provide adequate protection of health and safety. This is
10 not a controlling society like the Soviet Union had. We do
11 not control. And the licensee manages the plant. We
12 provide the regulations. And anything that we can do in
13 making better regulations, I think we are all for it. We do
14 not control. There is a distinction.
15 MR. LOCHBAUM: Well, I think the issue in our
16 minds isn't so much better regulation; it's just enforcing
17 the existing regulation. That's been the case all along.
18 CHAIRMAN JACKSON: Commissioner McGaffigan?
19 COMMISSIONER McGAFFIGAN: I'm going to ask just a
20 couple of questions maybe along the same lines. This issue
21 of whether there is ample circumstantial evidence that
22 suggests the NRC Staff in general and SPO in particular
23 isn't meeting the standard and won't close things down. Are
24 there plants in the United States today, in the opinion of
25 the Union of Concerned Scientists, that are operating that

1 shouldn't be operating?

2 MR. LOCHBAUM: We have very serious doubts about

3 the ice condenser plants, with the exception of D.C. Cook.

4 COMMISSIONER McGAFFIGAN: Which is shut down.

5 MR. LOCHBAUM: Which is shut down. That's why we

6 accepted -- threw that one out. The ones that are

7 operating, we are not sure that they are safe, because the

8 concerns that were first raised to us by a whistleblower at

9 Watts Bar, and somehow D.C. Cook is paying Watts Bar's

10 problem, and I don't understand how that works.

11 COMMISSIONER McGAFFIGAN: But the fact is that

12 D.C. Cook, not as a result of media attention or whatever,

13 but as a result of an NRC inspection, is shut down. Quad

14 Cities went through a long period where we were, again

15 without, I think, very many bright lights on it, looking at

16 the fire protection issues there, we recently allowed one of

17 the units to start up. Point Beach, Crystal River. I mean

18 there's a long history -- Clinton -- of the NRC in recent

19 years taking fairly tough regulatory action. Perhaps we

20 don't take the precise actions that you would like, but the

21 notion that the Staff has shown an unwillingness to close

22 plants down when they have evidence that that's required,

23 not through order, but through the, you know, oftentimes

24 it's the licensee. I assume that you would prefer,

25 especially given your experience in the industry, that

1 licensees make conservative decisions themselves on this,
2 and not have to be under an order from us. Is that correct?
3 MR. LOCHBAUM: That's correct. But I think from
4 our standpoint, when we see that the licensees aren't making
5 those conservative decisions, it's the NRC's job to step in
6 and do that proper decision, or order this, if it doesn't
7 come.
8 As far as D.C. Cook, we think it was media
9 attention that led to the ice condenser inspections because
10 we submitted a 2.206 petition, and without media attention,
11 we wouldn't have got a meeting to convey the ice condenser
12 problems. To its credit, the day after that public meeting
13 where we conveyed the ice condenser problems, the NRC had
14 resident inspectors at D.C. Cook the following day. But not
15 until. That plant was hours away from restarting with the
16 ice condenser busted until media attention brought about the
17 public meeting. So --
18 COMMISSIONER McGAFFIGAN: Okay. I think -- again,
19 I respectfully disagree that there is ample circumstantial
20 evidence that the Staff isn't doing this. I think there's
21 ample direct evidence that they are doing the contrary, but
22 I'll --
23 MR. LOCHBAUM: I think it's an important point
24 because when there are concerns about corrective action in
25 the employee concerns programs at Millstone, where you had

1 doubts that they would be able to fix those, you had an
2 independent contractor, ordered an independent contractor to
3 come in and look at both those areas.
4 We contend that the NRC's effectiveness is maybe
5 challenged. But there hasn't been any independent
6 assessment of the changes that you have made in the last 26
7 months, to make sure that they also addressed all the
8 problems. So I think that kind of hearing would answer
9 this, whether there's ample circumstantial evidence or not.
10 But there hasn't been that venue.
11 CHAIRMAN JACKSON: Repeat what it is that you just
12 said.
13 MR. LOCHBAUM: The whole thing?
14 [Laughter.]
15 CHAIRMAN JACKSON: No. Just your last two
16 sentences.
17 MR. LOCHBAUM: Okay.
18 CHAIRMAN JACKSON: But to amplify.
19 MR. LOCHBAUM: In the last two years, NU has made
20 a lot of progress. If you tally that up, that's a huge long
21 list of ledger things. The NRC has made some changes in the
22 last two years. We would like to see some independent
23 assessment that the changes made by the NRC have addressed
24 all the problems that led up to Millstone and these other
25 plants. There hasn't been that kind of review. We think if

1 there was that opportunity, we could put this issue of
2 whether there's ample circumstantial evidence or just
3 opinion to bed.
4 CHAIRMAN JACKSON: So GAO reports and IG reports
5 notwithstanding, you don't feel that kind of review has
6 occurred?
7 MR. LOCHBAUM: We feel the GAO report identified
8 problems, but we don't think that the NRC's response was not
9 -- there's not --
10 CHAIRMAN JACKSON: Well, why don't you go and talk
11 with our authorizers?
12 [Laughter.]
13 CHAIRMAN JACKSON: And suggest that we have an
14 authorization hearing. And we would be happy to talk on the
15 record at a public forum about the changes and the efficacy
16 of them.
17 MR. LOCHBAUM: Okay.
18 CHAIRMAN JACKSON: But I do think that, if I can
19 paraphrase, that you have left two issues on the table: One
20 has to do with whether Northeast Utilities at this point is
21 ready to restart Millstone Unit 3, and your answer is no.
22 MR. LOCHBAUM: The answer is no.
23 CHAIRMAN JACKSON: And the second has to do with
24 the adequacy of the regulatory process in terms of having
25 clear criteria relative to adequate protection and related

1 to that, or following from that, whether NRC will have the
2 will to take the necessary action to address problems at the
3 appropriate point to ensure adequate protection.
4 MR. LOCHBAUM: That's correct.
5 CHAIRMAN JACKSON: Is that fair?
6 MR. LOCHBAUM: That's fair.
7 CHAIRMAN JACKSON: Okay. Thank you.
8 MR. LOCHBAUM: Thank you.
9 CHAIRMAN JACKSON: We will hear at this time from
10 Mr. Donald Del Core, Sr.
11 Good afternoon.
12 MR. DelCORE: Good afternoon. Let me thank you
13 again for giving me the opportunity to address the
14 Commission. I have a few notes and a few comments, so I
15 would like to get with them here to try to get through them.
16 The recommendation by Little Harbor Consultants,
17 which is an old issue, and the NRC staff that the employee
18 concerns and safety conscience work environment were
19 acceptable to support a restart was an issue of May 1, and I
20 believe that it needs to be revisited, and there are an
21 additional ten pending items which I addressed in a May 4th
22 letter to you regarding that May 1 meeting which I haven't
23 had a response to.
24 I believe that a couple of areas, just to give you
25 an idea and give your audience here an idea of what areas

1 I'm talking about, OIG is currently conducting an
2 investigation into the Commission SPO and NRC staff response
3 to allegations of Little Harbor personnel involving
4 themselves and more than the prescribed oversight duties,
5 which effectively, as far as I'm concerned, in a complaint
6 to them created the appearance of an effective ECP in
7 workplace environment.
8 That was mostly through the efforts of Billie
9 Garde, who essentially, in my opinion and the opinion of a
10 number of witnesses that I talked to and directed towards
11 OIG, were simply outside the bounds of observations and
12 objective looking at what NU is doing and was much more
13 involved in actually giving consulting services, involving
14 themselves in negotiations and actually helping people out,
15 and I think giving heads-up notices to Northeast Utilities
16 regarding issues that were brought forward to her without
17 informing the public at the same time as required by the
18 agreement that she had.
19 Therefore, I had some serious questions regarding
20 that and I think you need to revisit that, and I think you
21 probably ought to at least get some preliminary report from
22 the inspector general prior to going forward with any
23 decision regarding the adequacy of at least that particular
24 portion of Northeast Utility's ability to operate unit 3.
25 I understand you just had a recent closed meeting

1 regarding isolating cynics. I think you understand my
2 serious objection to the use of cynics in any form at all in
3 any nuclear power plant, so I therefore think that that also
4 needs to be revisited.
5 The root cause investigation report by Northeast
6 Utilities dated April 13th, 1998 on the failure of the RSS
7 expansion joints, that report pretty much substantiates the
8 claims by Captain Mendenhal who sat here before you on May
9 1st regarding loss of design control, and I think if you
10 recall, he cited substantial problems with the design
11 control and implementation process from a report by the
12 Nuclear Oversight people dated April 22nd, and again, he
13 read that at the meeting.
14 I think it behooves everybody on this Commission
15 to review both of those reports before you put that
16 oversight engineering issue to bed.
17 The deferrals of deficiencies identified in the
18 ICAVP is, as far as I'm concerned, still unacceptable. The
19 ICAVP deals with safety and risk significant systems, and by
20 your order, specifically having the most safety and risk
21 significant systems be selected clearly delineates that any
22 deficiency in those systems is in and of itself a
23 significant and -- significant safety and risk issue. So
24 therefore, I can't understand how any deficiency identified
25 in those systems can be considered below regulatory concern.

1 Again, I've written a letter to you about that and raised
2 that issue. Again, no answer.
3 Level 4 items were described as minor
4 typographical and calculational errors; yet, what I was
5 able, by just cursory looking through about 50 of the total
6 of a thousand that I had in my office, I was able to pull up
7 25 in a very short period of time and fax them to Chairman
8 Jackson on February 8th.
9 I did get a response by the ICAVP deputy, which I
10 considered inadequate because he had basically changed the
11 original published criteria that the NRC had established.
12 There were not minor typographical errors and minor
13 calculational errors associated with the 25 that I
14 submitted; so by his identification of the category, they
15 absolutely couldn't have been level 4.
16 While they might not have met the severity level
17 of safety by the characterization of the criteria again that
18 SPO established, I think in July of 1997 as a result of an
19 OIG investigation, redid it, and it appeared to me that it
20 came out the same, but it comes up to the same issue that I
21 just heard the Union of Concerned Scientists say -- they're
22 not following their own objective requirements and they're
23 simply subjectively changing the criteria to meet the
24 situation, and that's unacceptable.
25 New issues. The lack of current NRC inspection

1 report issues from the ICAVP report, the 40,500 report,
2 inspection, the RC inspection, and the last two routine
3 inspection reports, they were published -- the last two
4 inspection reports, one was published -- the latest one was
5 published May 22nd and deals with a period between 2 and 31
6 March, and the one previous to that that deals with a period
7 ending February 28th was issued May 26th. And we don't know
8 about March 31st until June 2nd because we don't have any
9 report on that. We don't have the RC report, we don't have
10 the 40,500 report, we don't have the ICAVP report -- how can
11 we come up here and give you information to tell you whether
12 we think they're ready to start up? That's ridiculous and
13 it's very typical NRC to try to come and dump stuff.
14 I got a FOIA request that I made in March dumped
15 on me May 29th regarding the ex parte communication issue,
16 and I'll discuss that in a few minutes.
17 You have to provide information. You're telling
18 me that you're driving the schedule by not giving -- not
19 allowing all of the processes and all of the inspection
20 reports to come out, give people a chance to review them and
21 then come up here and be effective in requiring -- or at
22 least reading to you or bringing up issues that they feel
23 are inadequate with regard to the licensee. By you having a
24 meeting in June and giving me information at the end of May,
25 that's effectively what you're telling me, is you're going

1 to drive to me NU's schedule. You can tel me whatever you
2 want publicly, but privately, when I get all that stuff
3 dumped on me, like the policy issue that was FedExed to me
4 Saturday morning, is ridiculous. It's not the way to run a
5 ball game and it certainly is creating problems, and the
6 public can't inform itself on issues relevant to the
7 proceedings without the information.
8 It's disturbingly familiar to me, and I raised the
9 issue on August 6th, 1996, with Shirley Jackson -- Dr.
10 Shirley Jackson -- excuse me, Doctor -- in the public
11 meeting where I indicated that in late 1994 and early 1995,
12 unit 2 shut down voluntarily and agreed with the Commission
13 that it would not restart until it met the satisfactory
14 requirements of the 0350 agreement.
15 We couldn't get any information for the June
16 public hearing. I tried from Jack Durr a number of times to
17 get it, and it wasn't available and he wasn't going to do
18 anything to provide me with that information. So we had a
19 public hearing in June, and no new information came out.
20 Why does that surprise me?
21 They allowed the plant to restart in August of
22 1995, put it on the watch list in January of 1996, and then
23 shut it down in February of 1996 because of 50.54(f) issues.
24 How should I feel comfortable with the way that process
25 went, because there was a lack of information, there was a

1 rush to meet schedules, and I see a same parallel with this
2 policy issue that was just issued the other day. So I have
3 some real concerns about that.
4 If you look at -- if you take the time to read the
5 July 20th letter on the Unit 2 restart assessment by Thomas
6 D. Martin, who was then a regional administrator, it seems
7 to be a very -- strikingly close to the policy issue that I
8 just read from, Mr. Callan. So you need to maybe take a
9 look at that.
10 Incidentally, one issue that I wanted to bring out
11 to you about those graded deferral system reviews that NU
12 did on its ICAVP issues that gave it essentially no level 2,
13 no level 1 issues, very few level 3 issues and a whole bunch
14 of level 4 issues, you have to understand, if you're going
15 to put that in perspective, you ought to take a look at the
16 out of scope SSFI, which is the NRC ICAVP as we all know.
17 There were some pretty heavy level 1 and level 2 issues that
18 were found and magically taken away because they were either
19 previously determined by Northeast Utilities, by CRs
20 previous to the NRC's SSFI, that, you know, weren't found --
21 they were found by Northeast Utilities, but there wasn't
22 anything done with them. They were very, very serious
23 issues.
24 There were issues of back flow from safety systems
25 during a LOCA, which dumped coolant, very heavily

1 radioactive coolant. Of course, in the even of a large
2 break LOCA, you might have some fuel damaging pumping that
3 highly radioactive water back into areas like the IRWST,
4 which is vented right to the public. Unacceptable. Why was
5 that? Because there were check valves that weren't checked
6 as a part of a system requirement from information notices
7 both from the NRC and the industry to tell NU to do that.
8 So since 1986, they never checked those check valves. Major
9 problem.
10 I'm getting away from the issue here.
11 Corrective action program. Deficiencies continue
12 to plague Millstone and have been identified in the most
13 recent inspections. Again, I don't have the reports and I
14 happen to be a lucky individual that's retired from the Navy
15 and retired from NU, so I can go to exit meetings and I can
16 take notes and gather some information. So I've got one or
17 two up on most public that can't get that information.
18 Of the inspections, the 40,500, the IRWST, the
19 ICAVP, and the routine inspection report for the period up
20 to February 28th, some of the substantial issues that have
21 come out of there are back flow from a number of safety
22 systems into the IRWST and the design basis accident, which
23 is putting the public at substantial risk for twelve years.
24 NRC notifications about the problems didn't seem to help NU
25 off top, dead center on it.

1 You no doubt recall the RHR flow bypass valve
2 oscillation problem, that you raised issues with the
3 licensee on February 19th that had gone on since the
4 inception of unit 3 or at least the commercial operation of
5 unit 3, and they had deferred it and your team had come in
6 and found that it's a deferred item, a rather substantial
7 issue. Not impressed with that corrective action.
8 Your SPO will be quick to point out that there
9 were maybe 20,000 corrective actions and they have a few
10 that they missed, but they were pretty significant like back
11 flow into the IRWST and an RHR in a heat sink system --
12 that's your ultimate heat sink here we're talking about. So
13 I think that's a pretty significant problem.
14 The RSS valve problems, again identified by your
15 organization, not identified by Sargent & Lundy, not
16 identified by Northeast Utilities, and that occurred --
17 we're talking about late time frame stuff here, folks.
18 We're talking from September of '97 all the way to March or
19 April of 1998, because that's what I'm going to talk about
20 here for a couple of minutes, and that was the
21 January/February time frame.
22 Possibly the RSS flow modification debacle in
23 February and March of 1998 time frame, the more recent
24 non-conservative moves that were made by Millstone 3 dealing
25 with the packing leak on three RCS V132 -- that was an

1 amazing story -- the valves being consistently packed, from
2 what I could find in NU records, since 1985, before they
3 ever went commercial, and in February of 1986 they repacked
4 it again. So they repacked it in '85 and repacked it in
5 '86. They come up with a leak in May of '95, and they got
6 some information, and I can't quite get all of it out of
7 their report, but it talks about replacing the valve stem
8 and the disk because of separation, and they talked about
9 using a used stem and disk. I wonder if that's the one that
10 just failed. You think maybe? I think it might have been.
11 Again, May 12th, 1995, report of another packing
12 leak after they just got through working on it on May 1st,
13 and apparently they didn't repair that, they waited until
14 September of 1997, which they repacked that valve, they
15 cranked up for an OSTI, and in April, they had another leak.
16 So I think they got it all repacked and they got
17 this strong-back over the back of it, but I think that valve
18 is going to leak again because I think it's got a leak
19 problem and I think it's a design problem with that valve,
20 and I think you ought to -- if they're not going to use it
21 -- it's my understanding right now that they have committed
22 to not going into isolated loop situation's critical -- they
23 have an option, I guess, of isolating one loop by their
24 license -- and operating at some reduced power level
25 consistent with an approval by the Commission or by the

1 staff.

2 But they have committed somehow in their

3 procedures to not going into an isolated loop condition in

4 that, and therefore, the use of that valve is now moot. So

5 if the valve use is moot, and it's not required, then maybe

6 it's not in compliance with with the FSAR, and maybe we

7 ought to amend it or something. Maybe they ought to take

8 that valve out of there and that would solve this problem

9 about running right now with a leaky valve and a strong-back

10 in it, okay?

11 CHAIRMAN JACKSON: Mr. DelCore, could you --

12 MR. DelCORE: Yes?

13 CHAIRMAN JACKSON: -- move along?

14 MR. DelCORE: Yes, I can.

15 CHAIRMAN JACKSON: Thank you.

16 MR. DelCORE: I'm sure that NU would love for me

17 to move on right now with these problems.

18 There are a number of issues that you need to look

19 about in that valve. How could -- they had a procedure that

20 told them not to loosen the packing nut if there was stem

21 leakage. They had stem leakage by their own documents that

22 said they had stem leakage at 340 pounds, which they had

23 reduced to go to mode 5. They had stem leakage; they took

24 the nut off and got this three-and-a-half gallon leak.

25 Amazing. They did it. The procedure told them not to do

1 it; they did it anyway.

2 Now, in retrospect, they knew -- they took a

3 radiograph of the valve -- they knew there was stem and this

4 separation, so they knew they couldn't have had a back seat,

5 so they knew they were going to have stem leakage. They had

6 it up at all the other pressures. So why did they take it

7 apart?

8 Where was the free seal equipment? Where was

9 quality control requiring the free seal equipment? As it

10 turns out now, the free seal equipment couldn't even be done

11 in there because there's not enough room to put it in.

12 You talk about researching a job -- they didn't

13 research it at all. Guess what one of the problems of your

14 OSTI found. Your OSTI inspection found work planning and

15 control was identified as having an inability to identify

16 the work scope. 3RCS V132 ought to attest to that. Here's

17 an OSTI that was run, somebody splashed some oily water, let

18 these guys go, and they got this big problem with V132 now.

19 Something is wrong here, folks. This ain't right, what

20 we're talking about right now.

21 SPO, after continuous public outcries, established

22 criteria with deficiencies discovered in the ICAVP. That

23 July, July of 1997, they decided to come up with criterion

24 as a result of an OIG complaint made by me and so identified

25 by your IC -- by your SPO in public chastising me. I didn't

1 like that very well.

2 CHAIRMAN JACKSON: Mr. DelCore.

3 MR. DelCORE: Yes.

4 CHAIRMAN JACKSON: I'm going to give you two more

5 minutes.

6 MR. DelCORE: All right. Chairman, I really

7 appreciate that, but I think you should take into

8 consideration the fact that the Northeast Utilities in the

9 May 1 meeting took an hour and a half past their scheduled

10 hour and a half, and I think your -- you know, I have some

11 important information --

12 CHAIRMAN JACKSON: No, and I --

13 MR. DelCORE: I understand --

14 CHAIRMAN JACKSON: I have given you actually more

15 time --

16 MR. DelCORE: I understand you have and I would

17 appreciate you giving me a few more minutes to finish.

18 CHAIRMAN JACKSON: I'm going to give you two more

19 minutes.

20 MR. DelCORE: At any rate, there are 600 level 4

21 issues. Two-hundred and forty of them are associated with

22 calculations and calculation controls. That's 40 percent of

23 all the deficiencies that were confirmed and not previously

24 identified by the ICAVP as dealing with calculation and

25 calculation control. We're not only talking about a trend

1 here; we're talking about a programmatic issue.

2 Additionally, there were 94 associated with

3 drawings -- that's 16 percent; 86 associated with component

4 data -- that's 14 percent; and 75 associated with

5 installation implementation -- that's 13 percent. Talk

6 about trends. No expansion of the ICAVP scope occurred.

7 Eighty-nine items of the calculation problems were

8 associated with RSS. That's 15 percent of them. That's

9 another trend.

10 They only reviewed 1,700 calculations, folks.

11 They only did 14 percent of the calculations, you know what

12 I'm saying? Something is wrong here. Excuse me. I mean

13 the number associated with calculation error, 14 percent of

14 the 1,700 they reviewed.

15 The out-of-scope ICAVP raised three substantial

16 issues, air binding in the charging and safety injection

17 pumps, IRWST back leakage, and a tech spec valve line-up for

18 the charging system where the valves weren't locked into

19 position. Guess what your OSTi found a few weeks later?

20 Valves not locked in position again. Son of a gun, okay?

21 So your SPO isn't doing a very good job.

22 The OSTI identified some other issues. They

23 identified issues of failure to follow procedures, they

24 found failures of not reporting heat up-rates on pressurizer

25 heat-ups and non-completion of surveillances that were

1 required.

2 Let me go through this. Ex parte communications.

3 Now, there's an issue for you. I raised an issue about Mr.

4 Blanch meeting with the Commissioners -- exempt Commissioner

5 Dicus because she wasn't there. I got a FOIA release. The

6 FOIA release gave me -- for Mr. Blanch's review with Dr.

7 Jackson gave me about a quarter of a page worth of

8 information. Everything else was redacted and the redaction

9 was an exemption for attorney-client privilege. So I have

10 some real concerns about a FOIA where I'm asking about ex

11 parte communication and now there's an attorney-client

12 relationship involved.

13 I also asked for OSTI information on a FOIA

14 request and I haven't been able to get that. So I filed

15 this --

16 CHAIRMAN JACKSON: Mr. DelCore --

17 MR. DelCORE: Oh, I'm sorry. I have to give that

18 to the secretary?

19 I filed this lawsuit against Dr. Jackson -- and

20 I'll give you four copies, one for yourself -- because I

21 think that somebody needs to send a message here that when

22 we ask for FOIA information so that we can comment at these

23 kind of meetings, we should be granted that information.

24 CHAIRMAN JACKSON: Mr. DelCore?

25 MR. DelCORE: Yes?

1 CHAIRMAN JACKSON: We have many other citizens
2 groups to speak and all must be given a chance.
3 MR. DelCORE: May I ask about --
4 CHAIRMAN JACKSON: Therefore, if you would like to
5 submit the balance of your statement for the record, we
6 would be happy to hear it. I have polled the members of the
7 Commission, and I think we're going to have to proceed.
8 MR. DelCORE: Okay. I think you're being unfair
9 with me, but if I could ask you one -- just one favor? The
10 past -- excuse me -- the past information, you did an
11 inspection in February, your people? They found that the
12 pass system hasn't successfully operated or been able to be
13 sampled since 1988, and that even if it was operable so they
14 could use it, that the people who were using it couldn't
15 operate it, that the training was inadequate, and that they
16 couldn't do the correct dose calculations for emergency
17 evacuation plans in February of 1998. My goodness. Don't
18 approve this vote. Don't vote yes.
19 CHAIRMAN JACKSON: Thank you, Mr. DelCore.
20 MR. DelCORE: If you do, you have more guts than
21 me.
22 CHAIRMAN JACKSON: Thank you very much.
23 We are now going to hear from a group of rehired
24 Millstone employees: Mr. Blank, Mr. Collins, Mr. Verdone
25 and Mr. Meehan.

1 MR. BLANK: Good afternoon, Chairman Jackson,
2 Commissioners. Thank you for inviting me to speak before
3 the Commission. My name is Harry Blank, and I am here today
4 on my own as an employee of Northeast Nuclear to hopefully
5 influence you to allow Millstone 3 to restart.
6 Two and a half years ago the NRC saw chaos at
7 Millstone. FSAR only occupied shelf space, maintenance was
8 haphazard, employees were commodities to be treated in
9 whatever way management saw fit. The old management rules
10 Millstone like a kingdom, question the king and an employee
11 was outside the gate. The plants had no choice but to go on
12 the watchlist, the NRC did the right thing. The old NU
13 kingdom had to be reined in.
14 A great deal has happened since then. Bruce
15 Kenyon has managed to turn a work force that was in total
16 disarray into a team. NU management has a new attitude.
17 People have begun to show their support for the new
18 management. This never would have happened for the old
19 kingdom.
20 I appreciate the difficulties of everyone trying
21 to measure such a qualitative quantity as work force
22 satisfaction, confidence and attitude. However, all the
23 charts, graphs and studies in the world can't convince me
24 personally to trust anyone, I judge them by how I am
25 treated. Like a mistreated animal, I have grown slowly to

1 trust the new NU management. It will take time, but I
2 haven't bitten them lately either.
3 NU management has changed. The NRC has changed.
4 The old NRC, like NU, simply didn't listen to or ignored the
5 people who had the most intimate knowledge of what was
6 wrong. But like the NU, the NRC still has room to improve
7 and needs to do so.
8 The Employee Concerns Program that was once a tool
9 of the old management has changed to where people are
10 beginning to trust its effectiveness. I believe this
11 program will eventually serve as a industry model. Will
12 mistakes be made? Yes. Will they be made in the future?
13 Yes. What has changed is the way they are handled. They
14 are openly discussed and communicated.
15 There are those today who would tell you that
16 Millstone is not ready to restart because it is not safe for
17 one reason or another. Some will tell you that Little
18 Harbor is merely an arm of NU. I know better. Little
19 Harbor, specifically Billie Guard, was involved with my
20 problem resolution with NU and stayed professional and
21 arm's-length throughout, she only offered advice.
22 The new NU -- the new attitude of NU is ready for
23 restart. The new management's attitude and style is 180
24 degrees away from the old method. It is revised, reworked
25 and, with time, will work like a finely tuned machine.

1 Employees and management no longer view each other as
2 adversaries but as a team. A safety conscious work
3 environment serves everyone's need and it now exists.
4 The decision is ultimately in your hands. Before
5 making your final decision, you have to ask yourself the
6 important question -- Has NU finally realized how to run
7 Millstone? The answer you will find is yes. Thank you.
8 CHAIRMAN JACKSON: Thank you.
9 Mr. Collins.
10 MR. COLLINS: Dr. Jackson, Commissioners,
11 representatives of NU, guests and members of the public. In
12 the 1980s, NU was considered one of the best nuclear
13 operators in the industry. During this time NU dedicated a
14 lot of resources to engineering operations and training. NU
15 built a world-class operator training facility at the
16 Millstone site and encouraged their engineers to be involved
17 in engineering organizations.
18 In the 1980s, in a number of important areas, NU
19 helped set the standards for the nuclear power industry. NU
20 Nuclear was good and people visited Millstone's site from
21 around the world to learn how NU did it. But it was no
22 secret, in the 1980s NU Nuclear had a commitment to
23 excellence and so did NU. In 1997, NU received an
24 environmental award from the U.S. Department of Interior.
25 In 1988, NU received a Malcolm Baldridge Award for

1 excellence in customer service.

2 So what happened at NU Nuclear that by June 1996
3 all three Millstone Units were on the NRC watchlist and NU
4 was considered not one of the best, but one of the worst
5 operators in the nuclear power industry?

6 In my view it was a change in leadership in the
7 late 1980s that changed a commitment to excellence to a
8 commitment to doing the minimum. The mission statement from
9 the nuclear leadership changed from "be the best" to "we
10 can't afford to be the best." The leadership at that time
11 believed that the only way NU Nuclear would survive was to
12 cut costs to the bone. The words rolled out at that time
13 were, "If it is not necessary to do, then it is necessary
14 not to do it."

15 Managers were paid 7 to 14 percent yearly salary
16 bonuses for reducing work and reducing budgets. If a
17 manager couldn't find a way to make the work way, he or she
18 did the business equivalent of sweeping it under the carpet,
19 the work was deferred and backloads of work grew and grew.
20 Team work was defined as supporting the goals of management,
21 which at that time involved a lot of sweeping.

22 Because the safety evaluation process was weaker
23 than it should have been, issues with some safety
24 significance were swept under the carpet with the others.
25 Employees who argued that these issues needed to be

1 addressed were considered not to be team players. Meanwhile
2 the lumps in the carpet grew until 1996 when the NRC said to
3 NU, clean your house and Millstone's site was shut down.
4 The reason I bring you this history is so that you
5 can know that Millstone today is not just new faces at the
6 top but a totally new organization with a new commitment to
7 quality, a new commitment to doing the right thing, a new
8 commitment to nuclear safety, and a new commitment to
9 people.
10 Bruce Kenyon, Mike Morris and others on the
11 leadership team were brought in because they have this
12 commitment and they have encouraged and empowered the
13 employees at Millstone to fulfill this commitment. Someone
14 at the May 1st NRC meeting asked, What will keep Millstone
15 from slipping back to the way things were? One strong
16 answer to that is the employees.
17 The employees were intimidated in the past into
18 believing that Millstone had to cut to the bone or the
19 company would fold and they might lose their jobs. I am
20 here to tell you that what just happened at Millstone, I
21 refer to the two-year shutdown, as far as losing the company
22 or losing jobs was scarier than anything the past leadership
23 had ever rolled out, and NU Nuclear employees have learned
24 that lesson to the bone.
25 The Millstone employees have been empowered to

1 vote harassing, intimidating, retaliating, discriminating
2 managers out of office. And once you give someone the vote,
3 it is not easy to take it away. The Millstone employees are
4 now the most empowered employees in the nuclear power
5 industry and we will not let what just happened happen
6 again. That is a promise you can take to the bank.
7 All safety concerns are now put on the table to be
8 addressed, not deferred into some stack of paper work in
9 some manager's file. Employees who bring forward concerns
10 are valued as problem solvers, not berated as troublemakers.
11 The lumps in the carpet are gone and a good feeling has
12 returned to working at Millstone. It is a new Millstone, a
13 company of which I am again proud to be a part. If you
14 believe in nuclear power, it is a company in which you can
15 again have confidence. Thank you.
16 CHAIRMAN JACKSON: Thank you.
17 Mr. Verdone.
18 MR. VERDONE: Commissioners, Northeast Utilities
19 representatives, members of the community, I am pleased to
20 be here today to speak to you about the progress that has
21 been made during the past two years in resolving problems at
22 Millstone Station.
23 My name is Gary Verdone, I work for Northeast
24 Utilities at the Millstone Nuclear Power Plant in Waterford,
25 Connecticut. I live on Pleasure Beach, which is about

1 one-half mile from Millstone. Almost every day my wife and
2 I take a walk on Pleasure Beach. We enjoy the wildlife, the
3 beauty of the ocean and the serenity. We swim in the clean
4 water at Pleasure Beach. I fish in Jordan Cove, go clamming
5 in Nyantic Bay and scuba dive for lobsters in the waters
6 adjacent to Millstone Station.
7 Needless to say, I am concerned about safety and
8 pollution and the potential impact that either could have on
9 the environment that I work in and I live in every day.
10 Today I believe Millstone is a good neighbor and a safe
11 place to work, but for a time I had my doubts.
12 Millstone Station has undergone a painful
13 experience, slipping from a recognized world leader in
14 nuclear power plant operation in the early to mid-'80s to
15 the dubious distinction as a Level 3 troubled plant. During
16 this time frame many people began to question the safety of
17 the station, and rightfully so. Based on declining trends
18 in performance, declining material condition, failure to
19 follow procedures, license and design basis non-compliance
20 issues, failure to maintain the FSAR, and the outrageous
21 treatment of employees who raised safety concerns.
22 During the past two and a half years considerable
23 work has been done to make improvements in all of these
24 areas. I am proud to be able to say, along with 5,000 other
25 dedicated workers, and numerous concerned numbers of the

1 community, that I had a part in driving this process
2 forward. I am also proud to say that for a time I had a
3 close association with the Citizens Regulatory Commission
4 who have provided valuable and in many cases scathing
5 criticism of breach of public trust resulting from
6 violations of federal and state laws by past management.
7 In October of 1996, I was not working in Millstone
8 Station because I had been terminated without cause in
9 January of 1996, along with 103 other people. Around that
10 time, in October of 1996, along came a man who said he knew
11 how to correct the problems at Millstone. My comment to
12 friends and relatives was that all the king's horses and all
13 the king's men couldn't put Millstone back together again.
14 At that time I thought the problems of Millstone were too
15 deeply ingrained in the culture of Millstone for anyone to
16 be able to correct them.
17 And then I watched as that man, Bruce Kenyon,
18 began the recovery process. It wasn't long before I
19 recognized that Mr. Kenyon meant business and he was going
20 to succeed. I wanted to be a part of the fix so I called
21 Mr. Kenyon and appealed for review of the circumstances of
22 the January 1996 terminations and asked that he consider me
23 and several other people for reinstatement. In February of
24 1997 I returned to Millstone as a contractor and worked
25 there until June of 1997. On August 14th, 1997, after an

1 extensive investigation at the direction of Mr. Kenyon, I
2 was reinstated to full employment at Millstone, along with
3 several other people.
4 Since returning to Millstone I have been treated
5 with dignity and respect. I have been given work
6 assignments. I am often asked for my opinions regarding our
7 progress and resolving problems, and I am treated as an
8 important member of the team. I feel that the things I have
9 to say are listened to, considered and used as input in the
10 decision making process.
11 I have noticed a dramatic change in attitude
12 regarding respect that workers show one another and the
13 mutual respect that workers and management have for one
14 another. It is a pleasure to be working for an organization
15 that has a mindset to do the right thing. It is impressive
16 to be working for an organization that holds each other
17 accountable for their actions regardless of their position.
18 Mr. Kenyon has stated his expectations of
19 excellence to the Millstone work force, and the Millstone
20 work force has met his expectations. We are an empowered
21 work force, we know the laws, we know the rights. We know
22 the expectations of the community. We are determined to do
23 the right thing and we demand accountability at all levels
24 of our organization.
25 In summary, we are all concerned about how these

1 plants will be operated in the future. We must all continue
2 to be vigilant in our insistence that they be run safely and
3 in strict accordance with federal, state and municipal laws
4 so that our lives, our health, our property, and our
5 environment are unaffected.
6 Our FSAR is now current. Our procedures are
7 better than every before. We have a safety conscious work
8 environment. We have a hostility-free work environment. We
9 have been subjected to numerous inspections by the NRC and
10 by independent contractors and we have met their criteria
11 regarding paper work, treatment of employees and the
12 physical condition of the plant.
13 We have a work force that is committed to doing
14 the right thing and we have a new management regime that is
15 committed to excellence.
16 Commissioners, ladies and gentlemen, in my
17 opinion, we are ready for restart. Thank you for the
18 opportunity to express my thoughts and views to you today.
19 CHAIRMAN JACKSON: Thank you very much.
20 Mr. Meehan.
21 MR. MEEHAN: Thank you, Dr. Jackson and
22 Commissioners and others gathered here today in the interest
23 of the restart of Millstone 3.
24 I will be brief. My other colleagues here have
25 expressed many of the same views that I have. I would just

1 like to, instead of reiterating theirs, the one I would like
2 to mention is that Bruce Kenyon is definitely one of the
3 driving forces, and the work that he has done and continues
4 to do will be one of the mainstays in Millstone 3 going
5 forward better than ever and not backsliding. He has made
6 the changes that are necessary along with the rest of the
7 new management team which is in place, and I feel even more
8 confident now that things will be done correctly and
9 continue to be done correctly.
10 I have been around Millstone and Northeast
11 Utilities since 1981. Like the rest of the gentlemen here,
12 I was also what we now refer to as a member of the class of
13 '96 that was laid off, and I am back. And after working
14 over 14 years in the engineering area of Northeast
15 Utilities, I now work in the Employee Concerns Program. So
16 I've seen both the people side and the technical side of the
17 workings of Millstone Station and all of the units. And
18 things have definitely improved.
19 I saw where we were when we were up, and I saw
20 what happened to us when we declined, and now we are back
21 near the top of our game, and we can get back to that again.
22 I would like to respond definitely and just
23 personally in my own observation working in Employee
24 Concerns that previous comments were made about Little
25 Harbor and specifically Billie Guard, that I have seen her

1 and her organization be purely oversight, that they have not
2 interfered -- definitely have not interfered in any
3 investigations that I have conducted, that they have been
4 completely within their realm of responsibility of oversight
5 and not interfering. So I think that any comments to the
6 contrary of that are unfounded. So I think I see Millstone
7 going forward, and all I can say is I highly recommend that
8 the Commission vote to allow us to do that.
9 Thank you.
10 CHAIRMAN JACKSON: Thank you very much.
11 Questions?
12 Thank you very much. We'll now hear from another
13 Millstone employees group, the Millstone employee ad hoc
14 group, Mr. Amarello and Ms. Duefrene, and Mr. Kennedy.
15 Thank you.
16 Good afternoon.
17 MR. AMARELLO: Good afternoon, Chairman Jackson
18 and NRC Commissioners. We appreciate the opportunity to
19 speak with you today.
20 My name is Joe Amarello, and I'm here with my
21 coworkers, Geri Duefrene and Mike Kennedy. We're members of
22 an ad hoc group of employees at Millstone Station that came
23 together back in February for the purpose of focusing on all
24 the positive activities that are happening at Millstone
25 Station. Today Geri will present to you a statement from

1 that ad hoc group, and then Mike and I will briefly discuss
2 a personal experience related to that statement.
3 Geri?
4 MS. DUEFRENE: Good afternoon. My name is Geri
5 Duefrene, and I am a resident of Nyantic, and I have been
6 for over 20 years. As I stated at the last meeting, I
7 haven't moved. I am a secretary for the ad hoc group of
8 workers at Millstone Station.
9 For this meeting our focus is on accountability
10 and responsibility. We strongly believe that people are the
11 key to the safe restart and successful operation of
12 Millstone Unit 3 and Millstone Station.
13 Today I bring you the following message from these
14 people in the form of a letter signed by 1,657 workers at
15 Millstone Station. The letter reads as follows:
16 Dear Dr. Jackson, Dr. Diaz, Ms. Dicus, and Mr.
17 McGaffigan:
18 As workers at Millstone, we know that we are the
19 frontline people most responsible for public health and
20 safety, and we accept that responsibility. The changes at
21 the Millstone site go far beyond the restoration of plant
22 programs and processes. As employees, we have made a
23 fundamental shift in our attitudes and behaviors,
24 particularly with respect to our understanding of
25 accountability.

1 We hold ourselves accountable. As individuals we
2 hold ourselves accountable to fulfill our responsibilities
3 in such a way as to protect the public health and safety.
4 We hold each other accountable. While we are respectful of
5 differing opinions and defend each worker's right to raise
6 issues, we do not hesitate to challenge each other to
7 maintain high standards.
8 We hold the management of Millstone Station
9 accountable. We expect our management to maintain a
10 commitment to public health and safety, but fully recognize
11 that we provide an important check and balance system for
12 decisions with safety implications. We are an empowered
13 work force. We will never again tolerate a lowering of
14 standards, a compromise of safety, or a neglect of our
15 commitment to do the right thing.
16 In conclusion, we as the workers of Millstone
17 Station understand and accept our responsibility to protect
18 the public health and safety. We respectfully request that
19 you approve the restart of Millstone Unit 3.
20 Thank you for your time today. I do appreciate
21 it. And I would like to now turn this over to Mike Kennedy.
22 MR. KENNEDY: Before we shut down Unit 3, we had a
23 very good 54-day refueling outage. We'd gone through what
24 we thought was the debugging phase of Millstone 3. We were
25 looking forward to a future of a fairly smooth-running

1 plant.

2 But there were dark clouds on the horizon, as

3 other people have alluded to. There were issues out there,

4 and it seemed like every week was a question of whether or

5 not we were going to stay on line or whether these issues

6 were going to be addressed.

7 Well, on March 30, 1996, I was the reactor

8 operator on shift that started the downpower of the plant

9 due to design issues. The control rods moved in, and they

10 haven't moved back out since that time.

11 Events that were largely outside the control of

12 the average worker led to Millstone's being placed on the

13 watch list. Now over two very difficult and frustrating

14 years later we still have the same core of employees that

15 are still in place at Millstone. They're a strong,

16 professional group of individuals. They're a resilient

17 group of people. They're tough.

18 The principal credit for achieving a

19 safety-conscious work environment is with the employees.

20 They transform the culture. It's not us versus them

21 anymore. They've restored our licensing basis. The workers

22 are making corrective actions. And we're not going to let

23 any slippage happen. This has been too hard on everybody

24 for the last couple of years. We don't ever want to get in

25 this position again.

1 Many families have seen little of mom or dad
2 during many stretches of time in the Millstone 3 recovery,
3 but our families are holding together. I look to the
4 future. Millstone 3 has people in place to enable it to
5 become a top performer in the nuclear industry. The future
6 is squarely in the hands of the work force.
7 Top performance does not come from elaborate
8 processes, programs, and procedures in themselves. It
9 doesn't come from being able to repeat the right slogan or
10 buzzword to the right person. It doesn't even lie in the
11 plant design. Top performance is a function of human
12 performance, the ability of each individual and organization
13 to do their job at Millstone. And that job is ensuring the
14 safe and efficient use of nuclear power for electric power
15 generation.
16 Just as I was on shift when we shut down over two
17 years ago, I want to be on shift as part of the team that
18 brings Millstone back. That team is not just the Millstone
19 3 control room staff. It's all employees, including our
20 fellow employees in fossil, hydro, business, retail, and
21 distribution that have made great sacrifices to help recover
22 Millstone. We know our future performance is crucial to the
23 success of our entire company, and we know the public, the
24 NRC, and our coworkers are holding us accountable. That's
25 fine, because as experienced professionals in this industry,

1 we workers at Millstone hold ourselves accountable. It's
2 time once again to resume safe power operation at Millstone.
3 We are up to that task.
4 This probably will be the last public meeting I go
5 to in a long time. The next time I hope to see anybody here
6 is when we're getting a 1. And that's not a Category 1 on
7 the watch list but a SALP 1 score.
8 Thank you, and I'm going to return to Joe
9 Amarello.
10 MR. AMARELLO: Thanks, Mike.
11 A little background. I'm an instructor in the
12 Nuclear Training Department, and I live in southeastern
13 Connecticut with my wife and four young children. The next
14 comments I'm going to make are my own personal comments.
15 We've heard a lot of discussion today about RCS
16 132 valve. Mr. Brothers mentioned the stand-down that
17 occurred after the valve. Commissioner Diaz asked some good
18 questions about the engineering organizations' understanding
19 of their role in safety. And my comments address all of
20 those.
21 I attended a meeting for Unit 3 stand-down on May
22 18 concerning the 132 valve. I went to this meeting because
23 I was very interested in how the work force would respond to
24 this challenge. This meeting was primarily attended by
25 engineering and support staff personnel. It was their

1 scheduled time slot. To me it was a clear demonstration
2 that the Millstone Unit 3 workers and the workers at
3 Millstone Station are accountable, responsible, and know the
4 Millstone 3 plant is their plant.
5 At the meeting I heard the work force demonstrate
6 their accountability. They asked tough questions about how
7 this event happened and why it happened. And then I heard
8 the work force take responsibility -- responsibility for
9 their plant. I heard questions such as have we prepared the
10 procedures we'll need to come out of the maintenance
11 evolution once it's done? Have we looked at other similar
12 valves in the plant to see if we have the same problem in
13 other areas? The use of nondestructive testing can be very
14 helpful. Call us if you need us. INPO has guidance on free
15 sails. We need to take a look at it. We need to get ready.
16 The comments kept coming. The work force wanted
17 to be part of the solution to this problem. They knew it
18 was their plant. They knew it was their problem. They knew
19 it was their responsibility.
20 This meeting which I attended, just for your
21 information, when it was over, to me it was another example
22 of why the Millstone Unit 3 workers and the Millstone
23 Station workers are ready for the recovery and the restart
24 of Unit 3.
25 Thank you for the opportunity to speak to you

1 today.

2 CHAIRMAN JACKSON: Thank you very much.

3 Questions?

4 Thank you.

5 We will now hear from Mr. Dan Honan on behalf of

6 the Families of Southeastern Connecticut.

7 MR. HONAN: Thank you.

8 My name is Daniel Honan. On behalf of the

9 families of Southeastern Connecticut, I am here to deliver a

10 vote of no confidence in both Northeast Utilities and the

11 NRC. The term vote here has ironic undertones, of course,

12 because it implies that the democratic process hasn't been

13 undermined, circumvented, and ignored. But that is not the

14 main issue I wish to take up before you. I have been given

15 five minutes, after all, and I hope that I can use this

16 opportunity to present the view that I believe is

17 representative of the families of Southeastern Connecticut;

18 that is the shutdown of Millstone 3 should go on for an

19 indefinite term.

20 We the people have no faith in Northeast

21 Utilities. It has repeatedly shown its incompetence, even

22 under the high level of security it has been subjected to

23 recently. The plant hasn't even been running and yet it has

24 put the public at risk with each sloppy error it has made in

25 its haste to restart.

1 Why is there such a rush to restart? Well, it's
2 the July 1st deadline, when their corporate welfare check
3 stops coming in. When NU does go bankrupt, it will be a
4 crushing blow to an industry that is profitable only because
5 it is so heavily subsidized by the government. While
6 Millstone has not produced a watt of electricity in the last
7 two years, NU has been able to channel in electricity from
8 other sources at half price, while charging the same rates
9 to the consumers. Sounds like a pretty good scam to me.
10 Why the rush to restart?
11 Well, the July 1st deadline. And we didn't hear
12 much about that this morning. Instead we heard Northeast
13 Utilities announce that they have made their mistakes a
14 learning experience in their newfound commitment to safety.
15 Like demanding 70-hour weeks from their employees in a last
16 minute act of desperation to save their company. To them,
17 safety is a sand trap in front of the goal of profit.
18 Mr. Kenyon has a compelling interest for restart,
19 in the form of a $500,000 bonus if the plant opens by July
20 1st. But under friendly examination this morning, Mr.
21 Kenyon seemed assured that safety consciousness and profit
22 consciousness management would meet.
23 We heard from him that commissions are
24 satisfactory. In school if you take a test and you get 25
25 percent wrong, you get a C, satisfactory. After Three Mile

1 Island, the NRC ordered plants across the country to make a
2 series of upgrades. Two decades later, the span of my
3 lifetime, Millstone has satisfied 75 percent of these
4 requirements with one quarter still undone, left blank,
5 marked wrong, endangering lives and the well being of
6 thousands.
7 Satisfactory? Maybe to Northeast Utilities.
8 Maybe to Mr. Kenyon. I'd take a C for that kind of money
9 any day. Maybe it's acceptable to the shareholders on Wall
10 Street. Maybe the United States Nuclear Regulatory
11 Commission. But not to the families of Southeastern
12 Connecticut.
13 If you want our support, you need not to merely
14 strive for it, but demonstrate sustained excellence before
15 you put our lives at risk.
16 Thank you.
17 CHAIRMAN JACKSON: Thank you very much.
18 Commissioners?
19 Thank you very much.
20 I'd like to call Ms. Nancy Burton, speaking on
21 behalf of the Alliance for Sustainable Connecticut.
22 MS. BURTON: Good afternoon.
23 CHAIRMAN JACKSON: Good afternoon.
24 MS. BURTON: Chairman and Dr. Jackson and
25 Commissioners. It is my pleasure and honor to be here in

1 behalf of the Alliance for Sustainable Connecticut. This is
2 an organization with a membership in the thousands in the
3 state of Connecticut, representing a coalition of many, many
4 public interest groups. I have a resolution from the
5 Alliance for Sustainable Connecticut which I will be
6 submitting to you.
7 There are 19 points in this resolution which the
8 Alliance insists be resolved before there be any restart of
9 Millstone, and this resolution does call for an action by
10 this agency not to allow restart until satisfactory
11 resolution of these points. And in connection with that, I
12 would like to follow up a point made by the last speaker
13 with respect to the cost of nonproduction of electricity by
14 Millstone station. The total revenues collected in the rate
15 case by Millstone since the shutdown amount to $1.4 billion.
16 That compares with the cost of replacement power of $625
17 million. And what that means is that there has been an
18 overcharge in the amount of $775 million. This is not
19 acceptable to the Alliance for Sustainable Connecticut.
20 Now I and members of the Alliance are not
21 experienced in operating civilian commercial nuclear power
22 plants as is, for instance, Commissioner Diaz. However, we
23 are avid readers of the New London Day Newspaper and have
24 been for the past couple of years, and I would at this time
25 like to publicly recognize Mr. Paul Choiniere, who is

1 present in these proceedings, because of what he has done to
2 bring us here before you with our very, very significant
3 concerns. And it does seem that just as the NRC is getting
4 ready to have meetings down here, just before those meetings
5 something comes up that gives Paul good reason to dominate
6 the pages of the New London Day.
7 For instance, damage to Millstone 3 safety system
8 raises more questions. This was April 3rd, 1998. Dominated
9 a lot of consideration at the May 1 meeting.
10 Millstone 3 to operate with damaged valve. This
11 is from the May 27, 1998 New London Day. There are many
12 others. In conjunction with that, speaking of the media in
13 Connecticut, perhaps you haven't seen the New Haven Advocate
14 from last week's issue, an article about Millstone The Tumor
15 Generation. There are lots of health concerns among people
16 in Connecticut who are becoming informed.
17 I have brought with me today a little exhibit, not
18 to leave with you, but to look at, and this is an exhibit
19 that depicts two old-fashioned types of radiation monitors.
20 You have two human beings depicted in this photograph, and
21 as human beings they collect cumulatively radiation
22 emissions and if they happen to be near Millstone, they
23 collect radiation from Millstone. And I'm bringing this to
24 your attention because the NRC has recently, as recently as
25 last December, under letter that bears the signature of Mr.

1 Callen, who happens to be the fellow who wants to take
2 charge of the actual decision about restarting Millstone 3,
3 that the program of radiation monitoring that was adopted
4 and created by the NRC following the Three Mile Island
5 accident in 1979, has now been terminated as of last
6 December. And this was a system at Millstone that included
7 49 thermal luminescent dosimeters, little gadgets about this
8 size, that the state department of Environmental Protection
9 in Connecticut cooperated with in putting out on the poles
10 in the area and regularly, three or four times a year,
11 sending them to NRC to examine for radiation. And these are
12 devices that collected over time in order to establish
13 baselines criteria of radiation, and these dosimeters, put
14 49 of them all on Millstone by the NRC. Most of them within
15 10 miles of the plant. I have a map here that shows you
16 where they used to be and are no more, and will not be
17 because the state of Connecticut hasn't jumped into the
18 vacuum to mount its own program.
19 Now the dosimeters were ordered around each of the
20 civilian commercial nuclear power plants in 1979 because of
21 the lessons learned at Three Mile Island, and these were
22 important lessons, and I'm sure you have this, but until the
23 re-review, some excerpts from the records of the NRC that
24 explain why it is so important to have these radiation
25 monitors, not just to collect data, but to reassure the

1 public that somebody is looking out for them. And this
2 isn't being done now. Will it be done? And if you allow
3 Millstone to restart, there won't be any basis for the
4 public to have any faith that someone's looking out for
5 radioactive discharges other than Northeast Utilities.
6 I want to interject at this point, Commissioner
7 McGaffigan, you made the point that what has been happening
8 for the past two years has been unprecedented in the nuclear
9 power industry. I am not an expert, I think you're probably
10 right about that, but the root cause of that is not anything
11 healthy. It's overreactive to some things that went on for
12 too long that was very, very wrong. Most of the recovery
13 --this is a recovery from a very, very sick state brought
14 upon us by an unregulated, essentially unregulated utility.
15 I'm leaving you with these documents, by the way.
16 I also happen to have here, quickly, a letter from the
17 Fishers Island people. They are the people who occupy an
18 island that happens to be under New York State jurisdiction,
19 unfortunately within 10 miles of Millstone in Connecticut,
20 and so they are subject to an evacuation plan of Millstone
21 which the Governor of Connecticut would order into effect.
22 And what they'd have to do in the event of an evacuation
23 emergency on Fishers Island, which is, as I said, within 10
24 miles of -- it's a good deal closer, is collect at the ferry
25 dock, at the western end of the island, load onto the ferry,

1 and go where the ferry is taking it, which is to say up to
2 New London, that is to say to put the heads into the mouth
3 of the lion, because that's where the problem is emanating
4 from. So they would be evacuated to the scene of the
5 disaster. That is the plan that the NRC adopted and
6 approved and is still in effect today, and is troubling the
7 people who are aware of that.
8 I also want to leave with you today another
9 petition -- this is not a petition of the Alliance, although
10 members of the Alliance felt they agree with it -- this is a
11 petition that people across Connecticut, 300 of them here,
12 there are many other petitions that haven't been collected
13 yet -- but this is to mothball Millstone. And I want to
14 comment at this time on comments that were made with the
15 little collection of sand that was brought here today. I
16 was out at that beach area on Saturday with a lot of people
17 and many of the members of the Alliance, and the fact is
18 that on Saturday Millstone was not operating, hasn't been
19 operating, and to suggest that children are now playing in
20 sand because they believe Millston is safe, I don't think
21 that is quite correct.
22 Also I would suggest that it would be an
23 interesting exercise for the Commissioners to take a walk
24 around Main Street, Niantic. That is the lovely boulevard,
25 seaside, the resort area, beautiful view of the Sound,

1 Millstone right over there, and go in and out of shops and
2 see what people have to say about this petition. Because,
3 surprisingly, to you, perhaps, and to Northeast Utilities,
4 perhaps, people don't hesitate to sign this in downtown
5 Niantic, Connecticut, including -- the most likely suspects
6 are young mothers of young children in strollers. They are
7 afraid and they don't feel adequately protected.
8 I have two other points that I would like to make
9 here, and I many I would like to, but I will address myself
10 to two, and then I will be on my way.
11 The first has to do with why the people in
12 Connecticut don't trust Northeast Utilities and don't at
13 this time trust, with all respect, this agency, and I'll
14 give you one example.
15 If you want specifics, here's one -- Captain Guy
16 Mendenhal.
17 You may recall from May 1 Captain Guy Mendenhal, a
18 retired submarine Commander with an impeccable record and
19 five years with Millstone came here to advise you as to his
20 concerns and how his thinking differed from the thinking you
21 were hearing about from Northeast Utilities as to how safety
22 concerns are addressed and resolved at Millstone, and as you
23 recall, Dr. Mendenhal told you that he had to leave in
24 frustration after five years at Millstone because he found
25 it virtually impossible to raise a safety issue and have it

1 adequately resolved, not trivialized, and not to have it
2 simply dismissed.
3 Well, that leads us to not trust Northeast
4 Utilities, because we have to wonder why a person of such
5 obvious excellence found himself not to belong there.
6 Then why does that lead us to have mistrust of the
7 Nuclear Regulatory Commission? Well, with all due respect,
8 Dr. Jackson, the way Captain Mendenhal was treated here --
9 he was the only individual who was cut short other than a
10 little bit later Mr. Del Core, in his presentation, and the
11 questions that went to him were not please don't tell us
12 everything you know about these serious issues that you are
13 raising, but the question was have you ever worked anyplace
14 else, at another civilian nuclear power plant.
15 The questions were designed to do exactly what
16 Little Harbor has supposedly been checking into and
17 Northeast Utilities, which is to say, dash his credibility
18 so that you don't have to listen to the message. That point
19 came through loud and clear with all respect, Dr. Jackson,
20 and there was a chilling atmosphere in this room and it
21 wasn't the air conditioning.
22 The second point that I want to make here is a
23 very big point, and it has to do with a potential meltdown
24 of the democratic process, because what we are considering
25 here is we are assessing values and balancing societal

1 interests. One is the interest of the society in restarting
2 a nuclear power plant that has demonstrated itself not to be
3 able to be run competently and we have lots of recent
4 examples, as you have heard about that, versus the vitality
5 of the democracy.
6 Now you have heard from Mr. Sheridan. He was the
7 first speaker today. He spoke the last time. He is the
8 First Selectman of the Town of Waterford. Mr. Sheridan
9 didn't tell you that this past week he has received a
10 citizen's petition under an ancient, venerable law in the
11 State of Connecticut which requires the Town of Waterford to
12 conduct a public hearing, and the subject of this proposal,
13 citizens petition, is whether or not the town will notify
14 the NRC of its opposition to restart Millstone at this time,
15 and Mr. Sheridan told the newspaper, and I am going to
16 presume that what he said was accurately reported, that he
17 will be sure that there is no meeting that will take place
18 in the Town of Waterford although it legally is required.
19 I want to mention briefly the resolution that you
20 have heard was circulated by the Friends of a Safe
21 Millstone. There was a resolution that he circulated and I
22 will leave a copy of it with you. It has a lot of
23 signatures, but it is missing one -- it has a signature line
24 for the First Selectman of the Town of Lyme, Connecticut.
25 His name is there, but no signature, so I called him up and

1 I asked him why his name but no signature on it, and he said
2 I don't know -- I do not know -- because he said he had
3 never agreed to sign any resolution.
4 So it looks like somebody misappropriated his name
5 and on that point I want to mention that I did go through
6 the exercise of calling each of the members, each of the
7 representatives who signed that petition to determine what
8 process, what democratic process they went through in order
9 to obtain the authorization of their town to sign this
10 document at this time. It was being circulated by Friends
11 of Millstone, which is essentially a Northeast Utilities
12 organization and without exception I was told that not a
13 single one of them did go through the process -- acted on
14 their own, didn't go through a town meeting, didn't tap into
15 the pulse of the community -- felt that they could sign on
16 to the resolution.
17 Well, I want to let you know that at this time
18 including in the Town of Haddam as well as other communities
19 in southeastern Connecticut there is an effort out there to
20 revitalize the democratic process and there are going to be
21 lots of meetings that will be compelled to be held even
22 though perhaps one elected representative would rather not
23 see it be held.
24 We are going to through that process revitalize
25 the democratic process, which is through this process of

1 Millstone apparently in grave danger.

2 So I will close with the statement that it is
3 critical to the function of this agency that it have the
4 confidence of the public. You have heard this before and I
5 can't be more eloquent than the speakers who have proceeded
6 me, but in order to do that, we are looking to you to impose
7 a standard that will protect us, and we don't believe that
8 it is a standard of adequacy, mere adequacy or mere
9 sufficiency, or the standard of maybe excellence in the
10 future.

11 That is not good enough. That is not going to
12 satisfy us after what we have seen and read for two years,
13 day after day after day, in the New London Day about how
14 things can't get fixed properly at Millstone. We don't
15 accept that.

16 We want you to be able to assure us that they can
17 do things in a way that meets a standard of excellence so we
18 don't have to worry about it, because we are all very
19 worried about it all the time, and I don't just mean the
20 Saturdays at the end of the month when the emergency alarm
21 goes off in these times and other alarms go off at other
22 times and we all have to wonder where did that come from?

23 People are tired of living in a panic mode because
24 of Millstone and you are considering the erosion of the
25 concrete underneath the containment building. I would

1 suggest you consider the erosion of the public trust in this
2 agency. We look to you for reassurance and we look for a
3 continuing shutdown of Millstone for an indefinite term
4 until you can assure us that our health and safety are
5 paramount and that Millstone has achieved a standard of
6 enduring excellence. Thank you.
7 CHAIRMAN JACKSON: Thank you very much.
8 COMMISSIONER DICUS: No questions.
9 CHAIRMAN JACKSON: Commissioners?
10 [No response.]
11 CHAIRMAN JACKSON: Thank you. I would now like to
12 call forward Mr. Scott Cullen, representing Standing for
13 Truth about Radiation.
14 MR. CULLEN: Thank you.
15 CHAIRMAN JACKSON: Good afternoon.
16 MR. CULLEN: My name is Scott Cullen and I am
17 counsel for STAR, and to understand what brings me here I
18 think you have to understand a little bit about our
19 organization.
20 We only incorporated a year ago, and we
21 incorporated out of concerns arising out of health and
22 safety problems surrounding Brookhaven National Laboratory,
23 which is a Department of Energy facility -- so I bet you are
24 asking what I am doing here at an NRC hearing.
25 Basically, within the very recent past, Long

1 Islanders have become aware of the Millstone problems and
2 have become very concerned. Our members and the Long Island
3 public turn to us to pay attention to this issue because we
4 are working on other issues surrounding the Department of
5 Energy facilities. These Long Island concerns basically are
6 evacuation concerns.
7 It was mentioned before by one of the
8 Commissioners that the Citizens' Awareness Network -- they
9 were told that they need to raise new issues worthy of
10 consideration, and maybe the Long Island evacuation concerns
11 are not historical but they are very real, leading to our
12 Congressman, Congressman Michael Forbes, to ask you to delay
13 this restart decision 90 days to consider those concerns.
14 We believe that these concerns are not unfounded.
15 Evacuation planning at the Three Mile Island facility took
16 place during the accident, and prior to 1979 a major reactor
17 accident with offsite consequences was assumed to be highly
18 unlikely.
19 However, after 1979 you implemented new
20 regulations to ensure adequate protective measures can and
21 will be undertaken in the event of an emergency. We don't
22 believe that present regulations will do that for Long
23 Island members and Long Island public, and basically what
24 has happened is since this issue has gotten attention in the
25 Long Island media, our office has been swamped with calls

1 and that is what led to me coming down here, because
2 basically the Long Island public does not believe that they
3 will be adequately protected and at a hearing that the NRC
4 held in Long Island very recently it became clear to them,
5 members of FEMA and the State Emergency Planning Office made
6 it very clear that there wasn't really going to be any kind
7 of evacuation planning for eastern Long Island and Dr.
8 Travers said so himself.
9 You have the power to redo this emergency planning
10 zone. It was mentioned before by another Commissioner that
11 we go beyond regulations to be protective. Well, this is
12 one such instance where I think that that was the case, and
13 I will draw a very simple analogy here.
14 If a policeman stops a man driving his pregnant
15 wife to the hospital to give labor, would he give her a
16 ticket? No, I don't think so. Basically, you have the same
17 opportunity. Certain situations require special attention
18 and the situation in eastern Long Island and the concerns
19 require such attention and we urge you to do so.
20 Right now evacuation for eastern Long Island would
21 be impossible and there is no planning for that unlikely
22 possibility.
23 You may think an accident will not occur at
24 Millstone, however prudence and good conscience require
25 restart to be delayed until Federal, State and county

1 officials have safe evacuation plans in place. Thank you.
2 CHAIRMAN JACKSON: Thank you very much.
3 Questions?
4 [No response.]
5 CHAIRMAN JACKSON: We will now here from Mr.
6 Thomas J. Mastrianna.
7 MR. MASTRIANNA: Good afternoon.
8 CHAIRMAN JACKSON: Good afternoon.
9 MR. MASTRIANNA: We appreciate your time. I think
10 I am last on the public comment. Am I? It's kind of ironic
11 and kind of sad because of some of the treatment I have
12 received by Northeast Utilities.
13 CHAIRMAN JACKSON: It turns out that everybody
14 says that who ends up at the end.
15 [Laughter.]
16 CHAIRMAN JACKSON: It was not a plot.
17 MR. MASTRIANNA: All right. I started to work for
18 NU in '76 and my initial fitness for duty, which they
19 examine you in depth, was from the psychiatrist who said, "I
20 have examined Mr. Thomas Mastrianna and that I have found
21 that he is a bright, capable young man who shows no evidence
22 of any acute or chronic emotional difficulties. In
23 addition, Mr. Mastrianna has developed a personality style
24 which has led to his using good judgment, making a good life
25 adjustment in the past, and he should do well in the future.

1 He shows no evidence of any emotion or mental problems and
2 is an intelligent, and in summary is a competent, ethical,
3 psychologically healthy young man and is suitable for
4 fitness for duty."
5 But things changed, again I hear from the NRC, Mr.
6 Morris, and others, that the health and safety and welfare
7 of the employees is the number one priority and I hope the
8 people saying that are sincere, because again I was a long,
9 loyal long-time employee in good standing with NU since 1976
10 and I went to work in Nuclear in about 1978.
11 I was a Nuclear employee with all maximum nuclear
12 clearances at NU more than 10 years and I worked at Berlin,
13 Millstone 1, 2, 3, Connecticut Yankee and various other
14 sites. I have seen it all, the good and the bad.
15 In December, 1988 to the present and due to my
16 raising personnel questions and then nuclear safety
17 questions and concerns to my management and Human Resources,
18 I have been given the run-around, pushed around, and subject
19 to severe emotional intimidation and harassment.
20 About that time my nuclear access was denied, then
21 reinstated, then again denied, then reinstated, and I can go
22 on. It's sad. I have had many grievances pending through
23 my unit and different agencies going back to that time.
24 Northeast Utilities through its medical unit, its senior
25 management and attorneys has denied me due process on my

1 grievances and has not properly addressed my questions and
2 concerns, which I am going to give to you today,
3 technically, a quick overview of them, and I hope and I feel
4 it is your job to address those questions and concerns.
5 I hope you are sincere about your efforts.
6 As a result of my unfair treatment at the hands of
7 Millstone and NU management, I have suffered a major
8 depressive disorder with some related physical problems
9 which resulted in an unwarranted and unjust job dismissal in
10 1997. As one would guess these matters have caused me great
11 emotional and financial stress including my exhausting my
12 personal finances resulting in foreclosal of my home and
13 bankruptcy.
14 [Pause.]
15 MR. MASTRIANNA: Excuse me. Also these matters
16 and resulting ramifications -- as a result I lost my wife
17 and I lost some of my dignity.
18 You are the NRC Commissioners which has seen these
19 many years of nuclear problems and my personal disaster,
20 which has greatly affected me, my children, my family and
21 other employees at Millstone and the public. You, the NRC,
22 must not let NU management continue this conduct and help
23 guide and demand that NU correct any deficiencies in Unit 3
24 including employee and technical issues before restart.
25 To refer to some of the technical things, I have

1 given an overview to the NRC Staff some of the problems with
2 some of the things I have seen in my working there -- the
3 post-accident sampling system, the tubing is bad -- it's
4 crimped. There would be no flow. I personally was on the
5 crew that did that, wasn't trained properly, and installed
6 the tubing. The seismic and nonseismic hangars are not done
7 according to QC specifications. I can get into very
8 detailed here but I am trying to give it to you quick.
9 The fire seal protection program at all units
10 including Unit 3 is not done properly. There is improper
11 installation of the damming material and caulking, improper
12 mixture of black A-base and the B catalyst -- improper cure,
13 snap and rise. Some of the material used was outdated, not
14 coming from the proper hold area. The material was diluted.
15 I unequivocally feel that upon inspection you will
16 find voids, major voids. If you just look at a wall through
17 a penetration and just see the black material, and see it on
18 the other end, it might be three foot thick. I guarantee on
19 my children's head you will find many voids. It's not full.
20 That could cause a fire.
21 I don't know if -- we have to remind the NRC but
22 in the '70s there was a reactor, catastrophic reactor
23 building fire at the Browns Ferry Nuclear Generating
24 Station. I am recommending that the fire -- it is called
25 fire foam -- be inspected, pulled out where necessary,

1 reapplied. I worked on that. I have done that at all three
2 units and Connecticut Yankee and much of it was done
3 improperly. I have successfully completed the ACMS fire
4 barrier penetration seal maintenance training program and
5 testing.
6 Now another thing I had was that the -- I have
7 worked at all control rooms, all cables -- cable rooms, the
8 control access security rooms. I have worked in the
9 switchgear room. I had all clearances to all plants.
10 The control room ceiling is not installed properly
11 at some of the plants. It is supposed to be hilty-ed in and
12 threaded rod and it's supposed to be inspected and torqued.
13 It has not done that. I was on the crew that it was not
14 done. The ceiling could fall down and God forbid if it
15 falls down when someone is trying to -- an operator is
16 trying to work on that. That would be unbelievable for the
17 utility and the NRC.
18 I feel that the -- as you know and according to
19 the book, the training manual approved by Mr. Opeka and
20 others, and again -- one other quick thing.
21 I have met, me and my family, mostly me, and/or
22 talked or corresponded with over these problems and my
23 questions and concerns with Bill Ellis, Ernie Fox, John
24 Opeka, Walter Fee, Eric De Barber, casually honestly with
25 Mr. Bruce Kenyon, Cheryl Grise, correspondence, Mike

1 Morris's assistant Mandy Scheyed, and just recently
2 yesterday Mandy Scheyed and Barry Ilberman. It is my
3 understanding I will have a future meeting, but their
4 training manual that you get, and I would remind the NRC
5 that in the United States as probably elsewhere a nuclear
6 power plant is an excellent example of the problems that
7 arise with pipe and cable penetrations.
8 The extensive cable and piping system in these
9 plants along with the use of fire barrier walls and floors
10 that divide buildings, equipment and operation into fire
11 zones create a major problem with sealing these holes or
12 penetrations in a manner that will be consistent with the
13 fire rating of each fire barrier, so I believe as a layman
14 we're saying that if it's not done properly it would create
15 a major problem.
16 I remember when there was a voided area and I
17 recommended to the QC inspector to rip it out, it wasn't
18 done properly, and he says who gives a damn -- there's not
19 going to be a fire, but that isn't the attitude to take, and
20 I don't want to hurt someone, but that person is still an
21 employee and it's time for NU and the people to come clean
22 on this, and I hear a lot from the people today -- Mr.
23 Morris and others -- that NU has made a lot of mistakes.
24 It is time to start correcting those mistakes
25 because the public and everyone is counting on that.

1 I recently started an overview with the NRC Staff
2 and we will work with them to correct any and all these
3 problems, but I can't -- I don't know that the people
4 here -- there is no one -- I have been to many, many, many
5 psychiatrists, forced to by NU -- unfit for duty, put back
6 in by Mr. Opeka. Went back to the plant, pulled my badge --
7 Mr. Fox -- put back in. Pulled the badge by Mr. Ellis, put
8 back in. Pulled my badge. I told senior management I don't
9 care about the questions no more, I have to feed my family.
10 That is not good conduct. I know they say that's
11 under the old watch but the old watch set the precedent and
12 I am trying to address it with the new watch and it doesn't
13 seem -- I was willing to meet with them yesterday, before
14 this meeting, any time. They don't call me back. I
15 addressed Mr. Morris publicly at the shareholders meeting.
16 I was told by his assistant, Mandy Scheyed, that I would
17 personally get a call. I left numbers. I never heard back.
18 I wonder if they really care about the health,
19 safety and welfare of the employees and citizens and I
20 question the sincerity and the diligence and I have seen it
21 all. I have worked there for many years and I had an
22 impeccable work record until I questioned my Nuclear
23 personnel Manager in the late '80s and then it was 10
24 year -- I heard they were systematic -- I believe that
25 applies to me -- of harassment, intimidation and

1 retaliation, and it's ruined me. Thank you.

2 CHAIRMAN JACKSON: Thank you very much, Mr.

3 Mastrianna.

4 Let me ask you a couple of questions.

5 One, when did you last work at the plant?

6 MR. MASTRIANNA: Well, let me -- I have a letter

7 addressed from an NU attorney dated in May which is not even

8 correct. Maybe the NU legal counsel should tell me. I

9 physically --

10 CHAIRMAN JACKSON: When were you physically last

11 present in the plant?

12 MR. MASTRIANNA: In the early '90s, around '91,

13 but it says here, "You mention in your letter that Mr.

14 Mastrianna intends to file a complaint with the Nuclear

15 Regulatory Commission. As attorney Heagney is well aware,

16 it is the policy of Northeast Utilities and Northeast

17 Nuclear Energy Company to encourage the reporting of any

18 nuclear safety concerns, whether with the company, the NRC

19 or otherwise. This notwithstanding the fact that Mr.

20 Mastrianna hasn't worked in the Company's northeast region

21 since 1994, if Mr. Mastrianna does in fact have a nuclear

22 safety concern, then he is encouraged to bring it forward.

23 I trust the Company's position is quite clear on this

24 matter, however feel free to --"

25 It is from a senior counsel in care of different

1 people of Northeast Utilities and it is dated on May 5th,
2 1998.
3 I feel that I've talked to people who worked there
4 and they know that the fire foaming has not been corrected;
5 that the foaming I put in, the post-op sampling system has
6 not been corrected. I personally worked on it. I worked on
7 the Unit 1 control rod drive. I can give you the control
8 drive number. I gave it to Mr. Lanning. I was on the team
9 that did not put the O-ring back on it, and was installed,
10 and it was used later. It's my understanding that they had
11 to pull it out. I told it to my supervisor at that time,
12 and I was told to shut up, and I was brought out to the
13 Millstone substation and physically -- and told to shut up,
14 and I have a witness to that, about that incident.
15 It's been a while, but I don't think the problems
16 have been corrected. They pulled my access, ma'am, I can't
17 just -- I'm not just going to go there.
18 CHAIRMAN JACKSON: I understand. Okay. Thank you
19 very much.
20 You did say you recently started an overview of
21 some of these issues with the NRC Staff?
22 MR. MASTRIANNA: Yes, and I got a reply -- just
23 quickly, it's one letter. It says this refers to your
24 telephone conversation with Mr. Jacques Durr, Branch Chief
25 of the Special Project Office, on March 13, 1998, and your

1 meeting at the information center with Mr. Wayne Lanning,
2 Deputy Director of SPO, on March 31, 1998. Specifically you
3 indicated that you were harassed, intimidated by your
4 supervisors in 1998 and/or while working at Millstone and
5 Haddam Neck facilities. It goes on. On March 31, 1998, you
6 met with Mr. Lanning to provide specifics regarding safety
7 concerns you raised to management in the '80s and '90s. Mr.
8 Lanning is attempting to set up another meeting, and had a
9 telephone conversation with you so that we could provide
10 more details regarding your technical concerns of these
11 matters. And then it goes on to rules and regulations.
12 Mr. Lanning has called me; I returned his call;
13 it's been hard to touch base with -- it's only been
14 recently, this letter is dated April 19, 1998, fairly
15 recently.
16 CHAIRMAN JACKSON: Okay. Thank you very much.
17 Anything, Commissioners? Thank you for coming.
18 We are going to take a two-minute break and then
19 we are going to have the NRC Staff.
20 [Recess.]
21 CHAIRMAN JACKSON: The meeting will now come back
22 to order. We will now hear from the NRC Staff in terms of
23 its assessment of the issues on the table for the meeting
24 today.
25 Mr. Thompson.

1 MR. THOMPSON: Thank you, Chairman Jackson.
2 Commissioners.
3 Is this on?
4 CHAIRMAN JACKSON: You just have to talk into it
5 more directly.
6 MR. THOMPSON: This briefing represents an
7 important step in what has been one of the most intensive
8 reviews this agency has performed at a facility since the
9 accident at the Three Mile Island Unit 2.
10 During the last two years we have devoted
11 significant resources to making sure that all relevant
12 issues have been thoroughly and adequately addressed. The
13 Staff has done a commendable job in addressing the complex
14 issues at Millstone Unit 3.
15 Moreover, their efforts in soliciting public
16 comments and keeping the public informed have been and will
17 continue to be an important part of our oversight process at
18 Millstone.
19 I would also like to extend my recognition to the
20 members of the Millstone staff who raised safety concerns
21 and shared them with us. Their willingness to come forward
22 with these safety concerns was a very important contribution
23 to the establishment of the improved safety conscious work
24 environment that exists at Millstone today.
25 You have received a wide range of views about

1 Millstone Unit 3. This afternoon the Staff will provide its
2 conclusion that Northeast Utilities has made appropriate
3 improvements and has adequately established the programs
4 needed to support the restart of Millstone Unit 3.
5 Our presentation will focus on the conclusions
6 associated with the remaining three key areas that were the
7 subject of our restart assessment plan. These are, one, the
8 ICAVP; two, the corrective action program; and three, the
9 operational safety team inspection.
10 With me today is Sam Collins, the director of NRR,
11 and the key managers with the Special Projects Office, Bill
12 Travers, the director, his deputies Phil McKee, Gene Imbro,
13 and Wayne Lanning.
14 CHAIRMAN JACKSON: You lined them up to confuse
15 everybody.
16 MR. THOMPSON: I could never confuse the
17 Commission. I think SECY always helps me on the line-up,
18 after consultation with the General Counsel.
19 [Laughter.]
20 MR. THOMPSON: Also in attendance today are
21 several of the key NRC Staff members who had a major role in
22 carrying out the oversight program at Millstone. Tony
23 Cherney, the senior resident inspector at Millstone; and
24 Beth Corona.
25 CHAIRMAN JACKSON: She's the resident inspector?

1 MR. THOMPSON: The resident inspector, right. Jim
2 Trapp, a senior reactor analyst from Region I who served as
3 the team leader for the operational safety team inspection;
4 Jim Anderson, the project manager for Unit 3; and Bill
5 Jones, a senior reactor analyst from Region IV, who recently
6 conducted an independent review of the ICAVP results at the
7 request of the EDO. All of these individuals would be
8 prepared to respond to any questions that you may have about
9 their review, but the primary presentations will be the key
10 team here today at the table.
11 CHAIRMAN JACKSON: Well, it might be useful to
12 have the gentleman be able to speak succinctly at the end
13 about the results of the independent EDO.
14 MR. THOMPSON: Okay, Bill, you might be prepared
15 to do that. If you do that, you'll come to the --
16 CHAIRMAN JACKSON: The microphone.
17 MR. THOMPSON: The microphone over there.
18 With that, I would like to turn to Gene Imbro who
19 will discuss the ICAVP.
20 CHAIRMAN JACKSON: Okay.
21 MR. IMBRO: Thank you. Thank you, Jim.
22 First slide, please.
23 I would like to briefly review some of the purpose
24 of the ICAVP. In response to the configuration of the
25 management issues identified by the NRC and Northeast

1 Utilities, Northeast Utilities initiated a configuration
2 management plan to reestablish conformance with their design
3 and licensing bases.
4 As a part of this CMP, Northeast Utilities
5 reviewed the 88 group 1 and group 2 systems defined by the
6 maintenance rule to verify conformance with the design and
7 licensing bases and correct and identify nonconformances.
8 The NRC order, issued in August 1996, required Northeast
9 Utilities to obtain the services of an independent
10 organization to conduct a review of all three Millstone
11 units to verify that the licensee's CMP was effective in
12 identifying and resolving existing problems, documenting and
13 utilizing the licensing and design bases and establishing
14 programs, processes and procedures for effective
15 configuration management in the future.
16 Next slide.
17 The SPO staff has been extensively involved in the
18 development and implementation of the ICAVP from its
19 inception. Some of the Staff's ICAVP oversight activities
20 are listed on this slide. They are rather extensive.
21 In addition to specifying the ICAVP scope and
22 depth of review, the SPO staff provided guidance to Sargent
23 & Lundy during program implementation. An example of Staff
24 guidance provided to Sargent & Lundy was the use of four
25 ICAVP significance levels to provide a measure of safety

1 significance for the S&L discrepancy reports.

2 During implementation of the ICAVP, the Staff

3 involvement focused on assuring that the independence of

4 Sargent & Lundy was maintained throughout the process, and

5 that the review performed by Sargent & Lundy was technically

6 comprehensive, critical in nature, and in conformance with

7 the NRC-approved audit plan and communications protocol.

8 The SPO Staff also interacted frequently with

9 members of the NEAC to keep them apprised of ICAVP

10 activities and to extend to NEAC the opportunity to observe

11 the NRC's ICAVP oversight activities, including the numerous

12 NRC monitored interactions between Sargent & Lundy and

13 Northeast Utilities to discuss technical issues.

14 The Energy Advisory Council observed the large

15 majority of these interactions and observed most, if not

16 all, of the ICAVP oversight inspections. They had quite a

17 presence in looking at what we did.

18 CHAIRMAN JACKSON: Let me ask you a couple of

19 quick questions. Your next slide, I think, if it's still

20 the next slide, states that there were 230 design

21 characteristics for the tier 2 critical design.

22 MR. IMBRO: Yes.

23 CHAIRMAN JACKSON: How readily available was that

24 information?

25 MR. IMBRO: Chairman Jackson, those were readily

1 available and, in fact, they came largely out of Chapter 15
2 of the FSAR. So they were all on the record.
3 CHAIRMAN JACKSON: And then you mentioned that you
4 assured adherence to the communications protocol.
5 MR. IMBRO: Yes.
6 CHAIRMAN JACKSON: And the question then is did
7 that protocol change at all over the life of the ICAVP?
8 MR. IMBRO: No, the protocol was constant
9 throughout the plant -- the ICAVP implementation. It didn't
10 change at all.
11 CHAIRMAN JACKSON: And at the last Commission
12 meeting, Mr. Lochbaum, for one, commented that even with the
13 quote, unquote arm's length protocol, that there was -- that
14 the number of deficient corrective actions was too high. I
15 mean do you have any comment on that at all?
16 MR. IMBRO: Actually, I have a back-up slide I'd
17 like to use to address that, and that would be back-up slide
18 No. 7.
19 CHAIRMAN JACKSON: Why don't you start talking?
20 MR. IMBRO: Okay.
21 A concern was raised that the number of
22 interactions between the licensee and Sargent & Lundy on DRs
23 was an indication that the licensee's Corrective Action
24 Program was ineffective. The staff does not agree that the
25 need for multiple interactions on DRs provides any insights

1 on the effectiveness of the licensee's Corrective Action
2 Program. The staff has observed these many interactions as
3 required by the communications protocol. NEAC has also
4 observed the high percentages of these interactions.
5 The principal reason for the interactions was for
6 the licensee to gain a precise understanding of the S&L
7 issues raised in the written DRs. The communications
8 protocol is similar to that used during the Independent
9 Design Verification Program that was performed in the 1980s
10 for NTOLs. The protocol by its nature inhibits effective
11 communication, and the purpose is to try to maintain an
12 arm's-length distance between the reviewer and the review
13 organization.
14 It is difficult to communicate complex technical
15 issues in writing without personal interaction between the
16 parties. The staff has observed that communication of
17 complex technical issues was sometimes difficult even during
18 face-to-face meetings. This is no reflection on the
19 competence or technical capability of the involved
20 organizations or individuals. In this regard, the
21 restrictions imposed by the communications protocol,
22 interactions to gain an understanding of the technical issue
23 are not viewed as a part of the corrective action process.
24 The staff used the corrective action process as a
25 beginning when there is agreement on the issue to be

1 resolved. Therefore, a more meaningful measure of the
2 effectiveness of corrective actions would be the number of
3 interactions between S&L and Northeast Utilities regarding
4 the licensee's proposed corrective action.
5 Of 977 evaluated preliminary discrepancy reports,
6 Northeast's initial response to 204 DRs was not accepted by
7 S&L. For more than 140 of these discrepancy reports,
8 Sargent & Lundy did not accept the response because they
9 needed additional information to complete their review, for
10 example, information referenced in the documents that were
11 provided by Northeast Utilities. For more than 20 of the
12 DRs, the response was not accepted by S&L because the
13 Northeast Utilities response triggered them to explore other
14 issues, which had not been raised in the initial DR. For 37
15 DRs, however, Northeast was requested to supplement the
16 proposed corrective action.
17 During the staff's ICAVP corrective action
18 inspection, each of these 37 DRs was reviewed in detail.
19 The team concluded that the licensee had adequately
20 addressed technical issues by Sargent & Lundy, and the
21 additional corrective actions required by Sargent & Lundy
22 were confirmatory in nature or involved a need for
23 additional documentation.
24 And just as an example of that, in one discrepancy
25 report, Sargent & Lundy indicated that the stress evaluation

1 for a particular containment liner plate was inaccurate with
2 regard to plate size and location of applied load. And
3 Northeast came back and said well, there's a lot of margin
4 in here. We don't think it's an issue with compliance with
5 design and licensing bases based on their engineering
6 judgment.
7 Now Sargent & Lundy looked at that, and they
8 agreed with the judgment of the licensee. However, the
9 corrective action that was asked for by Sargent & Lundy was
10 that that engineering judgment needs to be documented in the
11 stress analysis report. So it's these kinds of
12 documentation-type issues that -- and this is using
13 corrective action in a very broad sense, I believe.
14 But to continue, based on its ICAVP corrective
15 actions, our inspection of the ICAVP corrective actions, and
16 through the observation of the actual technical discussions
17 between Sargent & Lundy and Northeast Utilities, the staff
18 concluded that neither the need for additional corrective
19 action for the 37 discrepancy reports we just talked about
20 and which were largely documentation issues, nor the fact
21 that Sargent & Lundy did not accept the initial Northeast DR
22 response, was an indication of an ineffective Northeast
23 Utilities Corrective Management Program. And I guess that's
24 a long answer to a short question.
25 CHAIRMAN JACKSON: But all the questions I ask are

1 complex.

2 DR. TRAVERS: If I could just add one point,
3 because, as Mr. Lochbaum mentioned, he and I had a discourse
4 on this very topic, and when I got his letter, I wanted to
5 understand it as well as I could, so I called him.
6 Fundamentally we did consider his issue. We disagreed, but
7 we did consider it.

8 Our view, frankly, is that a better measure of
9 Corrective Action Program effectiveness is looking at the
10 Corrective Action Program rather than iterations in a very
11 special process, one that's ad hoc and temporary and set up
12 under order for a specific purpose for a short period of
13 time. And as you'll hear in my presentation, we took and
14 had the opportunity to take quite a look at the Corrective
15 Action Program at Millstone directly, rather than in any
16 indirect fashion by looking at the numbers of iterations,
17 for example, between Sargent & Lundy.

18 CHAIRMAN JACKSON: So what did you feel is a
19 better measure?

20 DR. TRAVERS: Actually looking at the Corrective
21 Action Program as it relates to the identification of
22 problems, as it relates to the production of resolution
23 plans, as it relates to actually implementing those plans,
24 and as it relates to developing assessment techniques for
25 assuring against recurrence.

1 CHAIRMAN JACKSON: Okay. So you covered me. So
2 you must have read my mind, because basically I'm interested
3 in what I all the four R's -- recognition, or what you might
4 call identification of the problems; risk -- that is,
5 assessment of the risk significance; resolution of the
6 problem; and lack of repetition. And you're telling me that
7 you looked at all of those.
8 DR. TRAVERS: Yes, and I'm going to cover that.
9 Sure.
10 CHAIRMAN JACKSON: Okay.
11 MR. IMBRO: Okay. If we can continue with slide
12 5, please.
13 This deals with the scope of the Sargent & Lundy
14 ICAVP. The ICAVP was developed by the staff to be a
15 comprehensive review of the effectiveness of the licensee's
16 programs to identify and correct nonconformances with their
17 design and licensing bases.
18 In SECY-97-003 the staff proposed a three-tier
19 approach to verify configuration control from several
20 vantage points. Tier 1 was an in-depth vertical slide
21 design review of 15 of 88 Group 1 and Group 2 systems to
22 verify clients with their design and licensing bases. Tier
23 2, and you've heard this before, and so I'll go through this
24 quickly, Tier 2 was a review of 230 critical design
25 characteristics to verify the 22 accident mitigation systems

1 were able to perform as credited in the accident analyses
2 described in the FSAR. And again, Tier 3 was a review of
3 change processes other than the principal design change
4 process to verify the changes made through these processes
5 did not result in the unit being in noncompliance with its
6 design and licensing bases.
7 S&L expended approximately 160,000 hours of
8 engineering review in this effort, and that's not counting
9 clerical support. So it was a very major effort.
10 CHAIRMAN JACKSON: In your assessment, what did
11 you think the greatest weakness was? I mean, you know,
12 recognizing what S&L has already told us.
13 MR. IMBRO: I think that most of the findings were
14 in Tier 1. I think of the discrepancy reports probably
15 about 800 of the 977 or thereabouts were in Tier 1, and 150
16 spread throughout the other, Tier 2 and Tier 3. So I think
17 if you're going to say any area was a weakness, it was Tier
18 1. But again, I think I'll point out though that only 18 of
19 600 approximately confirmed DRs rose to the level where they
20 impact the design and licensing bases but would not affect
21 the system functionality.
22 So you have to use weakness I guess in a relative
23 sense.
24 I'm going to go through briefly, because as I said
25 there was a question before on the numbers of systems, the 4

1 versus 15, and let me just address that quickly.

2 There has been some confusion regarding the number

3 of systems, 4 versus 15, reviewed by Sargent & Lundy. As a

4 point of clarification, SECY-97-003 stated that a minimum of

5 four systems would be selected for the Tier 1 review. Staff

6 views systems on a functional basis. Systems is viewed in

7 the context of the maintenance rule and more narrowly

8 focused, and that's just by the nature of the maintenance

9 rule. And it's based primarily on the requirement to

10 monitor performance and condition of structures, systems,

11 and components, and the evaluation of preventive maintenance

12 activities.

13 Therefore, as specified in SECY-97-0034, systems

14 as viewed by the staff on a functional basis only translates

15 to 15 systems on a maintenance rule basis. In the

16 maintenance rule we define systems very, very narrowly.

17 They would call a cooling water storage tank, for example,

18 as a system. We would say that's part of a larger system

19 like recirculation spray.

20 The scope of the ICAVP, while extraordinarily

21 large, did not review all aspects of all systems.

22 Therefore, it is reasonable to assume that similar types of

23 findings may exist in other systems. However, the extent of

24 the ICAVP reviews, the low safety significance of the

25 findings identified by Sargent & Lundy and the NRC staff and

1 the corrective action implemented by the licensee provides
2 confidence that any other issues would likely be of low
3 safety significance.
4 Now I'll go on to the ICAVP results, and that
5 would be slide 6.
6 The Commission has already heard the results and
7 conclusions of Sargent & Lundy's ICAVP review. However, I
8 would like to make two points to give the Commission a
9 perspective on a number of discrepancy reports prepared by
10 Sargent & Lundy. First, they were on the order of 1,100
11 preliminary discrepancy reports written by Sargent & Lundy.
12 Approximately 500 of these 1,100 were determined to be
13 either nondiscrepant conditions, areas that had been
14 previously discovered by the licensee's configuration
15 management plan, or DRs -- discrepancy reports -- that were
16 determined to be invalid by Sargent & Lundy on further
17 looking.
18 The second and more important point is out of the
19 approximately 600 confirmed discrepancies, only 18
20 identified noncompliances with the U.S. design and licensing
21 bases, and none of these noncompliances affected the
22 functionality of safety systems.
23 The absence of Level 1 or Level 2 DR's and the
24 relatively small number of identified noncompliances with
25 the design and licensing bases considering the large

1 technical review effort expended by Sargent & Lundy I think
2 is an important perspective to use to judge the
3 effectiveness of CMP.
4 CHAIRMAN JACKSON: Let me ask you this question.
5 In an earlier Commission meeting, you know, we discussed the
6 difference between Unit 3 and Unit 2, which is being --
7 where the independent contractor is Parsons Power.
8 MR. IMBRO: Yes.
9 CHAIRMAN JACKSON: And we discussed the difference
10 in the results in categorizing the issues. Is it that the
11 data is different, or did you look at all at this issue of
12 consistency in categorization of the issues?
13 MR. IMBRO: Well, I think there is -- I wouldn't
14 say there's a difference in process, maybe a difference in
15 the way it's implemented, as Mr. Schopfer mentioned before,
16 if Sargent & Lundy didn't have a particular piece of
17 information to demonstrate or could find a particular piece
18 of information to demonstrate that something was
19 satisfactory, they'd start with it as a Level 3, indicating
20 it was a potential noncompliance. Now if the information
21 provided by NU reestablished that confidence that license
22 and design basis was being met, or that if the licensing and
23 design basis was not met it wouldn't -- the effect was not
24 detrimental to system functionality, then that would be made
25 as a Level 3 or possibly go to a Level 4.

1 Parsons is done a little bit differently. If they
2 don't have information to substantiate a particular
3 conclusion versus system operability or functionality, and
4 they have at least engineering intuition to lead them to
5 believe that this is a possible Level 1 or Level 2, they'll
6 write it at the higher level. But I think the key to
7 judging this is again, and these -- we're only talking now
8 about preliminary discrepancy reports. I think the final
9 proof of this is when they get resolved and the final -- all
10 the facts are available and the final significance level
11 gets determined.
12 Now currently, and my date is a little bit, maybe
13 about a week or so old on Unit 2, right now there are
14 probably several Level 1's and Level 2's that are
15 preliminary, but none have been confirmed, and I was
16 understanding the other day in talking with Parsons that one
17 of the initially proposed Level 1's on a preliminary basis
18 may be a Level 3 because of initial information they got.
19 So I think it's really a question of how it's
20 implemented, and I think you really -- it's really not fair
21 to judge the preliminary data, but we need to really wait
22 and see where all the information is available if there is
23 really a problem and then make sure that the categories are
24 approximately used.
25 Did I answer the question?

1 CHAIRMAN JACKSON: Some. Go ahead.

2 MR. IMBRO: Okay.

3 Slide No. 7. In addition to the Sargent & Lundy
4 effort, the staff has conducted an extensive five-inspection
5 effort in its oversight of the ICAVP. The level of
6 inspection effort expended in the oversight of the Millstone
7 Unit 3 ICAVP alone was approximately twice the average
8 entire inspection effort expended at a single unit site.

9 The NRC's oversight was planned to provide
10 confidence that the licensee's configuration and management
11 and Corrective Action Programs have been effective and to
12 assure that the review conducted by Sargent & Lundy was
13 performed in a critical manner in accordance with the
14 NRC-approved plan and in a manner independent of the
15 licensee and its design contractors.

16 The NRC inspections included a vertical slice
17 inspection of systems out of ICAVP scope to assess the
18 effectiveness of CMP independent of Sargent & Lundy, and an
19 inspection of in-scope systems. Those would be systems
20 included within the 15 scope -- scope of Sargent & Lundy --
21 15 system scope of Sargent & Lundy -- to provide a level of
22 confidence in the results of the S&L Tier 1 reviews. The
23 NRC's ICAVP oversight inspections also included an
24 evaluation of accident mitigation systems, critical design
25 characteristics reviewed by S&L in their Tier 2 review, and

1 an evaluation of change processes to provide confidence in
2 the results of the S&L Tier 3 review.
3 The NRC inspection findings were similar to those
4 found by Sargent & Lundy, although in several instances
5 based on the teams findings Sargent & Lundy was asked to
6 expand their scope to a limited extent. The additional
7 reviews performed by Sargent & Lundy did not identify any
8 other discrepancies.
9 The corrective action inspection is substantially
10 complete at this time. Prior to restart, NRC will inspect
11 all corrective actions resulting from the NRC and Sargent &
12 Lundy identified nonconformances with the design and
13 licensing bases to assure that the implemented corrective
14 actions are appropriate to correct the identified
15 nonconformance and to identify and correct similar issues in
16 other systems.
17 To date the staff has inspected the corrective
18 actions implemented to restore compliance with the unit's
19 design and licensing bases for 16 of 20 Level 3 discrepancy
20 reports, and most of the NRC-identified violations.
21 The staff determined that the licensee's
22 corrective actions have been effective, have restored
23 compliance with the unit's design and licensing bases, and
24 have been sufficiently broad to identify and correct similar
25 issues in other systems.

1 Next slide.

2 The NRC's ICAVP oversight inspections identified
3 28 violations of NRC regulations. For the purposes of
4 comparison with Sargent & Lundy's results, the staff defined
5 violations of NRC requirements that did affect system
6 functionality as equivalent to ICAVP Significance Level 3
7 Discrepancy Reports. Twenty-seven of the 28 violations were
8 cited as Severity Level 4 in accordance with the NRC's
9 Enforcement Policy Statement. Although the safety
10 significance of Severity Level 4 violations is low, Severity
11 Level 4 violations represent a regulatory concern because if
12 left uncorrected, they could lead to a more serious concern.

13 The principal areas addressed by the violations
14 include plant procedures, design related issues and
15 corrective actions. It is important to note that five of
16 the 27 Severity Level 4 violations were non-cited because,
17 according to the provisions of the NRC Enforcement Policy,
18 the violations were identified by the licensee under
19 self-identification and were corrected by the licensee in a
20 reasonable time.

21 One of the violations that has been previously
22 discussed with the Commission was an Enforcement Severity
23 Level 3 for adequate -- inadequate corrective action.
24 Severity Level 3 issues are defined as issues of significant
25 regulatory concern. In this case the Severity Level 3

1 violation resulted from the licensee not identifying the
2 potential for air-binding of the charging and safety
3 injection pumps. Although the licensee demonstrated to the
4 satisfaction of the NRC that the trapped air would not
5 affect the functionality of the pumps, the licensee was
6 expected to have identified and resolved this concern during
7 the configuration management plan implementation,
8 particularly since the subject of air and gas-binding of
9 pumps had been addressed in previous information notices.
10 In summary, the issues identified by the NRC ICAVP
11 did not affect system functionality and the number of issues
12 identified were relatively few considering the extensive
13 12,000 hour inspection effort. It supports the staff's
14 conclusions regarding the effectiveness of the CMP.
15 Further, the types of issues identified by the NRC were
16 similar to the issues identified by Sargent & Lundy during
17 their ICAVP review. This provides confidence that the NRC
18 -- that the ICAVP review conducted by Sargent & Lundy was
19 thorough and at the appropriate level of technical detail.
20 Based on our ICAVP oversight inspections, the
21 staff has confidence in the Sargent & Lundy results and
22 conclusions.
23 And the last slide. The staff concludes that
24 Sargent & Lundy's review was comprehensive and that the
25 staff has confidence in their results. NNECO's

1 configuration management plan was effective in establishing
2 confidence that the Unit 3 conforms with its design and
3 licensing bases and, thirdly, Northeast's configuration
4 management process is adequate to maintain conformance with
5 the design and licensing bases going forward.
6 CHAIRMAN JACKSON: Thank you.
7 DR. TRAVERS: Chairman Jackson, this might be a
8 good time to have Bill Jones, since he did the independent
9 assessment --
10 CHAIRMAN JACKSON: Right.
11 DR. TRAVERS: -- of the ICAVP process, and Bill, I
12 think as he is getting to the podium over there, I will just
13 give a little bit of his background. He is a certified
14 senior reactor analyst from Region IV who is totally
15 independent from the Special Project Office and he has had
16 extensive experience both as a senior resident inspector and
17 he has completed the formal probabalistic risk assessment
18 training.
19 CHAIRMAN JACKSON: Connect those dots, since this
20 is a public meeting, and say what a senior reactor analyst
21 is.
22 DR. TRAVERS: That's an individual who has both
23 the operational experience and training with NRC to look at
24 how to analyze the operations activities at a plant in a
25 risk environment. That is, we have had special training in

1 probabalistic risk assessment, and I guess I'll let Sam add
2 anything to that. In the program -- it has been, the
3 program has been in place about two and a half year, and
4 Bill has been involved in that process since that time.
5 CHAIRMAN JACKSON: And they are specifically
6 assigned to the Regions?
7 DR. TRAVERS: I'm sorry, that's right.
8 CHAIRMAN JACKSON: In order to bring that ability,
9 training and insight to --
10 DR. TRAVERS: To regional activities.
11 CHAIRMAN JACKSON: No, activities in our
12 operational inspection programs. Is that correct?
13 MR.COLLINS: That is correct. Also, just to
14 elaborate, they also add that perspective to the routine
15 inspection program.
16 CHAIRMAN JACKSON: That's what I am --
17 MR.COLLINS: As well as our reactor program. Bill
18 is also, if I recall correctly, a product of our original
19 intern program -- co-op program.
20 CHAIRMAN JACKSON: And now that we have finished.
21 MR.COLLINS: He is also part of the team for
22 Region IV, which Bill and I are quite proud of.
23 CHAIRMAN JACKSON: Yes. Before you begin, let me
24 just ask Mr. Imbro one question.
25 To what extent is the configuration management

1 program, as far as you can discern at this point,
2 station-wide? I mean is it similar at Unit 2?
3 MR. IMBRO: No. No, it's not. I don't know that
4 I can articulate the differences, but there was a
5 substantial difference in level of effort. For level of
6 effort on CMP for Unit 3, it was on the order, I believe, of
7 700,000 man hours.
8 CHAIRMAN JACKSON: Okay. But I am talking about
9 how the CMP is structured. And I realize that they may not
10 have put the number of hours in at this point. The real
11 question is one of, you know, in terms of how the program is
12 structured.
13 MR. IMBRO: Well, I think it is substantially the
14 same. I mean, clearly, it has the same effect.
15 CHAIRMAN JACKSON: But at this point it is
16 premature to say whether the confidence you are expressing
17 vis-a-vis Unit 3 is translatable.
18 MR. IMBRO: Oh, absolutely. No, we could not make
19 that extrapolation at this point.
20 CHAIRMAN JACKSON: Okay. Fine. Now, we will hear
21 from this gentleman. Thank you for your patience.
22 MR. JONES: My name is Bill Jones.
23 CHAIRMAN JACKSON: Speak more into the microphone.
24 Thank you.
25 MR. JONES: My name is Bill Jones. Good evening,

1 Chairman Jackson and Commissioners. What I wanted to add
2 about the SRO program is all the SR, senior reactor analysts
3 have extensive inspection experience, very strong,
4 deterministic backgrounds and we went through a formal PRA
5 training program. It took on the order of about 18 months,
6 including rotations, in order to become certified as the
7 senior reactor analyst.
8 EDO asked that I perform an independent review of
9 the ICAVP process and, in particular, through the review of
10 discrepancy reports. I had had no previous interactions
11 with the Special Projects organization or with Millstone in
12 any fashion. The purpose of this independent review was to
13 evaluate the appropriateness of the significance levels
14 assigned to discrepancy reports, the adequacy of the
15 corrective actions associated with the discrepancy reports,
16 the acceptability of issues deferred past start-up, the
17 effectiveness of back and forth process between Sargent &
18 Lundy and Northeast Utilities in addressing the issues, and,
19 lastly, to provide a general assessment of the issues within
20 the scope of the review from a risk perspective.
21 I reviewed approximately 170 discrepancy reports
22 involving Level 3's and Level 4's confirmed, those that were
23 still pending, those that remained unresolved, and an
24 additional set of those that were N/A. Just a general
25 discussion, there were about 17 confirmed Level 3's, 38 of

1 the 45 open Level 3 discrepancies, 90 of the -- or
2 approximately 20 percent of the confirmed Level 4, and about
3 30 of the 313 discrepancy reports designated as not
4 applicable. This is based on the information that was
5 available to me about May 19th when I performed the review.
6 As a result of my review, I concluded that the
7 ICAVP process, as assessed through the DR process, provided
8 an effective means for identifying problems, establishing
9 their significance and associate corrective actions.
10 I would like to go through each of these areas and
11 see how I addressed each of those. With the appropriateness
12 of the significance levels, I found none that were
13 identified inappropriately. In other words, the guidance
14 that was provided to me as far as Level 3 and Level 4
15 designations had been followed looking at the design basis
16 definition in 50.2, also looking at the guidance provided in
17 our NUREGs for 50.73 reporting. That was all consistent as
18 far as Level 3's and Level 4's.
19 There are several DRs, Level 3's, which are still
20 open and had not been resolved between NU and Sargent &
21 Lundy. In the cases that I reviewed, all examples that were
22 open remained open until the issues were properly resolved.
23 In other words, a Level 3 issue remained at a Level 3 issue
24 until appropriate corrective -- or not corrective actions,
25 but a basis was provided to downgrade to a Level 4 in those

1 cases.

2 One question that I did have involved the

3 heightened sensitivity to design basis definition with

4 regard to both the Level 3 definition and how it applied to

5 our regulations and the definitions in our regulations. At

6 the time of the review only one licensee event report had

7 been identified for all the Level 3's that had been

8 confirmed. The question was whether or not the design basis

9 definitions were being appropriately considered and this

10 review was still ongoing and the staff was looking at

11 whether or not all the design basis issues had been properly

12 reported.

13 MR.COLLINS: Excuse me, Chairman. Just to

14 elaborate on that, Hugh Thompson assigned an action to

15 office of NRR in the area of reporting review. We have

16 taken that on board as a specific action for the NRR staff

17 and that review is being conducted by our events assessment

18 group in conjunction with SPO, that's a separate action.

19 CHAIRMAN JACKSON: Thank you.

20 MR. JONES: We are just looking for consistency

21 between the definition used to identify Level 3's and our

22 regulatory requirements.

23 As far as the adequacy of corrective actions, I

24 did not attempt to determine whether or not the actual

25 corrective actions implemented were appropriate, rather to

1 see that each of the issues identified in the discrepancy
2 reports were properly addressed and resolved by Northeast
3 Utilities and subsequently reviewed by Sargent & Lundy.
4 This included issues that came up as a result of the
5 iterative process between Sargent & Lundy and Northeast
6 Utilities and to ensure that those type of issues that
7 subsequently came up were also included in there. I
8 identified no cases where the issues were not being
9 addressed through the discrepancy report and, subsequent,
10 either a response by NU or through corrective actions.
11 Part of the process did allow for corrective
12 actions associated with DRs to remain open after the DRs
13 were closed. This is apparently consistent with the DR
14 process and the ICAVP process. Any issues -- this, for
15 example, would involve surveillance testing of systems. The
16 process did provide for the subsequent reopening of -- or
17 not reopening but reissuance of DRs or corrective action if
18 new issues did come out as a result of that testing.
19 I looked at the acceptability of issues deferred
20 plus past start-up. These involved Level 4's. I found no
21 examples of improperly deferred DRs, although several issues
22 involving Level 4's and Level 3's were still ongoing.
23 Regarding the effectiveness of the Sargent and
24 Lundy and NU communications, I found that each of the issues
25 was being addressed through the DR process. In some cases

1 it did involve an iterative process, in some cases several
2 times, but in each case I found that the issues were
3 ultimately being addressed.
4 Lastly, it involved a general assessment of the
5 issues from the risk perspective. I did not attempt to
6 perform a quantitative analysis. That would be an
7 inappropriate use of PRA in this case. Had there been
8 issues involving Level 1 and Level 2 issues, Level 2
9 significance, those I could have addressed. But in looking
10 at Level 3 and Level 4, we are looking at the type of
11 considerations that go into the building of the
12 probabalistic risk assessment models. In this case, I
13 looked at the challenges to the design basis issues and the
14 PRA model and found that there were no significant
15 challenges to the success criteria assumptions in the PRA.
16 CHAIRMAN JACKSON: Thank you very much for a
17 comprehensive statement on short notice.
18 MR. THOMPSON: There was one issue I think about
19 expanding the scope and I think I would like to have Dr.
20 Travers address that issue.
21 DR. TRAVERS: Thanks, Hugh. I wanted to take the
22 opportunity, given some of the concerns that have been
23 raised about how we implemented our program in one
24 particular area, and that has to do with Level 4 DRs that
25 were identified. And, as you have heard, there were several

1 hundreds of these issues that were identified.

2 Fundamentally, the purpose of the ICAVP was to
3 confirm that the design basis and licensing basis was in
4 conformance at Millstone. Nevertheless when we set up the
5 program, we recognized that we were going to be looking very
6 deeply in the selected systems. As a result, we wanted to
7 capture in our findings any errors that we did identify that
8 went below the design and licensing basis. In so doing, we
9 recognized that the fundamental focus was at Level 3 and
10 above, but, nevertheless, we would identify and characterize
11 at Level 4 the errors that were identified.

12 Rather than simply looking at the numbers and,
13 certainly, that is suggested by the very cryptic designation
14 of how we would react or potentially react, we provided
15 guidance, and we have been talking about this at public
16 meetings and as often as we can to provide some insight as
17 to how we would carry out our review and under what
18 circumstances we might expand the scope of the ICAVP in the
19 face of Level 4 findings.

20 And what we said and what we did was to trend the
21 identified findings at Level 4 to see if we could identify
22 issues that either by the numerics fell in particular areas.
23 But the fundamental concern was to identify trends that
24 might lead us to a question about licensing and design basis
25 issues in areas where we had not looked. And we actually

1 have been doing that. We did that in connection with the
2 ICAVP review.
3 And so rather than merely looking at the numbers
4 of the identified findings, what we were looking at is the
5 number of calculational errors, for example, in different
6 disciplines, whether they indicated or implicated a
7 suspicion that we should expand the scope to cover this
8 issue in other systems. We determined that that wasn't the
9 case. Nevertheless, we did identify calculational control
10 issues that we brought to the attention of NU, and in their
11 presentation you heard that they are taking this on. We
12 think that's appropriate, but we don't think fundamentally
13 that is an issue that bears directly on the adequacy of what
14 they accomplished.
15 So in brief, that is our take on this question of
16 expansion of scope and was it appropriately considered in
17 our program.
18 CHAIRMAN JACKSON: Okay. Thank you.
19 Commissioner?
20 COMMISSIONER DIAZ: And so there is no safety
21 significance to compiling a bunch of those things? You have
22 looked at them; they're essentially independent issues,
23 although they might be the same type of calculation, but
24 from the safety view point of the functionality of the
25 system that has to perform a function, you did not see that

1 the aggregate was detrimental to the --

2 DR. TRAVERS: That's exactly right. Certainly

3 individually, these things which fall below the licensing

4 design basis threshold were ones that additionally did not

5 affect functionality or operability in these systems. We

6 attempted, though, as I said, to try to trend this aggregate

7 that you speak of and see if we felt uncomfortable enough to

8 cause us to enhance what we were already about, and we think

9 that improvements can be made in calculation of control. We

10 have identified those in the course of doing our program.

11 The licensee has taken up the issue. But we feel in sum

12 that it can be addressed on an ongoing basis as opposed to

13 --

14 CHAIRMAN JACKSON: Right. So you're really saying

15 you did two things, I mean a couple of things. One is

16 there's a risk significance which was low of the particular

17 issues. The second is whether there was any functionality.

18 But by definition, from my understanding, it wouldn't be

19 level 4s if they were functionality related. The third, you

20 actually trended to see if there were any disturbing

21 patterns. Is that what you're saying?

22 DR. TRAVERS: Yes. There was a suggestion that

23 just by their very definition, we couldn't get there from

24 here.

25 CHAIRMAN JACKSON: But you could if it was a

1 cumulative effect.

2 DR. TRAVERS: It was a trend that gave us pause to

3 look --

4 CHAIRMAN JACKSON: That's right.

5 DR. TRAVERS: -- in areas we were running multiple

6 --

7 CHAIRMAN JACKSON: I understand. Right. Okay.

8 Thank you.

9 Who is going to talk about corrective action?

10 DR. TRAVERS: I'm going to talk about corrective

11 action. Thank you. And certainly, --

12 CHAIRMAN JACKSON: Thank you, Mr. Imbro.

13 DR. TRAVERS: Certainly one of the most

14 fundamental and important programs established at all

15 nuclear power plants is the corrective action program.

16 Chairman, as you indicated, the principal elements of a

17 corrective action program include problem identification,

18 problem evaluation, problem resolution, and the assessment

19 of corrective action effectiveness to prevent recurrence.

20 And all of these really are relied upon to ensure that

21 problems, including those that bear on safe operation, are

22 addressed effectively.

23 The importance of having an effective corrective

24 action program is underscored by the broad range of programs

25 and activities which are directly affected by the quality of

1 both the corrective action processes and their practical
2 implementation.
3 As we have seen at Millstone, the historical
4 problems encompassing weaknesses in problem identification,
5 evaluation and particularly in corrective action
6 implementation have had a significant and pervasive negative
7 impact on programs ranging from configuration management to
8 the willingness of workers to raise important safety
9 concerns.
10 I think the licensee's own assessment that
11 ineffective management leadership was the principal cause of
12 these past corrective action program weaknesses is correct.
13 The manifestation of these earlier management weaknesses has
14 been significant and resulted in the NRC staff including
15 this issue of corrective action program effectiveness at
16 Millstone as a key area of our restart assessment program.
17 CHAIRMAN JACKSON: And you would say that the
18 licensee's own self-assessments agree with these historical
19 --
20 DR. TRAVERS: In fact, that's correct. A number
21 of the self-assessments that were carried out early one when
22 these -- when the problems at Millstone were first being
23 identified highlight and point to the corrective action
24 program and management leadership in particular as the sort
25 of genesis for many of the problems because of the broad

1 impact that corrective action program and effectiveness
2 would have across the board.
3 Before I turn to what we did to assess corrective
4 action program effectiveness, let me just mention briefly
5 what the licensee has done, and you have heard from them,
6 but most importantly, this new management team that's been
7 established was put into place to facilitate recovery in the
8 fall of 1996 and they began a broad-based program designed
9 to raise standards at Millstone.
10 Included in this effort have been communications
11 of management expectations regarding the corrective action
12 program, particularly the expectation that all employees
13 should identify and raise safety issues without the fear of
14 retaliation.
15 Program identification and the willingness of the
16 entire work force to participate in the raising of issues
17 for resolution was correctly recognized as a fundamental
18 element of an effective corrective action program, and more
19 broadly, in my estimation, as essentially to a healthy
20 safety culture.
21 More narrowly, the licensee also overhauled its
22 formal corrective action program in a new site-wide
23 procedure labelled RP4. This new program, which is based on
24 industry standards and processes, included fundamental
25 changes which emphasized a lower threshold for reportable

1 problems, prioritization and timely processing of issues,
2 greater management involvement in the process, enhanced use
3 of performance indicators to track and trend program
4 effectiveness, and training for individuals, particularly
5 those performing root cause analyses.
6 May I have the next slide, please.
7 For our part, and in order to evaluate the
8 effectiveness of the licensee's actions, the NRC has carried
9 out an extensive evaluation which included focused
10 assessment of the licensee's identification and processing
11 problems, conduct of root cause evaluations, development of
12 corrective action proposals and plans, and most importantly,
13 the actual implementation of the corrective actions.
14 We also inspected the licensee's efforts to
15 improve its self-assessment capabilities.
16 In recognition of both the importance of this
17 issue and the broad-scope impact of the corrective action
18 program, the NRC staff has included an assessment of
19 corrective actions in nearly every aspect of its oversight
20 activities at Millstone.
21 In addition to inspecting corrective actions
22 related to ECP or employee concerns program, and safety
23 conscious work environment, and ICAVP, those two orders, as
24 has been previously discussed, the staff carried out
25 additional inspections which are listed here on this slide.

1 Additionally, a significant input to our
2 evaluation was derived from the normal inspection program
3 where valuable insights regarding the effectiveness of
4 corrective actions were routinely collected from our
5 technical safety inspections.
6 The most intensive inspection of the licensee's
7 corrective action program was carried out by a team of NRC
8 inspectors using the inspection procedure 40500 titled
9 Effectiveness of Licensee's Controls in Identifying,
10 Resolving and Preventing Programs.
11 Except for inspection activities related to design
12 and licensing basis conformance, no other issue was examined
13 as extensively over the past two years.
14 Next slide, please.
15 Our overall conclusion is that the licensee's
16 corrective action program is comprehensive and is acceptable
17 to support restart of Unit 3.
18 Specifically, we found that the program has a low
19 threshold for identifying problems and for including those
20 problems in the formalized corrective action processes. The
21 current situation which has been identifying problems at a
22 rate of about 4,000 per year differs markedly from earlier
23 years, when only about 300 or so issues per year were being
24 identified.
25 Additionally, our inspections indicate that new

1 standards in expectations for the handling and resolution of
2 problems have been effectively communicated by licensee
3 management.
4 Management is meaningfully involved in the
5 corrective action program and workers understand the
6 importance of their role in identifying and resolving
7 problems which can affect safety.
8 Although our inspections did identify instances
9 where some root cause evaluations, for example, were not
10 fully effective, our overall determination is that root
11 cause evaluations are being carried out adequately to permit
12 comprehensive resolution and to help preclude recurrence.
13 CHAIRMAN JACKSON: So let me just make sure I
14 understand that. Would you say that in the category of
15 identification and evaluation, that it's more than adequate
16 but that when it comes to -- well, I'm sorry --
17 identification and -- that it's more than adequate, but when
18 it actually comes to evaluation and implementation of the
19 actual corrective action, it's adequate? Is that what you
20 would say?
21 DR. TRAVERS: The licensee at Millstone over these
22 past two years has probably carried out thousands if not
23 maybe more than 10,000 corrective actions. We have looked
24 at hundreds, perhaps, in our program, and while I could
25 probably point to issues that we have identified in all of

1 these areas, I wanted to point out that we didn't find
2 perfection, that we did, in fact, find issues, some of which
3 resulted in violations, frankly. But on the whole, against
4 the backdrop of all of what we looked at, we had to make a
5 conclusion about the adequacy of this program, and our
6 conclusion is that it's working. It can be improved.
7 I'm going to point out in a moment that management
8 really needs to keep its eye on the workings of the
9 corrective action program. Simply -- not just simply
10 because of the findings that we have identified over the
11 past two years, but because of the obvious historical
12 implications of their failure, frankly, in the past to
13 sustain an effective corrective action program. So we think
14 it's going to be important to do that.
15 The second piece of what I wanted to make mention
16 and caveat just a bit is that we did effectively look at
17 numerous instances of corrective action implementation. Did
18 it get done right? And our conclusion there is that again,
19 while we found some instances where we didn't view the
20 corrective actions as fully appropriate or timely -- Pass is
21 a good example; we can talk about that in a moment, if you
22 would like -- on the overall, our assessment of the
23 implementation efforts and the corrective action program
24 have, in fact, largely been effective.
25 So management needs to keep its attention focused

1 on a corrective action program. We think that's appropriate
2 and we intend for our part, in the face of not only the
3 historical issue, but the fact that we haven't identified
4 perfection, that we have identified issues and corrective
5 actions as we've gone along, to carry out a 40500 team
6 inspection within about a year.
7 This is the same inspection that we indicated to
8 the Commission that we would employ to assess the
9 effectiveness of their working off the backlog. Inclusive
10 in such a team inspection within about a year will be our
11 important, in our view, observation of the sustained or not
12 corrective action program at Millstone Unit 3.
13 MR. THOMPSON: I think the next issue deals with
14 the operational safety team inspections, and Wayne Lanning
15 will lead us on that presentation.
16 MR. LANNING: Good afternoon.
17 First slide.
18 What I will refer to as an OSTI is an important
19 activity because we're performing the conclusion of the
20 recovery process and provide a current assessment of the
21 operational readiness to transition from an extended outage
22 to operations.
23 The purpose of the OSTI was to provide input to
24 the restart assessment panel regarding the readiness of
25 plant hardware, staff and the management programs to support

1 restart and continued operation.

2 This activity began in February and included an

3 intensive two-week on-site observation of licensee

4 activities and concluded with a public exit on May the 5th.

5 The 14-person team was made up of representatives

6 from four of the NRC's regional offices, the Office of

7 Nuclear Reactor Regulations, the Special Projects Office,

8 and the Office for Analysis and Evaluation of Operational

9 Data. Two contractors were also on this team.

10 This OSTI required more than 2,000 hours of

11 effort. The team leader was Mr. Jim Trapp, who was

12 introduced to you previously by Mr. Thompson.

13 Next slide, please.

14 The OSTI focused its inspection activities on four

15 areas: assessing the performance of management programs and

16 independent oversight, operations, engineering and technical

17 support, and maintenance and surveillance. The inspection

18 focused indirectly on programs, with the primary emphasis on

19 the direct observations of plant equipment and activities,

20 selected examination of documents, and interviews with

21 management and plant staff.

22 The OSTI was also responsible for inspecting some

23 of the items on the significant items list on the restart

24 assessment plan.

25 As you can see from the next slide, the OSTI

1 concluded that management programs and the independent
2 oversight are adequate to support restart. The OSTI found
3 key management processes were in place and effective.
4 Senior management had established appropriate
5 standards and expectations for performance which advocated a
6 strong safety ethic. The effective vertical and horizontal
7 communications contributed to ensuring the plant staff
8 understood management's expectations.
9 Management support for and involvement in the
10 recovery process were evidence by the oversight of
11 activities.
12 In his presentation of the corrective action
13 program, Dr. Travers noted that the findings from the OSTI
14 were included in our overall assessment of the program. For
15 completeness, the OSTI confirmed that the corrective action
16 program was adequate to support restart. Deficiencies are
17 identified at a low threshold, evaluated for significance,
18 prioritized for completion, and completed in a comprehensive
19 and timely manner.
20 At the last Commission briefing, I noted that the
21 results from the OSTI were included in the staff's
22 assessment of oversight. But to briefly summarize, the OSTI
23 found that oversight was effective in providing meaningful
24 independent assessment and performance measures to line
25 management during the recovery process and was ready to

1 support restart.

2 The OSTI assessed the backlog of open condition

3 reports and action items and did not identify any deferred

4 items that could adversely impact a safe restart. Again,

5 the staff discussed the backlog management plan at the last

6 Commission briefing, and we included the OSTI results in

7 that assessment.

8 The OSTI also assessed the technical training

9 programs and found those programs have improved and are

10 adequate to ensure continued qualification of technical and

11 non-licensed personnel. These include systems engineers,

12 unlicensed operators, shift technical advisors and

13 maintenance personnel. I'll address licensed operator

14 training on the next slide.

15 The OSTI concluded that plant operations are

16 adequate to support restart based primarily on direct

17 observations of operator performance in the control room.

18 The OSTI found that the operators controlled and handled

19 plant evolutions and mode changes safely. However, the OSTI

20 identified some performance issues regarding operator

21 knowledge and procedure adherence that required resolution

22 before restart. You heard this --

23 CHAIRMAN JACKSON: Can you -- I'm sorry, go ahead,

24 let me let you finish your sentence.

25 MR. LANNING: You heard this morning the

1 discussions of corrective actions for some of those
2 operational events that took place.
3 CHAIRMAN JACKSON: Yes. But let's hear you talk
4 about the power operated relief valves lifting and the valve
5 line-up discrepancies, you know, and whether any of these
6 were in tier 1 systems and how you would assess the
7 significance of these.
8 MR. LANNING: Well, the operational events that
9 occurred during the initial heat-up, the opening of the
10 pressurizer relief valve was significant because it
11 represented an opening of the primary pressure boundary.
12 The other events involving valve misalignments by
13 themselves were minor. I do not believe they involve tier 1
14 systems, but they did represent an issue that OSTI felt
15 needed to be resolved before restart.
16 CHAIRMAN JACKSON: You had a comment?
17 But you believe that even with the PORVs lifting
18 event, that the operator performance was acceptable?
19 MR. LANNING: Overall, yes.
20 CHAIRMAN JACKSON: Okay.
21 MR. LANNING: In addition, overall operating
22 procedure quality and procedure adherence was acceptable
23 with few exceptions.
24 The OSTI identified equipment control issues
25 involving valve alignments and verification of locked

1 valves. We will inspect the corrective actions for these
2 and the operator performance issues before restart.
3 Staffing levels met technical specification
4 requirements. The OSTI judged operator training acceptable,
5 including the team leader training, with many modifications
6 that were completed during this outage. Operator
7 qualification training was current and acceptable.
8 The next slide shows that engineering and
9 technical support are adequate to support restart. The OSTi
10 concluded that the engineering department and the technical
11 support organization were providing timely and effective
12 support through operations, including their response to
13 emergent plant issues. Plant modifications and the design
14 control process was effective for carrying out design
15 changes.
16 Risk insights were used to prioritize
17 modifications. Imposed modification testing verified
18 important design change attributes. The number of existing
19 temporary modifications was low and adequate consideration
20 was given to ensure that temporary modifications did not
21 adversely impact safety.
22 The system readiness reviews were comprehensive
23 and identified issues that were resolved before plant
24 heat-up. System engineers were qualified and knowledgeable
25 regarding their assigned systems. The OSTI reviewed all

1 operability determinations and validated the licensee's
2 justifications for continued operation.
3 Finally, the OSTI audited the results of some of
4 the engineering programs. For example, the OSTI
5 independently checked some set points, operational
6 experience lessons learned, and vendor recommendations and
7 concluded that these programs were acceptable to support
8 restart and operations.
9 The next slide shows that the OSTI concluded that
10 the maintenance and surveillance areas are adequate to
11 support restart. The overall plant material condition was
12 good. The backlog of open maintenance work activities was
13 trending down, had been prioritized, and the impact on
14 operations was assessed and found to be acceptable.
15 The OSTI found that the results from the
16 preventative maintenance program were good. The
17 preventative maintenance backlog was small, and only a few
18 minor deficiencies were identified in the performance of
19 preventive maintenance.
20 The scheduling and conduct of surveillance tests
21 were also good. The surveillance test procedures were
22 adequate to support restart.
23 Overall, work planning and scheduling were found
24 to be acceptable. The OSTI reviewed work packages and found
25 them to be satisfactory, and that changes to them were

1 controlled. The establishment of work boundaries through
2 tagging was very good. The OSTI identified some instances
3 of ineffective planning for which the licensee had initiated
4 improvements.
5 Overall, the conduct of maintenance activities was
6 acceptable.
7 CHAIRMAN JACKSON: Are there a large number of
8 post-maintenance checks that are going to have to be
9 accomplished during start-up?
10 MR. LANNING: Not post-maintenance. There are
11 several -- in the teens -- post-modification testing --
12 CHAIRMAN JACKSON: Post-modification testing?
13 MR. LANNING: -- that will have to be completed of
14 our operating pressures and temperatures.
15 CHAIRMAN JACKSON: Okay. Thank you.
16 MR. LANNING: I just said that conduct of
17 maintenance activity was acceptable. For example, the
18 rework rate for mechanical maintenance was very low, and
19 also the effective use of a fix-it-now team for minor
20 maintenance contributed to backlog reduction and reduced
21 planning and scheduling workload. The OSTI observed good
22 procedure adherence by the maintenance staff.
23 The conclusion is on the next slide.
24 The OSTI recommendation to the restart assessment
25 panel was that the plant hardware, staff and management

1 programs are ready to support restart and continue
2 operations.
3 CHAIRMAN JACKSON: Thank you.
4 MR. THOMPSON: Bill, do you want to address the
5 status of licensing and significant items?
6 DR. TRAVERS: Yes. Some quick slides.
7 We have been updating the Commission on the status
8 of our significant items list and licensing issues. On the
9 first slide, as you know, just very quickly -- you know what
10 a SIL is -- it's our way of tracking within our restart
11 system plan the issues that we have identified as required
12 to be resolved prior to restart. The total SIL package is
13 numbering 216. Well, all of those have been submitted.
14 We're currently reviewing six of those and they're in the
15 relative near-term in terms of our conclusion. But these
16 are items that we would need to complete prior to any --
17 CHAIRMAN JACKSON: Are there any showstoppers or
18 any, you know, particular --
19 DR. TRAVERS: No, but you've heard quite a lot
20 about the post-accident sampling system.
21 CHAIRMAN JACKSON: Right.
22 DR. TRAVERS: That's a system that's on this list.
23 It was identified originally in our restart assessment plan.
24 It's a system for which we carried out an inspection for
25 which we could not conclude that all of the corrective

1 actions had been completed, and we will have to do that.
2 We're waiting now for the licensee to give us an indication
3 that they believe they have now completed those corrective
4 actions.
5 So we need to complete our evaluation and
6 assessment of --
7 CHAIRMAN JACKSON: So you're going to verify
8 before restart --
9 DR. TRAVERS: That's correct.
10 CHAIRMAN JACKSON: -- that all of the corrective
11 actions in this system have been --
12 DR. TRAVERS: That's correct.
13 COMMISSIONER DIAZ: What about fire prevention and
14 seals?
15 DR. TRAVERS: I don't believe fire protection is
16 on the -- it was -- is it closed?
17 MR. CERNE: Yes.
18 DR. TRAVERS: It's closed.
19 CHAIRMAN JACKSON: Relative to the particular
20 issue that was raised today?
21 MR. CERNE: Chairman, there were some samples of
22 seals inspected. I can't say specifically that these were
23 raised.
24 DR. TRAVERS: But in the context of the specific
25 information you had which, of course, falls into our

1 process, that's being handled in a different track.

2 COMMISSIONER DIAZ: No, we understand, but

3 regarding the significant items list, when you went through

4 it --

5 DR. TRAVERS: We had fire protection as an issue

6 and we had a fire protection inspection that judged adequacy

7 of the program.

8 CHAIRMAN JACKSON: But when you're saying this is

9 handled through a different track, you mean --

10 DR. TRAVERS: The allegations.

11 CHAIRMAN JACKSON: -- the allegation management

12 process. I just wanted to have clarity for the record.

13 Okay. Thank you.

14 DR. TRAVERS: The second slide, very quickly, is a

15 summary of the current status of the licensing issues.

16 There is only -- in terms of tech spec amended requests,

17 there's one remaining under NRC review. It's very close to

18 being issued. It has to do with inadvertent safety

19 injection and the qualification of the PORVs, and you have

20 heard some discussion of that earlier.

21 In terms of some other licensing issues, we've got

22 three. These are related to a code exemption, and two

23 others, including an emergency plan revision, are

24 essentially complete and just awaiting issuance. So in

25 terms of essentially all of these issues, while not

1 complete, they are very close to being complete.

2 CHAIRMAN JACKSON: Since you brought up the

3 emergency plan issue and you heard the gentleman from

4 Eastern Long Island and, you know, he quoted to us that you

5 made certain statements, would you like to clarify?

6 DR. TRAVERS: I would love to have that

7 opportunity, actually.

8 I was asked a lot of -- a number of questions on

9 Long Island, and certainly people, as expressed here today,

10 have concerns, and they wanted information about emergency

11 planning, and what I tried to answer directly was a question

12 about its relevancy to our program in judging the adequacy

13 of Millstone Unit 3 restart. And what I pointed out in that

14 meeting was that emergency planning per se was not one of

15 the key issues involving problems that caused the shutdown.

16 Nevertheless, emergency preparedness has been

17 assessed during the period of shutdown, as we would

18 typically do, and I pointed out, rather than say evacuation

19 planning and emergency planning would not be conducted on

20 Long Island, what I tried to indicate was what the

21 Commission's regulations are regarding the 10 mile EPZ or

22 about 10 mile EPZ, and the fact that -- and the basis for

23 those regulations, including our view that that 10 mile or

24 so emergency planning zone provides a basis from which

25 action, should they be needed to be expanded, including

1 those perhaps on Long Island, could be used. But 10 miles
2 forms the basis of the most detailed planning that is
3 currently required by the Commission.
4 Outside of our requirements, local and state
5 authorities can certainly plan for -- in fact, very often do
6 -- in response to natural emergencies and so forth. But the
7 key -- what I was trying to get across at that meeting was
8 what are our requirements, how do they bear on the current
9 situation at Millstone, and what is fundamentally the basis
10 for those requirements, and try to provide some
11 understanding as to how we viewed the situation on Long
12 Island.
13 MR. SAM COLLINS: Chairman, typically as a result
14 of the process, we would notify FEMA prior to the restart of
15 a plant, after an extended shutdown, and obtain FEMA's
16 concurrence about any outstanding issues prior to plant
17 restart.
18 DR. TRAVERS: And we have actually done that with
19 FEMA. In fact, FEMA was represented at this meeting because
20 we recognized going in that there were probably a lot of
21 offsite issues for which FEMA has principal concern, or a
22 principal role.
23 CHAIRMAN JACKSON: In terms of licensing issue
24 status, are there any unreviewed safety -- how many
25 unreviewed safety question license amendments were there?

1 DR. TRAVERS: Yes, there are currently four.

2 CHAIRMAN JACKSON: Four.

3 DR. TRAVERS: And I think the licensee indicated
4 that there may be as many as two or three additional ones
5 that they are considering submitting to us. If I can quickly
6 tick off what those are, the R core coating and service
7 water system is one; the recirculation spray system
8 modifications of 1986 is another; and I think on that one
9 --in fact, I know we have intervention petition filed.

10 MR. BURNS: That's correct.

11 DR. TRAVERS: We also have another one that has to
12 do with the ESF, or engineered safeguards feature sump.
13 What they have done basically is installed safety-related
14 pumps instead of relying on a membrane that has been used,
15 so this is actually an improvement. Nevertheless, it
16 triggers a USQ and an amendment is required.

17 The last one has to do with refueling water
18 storage tank back leakage dose calculations, and how they
19 are done.

20 CHAIRMAN JACKSON: And so that relates to an issue
21 that has been brought up earlier in the meeting?

22 DR. TRAVERS: And I think on the ESF sump, we also
23 had intervention filed.

24 MR. BURNS: That's also correct. Both of those
25 have been referred to the Atomic Safety & Licensing Board.

1 Both of them were noticed as no significant hazards
2 amendments.
3 CHAIRMAN JACKSON: And so are there any other
4 significant technical issues remaining? Okay.
5 MR. THOMPSON: I just want it to be clarified for
6 the record, as I understand the issues dealing with the fire
7 protection issues that were raised at the Commission
8 meeting, those are -- we are still trying to get detailed
9 information about those. I think Wayne has made some
10 attempts to get more details. Those will be processed
11 through our system of dealing with allegations. We don't
12 have all of that information.
13 CHAIRMAN JACKSON: But you are going to follow up
14 on the technical safety issues?
15 MR. THOMPSON: We are following up on that, and
16 Wayne is working with them on that.
17 MR. LANNING: We have a process by which
18 allegations received late, if you will, into a process are
19 dispositioned on a priority basis and we will follow that
20 adherence as soon as we receive the information.
21 CHAIRMAN JACKSON: Okay.
22 MR. THOMPSON: Well, I think that brings us to our
23 last slide, which is the Staff's conclusions and
24 recommendations, and our conclusion is that Northeast
25 Utilities has made appropriate improvements and has

1 established adequate programs needed to support the restart
2 of Millstone Unit 3.
3 This conclusion is based on the results of our
4 oversight efforts summarized during the Commission meeting
5 today, as well as the results presented at the May 1st
6 Commission meeting, through our observation of Sargent &
7 Lundy's execution of the independent corrective action
8 verification program, and our own independent inspection
9 efforts. The Staff has confidence that the Unit 3 licensing
10 and design basis have been reestablished.
11 And continuing our close day-to-day observation of
12 activities at Millstone by the resident inspectors, the
13 Staff has determined that an adequate corrective action
14 program has been established.
15 Finally, the operational safety team inspection
16 found that the conduct of operations, procedure quality and
17 adherence, and operator training were acceptable to support
18 plant restart. The results from the OSTI provides the Staff
19 confidence that the licensee has demonstrated its readiness
20 to transition into an operational mode and begin restart
21 activities.
22 The Commission, in its Staff Requirements
23 Memorandum, following the May 1st meeting, asked that the
24 Staff provide you with any significant new information
25 regarding the three issues that were the subject of the May

1st meeting. Since that meeting, there has been no new information that would call into question the Staff's recommendations that those areas are acceptable to support restart.

Therefore, the Staff recommends that the Commission provide its restart authorization for Millstone Unit 3. However, as you have heard, we are not asserting that the facility is ready for restart today. As described in the SRM from the May 1st meeting, it's our understanding that if the Commission agrees with the Staff's assessment and provides its restart authorization, this would result in changing Millstone Unit 3 to a watch list category 2.

This Commission decision would result in Executive Director for Operations being designated as the responsible agency senior manager for verifying that the appropriate aspects of inspection manual chapter 0350 are completed and for approving commencement of actions to restart Unit 3.

This approach recognizes that there are still some licensee work activities and NRC inspection effort and licensing actions to be completed before the plant can actually restart.

Likewise, there are a number of programs on which continued improvements are planned after restart. If Unit 3 restarts, the Staff has developed its plan to closely monitor the restart activities and power ascension process.

1 This is consistent with the approach taken at other
2 facilities that have been shut down for an extended period
3 of time.
4 This plan includes around-the-clock coverage in
5 the control room during key evolutions and identifies
6 several hold points at which the Staff and Northeast
7 Utilities will compare the results of our ongoing
8 assessments and determine the licensee's readiness to
9 continue the power ascension process.
10 This concludes the Staff's presentation and we are
11 prepared to answer or respond to any questions.
12 CHAIRMAN JACKSON: Thank you.
13 You mentioned during a 4500 inspection after a
14 year. Now are you then saying that other than that, there
15 are no specific actions that need to be taken, or follow-on,
16 and that things are ready to go back over to routine
17 regional oversight?
18 DR. TRAVERS: We haven't identified anything that
19 would lead us to propose that, so I guess the answer is no.
20 But we do recognize that in the course of our evaluations at
21 Unit 2, there will still be a fairly large presence, you
22 know, special projects, and we will be there. But in terms
23 of actually recommending a particular inspection or a
24 particular special effort, we have not identified the need
25 for it.

1 MR. THOMPSON: As you recall, we have Little
2 Harbor, you know, for a period of time.
3 CHAIRMAN JACKSON: I know, I realize. But I mean
4 in these particular areas.
5 DR. TRAVERS: In response to a question I was
6 asked earlier about Sargent & Lundy, for example, we have
7 not identified the need in the configuration management area
8 to recommend to the Commission that Sargent & Lundy
9 continue. If it did, it would be in a fundamentally
10 different role than the one that was prescribed by the
11 order. Nevertheless, given the fact that Sargent & Lundy's
12 review included an assessment of the licensee's
13 configuration management processes designed to look forward
14 and keep them in conformance, we would not recommend the
15 need for such an action.
16 CHAIRMAN JACKSON: Now I have to ask you this.
17 Relative to the issue that Mr. Lochbaum raised, how do we
18 have the assurance that the NRC Staff is willing to do what
19 it has to do, and that we won't end up back in this position
20 again?
21 MR. SAM COLLINS: Chairman, I think that probably
22 you and I -- in fact, I have a response written out here, as
23 Mr. Lochbaum was speaking. It's the role, I think, not only
24 of Bill and his oversight responsibilities as the director
25 of the Special Projects Office, but also as the director of

1 NRR, to maintain day-to-day, if not week-by-week oversight,
2 depending on where the process is at any point in time.
3 We have to rely primarily on the integrity of the
4 individuals and on the oversight process. I think it's
5 unfortunate, perhaps, that during the course of the
6 presentations we got into individuals and individual
7 performance, because I don't think that's what the NRC is
8 about. The NRC is about its processes and its procedures
9 and its programs.
10 CHAIRMAN JACKSON: And its requirements.
11 MR. SAM COLLINS: And its requirements. I think
12 perhaps all of the individuals who spoke know full well that
13 the agency has an independent Office of Investigation, OIG.
14 They can be used. If -- and they are certainly receptive as
15 part of the agency's process. If necessary, then those
16 issues can be referred to that office for independent
17 review. And I hope that that process will be used
18 forthrightly.
19 I have no doubt of the integrity of the Staff. I
20 think the amount of public participation that's been
21 involved in the process, the willingness to share findings
22 in the short term, their willingness to provide an
23 extraordinary amount of documentation, although it was
24 mentioned, and appropriately so, that some of that
25 documentation has a need to catch up with the process, but

1 the findings of those specific inspections have been made
2 public in public exits. I think the process is more
3 scrutable than most of our routine processes, and certainly
4 more scrutable than any recovery process I have been
5 involved in in the past, and that's included Pilgrim, that's
6 included --
7 CHAIRMAN JACKSON: Let me just stop you. This is
8 the process to date. The issue has to do with the
9 go-forward.
10 MR. THOMPSON: As you well recall, as you know,
11 Joe, I, Sam get briefings every morning on the status of
12 what's happening, in addition to the activities that Bill
13 and his staff do. We monitor the results. There is no
14 question in my mind that for myself, for Joe or Sam, or
15 Bill, that any of us would hesitate one moment to take any
16 action to ensure the public health and safety; if it's
17 shutdown, there will be no question in our mind to do that.
18 CHAIRMAN JACKSON: Do you believe that the
19 regional staff and the regional management has been
20 appropriately sensitized through this process?
21 MR. THOMPSON: There's no question in my mind. As
22 you know, Joe, myself, Sam and Bill --
23 CHAIRMAN JACKSON: Yes, but you yourself know
24 yourself and Sam, and will not be sitting in King of
25 Prussia.

1 MR. THOMPSON: That's right.

2 CHAIRMAN JACKSON: And will not be in Waterford.
3 So that's why I've asked the question of your judgment of
4 the regional orientation.

5 MR. THOMPSON: As you recall, the initial start-up
6 is our responsibility, not the regional responsibility.

7 CHAIRMAN JACKSON: Yes, but the continuing
8 oversight. This is the go-forward position.

9 MR. THOMPSON: And once we go forward, we will not
10 go forward, and there is no question in my mind when we do
11 go forward, that that will be absolute assurance that they
12 are sensitized to this issue, and that their continuation of
13 the issues and sensitivities that we have will be monitored
14 very appropriately.

15 MR. SAM COLLINS: Chairman, two weeks ago I was at
16 Region I, and as Tony certainly well knows, I spoke at the
17 resident counterpart meeting, although there were many other
18 employees in attendance. We talked about these types of
19 issues.

20 Additionally, it is fairly rarely when I don't
21 speak to Hub Miller, the regional administrator of Region I
22 on any issue that he believes needs to be coordinated with
23 the program office, and that includes a very low level of
24 plant performance. So I think we are very closely aligned,
25 and I see no hesitancy with Region I.

1 CHAIRMAN JACKSON: Commissioner Diaz? Excuse me,
2 no, you had a specific question. Go on.
3 COMMISSIONER DIAZ: Well, it's just a piggyback on
4 this one here for the time being. I want to go away from
5 Hugh and Sam and Joe and so forth and really look at
6 processes, because I do agree that we have established this
7 very dependable and integral. I think the question goes a
8 little farther. Do we have in place now, not two years ago,
9 now, the processes that are fully accountable, that are
10 fully followed by the region, that would be able to detect a
11 significant deficiency in the operation of Millstone Unit 3
12 such that the margins of safety that we count on could be
13 decreased?
14 Do we have processes in place? Because I think
15 that goes to the heart of what Mr. Lochbaum was saying.
16 CHAIRMAN JACKSON: And do our management -- our
17 management processes -- do they have built into them
18 accountability relative to adhering to them?
19 MR. THOMPSON: Let me turn to Bill and to Wayne to
20 do that in particular, but, you know, this is obviously one
21 of the most important elements that we have, and I know you
22 are looking to the others, but let me assure you that it's
23 going to have Joe and my and Sam's personal process.
24 CHAIRMAN JACKSON: Yes, but we're just saying if
25 you cross Rockville Pike and, you know --

1 MR. THOMPSON: We don't all three cross Rockville
2 Pike at the same time. We don't even ride in the same car.
3 CHAIRMAN JACKSON: Let's hear you.
4 MR. LANNING: Well, I think, and the reason we
5 have a number of processes, the point review process
6 certainly brings to bear a very periodic review of licensee
7 performance.
8 CHAIRMAN JACKSON: Did the point review process
9 exist two years ago?
10 MR. LANNING: Two years ago? Some form of it
11 existed.
12 CHAIRMAN JACKSON: Okay. So what's different? I
13 mean --
14 MR. LANNING: It's more frequent; the data that's
15 used for the assessment is more rigorous in developing
16 assessment of licensee performance.
17 COMMISSIONER DIAZ: In other words, we have
18 according to you a fair, equitable, accountable,
19 transparent, reasonably implemented process or processes
20 that will provide us with the assurance that we are
21 monitoring these activities to provide adequate protection
22 of health and safety.
23 MR. LANNING: I think the answer to that is
24 definitely yes.
25 CHAIRMAN JACKSON: Let me just ask Mr. Cerne. I

1 don't want to put you on the spot, but you are the senior
2 resident inspector. How would you answer that question?
3 Because what you're basically talking about, and we need to
4 sit here and listen to you, but you're basically talking
5 about a transition in the oversight back to the region, and
6 so -- and since Mr. Miller is not here, I want to hear from
7 the man and the young lady who are on the line every day.
8 MR. CERNE: Mr. Chairman, I think as we transition
9 back we have our normal inspection processes which I think
10 both Millstone and hope we can get back into some normalcy.
11 I think the heightened awareness of what has
12 happened at Millstone and the processes we're overseeing
13 there in terms of inspection won't allow it to occur again.
14 I think the new requirements in terms of guidance on FSAR
15 compliance, on engineering issues, the heightened awareness
16 of risk, operational safety from the standpoint of risk, I
17 think all those provide a better perspective of which we can
18 analyze the plan as it goes forward, and I believe in our
19 assessment we also are judging that the licensee themselves
20 and giving credit to the workers there and their ability to
21 communicate with us will provide some of that input that
22 won't allow that backslide to happen without us recognizing
23 it.
24 CHAIRMAN JACKSON: Okay. Commissioner.
25 COMMISSIONER DIAZ: I just wanted to add a little

1 bit to it. We realize that you guys had a microscope at
2 your hands all of this time, and so the question goes a
3 little farther. The microscope is going to go away. You
4 might have a magnifying glass occasionally. But we need to
5 be sure that you have processes that are normal, routine,
6 that are able to provide us with that information that is
7 needed so we can assure the people that live in there that
8 yes, there is a process that we can put in place that is
9 accountable and that will prevent this situation from
10 occurring.
11 MR. DURR: May I?
12 CHAIRMAN JACKSON: Yes, please.
13 MR. DURR: The buck stops here. I'm the Branch
14 Chief for the Inspection Program.
15 CHAIRMAN JACKSON: Why don't you just go to the
16 podium then.
17 MR. DURR: I am Jacques Durr.
18 I am Chief of the Inspection Branch. I am where
19 you will end up, and Tony Serny and the Resident Inspectors
20 work for me.
21 There is a process in place -- I have already set
22 it in motion.
23 We are now developing the -- I don't know if you
24 are familiar with the PIM, which is the Plant Information
25 Matrix which stems from the inspection reports.

1 COMMISSIONER DIAZ: We have eaten, drank,
2 swallowed --
3 [Laughter.]
4 MR. DURR: Sorry.
5 COMMISSIONER DIAZ: -- PIM last year.
6 MR. DURR: I apologize. Just want to make sure
7 you recall it -- so we were putting the PIM together. We
8 have currently updated the Millstone PIM. It is being
9 prepared for the Senior Management Meeting coming up so it
10 will be part of what goes to the Senior Managers. The
11 current PIM is in place.
12 We are developing the inspection program
13 post-startup because we recognize that Millstone 3, once the
14 SIL is done, our inspection program is kind of dissolved and
15 we will be back in 2515 and the core inspection program,
16 which makes allowances for special plants that need some
17 additional watching, so the resources will be shifted
18 accordingly to meet the 2515 inspection program, so you will
19 have the core, plus we'll be putting in additional
20 inspections from our perspective anyway. I will certainly
21 promote inspections in those areas where we feel that there
22 have been previous weaknesses.
23 The Corrective Action Program is near and dear to
24 my heart. We will be following that very closely because I
25 perceive that to be as part of the root cause of why

1 Millstone is where it was. They didn't have an effective
2 Corrective Action Program. The people outside had to go
3 outside the system to get things fixed, so if you have an
4 effective Corrective Action Program with a low threshold, it
5 will take care of it.
6 CHAIRMAN JACKSON: Okay, thank you. Dr. Travers?
7 DR. TRAVERS: I just very briefly would add that I
8 do have confidence in the process, but I don't look at it as
9 a stationary or a stagnant one.
10 I think we are continually in the mode of
11 self-assessing. I think Millstone has caused this agency to
12 introspectively consider how it goes about identifying these
13 kinds of problems, how it does it in time, and we are about
14 the business -- you know better than I -- of improving and
15 refining our capabilities in terms of Senior Management
16 Meeting process and other things that the Commission is well
17 into.
18 So I look at where we're at as satisfactory, but
19 recognize that we are always in the mode of trying to do
20 better and so I would point to that kind of future as the
21 appropriate one where we learn from Millstone and other
22 things as they pop up but I think today we have processes
23 that we can use effectively. It takes people to implement
24 them and so I agree with Sam and Hugh in the sense that we
25 have to look on the people who are implementing that

1 fundamentally as the agents of the process.

2 CHAIRMAN JACKSON: Are you prepared to make the

3 hard judgments, assuming they are the right judgments?

4 DR. TRAVERS: I certainly am.

5 CHAIRMAN JACKSON: Okay. Commissioner Dicus.

6 COMMISSIONER DICUS: Okay. Throughout your

7 recommendations, which you have been making to us,

8 particularly here on the last page, on occasion you have

9 addressed some -- if the microphone is turned on, it

10 helps --

11 [Laughter.]

12 COMMISSIONER DICUS: -- but you have made

13 occasional qualifications or stipulations with some of the

14 recommendations, perhaps even some uncertainties.

15 Can the Commission rest assured that with these

16 recommendations we do have all of your stipulations or

17 important stipulations, uncertainties and/or uncertainties

18 or qualifications to those recommendations?

19 MR. CALLAN: I'm going to answer yes, but since we

20 have got everybody here, why don't we just go down --

21 everybody -- we'll start with Phil and just work our way

22 through down.

23 I have no reservations whatsoever with that

24 aspect.

25 CHAIRMAN JACKSON: Okay.

1 MR. McKEE: I agree. I think we have covered
2 everything.
3 CHAIRMAN JACKSON: You have covered all of your
4 reservations and stipulations? We have heard all there is
5 to hear from your perspective?
6 MR. McKEE: Yes.
7 CHAIRMAN JACKSON: Mr. Imbro?
8 MR. IMBRO: Yes, I agree.
9 CHAIRMAN JACKSON: Mr. Collins?
10 MR. COLLINS: Yes.
11 CHAIRMAN JACKSON: Mr. Travers?
12 DR. TRAVERS: I feel accountable. Yes.
13 CHAIRMAN JACKSON: Mr. Lanning?
14 MR. LANNING: Yes.
15 CHAIRMAN JACKSON: Good.
16 COMMISSIONER DICUS: Thank you.
17 CHAIRMAN JACKSON: We have to wrap it up here.
18 COMMISSIONER DIAZ: But this is a question that I
19 think is important, and I hate that it's so late, but it was
20 raised in different words by four of the speakers for the
21 public interest groups and I think for the record it's a
22 question that bears answering.
23 It essentially stated that at different times or
24 different occasions or different incidents or different
25 configurations that, and I quote, that "place the public at

1 substantial risk" -- and I just had my staff go and look at
2 the record of Millstone units and there were five releases
3 of radioactivity since 1986 or 1987, all of them below Part
4 20, either had no safety significance and so forth.
5 From your perspective, Dr. Travers, and you have
6 spent more time than anybody looking at this, is this a
7 perception that the public is getting, that they have been
8 placed at substantial risk or that the public has some
9 reason to believe that they have been placed at substantial
10 risk?
11 DR. TRAVERS: I want to make sure I understand.
12 You are talking about our program we are
13 completing versus this historical -- because I am not
14 familiar --
15 COMMISSIONER DIAZ: I am talking about the
16 assessment and especially the assessment that you have made
17 on the safety of the Millstone unit.
18 DR. TRAVERS: Everything that we are trying to
19 convey that -- is a result of program outcome.
20 Our program points to and supports in my
21 estimation at least the recommendation for your
22 consideration of restart authorization, and that simply
23 means, because it is our principal responsibility, that we
24 are arguing today that this plant, this management, this
25 workforce can operate the facility and we have to rely on

1 that to an extent.

2 We can only do so much. But our program

3 indicates, and it has been substantial, that they can in

4 fact operate it safely without occurrence of risk to public

5 health and safety. That is the bottom line. It has to be

6 and we recognize it as such.

7 COMMISSIONER DIAZ: That is the bottom line.

8 Thank you so much.

9 DR. TRAVERS: Thank you.

10 CHAIRMAN JACKSON: Thank you very much.

11 I would like to thank Northeast Utilities, Sargent

12 & Lundy, the public officials, members of interest groups,

13 and the NRC Staff for briefing the Commission on the

14 progress and assessing the readiness for restart of

15 Millstone Unit 3.

16 I would actually like to make a parenthetical

17 remark in response -- I believe it's from the Citizens for a

18 Sustainable -- Alliance for Sustainable Connecticut.

19 I think the Commission needs to take ownership

20 where the Commission has the ownership. There was an issue

21 that came up relative to having radiation monitors in the

22 vicinity and around the plants and the letter went out under

23 the EDO's signature.

24 That was a decision the Commission made or at

25 least approved, and so I think the Commission needs to take

1 ownership for that.

2 Once again, I will state on behalf of the
3 Commission that we recognize how difficult it is to condense
4 the substance of either the reviews performed by each of you
5 or in the case of the public your comments and evaluations,
6 into briefings like this, and that is the primary reason
7 that we in November of 1996 established the Special Projects
8 Office to provide for the direct oversight of all the
9 licensing and inspection activities and to tailor the NRC
10 Staff guidelines for restart approval to specifically assess
11 deficiencies at the Millstone units.

12 As I did at last month's meeting, I want to
13 reassure the public especially that the Commission as a
14 consequence of making the Millstone units Category 3 plants
15 in June of 1996 took on the responsibility to itself of more
16 careful monitoring of these plants, but again to that end we
17 have relied on the Special Projects Office but we do receive
18 and read your personal correspondence to our offices, and we
19 consider it all a part of the Millstone record in our
20 evaluations for restart readiness and we do appreciate your
21 input.

22 Today the Commission is faced with evaluating the
23 recommendation from the NRC Staff and weighing that with the
24 various comments that we have gotten and that recommendation
25 is that the Commission provide its restart authorization for

1 Millstone Unit 3.

2 You have heard that the plant is actually not
3 ready to restart tomorrow. However, the Commission will
4 deliberate and decide whether the licensee is close enough
5 and whether adequate progress has been made to turn the
6 final approval for authorization over to the Executive
7 Director for Operations.

8 Should the Commission make that decision, it is
9 important that the lessons learned from this whole episode
10 be appropriately inculcated and propagated and that the
11 appropriate oversight remains and all that that implies.

12 I assure you all that on behalf of the Commission
13 we will decide on the restart authorization of Unit 3 with
14 one primary thought in our minds, not that they have been
15 shut down long enough, and not with a consideration of
16 maintaining the licensee's restart schedule, but the
17 question that we will have addressed is if in the collective
18 opinion of the Commission the Millstone station a safe
19 station with an effective corrective action program and an
20 environment supportive of raising and resolving safety
21 concerns.

22 If there are any issues that have related to the
23 potential restart of Unit 3 that have come before us today,
24 the Staff should promptly -- promptly -- forward its
25 assessment of any of those issues.

1 Unless any of my colleagues have any closing
2 comments, we are adjourned.
3 Thank you.
4 [Whereupon, at 6:02 p.m., the public meeting was
5 concluded.]
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CERTIFICATE

This is to certify that the attached description of a meeting of the U.S. Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON REMAINING ISSUES RELATED TO PROPOSED RESTART OF MILLSTONE UNIT 3 -- PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Tuesday, June 2, 1998

was held as herein appears, is a true and accurate record of the meeting, and that this is the original transcript thereof taken stenographically by me, thereafter reduced to typewriting by me or under the direction of the court reporting company.

Transcriber: Mary Martha Brazil

Reporter: Jon Hundley

NORTHEAST

UTILITIES

Progress at Millstone Station

Northeast Utilities Presentation
for the
U.S. Nuclear Regulatory Commission

NRC Headquarters
Rockville, Maryland
June 2, 1998

Mike Morris

Chairman, President & CEO
Northeast Utilities

Bruce Kenyon

President & CEO
Northeast Nuclear Energy Company

Agenda

- Restart Readiness Overview — *Bruce Kenyon*
- Unit Readiness — *Mike Brothers*
- Corrective Actions and Engineering Quality/ Effectiveness — *Marty Bowling*
- Nuclear Oversight Assessment — *John Streeter*
- Closing Remarks — *Bruce Kenyon*

Other NU Representatives in Attendance

- Millstone Officers
  - *Dave Amerine* — *VP, Human Services*
  - *Frank Rothen* — *VP, Work Services*
- Nuclear Committee of Board of Trustees
- Nuclear Committee Advisory Team

Overview: Unit 3 Presentation Topics

- Readiness to Restart
- Ensuring Sustained Performance
- Plan to Achieve Excellence
- Readiness to Resume Safe Operations

Restart Readiness

Key Site Issues Are Satisfactory to Support Unit 3 Restart

- Leadership
- Regulatory Compliance
- Oversight
- NSAB
- Emergency Planning
- Radiation Protection
- Procedure Quality & Adherence
- Self Assessment
- Corrective Action
- Configuration Management
- Safety Conscious Work Environment
- Training
- Operator Readiness
- Security
- Environmental Compliance
- Work Control

Northeast Nuclear Energy 7

Sustaining Performance

A Conservative Startup Plan is in Place for Unit 3

- High standards and conservative decision making have been emphasized
- The Power Ascension Program will be disciplined and unhurried
- Unit management will be on shift to reinforce standards
- Oversight will continue intensive involvement throughout startup
- Commitment made to discuss results with NRC

Northeast Nuclear Energy 8

Sustaining Performance

The Sustaining Performance Plan Includes:

- Monitoring of key issues using key performance indicators
- Commitment to provide quarterly performance updates
- Extensive self-assessments
- Strong Oversight

Northeast Nuclear Energy 9

Sustaining Performance

Unit 3 Safe Operations Will Not Be Compromised by Unit 2 Recovery

- Unit 3 operations will be functionally separate from Unit 2 recovery
- Millstone support organizations understand that Unit 3 has priority
- If financial resources become limited, the pace of Unit 2 recovery will be slowed

Northeast Nuclear Energy 10

Sustaining Performance

SCWE is Maintained and Strengthened

- "People Team" meets daily
- Executive Review Board (ERB) reviews all proposed discipline and staff reductions
- Leadership Assessment and Culture Survey will be conducted every six months
- Employee Concerns Oversight Panel (ECOP) provides ongoing oversight

Northeast Nuclear Energy 11

Achieving Excellence

The 1998-2000 Performance Plan Aligns and Prioritizes Millstone Activities

- Presents the vision, mission, values and standards
- Organized around five Strategic Focus Areas:
  - *Safety*
  - *Operating Excellence*
  - *Work Environment*
  - *Organizational Effectiveness*
  - *External Relations*

Northeast Nuclear Energy 12

Achieving Excellence

The 1998-2000 Performance Plan Will Continue Improvement at Millstone

- Contains high-level strategies for next three years, with a current primary focus on 1998
- Directs the development of more detailed implementing plans
- Establishes performance measures (KPIs) to monitor progress

Northeast Nuclear Energy 13

Readiness Affirmation

NU's Eight Readiness Affirmation Criteria Have Been Met for Unit 3 Restart

1. Root causes for decline in Millstone performance have been identified and corrected
   SATISFACTORY
2. Compliance with the licensing and design bases has been restored
   SATISFACTORY
3. Safety Conscious Work Environment has been established
   SATISFACTORY
4. Self Assessment and Corrective Action processes identify and resolve problems in a timely manner
   SATISFACTORY

14

Readiness Affirmation

NU's Eight Readiness Affirmation Criteria Have Been Met for Unit 3 Restart

5. Unit and support organizations are ready to resume operations
   SATISFACTORY
6. Entire station is prepared to properly support unit operations
   SATISFACTORY
7. Management controls and oversight measures are in place to prevent significant future performance declines
   SATISFACTORY
8. Restart readiness is affirmed using a rigorous process
   SATISFACTORY (NSAB and Oversight evaluations will be complete by 6/2/98)

15

Unit Readiness

Mike Brothers
Vice President - Nuclear Operations

Northeast Nuclear Energy 16

Millstone Unit 3 Will Be Ready to Safely Resume Power Operations by Early June

- Physical Readiness
- Regulatory Readiness
- Organizational Readiness
- Operational Readiness

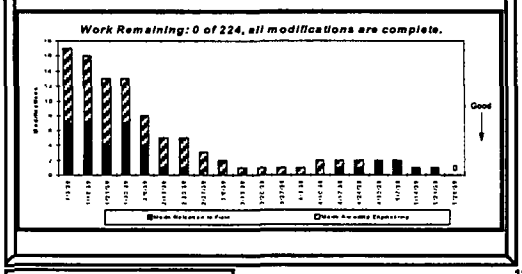
Northeast Nuclear Energy 17

Unit 3 Will Be Physically Ready to Resume Power Operation by Early June

- All required Modifications are complete
- Plant Materiel Condition is very good
- All pre-requisites for Mode 2 will be met by early June

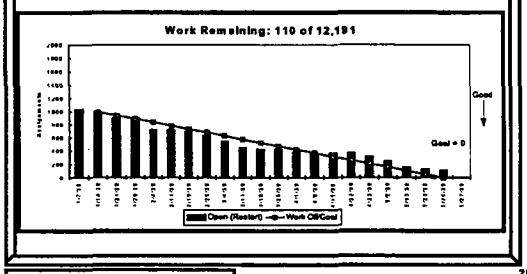
Northeast Nuclear Energy 18

All Required Modifications are Complete



Northeast Nuclear Energy 19

All Tasks Required For Restart Will Be Complete by Early June



Northeast Nuclear Energy 20

We Have Substantially Achieved Our Corrective Maintenance Backlog Goals

Northeast Nuclear Energy 21

Unit 3 Will Achieve Regulatory Readiness to Resume Power Operations by Early June

- All required License Amendments will be submitted by early June
- All required Significant Items List packages have been submitted
- All NRC commitments required for restart will be submitted by early June
- All 50.54(f) SIRL items will be complete by early June

Northeast Nuclear Energy 22

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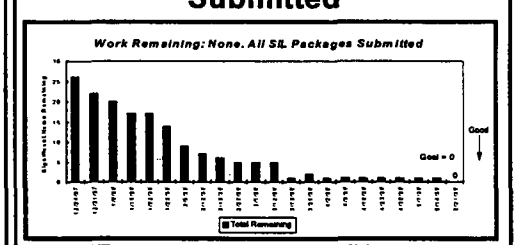
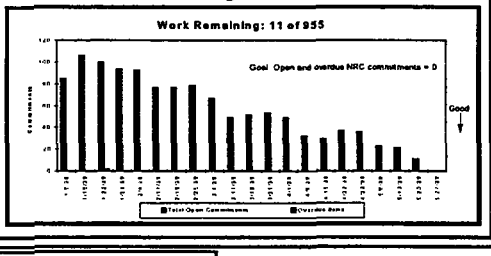
Northeast Nuclear Energy 23

All Required Significant Items List Packages Have Been Submitted



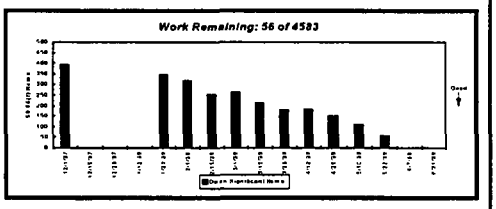
Northeast Nuclear Energy 24

All NRC Commitments Required for Restart Will be Submitted by Early June



Northeast Nuclear Energy 25

All 50.54(f) SIRL Items Will Be Completed by Early June



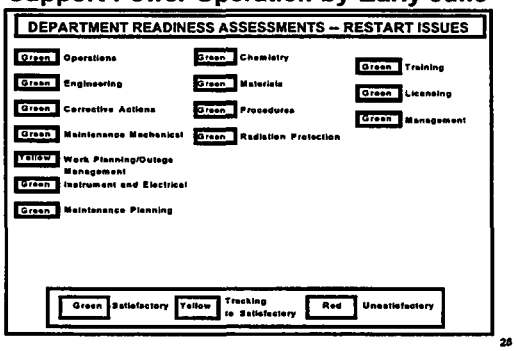
Northeast Nuclear Energy 26

Unit 3 Will Be Organizationally Ready to Resume Power Operation by Early June

- All departments will be evaluated as satisfactory by early June
- The Corrective Action Program is functionally satisfactory
- The Procedure Upgrade Program is complete
- Procedure Compliance is at an acceptable level

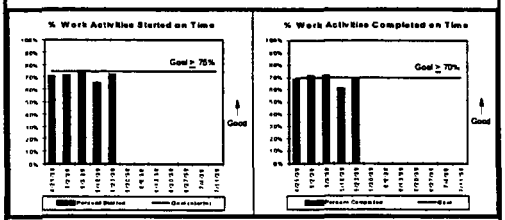
Northeast Nuclear Energy 27

All MP3 Departments Will be Ready to Support Power Operation by Early June



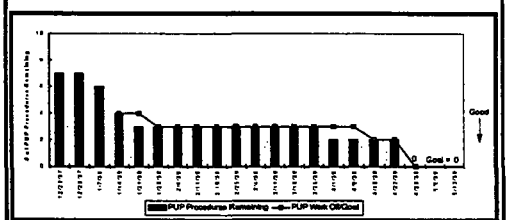
28

We Are on Track to Meet Our Work Management Goals by Early June



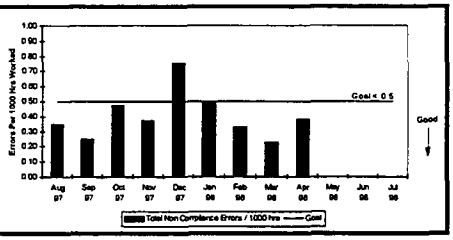
Northeast Nuclear Energy 29

The Procedure Upgrade Program is Complete



Northeast Nuclear Energy 30

Procedure Compliance is at an Acceptable Level



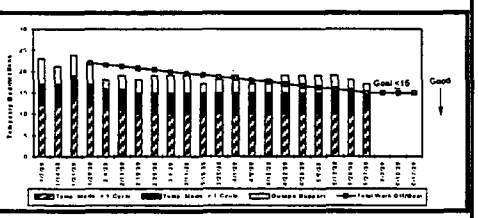
Northeast Nuclear Energy 31

Unit 3 Will Be Operationally Ready to Resume Power Operation By Early June

- Temporary Modifications, Operator Work-Arounds and Control Board Deficiencies will be at goal by early June
- Operator Performance is at a level to resume power operations
- Startup and Power Ascension Program is in place
- All required training has been completed

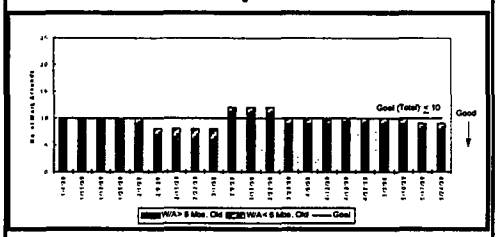
Northeast Nuclear Energy 32

Temporary Modifications Will Be at Goal to Support Power Operations by Early June



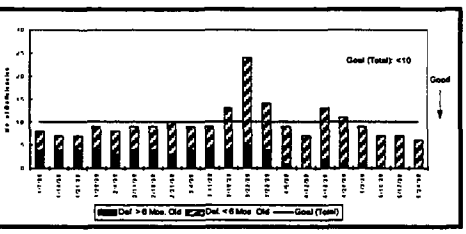
Northeast Nuclear Energy 33

Operator Work-Arounds Are at Goal to Support Power Operations



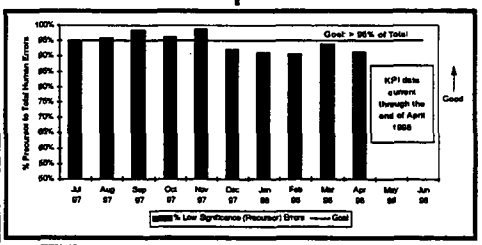
Northeast Nuclear Energy 34

Control Room Deficiencies Are at Goal to Support Power Operations



Northeast Nuclear Energy 35

Human Performance is at a Level to Support Power Operations



Northeast Nuclear Energy 36

Millstone Unit 3 Needs to Aggressively Transition to an Operational Unit

- Our initial transition out of Mode 5 did not meet our expectation
- Selected Operational Programs are not at industry "best practice" standards
- Repairs to a Reactor Coolant System Valve did not meet our standards

Northeast Nuclear Energy 37

We Have Taken Actions to Enhance the Operational Focus of Our Organization

- Unit Management / Industry Peers on shift to reinforce standards
- Heatup and Power Ascension schedules reviewed and "first time" evolutions identified
- One shift manager assigned responsibility of coordinating the return to 100% power
- Aggressive industry benchmarking of Operations Department programs
- Formation of Operations Support organization to consolidate programmatic issues

Northeast Nuclear Energy 38

Our Startup and Power Ascension Will be Controlled and Deliberate

- Operating shifts will be augmented with additional SROs/ROs
- Unit Management will be on shift to reinforce standards
- Nuclear Oversight will be on shift to assess performance
- Pre-arranged assessments will be conducted at 30%, 50%, 75%, and 90%
- Contingency shutdowns are included in the power ascension schedule

Northeast Nuclear Energy 39

All Required Training has Been Completed to Support Power Operations

- Modification Training
- Startup and Power Ascension Training
- Operations Department Standards Training
  - *Reactivity Management*
  - *Conservative Decision Making*
  - *Conduct of Operations Training*

Northeast Nuclear Energy 40

Millstone Unit 3 Will be Ready to Safely Resume Power Operations in Early June

- Physical Readiness
- Regulatory Readiness
- Organizational Readiness
- Operational Readiness

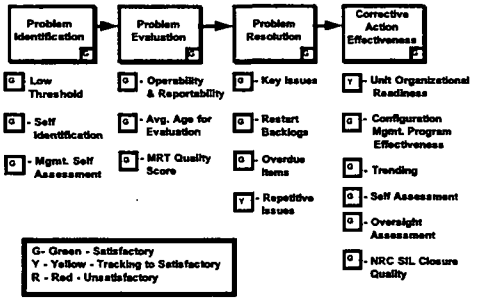
Northeast Nuclear Energy 41

Corrective Actions and Engineering Quality/ Effectiveness

Marty Bowling
Vice President - Technical Services

Northeast Nuclear Energy 42

MP3 Corrective Actions are Satisfactory for Conduct of Safe Operations



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Corrective Actions

Millstone 3 Has Resolved Long-Standing Repetitive Issues

- Safety Evaluation Quality
- Material, Equipment and Parts List (MEPL) Program
- MOV Program / RSS
- AWO Quality and Backlog
- Fire Protection Program
- ISI / IST Program
- Technical Specification Surveillance Schedule Adherence

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Corrective Actions

Remaining Repetitive Issues Are Receiving Intensive Management Attention

- Operational Configuration Control
- Engineering Quality & Standards

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Engineering Quality

Engineering Quality is Acceptable and Improving

- Management coaching is being used to raise standards for accuracy and procedure compliance
- Workloads will be rebalanced post restart
- ICAVP & self-assessment-identified program & process weaknesses will be addressed

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Engineering Quality

MP3 Outage Modification Review Validated Engineering Design Quality & Standards

- 194 modifications performed during this outage were reviewed
- Causal factors from the RSS orifice modification were used in the review
- 12 RSS-related modifications were reviewed from both a technical & system interaction standpoint
- No significant issues identified

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Engineering Quality

MP3 Response to ICAVP DRs Demonstrates Acceptable Engineering Quality

- 78% of total DR response required no followup
- Of the 22% of total DR responses requiring followup to the ICAVP contractor:
  - 18% of the responses simply required additional information for proper evaluation
  - Only 4% of DR responses required additional corrective actions after follow-up -- *only 3 DRs were Level 3s*

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The MP3 Engineering Effort Was Effective in Identifying and Addressing the Safety-Significant and DB/LB Issues

MP3 Engineering Reviews Identified the Safety Significant Items *(1/96 - 4/20/98)*

Safety Significance		LERs Submitted
♦ Self Identified		136
– *Low*	*117*	
– *Moderate*	*15*	
– *High*	*4*	
♦ ICAVP Identified		4
– *none of high safety significance (1 moderate and 3 low)*		

MP3 Engineering Reviews Identified Most of the DB / LB Issues

- No level 1 or 2 DRs
- Only 18 of the 974 total DRs were confirmed as Level 3 - *low safety significance*
- Level 4 DRs used in self assessment of effectiveness
- Level 4 DRs will be addressed

MP3 DB/LB Review Scope Was Expanded to Provide Additional Assurance of Effectiveness

- Integrated System Reviews
- Operation Experience (NRC Information Notice)
- Safety Evaluation Screening
- Dose Analysis Reviews
- Calculational Control
- Technical Specifications (Sec. 6.0)
- Deferred CM Items Review
- FSAR (NSSS/AE Interfaces)
- Outage Modification Review
- RSS Modification Review

MP3 Corrective Actions to Address ICAVP Issues are Substantially Completed

	Required	Remaining
♦ Level 3 ICAVP DR Assignments	82	5
♦ Level 4 ICAVP DR Assignments	843	306

Organization and Process In Place to Maintain Compliance With DB & LB

- Configuration Control Programs are in place
- Permanent Configuration Management organization has been formed
- "Owners" established for each Configuration Management process and maintenance
- CM and 50.59 training provided
- Performance is being monitored

Engineering Effectiveness

MP3 Engineering Design and Technical Quality is Acceptable

- DB/LB review was comprehensive and identified the safety significant and DB/LB nonconformance issues
- Effective corrective actions have been taken to restore DB/LB conformance
- CM and 50.59 training has been conducted
- Programs, owners, and organization are in place to maintain DB/LB conformance

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Corrective Actions

The ICAVP Order Requirements Have Been Met For MP3

- We have responded to the April 16, 1997 10CFR 50.54(f) request
- A robust and effective corrective actions program is in place
- ICAVP provided additional assurance and did not identify any significant areas that need to be addressed
- Ongoing self-assessment, performance monitoring and excellence initiatives will sustain performance

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Nuclear Oversight Assessment

John Streeter
Vice President - Nuclear Oversight

Northeast Nuclear Energy 57

Overall Oversight Assessment: *Millstone 3 Is Ready for Restart*

- Restart Success Criteria
  - *met for the 16 key issues*
- Mode 2 Issues
  - *being carefully tracked*
- High Performance Standards
  - *Line management and Oversight are holding the work force accountable*
  - *Intensive Oversight review will continue to assure ongoing improvement*
- Power-level Change Decisions
  - *Oversight concurrence will be required*

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Oversight Uses Nuclear Oversight Restart Verification Plan (NORVP) and Mode 2 Issues List in Decision Making

- NORVP
  - *assesses key issue program effectiveness*
- Emerging Issues
  - *impact and significance are continually assessed by Oversight*
- Mode 2 Issues List
  - *tracked to resolution*

Northeast Nuclear Energy 59

NORVP and Other Oversight Assessment Results Verify Unit 3 is Ready for Restart

	1/2/98	1/23/98	2/6/98	2/20/98	3/6/98	3/20/98	4/3/98	4/17/98	5/1/98	5/15/98
KEY ISSUES										
Leadership										
Self Assessment	Y	Y	Y	Y	Y	Y				
Corrective Action										
NSAB/Oversight Recovery										
Configuration Management										
Procedural Quality/Adherence	Y	Y	Y	Y						
Work Centers/Planning	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Regulatory Compliance										
SCWE	Y	Y	Y	Y	Y	Y	Y			
Emergency Prep	Y	Y	Y							
Radiation Protection										
Security										
Environmental Monitoring	Y	Y								
Training	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Conduct of Operations								Y	Y	Y
OVERSIGHT ASSESSMENT AREAS										
Maintenance/MC	Y	Y								
Chemistry										
Fire Protection	Y	Y	Y		Y					
Engineering				Y	Y	Y	Y	Y	Y	Y
Materials	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mode Changes	(Mode 2 assessment began 5/1)								Y	Y

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Operations:
Ready for Restart

- Restart success criteria met
- Mode 2 issues being tracked to resolution
- Oversight will maintain 24-hour coverage until performance justifies reduced presence

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Startup and Power Ascension Preparations:
Ready for Restart

- Oversight reviewed and concurred with startup and power ascension plans
- No Mode 2 issues
- Oversight will maintain 24-hour coverage throughout power ascension
- Oversight must concur with all power-level change decisions

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Corrective Action Program:
Ready for Restart

- Restart success criteria met
- No Mode 2 issues
- Oversight will continue monitoring appropriateness and effectiveness of corrective actions

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Configuration Management and Regulatory Compliance:
Ready for Restart

- Restart success criteria met
- Mode 2 issues being tracked to resolution
- Oversight will continue monitoring compliance with Licensing and Design Bases

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Engineering:
Ready for Restart

- Engineering able to acceptably perform safety activities
- Mode 2 issues being tracked to resolution
- Oversight will continue monitoring configuration management, design engineering and systems engineering

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Training:
Ready for Restart

- Restart success criteria met
- No Mode 2 issues
- Oversight will continue monitoring self assessment, corrective action, and systems approach to training

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Materials:
Ready for Restart

- Mode 2 issues being tracked to resolution
- Oversight will continue monitoring enhancements to the Materials Program

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Oversight Will Continue to Perform "NORVP" Assessments

- Unit 3
  - *plan revised by June 26 to reflect increased focus on operations*
- Unit 2
  - *revised plan will continue to address recovery issues*

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Overall Oversight Assessment:
Millstone 3 Is Ready for Restart

- Restart Success Criteria
  - *met for the 16 key issues*
- Mode 2 Issues
  - *being carefully tracked*
- High Performance Standards
  - *Line management and Oversight are holding the work force accountable*
  - *intensive Oversight review will continue to assure ongoing improvement*
- Power-level change decisions
  - *Oversight concurrence will be required*

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Concluding Remarks

Bruce Kenyon

Northeast Nuclear Energy 70

NORVP and Other Oversight Assessment Results Verify Unit 3 is Ready for Restart

	1/9/98	1/23/98	2/6/98	2/20/98	3/6/98	3/20/98	4/3/98	4/17/98	5/1/98	5/15/98	
KEY ISSUES											
Leadership	G	G	G	G	G	G	G	G	G	G	
Self Assessment	Y	Y	Y	Y	Y	G	G	G	G	G	
Corrective Action	G	G	G	G	G	G	G	G	B	G	
NSAB/Oversight Recovery	G	G	G	G	G	G	G	G	G	G	
Configuration Management	G	G	G	G	G	G	G	G	G	G	m
Procedural Quality/Adherence	Y	Y	Y	Y	G	G	G	G	G	G	
Work Control/Planning	Y	Y	Y	Y	Y	Y	Y	Y	Y	G	
Regulatory Compliance	G	G	G	G	G	G	G	G	G	G	m
SCWE	Y	Y	Y	Y	Y	Y	Y	G	G	G	
Emergency Prep	Y	Y	Y	G	G	G	G	G	G	G	m
Radiation Protection	G	G	G	G	G	G	G	G	G	G	
Security	G	G	G	G	G	G	G	G	G	G	
Environmental Monitoring	Y	Y	G	G	G	G	G	G	G	G	
Training	Y	Y	Y	Y	Y	Y	B	Y	Y	Y	
Conduct of Operations	G	G	G	G	G	G	G	Y	G	Y	m
OVERSIGHT ASSESSMENT AREAS											
Maintenance/I&C	Y	Y	G	G	G	B	G	G	G	G	
Chemistry	G	B	G	G	G	B	G	G	G	G	
Fire Protection	Y	Y	Y	B	Y	G	G	G	G	B	
Engineering	G	G	G	Y	Y	Y	Y	Y	Y	Y	m
Materials	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	m
Mode Changes	(Mode 2 assessment began 5/1)								Y	Y	

G Satisfactory

Y Improvement Needed

R Significant Weakness

B Not Assessed

m Mode 2 issues as of 5/26/98

SARGENT & LUNDY

COMMISSION BRIEFING
JUNE 2, 1998

MILLSTONE UNIT 3
ICAVP FINAL REPORT SUMMARY

Sargent & Lundy

Objectives of ICAVP

Verification that, for selected systems:

- NU's CMP identified and resolved existing problems with the design and licensing bases
- NU documented and utilized the design and licensing bases
- NU established programs, procedures, and processes for effective configuration management in the future

Structure of ICAVP

Tier 1 - Verify system meets licensing/design bases and system functionality.

Tier 2 - Verify that system design parameters relied on to mitigate the consequences of postulated accidents analyzed in the FSAR are consistent with the performance of the current system configuration.

Tier 3 - Verify that the configuration control processes have not introduced changes that have put the unit in nonconformance with its licensing and design bases.

Scope of Review

Tier 1

- Detailed Review of "4" Systems
- Encompasses 15 of the 88 MR Group 1 & 2 systems
- Limited Review of 51 Interfacing Systems / Elect, I&C
- Reviewed 1534 corrective actions

Tier 2

- Reviewed 230 Critical Characteristics of 22 Accident Mitigation Systems

Tier 3

- Reviewed 11 change processes / implementation
- Reviewed 284 past changes and 71 "other" CA docs

Scope of Tier 1 System Review

SWP	QSS	SLCRS	EDG - Engine
	RSS	Aux Bldg HVAC	EDG - Gen.
	RWST	EDG Rm Vent.	Fuel Oil
			Lube Oil
			Starting Air
			Exhaust
			Sequencer
			4160 volt syst.
SWP	**RSS**	**HVX**	**DGX**

Discrepancy Report / Closure Process

- Review findings termed Discrepancy Reports
- DR closure based on review and acceptance of NU response and proposed corrective action
- Categories of Closed Discrepancy Reports
  - Confirmed DR (not identified by NU CMP)
  - Previously identified
  - Non-Discrepant

DR Significance Level

Level 1 - the system does not meet its LB / DB and cannot perform its intended function (affects redundant trains)

Level 2 - a single train of a redundant system does not meet its LB and DB and that train cannot perform its intended function

Level 3 - a system does not meet its LB / DB but the system is capable of performing its intended function

Level 4 - a system meets its LB / DB however there are minor errors that do not affect the results of a calculation or there are inconsistencies between documents

Discrepancy Report Summary

- 974 Valid Preliminary DRs issued to NRC/NU/NEAC
- 971 NU Resolutions accepted and closed by S&L
- 2 NU Resolutions pending completion of corrective actions
- 1 NU Resolution not accepted by S&L and referred to NRC Staff - "Unresolved"

Discrepancy Report Summary

- Of the 971 Acceptable and Closed resolutions
  - 620 Confirmed Discrepancies
  - 100 Previously Identified by NU
  - 251 Non-discrepant conditions

- Of the 620 Confirmed Discrepancies
  - 20 Level 3
  - 600 Level 4

- Of the Pending and Unresolved Discrepancies
  - 1 Level 3 Pending
  - 1 Level 4 Pending
  - 1 Level 3 Unresolved

Final Report Conclusions

Overall Conclusions

- NU's CMP has been effective in identifying and resolving deficiencies in the Unit 3 design and licensing bases. The number of confirmed Level 3 discrepancies (i.e. DB/LB issues) identified was small in comparison to the number of design and licensing requirements that were verified on the selected systems.
- The selected systems are considered to be in conformance with their design and licensing bases and are considered capable of performing their intended functions.
- NU has established programs, processes and procedures to maintain effective configuration control of their design and licensing bases in the future.

Final Report Conclusions

Tier 1 System Review Conclusions:

- The Unit 3 DB/LB is supported by the design output documents and design process documents
- The upper tier, system-level engineering drawings and the design process documents are technically adequate and the design bases for topical areas are adequately implemented.

Areas where improvements would enhance future CM:

- PMMS and PDDS databases
- Component procurement specifications and vendor drawings
- Calculation control
- Calculation quality
- Design Basis Summary documents for HVAC systems
- Clarification of FSAR regarding filtration system compliance to RG 1.52

Final Report Conclusions

Tier 1 Configuration Review Conclusions:

- The as-installed plant condition is consistent with the design output documents.
- Modification installation was in accordance with the design packages
- The plant physical drawings are generally in conformance with the upper tier, system-level engineering drawings.

Areas where improvements could enhance future CM:

- Consistency between cable and raceway database and electrical design documents
- Undocumented attachments to supports
- Component tagging and labeling issues

Final Report Conclusions

Tier 1 O&M&T Conclusions:

- The selected systems have been operated and maintained within the design and licensing bases and programs are in place to reasonably expect this performance to continue in the future.

- Some of the processes in this area place a high reliance on the skill and performance of the individuals rather than a more process / procedure-driven approach.

Final Report Conclusions

Tier 1 Modification Review Conclusions:

- The design of plant modifications was technically adequate and configuration control was maintained.

- The modifications have been installed and implemented consistent with the design packages and the procedures in effect at the time the modifications were processed.

Final Report Conclusions

Tier 1 Corrective Action Review Conclusions:

- NU has adequately initiated and implemented corrective actions needed to restore the design and licensing bases at Unit 3.

Final Report Conclusions

Tier 2 Conclusions:

- The accident mitigating systems are capable of performing their safety related functions during postulated accidents.

Final Report Conclusions

Tier 3 Conclusions:

- The current Millstone change processes, as reviewed by the ICAVP, are adequate for maintaining the design and licensing bases of the plant on a going forward basis.
- NU is adequately following their current change processes.
- For the past changes reviewed, NU has made changes that are technically adequate without adversely affecting the plant design and licensing bases.

TOWN OF

WATERFORD

Presentation to the Nuclear Regulatory Commission
May 21, 1998

Thomas A. Sheridan
First Selectman
Waterford, CT

Good afternoon. Thank you for the opportunity to once again address the Commission on what I feel is a very important topic—the safe operation of Millstone Unit 3.

In my appearance here on May 1, I addressed the impact of the shutdown of the plant on our local communities and the importance of the safe operation of the Millstone Station to the economic and environmental well-being of our community and State. Today I want to focus on my discussion on changing attitudes and perceptions.

As an elected public official I am obliged to represent the views of my constituency, but I would not be able to come before you today if I did not have personal confidence in the improvements made at the Millstone site. That knowledge comes in part from my participation as a member of the Millstone Advisory Council. In May 1997, Bruce Kenyon approached a number of community minded individuals with diverse backgrounds to act as an advisory council to improve the dialogue between Northeast Utilities and the community. As First Selectman of Waterford, Connecticut, the community in which Millstone is located, I felt a responsibility to participate in this council.

From the beginning, Northeast Utilities was responsive to council members' questions and concerns. As a group we explored a number of significant issues, including the adequacy of the ICAVP, leadership challenges and improvements, and the quality of training. I was continually impressed be Northeast Utilities openness, willingness to allow us to pursue various issues, and responsiveness to feedback from council members—indeed, even allowing individual committee members to observe control room operations on an unscheduled basis. While some of the feedback offered by the council was highly critical—even aggressive—I witnessed no defensiveness on the part of Northeast Utilities management.

At a recent community breakfast—a quarterly meeting Northeast Utilities holds for members of the local business community—I asked Mr. Kenyon what his intention was with respect to the continuation of the Millstone Advisory Council following the restart of the unit. He indicated that he had found the dialogue to be exceedingly helpful and important and that he wanted to continue the effort. My personal experience has been that this is a management team that is willing to listen, to learn, and change.

My perceptions have been confirmed by the comments from Millstone employees who live, work, and participate in local government and community events. Many have expressed confidence in this management and have reported on the many positive changes that have occurred at the station over the last two years. Employees seem to recognize not only their right to raise issues, but a growing confidence in their ability to affect change. These comments reflect a major departure from general employee attitudes witnessed two years previously.

I also see a growing confidence on the part of the larger community with regard to the regulatory process. We are a better informed, more aware, and more vigilant community because (1) a public-minded citizenry has raised questions about safety issues, and (2) the Nuclear Regulatory Commission has given repeated opportunities to all who wish to provide comment. Being able to ask questions, to obtain answers, and on occasion, to express discontent with regulators and the regulatory process has allowed us, as citizens, to participate fully in the recovery process. Ultimately, I believe that the public meeting process, a hallmark of our democracy, will prove to have served this community will. I am hopeful that an enlightened community, led by a number of active public citizen groups, will continue to provide a valuable check and balance on both Millstone operations and regulatory performance.

Recently, eight officials from local communities surrounding the Millstone site came together to sign what we call a "Statement of Support and Reconciliation." The statement was sponsored by the "Friends of a Safe Millstone" or FOSM, a local community group founded to support a safe, operating Millstone Station. Although FOSM founder Ron McKeown may discuss this effort in his remarks, I believe it provides evidence of the changing attitudes within the local communities regarding Millstone Station. The statement included a number of agreements, including the recognition by local officials that "it is in the interest of the region to have a safe-operating and financially viable utility company." I don't believe that two years ago any of us would have been able to sign this document in good conscience.

Although this has been a painful and difficult process, it has strengthened all of us. Northeast Utilities is a better company, managed by principled leadership who believes in openness and communication. The Nuclear Regulatory Commission is a stronger regulator with an increased awareness of the need for aggressive external oversight and public responsiveness, and, we are a stronger community because we have learned that we can make a difference in influencing matters of public health and safety. As we go forward, I believe we will gain both confidence and maturity in our expanded and interdependent roles.

In light of these many changes, I ask that you authorize the restart of Millstone Unit 3.

I would be happy to answer any questions you might have.

NUCLEAR ENERGY

ADVISORY COUNCIL

STATEMENT OF TERRY CONCANNON, CHAIR
CONNECTICUT
NUCLEAR ENERGY ADVISORY COUNCIL (NEAC)

Good afternoon, Chairman Jackson and Commissioners of the Nuclear Regulatory Commission! Thank you for the opportunity to participate in this public briefing prior to the Commission considering authorization for the restart of Millstone Unit 3.

My name is Terry Concannon. I am the State Representative for the 34th Assembly District in the Connecticut Legislature and I am a resident of the town of Haddam. Since its inception on August 1, 1996, I have been co-chair of the state Nuclear Energy Advisory Council (NEAC) which was established pursuant to Public Act 96-245.

NEAC was created in response to the concerns of the citizens in southeastern Connecticut who were variously; alarmed, angry, confused and somewhat frightened by the developments at the three Millstone nuclear power generating plants in Waterford. The three were placed on the NRC Watch List on January 31, 1996. A history of safety violations and the intimidation of employees, compounded by the ineffective and arrogant approach of management, created these problems for the public. In addition, the public had lost confidence in the ability of the NRC to monitor and enforce corrective action standards. The NEAC was created as an independent council of 14 members to ensure that the health and safety of the public, particularly those living within a five-mile radius of the nuclear plants, is protected. Our charge is strictly advisory, but we do interact on a regular basis with the public, the utility, NRC staff members, and the engineering firms contracted to carry out the Independent Corrective Action Verification Program (ICAVP), and we communicate with the state government. To date we have issued two annual reports. The fourteen members have diverse backgrounds, some nuclear, scientific and engineering, and others in business. Their perspectives vary regarding the pros and cons of nuclear generated power and this adds diversity and credibility to the council. We believe it to be important that we retain our objectivity, both real and perceived.

When the council embarked on this task we had no idea of the magnitude of the undertaking. We conjectured that quarterly meetings might suffice but that, initially, it would be best to hold them on a monthly basis. As the process became clearer, our schedule developed and the intensity was much greater than anticipated. The dedication shown by our members has been remarkable and attendance by one or more at any and all meetings of the NRC, NU/the contractors, more than 100 in number, has taken place. Thus, we are well informed as we have

observed the progress over the past 22 months. Four of our members signed the communications protocol established by the NRC, which enabled us to observe closed meetings, to monitor phone calls between NU and the contractors, and to attend meetings with Sargent & Lundy,(the Millstone 3 contractor), the NRC and NU in Chicago. In addition, one member became 'badged' so that he can enter the plant unescorted at any time, and he has been performing a 'Monitor Watch' in the Millstone 3 control room on a regular basis, including visits during off hours, since December.

Today we have been invited to address the principal issues remaining to be evaluated by the Commission, including the ICAVP, the Corrective Action Program and the results of the NRC's Operation Safety Team Inspection (OSTI).

ICAVP/CORRECTIVE ACTION PROGRAM: We became intensely involved with the ICAVP from the start. Due to the skepticism of the public we questioned the 'independence' aspect of the program. Since the utility is paying the contractor, is it possible for the latter to be truly objective? We asked this in Connecticut and we asked it in Chicago. It became apparent that the contractor has a great deal at stake, most of all its reputation in the industry. In our travels, we also ascertained that the eyes of the nuclear energy industry are focused on the outcome of Millstone's efforts. Thus, it would seem that independence and a thorough review by the contractor of Millstone's ability to establish adequate design bases and design controls are of the essence. Nevertheless, our council had some reservations and chose to delete the word, 'independent', simply calling it the 'CAVP.'

Comment: During the process of the CAVP our observations have noted a consistent business-like style to communication whether over a table at a meeting, or over the telephone. An 'arm's length' posture has been maintained.

Next came our involvement in the selection of systems to be reviewed by the contractor in the first of three levels in the Audit Plan. This was intended to address the public concerns about the possible leak of the list of the systems to the licensee ahead of the CAVP review. We were invited to select 2 of the 4 functional groups of systems for the Tier 1 review. A subcommittee of the council determined a method to guarantee a random selection, and the names of the 2 systems were drawn out of a hat by members of the public at a regularly scheduled NEAC meeting in Waterford.

Comment: This process worked well and we appreciated our inclusion as reflected in the Policy Issue released by the Executive Director of Operations, James Taylor, on January 3, 1997.

It soon became apparent that the matter of the Discrepancy Reports posed a problem. The public needed to be able to understand the significance level of the discrepancies being identified by the CAVP. At first, it was easy to read and assimilate them as they were published, but the numbers grew rapidly. In response to these concerns, and in response to our request, the criteria for categorizing the relative significance of the DRs were established.

Comment: This has facilitated the process in a remarkable fashion. Everyone involved is familiar with the significance levels and it has cut down on lengthy verbiage. It is also good to know, where Millstone 3 is concerned, that no confirmed level 1 or level 2 DRs have been found. This means, at the least, that the systems reviewed are capable of performing their intended function. I shall also comment that we were totally surprised by the number of DRs that have been made. When we were hazarding a guess about the possible number before the reviews began, we thought that some 250-300 might be expected. That the number should have reached 1100, is an indication, in our estimation, of how far the corrective action program at Millstone 3 had been permitted to deteriorate. By the same token, it is also a measure of how thoroughly Sargent & Lundy performed the review.

I have monitored phone calls between Sargent & Lundy and NU on a random basis with occasional assistance from my co-chair, Evan Woollacott. These same calls have been monitored by the NRC staff from the Special Projects Office. The communications have retained a constructive businesslike tone as efforts are made to get additional information so that problems can be resolved. Several times I have felt that the NU team has been overly enthusiastic or too determined to have its point of view accepted. Thus, I was glad to hear the Sargent & Lundy representatives hold firm to their position when necessary. We have also found it reassuring that there are some Discrepancy Reports for which no agreement could be reached with Sargent & Lundy regarding the Corrective Action Plan. The NRC has had to step in to help resolve the situation in some 18 cases. Out of the 1100 DRs issued by the contractor some 20+ remain to be closed before Restart as of May 26. The fact that less than 30 are expected to be confirmed at level 3(not meeting the licensing and design bases) is less than 3% of the total. NEAC is concerned that the corrective actions be taken, and has been assured that the outstanding items will be appropriately tagged for identification purposes, as we suggested, and that all corrective action will be completed prior to the end of the next refueling outage.

The end of the CAVP is in sight. Some thousands of hours and thousands of documents later, a picture of Millstone 3 and its conformity/lack thereof to its design and licensing bases has emerged. Of the 88 safety and/or risk significant systems, a comprehensive review was made of the design and licensing bases of 15 systems and portions of 51 interfacing systems. In addition, a validation of the critical design characteristics for accident mitigation included 22 systems. The results should enable the contractor and the Commission to assess the restart capability of the plant in concurrence with other essential criteria, such as the Employee Concerns Program.

OPERATIONAL SAFETY TEAM INSPECTION (OSTI): NEAC members observed the OSTI entrance briefing, public exit meeting and several intermediate events. The Team Leader and the 13 other members of the inspection were professional and thorough. Significantly, this was the first time we had met them, and can certainly note that they provided a fresh perspective to the Millstone 3 inspection process. At the Exit meeting and a subsequent NEAC public meeting, NU officers have provided the status of aggressive initiatives to correct the operator performance and system valve alignment issues that were identified as deficiencies.

Lastly, we can reinforce the observations made by vice-chairman, John Markowicz, on May 1,'98

1. The Corrective Action Verification Program, as established by the NRC, has been comprehensive in nature, and has been performed at Millstone 3 in a credible 'arm's length' manner by Sargent & Lundy.
2. Northeast Utilities has exhibited significant and sustained improvement in management and in the manner in which problems are addressed, whether they be of a personnel or functional nature.
3. In order for public confidence to be fully restored in the safe operation of Millstone 3, continued oversight and vigilance on behalf of the NRC will be necessary. Its vigorous oversight will be required to ensure that any possible future regression at the plant will be prevented in a timely fashion. This is important so that the NRC retains the improvement in public perception that is the result of its substantial investment in Millstone, and its openness and availability to the public in the surrounding area.

This completes my remarks on behalf of NEAC, and I thank you for your kind attention,

Respectfully,

Terry Concannon

Terry Concannon, Co-chair, NEAC

CITIZENS

AWARENESS

NETWORK

UNITED STATES OF AMERICA
Before the
NUCLEAR REGULATORY COMMISSION

In the matter of	
Vermont Yankee Nuclear Power Station	Docket no. 50-271
(Petition for Enforcement Action)	May 27, 1998

CITIZENS AWARENESS NETWORK'S FORMAL REQUEST FOR ENFORCEMENT ACTION AGAINST VERMONT YANKEE

Due to chronic systemic mismanagement of the Vermont Yankee Nuclear Power Station which has resulted in diminished engineering conservation adversely affecting safety margins and security, Citizens Awareness Network, Inc. (CAN), pursuant to 10 CFR § 2.206, formally requests the United States Nuclear Regulatory Commission (NRC), to take immediate enforcement action by suspending the operating license for Vermont Yankee until the entire facility has been subjected to an independent safety analysis review similar to the one conducted at Maine Yankee Atomic Power Station. In the alternative, CAN requests that the NRC immediately act to modify the operating license for the facility by requiring that, prior to restart: (1) Vermont Yankee management must certify under oath that all back-up safety systems and all security systems are fully operable, and all safety systems and security systems meet and comply with NRC requirements; (2) Vermont Yankee be held to compliance with all of the restart

criteria and protocols in the NRC manual; (3) Vermont Yankee only be allowed to resume operations (following refueling) after the NRC has conducted a "vertical slice" examination of the degree to which the new design basis documents (DBDs) and updated Final Safety Analysis Report (FSAR) accurately describe at least two of the primary safety systems for the Vermont Yankee reactor; and (4) that, once operation has resumes, Vermont Yankee only be allowed to continue operation for so long as it adheres to its schedule for coming into compliance and completing the DBD and FSAR project. Additionally, CAN requests, (5) that the NRC hold a public hearing prior to restart to discuss the changes to the torus, Vermont Yankee's DBD and FSAR projects, and Vermont Yankee's scheduled completion of these projects in relation to operational safety.

Supporting this request for enforcement action and appropriate relief, CAN sets forth as follows:

1. Single-Failure Criterion Challenged.

Vermont Yankee Nuclear Power Station, like all nuclear power reactors under the NRC's regulatory authority, relies upon "defense-in-depth" principles to assure adequate protection of public health and safety. The *sine qua non* of this approach is the maintenance in good working order of redundant emergency equipment and multiple barriers to the inadvertent release of radioactivity.

The NRC applies what it calls a "single-failure criterion" in order to determine how much redundancy and how many barriers are necessary to assure safe operation of a nuclear reactor facility. Under NRC regulations implementing the "single failure criterion" approach, facilities such as Vermont Yankee must be designed so that the failure of any single emergency component or any single operator error will not have an adverse impact upon public health and safety. Under NRC regulations, the application of the term "safety margin" implicitly relies upon the fact that there are no pre-existing failures of (or deficiencies in) safety-related equipment.[1]

Unfortunately, Vermont Yankee's volume of long-standing deficiencies in safety-related equipment strongly suggest that the single-failure criterion may have been violated.[2] This results in a lack of engineering conservation in the safety systems. Such a lack of conservation completely undermines the assumptions of defense-in-depth by eroding necessary safety margins implicit in this approach to safeguarding occupational and public health and safety.

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[1] Nuclear engineer David Lochbaum of the Union of Concerned Scientists provides an instructive analysis of the effects of eroded safety margins in relation to operation with degraded fuel cladding. David Lochbaum, Union of Concerned Scientists, "Potential Nuclear Safety Hazard: Reactor Operation with Failed Fuel Cladding" at 2-4, 6-7, 8-15, unnumbered attachment to Letter from D. Lochbaum, Union of Concerned Scientists, Washington, D.C., to Debby Katz, President, CAN, *et al.*, (May 14, 1998), attached hereto.

[2] *See id.*, David Lochbaum's analysis of Vermont Yankee DERs and other material prepared for CAN, Letter from D. Lochbaum, Union of Concerned Scientists, Washington, D.C., to Debby Katz, President, CAN, (May 14, 1998), attached hereto.

CAN's analysis of the Vermont Yankee Daily Event Reports (DERs) (prepared by nuclear engineer David Lochbaum of Union of Concerned Scientists) reveals many degraded conditions existing simultaneously with degraded conditions in other safety-related systems. CAN was not able to find <u>any</u> evidence that Vermont Yankee considered the impact of the cumulative effect of so many concurrent degraded conditions on the safety margins at the plant. CAN believes that there is an "unsafety in numbers" given how many degraded conditions have been found in the DERs we examined. Numerous pre-existing failures of safety-related equipment are documented in the Vermont Yankee DER analysis attached to this petition. For this reason, the NRC should immediately suspend Vermont Yankee's operating license until Vermont Yankee has completely resolved these problems, or, at a minimum, in the alternative, modify Vermont Yankee's operating license to require that Vermont Yankee management certify under oath that all of these problems have been resolved, and implement the other forms of relief suggested throughout this petition

2. Inadequate Safety Evaluations.

NRC regulations at 10 CFR § 50.59 require licensees to evaluate proposed changes to a nuclear facility and its procedures to determine if such changes may increase the probability and/or consequences of an accident or introduce a previously unanalyzed accident scenario. If so, the licensee must seek and obtain

NRC approval before implementing such changes. 10 CFR § 50.59. There is evidence that Vermont Yankee performed inadequate safety evaluations.[3]

CAN contends that it is significant that inadequate safety evaluations are a common factor in troubled nuclear reactor facilities--such as Millstone, Connecticut Yankee and Maine Yankee--prior to closures accompanied by extremely expensive safety problems. Because of this pattern, the NRC should take immediate action in this case to assure that Vermont Yankee's safety evaluations are adequate prior to allowing a restart. Failure to have adequate safety evaluations is an adequate reason for suspending Vermont Yankee's license to operate until compliance with regulations is assured. At a minimum in this regard, the NRC should enforce against Vermont Yankee the complete restart criteria contained in the NRC manual, and require that Vermont Yankee management certify under oath prior to restart that all safety evaluations prepared for Vermont Yankee are correct, adequate, and meet NRC's regulatory requirements. The NRC should also implement the other alternative remedies suggested herein.

3. Potential Over-Reliance on Yankee Atomic Electric Company Analyses.

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[3] *See id.* Several of the DERs indicated that the Vermont Yankee licensee performed inadequate safety evaluations. For example, refer to DERs 31906, 31949, 32106, and 34005.

In late 1995, Robert Pollard, nuclear safety engineer for the Union of Concerned Scientists, turned over to the NRC an anonymous allegation contending that a safety analysis which Yankee Atomic Electric Company engineering services prepared for Maine Yankee Atomic Power Company was seriously flawed. In the spring of 1997, the NRC issued a show-cause order to Yankee Atomic demanding that the company justify why it should be allowed to continue providing engineering services to nuclear utilities. The NRC based this action on a pattern of errors and weaknesses within Yankee Atomic Electric Company's organization revealed in the course of the NRC's investigation of the Maine Yankee allegations.

There is evidence that Vermont Yankee has been relying upon Yankee Atomic Electric Company to conduct engineering analyses.[4] This situation means that there is a potential that Vermont Yankee may have the same kind of serious compromises in safety systems that existed at Maine Yankee and other facilities which relied upon Yankee Atomic Electric Company's engineering analyses. The kind of loss of engineering conservatism which took place at other (now closed) facilities using Yankee Atomic Electric Company's engineering analyses

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[4] *See id.* A number of Vermont Yankee's DERs refer to analyses which Yankee Atomic Electric Company apparently did for Vermont Yankee. Although the DERs do not specify who prepared these analyses, it is quite possible that Yankee Atomic was involved. Refer to DERs 31915, 32106, 33259, 33502, and 34145.

necessitates that the NRC suspend Vermont Yankee's license to operate until assurance may be obtained that all analyses which Yankee Atomic prepared for Vermont Yankee have been reviewed by the NRC staff to be certain that they have been done properly. At a minimum, the NRC should require that Vermont Yankee certify under oath that all of the engineering analyses on file for Vermont Yankee are correct, accurate, and in complete compliance with NRC regulations, and implement the other alternative relief requested herein.

4. Inadequate Operational Experience Review Program.

Following the accident at Three Mile Island in 1979, the NRC required all nuclear power reactor licensees to develop and implement an operational experience review program. The purpose of this program is to require that each licensee regularly look at an industry-wide sample of events, and evaluate whether changes are necessary at a particular facility.

There is evidence strongly suggesting that Vermont Yankee does not have an adequate operational experience review program.[5] Failure to conduct an adequate operational experience review program is a violation of NRC regulations. Based upon the TMI experience, such a failure inexorably leads to compromised engineering conservation in safety systems, and the eventual failure of such

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[5] *See id.* Several of the DERs suggest that the Vermont Yankee licensee has an inadequate operational experience review program. For example, refer to DERs 31923, 32016, and 33789.

systems during a serious emergency event. Vermont Yankee's operating license should be suspended until it has provided the NRC with adequate evidence that it has a fully-functional and adequate operational experience review program in place. At a minimum, prior to restart, the NRC should require that Vermont Yankee certify under oath that it has an adequate operational experience review program in place, and implement the other alternative relief requested herein.

5. High Potential for Other Serious Safety Problems.

Vermont Yankee has a number of serious problems in additional to those described above which, when taken in conjunction with the systemic problems, warrant the NRC's immediate enforcement action. Vermont Yankee has experienced a large number of cable separation issues, several problems with high energy line break events in the turbine building, and several problems with internal flooding. Given that Vermont Yankee's safety evaluation and operational experience review programs do not seem adequate, and given that it is likely that Vermont Yankee relied on Yankee Atomic Electric Company's engineering analyses for many years, it is reasonable to expect that there are many more design and licensing bases problems yet to be dealt with at Vermont Yankee. Such problems are a direct result of these defective programs.

For many years, Vermont Yankee used these defective programs for all systems at the reactor facility, not just the ones implicated by the DERs reviewed

for this petition. Therefore it is reasonable to conclude that the problems and deficiencies noted in this regard apply to all safety-related systems at Vermont Yankee.

The NRC required the Salem and Millstone reactor licensees to certify that the safety-related systems at these facilities were within their design and licensing bases before permitting them to be restarted when pervasive and systemic problems very similar to those at Vermont Yankee were identified at these facilities. David Lochbaum of Union of Concerned Scientists concluded that his analysis of Vermont Yankee's DERs indicates that similar assurance may well be warranted in this matter. Thus, the NRC should suspend Vermont Yankee's license to operate until it has adequate assurance that the safety-related systems at Vermont Yankee are within their design and licensing bases. At a minimum, the NRC should implement the restart criteria in its manual prior to allowing Vermont Yankee to restart, the NRC should require that Vermont Yankee management certify under oath that the safety-related systems at Vermont Yankee are within their design and licensing bases, and the NRC should implement the other alternative forms of relief requested herein.

6. Lack of Adequate Perimeter Security.

Evidence of Vermont Yankee's completely lax perimeter security shows that management did not adequately respond to all of the implications of the recent

incident involving a former Vermont Yankee contractor's major psychotic episode culminating in a murderous shooting spree, suicide, and the discovery of his booby-trapped farm filled with deadly weapons, munitions, and explosives.[6] NRC inspectors caused a major breech in the security system by having 5 out of 8 successfully invade the security perimeter, including one inspector who got through the metal detector with a gun. This shows that not only does Vermont Yankee lack the ability to screen-out potentially dangerous psychotics from its workforce, it also cannot protect the facility from acts of terrorism and/or sabotage. After all, the NRC inspectors were not real invaders, nor were they armed with intent to invade the facility at any cost. The recent test of security, even without consideration of the past experience with inadequate screening of employees, boldly highlights Vermont Yankee's inadequate perimeter security. For this reason, the NRC should suspend Vermont Yankee's license to operate until Vermont Yankee can demonstrate compliance with NRC regulations on security and pass the attempted entry test. At a minimum, prior to restart following the current refueling outage, the NRC should require that Vermont Yankee management certify under oath that they have a security system in place

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[6] *See* NRC Inspection Report No. 50-271/98-05 dated April 13, 1998, discussed in item 44 in the attached analysis.

which meets all of NRC's regulations and requirement, and implement all other alternative relief requested herein.

7. Operation Should Be Conditioned On The DBD And FSAR Schedule.

Vermont Yankee should be allowed to operate only if it meets the scheduling obligations it set up for completing Design Basis Documents (DBDs) and updating the FSAR for the facility. Vermont Yankee's operating license should be modified to impose license conditions to the effect that Vermont Yankee must meet the deadlines for approval of its Design Basis Documents established by Vermont Yankee as follows:

- 23 DBDs approved in Fall '98;
- 10 DBDs validated by early 1999;
- All 23 DBDs validated by year end 1999;
- Completion of the FSAR verification process by year end 1998 Vermont Yankee

The limiting condition should specify that in the event Vermont Yankee fails to meet <u>any one</u> of these obligations, the facility must immediately shut down until such time as that obligation has been met.[7]

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[7] As an alternative to imposition of a license condition, the NRC *could* issue an *order* to this effect. Vermont Yankee's lagging efforts at regulatory compliance easily justify the issuance of such an order. <u>During the March enforcement conference, Vermont Yankee confessed that it had tied a rather large number of items to its "Improved Technical Specifications Project", but did not revisit the individual items when they deferred the entire project</u>. The use, in this case, of either a license condition or an order merely

8. A "Vertical Slice" Safety Assessment Is Necessary To Be Certain That Vermont Yankee's DBD and FSAR Project Has Accurately Captured The Actual Operating Condition of the Facilities' Safety Systems.

The NRC should conduct a "vertical slice assessment" for at least two of the systems covered by the first 5 DBDs which Vermont Yankee approved and validated. Throughout the course of the March 2, 1998, enforcement conference, Vermont Yankee insisted that they had achieved "rigor" in conducting this process. At the Enforcement Conference, Vermont Yankee's CEO, Mr. Barkhurst, told the NRC that their (NRC staff's) conclusion that Vermont Yankee was unable to find the problems identified by the A/E team inspection was "a little harsh." Perhaps he is right. Perhaps the NRC is right. There is only one rational way to find out: NRC must now go in, after Vermont Yankee found "rigor" in the DBD process, and actually take a look at one of the "rigorous" DBDs in the context of supporting two safety systems. In the event the NRC team finds problems similar to those identified during the A/E inspection, Mr. Barkhurst will be proven wrong, and the reactor should be immediately shut down until the NRC has adequate assurances that they really have "found rigor." To date, the only "rigor" Vermont Yankee has demonstrated is the rigorous defense of their "honor" during

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ensures that Vermont Yankee will keep all of its promises in a matter crucial to maintaining adequate engineering conservation throughout all of its safety systems. Vermont Yankee developed the schedule. *See, e.g.* Vermont Yankee's Slide Presentation, Region I Enforcement Conference at Slide AV-29 (March 2, 1998). CAN's petition only asks that the NRC take *reasonable* steps to hold Vermont Yankee to its promises.

the enforcement conference. Unfortunately, "honor" is not a component of one of the safety systems which Vermont Yankee needs to rigorously document and maintain in good working order to assure public and occupational health and safety. In order to effectively assure public and occupational health and safety due to Vermont Yankee operations, this alternative request for relief should be implemented, and also all other alternative relief requested herein.

9. The NRC should conduct a public hearing in Brattleboro, Vermont, to inform the public about changes to the torus, compliance with the DBD and FSAR process, results of the A/E evaluation, results of an NRC "vertical slice" analysis of Vermont Yankee's first sets of DBDs, and the implications for public health and safety of Vermont Yankee's schedule for complying with the requirement that it verify and update all DBDs and the FSAR.

Vermont Yankee's schedule[8] shows that 5 DBDs will be approved and validated before the FSAR verification process has even begun. Many other DBDs will be approved and validated during and after the FSAR verification process. Even if one assumes that the fidelity and consistency of both of these projects (DBD development and FSAR verification) is unimpeachable, nothing in Vermont Yankee's presentation to the NRC shows that the two projects are linked together in any way. Although the two projects are crucially interdependent, Vermont Yankee has not shown how they are linked. The FSAR is Vermont

[8] Vermont Yankee's presentation at Region I Enforcement Conference at Slide AV-29 (March 2, 1998).

Yankee's primary licensing document which indicates how the reactor's design meets *all* regulatory requirements (safety, security, etc.). The DBDs will be the primary design documents for Vermont Yankee's systems which indicate how the designs meet *all* design requirements. During either project, any single discrepancy has the very real potential for negatively affecting the quality and consistency of the other project. Yet, Vermont Yankee has not identified how it will interface the two projects in order to cross confirm the results. This matter warrants suspension of the operating license until Vermont Yankee explains how it intends to integrate these system. At a minimum, it warrants a robust public discussion and the other alternative relief requested herein.

10. CAN also requests that the NRC hold the public hearing, conduct a vertical slice analysis, and issue a Final Director's Decision on this petition <u>before</u> allowing Vermont Yankee to restart from the current refueling outage.

There is a crucial need for the public to have reasonable assurance that, at a minimum, Vermont Yankee has adequately addressed in a timely manner the concerns the NRC's identified during the A/E inspection. CAN asks that the NRC be prepared to address at the public meeting[9] the following questions for all of the

[9] CAN requests that the NRC staff continue, throughout the rest of the schedule for completion of the DBDs and FSAR, to review the LERs and DERs to monitor whether these questions have proper and adequate answers. Such NRC monitoring may be complemented by any similar efforts to adequately and effectively monitor this process along the suggested lines which might suitably be undertaken by Vermont's State Nuclear Engineer William Sherman.

Licensee Event Reports (and Daily Event Reports) issued during the current projects:

1. Has a DBD been approved and validated for this system?

2. If yes, why didn't the DBD effort uncover / prevent the problem?

This request is a logical extension of those preceding it, and should be implemented along with the other alternative relief requested herein.

Conclusion.

For the reasons set forth above, the NRC should immediately commence enforcement action against Vermont Yankee Nuclear Power Station under 10 CFR § 2.206, and provide the requested relief.

Respectfully submitted:

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UNION OF
CONCERNED
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May 14, 1998

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Dear Rosemary, Jon, and Debby:

Per your request, I reviewed Vermont Yankee Daily Event Report (DER) information for the past year. My review did not include every DER submitted by the Vermont Yankee licensee for this period, but it covered the majority of the reports. I also reviewed a recent NRC Inspection Report on a problem at the plant. My comments on individual DERs and this Inspection Report are provided on the attachment. I have the following general observations and conclusions:

- **Single-Failure Criterion Challenged**: Nuclear power plants like Vermont Yankee rely on defense-in-depth principles to provide adequate protection of public health and safety. These principles feature redundant emergency equipment and multiple barriers. In order to determine how much redundancy and how many barriers are necessary, a single-failure criterion is applied. The plants must be designed so that the single failure of any emergency component or any single operator action will not adversely affect public health and safety. In other words, the oft-cited term "safety margin" when applied to any nuclear power plant is implicitly based on no pre-existing failures of safety related equipment.

  The volume of longstanding deficiencies at Vermont Yankee strongly suggests that this single-failure criterion may have been violated. Many of these DERs involve degraded conditions that existed at the same time as the degraded conditions in the other DERs. It is not apparent that this licensee has considered the impact of the cumulative affect of so many concurrent degraded conditions on the safety margins at the plant. There may be "unsafety in numbers" of degraded conditions in these DERs. There were numerous pre-existing failures of safety related equipment.

- **Inadequate Safety Evaluations**: Part 50.59 to Title 10 of the Code of Federal Regulations requires all licensees to evaluate proposed changes to their plants or its procedures to determine if the changes could increase the probability and/or consequences of an accident or could introduce a new accident scenario. If so, then the regulation requires the licensees to seek and obtain NRC approval before implementing the changes.

  Several of the DERs indicated that the Vermont Yankee licensee performed inadequate safety evaluations. For example, refer to DERs 31906, 31949, 32106, and 34005. Inadequate safety evaluations are a common factor in troubled nuclear plants such as Millstone and both Connecticut Yankee and Maine Yankee before their closures.

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- **Potential Over-Reliance on Yankee Atomic Electric Company**: In late 1995, an anonymous allegation contending that a safety analysis prepared by Yankee Atomic for Maine Yankee was turned over to the NRC. In spring 1997, the NRC issued a show-cause order to Yankee Atomic demanding that the company justify why it should be allowed to continue providing engineering services to nuclear utilities. The NRC based this action on a pattern of errors and weaknesses within Yankee Atomic's organization revealed in its investigation of the Maine Yankee allegations.

  Several of the DERs involve defective analyses for Vermont Yankee. The DERs do not specify who prepared these analyses, but it is possible that Yankee Atomic was involved. Refer to DERs 31915, 32106, 33259, 33502, and 34145.

- **Inadequate Operational Experience Review Program**: Following the accident at Three Mile Island in 1979, the NRC required all licensees to develop and implement an operational experience review program. The objective of this program is for each licensee to look at industry events and evaluate whether changes are necessary at its facility.

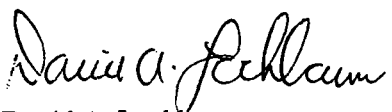
  Several of the DERs suggest that the Vermont Yankee licensee has an inadequate operational experience review program. For example, refer to DERs 31923, 32016, and 33789.

There were also a large number of cable separation issues, several problems with high energy line break events in the turbine building, and several problems with internal flooding. Given that this licensee's safety evaluation and operational experience review programs appear inadequate and this licensee may have relied on Yankee Atomic for many years, it would not be surprising that there will be many more design and licensing bases problems remaining at the facility. These problems are products of these defective programs.

Since these defective programs were used by the Vermont Yankee licensee for many years for all systems at the plant, not just the ones implicated by these DERs, it is reasonable to conclude that the problems and deficiencies apply to <u>all</u> safety related systems at the plant. When very similar pervasive and systemic problems were identified at the Salem and Millstone plants, the NRC required those licensees to certify that the safety related systems at these facilities were within their design and licensing bases before permitting them to be restarted. The DERs for Vermont Yankee suggests that similar assurance may be warranted.

If you have any questions or comments, please do not hesitate to contact me.

Sincerely,



David A. Lochbaum
Nuclear Safety Engineer

Attachment: Comments on Vermont Yankee DERs

Enclosures: UCS Report dated April 2, 1998
UCS Letter dated January 29, 1998
UCS Letter dated May 5, 1997

UCS Comments on Vermont Yankee DERs

1. **DER No. 31531, Failure to Provide Appropriate Guidance to Assure That Actions to Separate From the Grid Are Carried Out Within the Committed Time**

   According to this DER, the licensee committed to the NRC to take specific actions in event of degraded voltage to protect safety-related equipment, but those actions were not incorporated into procedures and thus may not have been taken. The licensee indicated that this commitment was part of the Technical Specification basis.

   The licensee retracted this DER because the degraded voltage condition did not occur and the need for the missing procedure never arose. That's a lame excuse. The "no blood, no foul" rule has no place in nuclear safety. The NRC should review this matter and determine whether this licensee is satisfying 10 CFR 50.72 and 50.73. (See DER No. 31925)

2. **DER No. 31663, Reactor Core Isolation Cooling (RCIC) System Declared Inoperable Due to Broken Drain Line Hanger**

   The licensee declared the RCIC system inoperable after discovering a broken pipe hanger on the pump casing drain line. Subsequent engineering evaluation determined that the broken hanger did not affect the RCIC system pressure boundary and did not affect the seismic qualification of the system piping. The DER was retracted on that basis.

   The licensee's declaring the system inoperable appears proper and conservative. The retraction appears justified and proper.

3. **DER No. 31744, Short Circuit of Contacts Could Lead to Failure of Valves to Close Resulting in a Release Pathway**

   The licensee discovered that a short circuit could prevent closure of containment atmospheric control system valves. These valves, if open during a loss of coolant accident, provide a pathway from the torus to the drywell. The short circuit could not cause the valves, if closed, to open. The short circuit would not prevent the operator from manually closing the valves from the control room hand switches.

   The consequences of this deficiency are relatively minor. The potential bypass pathway is serious, but could be isolated by operator action from the control room. The operator has valve position indication available in the control room and procedures which direct him/her to verify isolation valve closures. Thus, it is reasonable to assume that the operator would detect and correct this problem was it to occur.

4. **DER No. 31906, Licensee Discovered a Condition that Could Compromise the RHR Operability and Accident Mitigation Capability**

   This DER reports that the alternate method used for keeping the RHR system piping filled with water, namely use of the condensate transfer system, presents a problem in that the makeup piping is not seismically designed nor protected with check valves. Thus, the makeup piping could fail as a result of an earthquake and RHR flow could be diverted out through the break.

   This DER suggests that the licensee performed a faulty 50.59 safety evaluation when the procedure authorizing the condensate transfer system as an alternate keepfill method was approved. The DER

does not specify when this alternate method was first introduced, but it is reasonable to assume that it was at least 5 years ago based on experience at other BWRs.

5. **DER No. 31915, Turbine Building Pressurization During a Main Steam Line Break**

The licensee discovered that a high energy line break in the turbine building could increase the turbine building pressure to the point where the wall to the HVAC room could be knocked down. The licensee expects that this would disable the control room HVAC system.

The DER does not indicate who performed the original HELB analysis. Yankee Atomic Electric Company performed considerable engineering work for this licensee and may have been responsible for this analysis.

See also DER No. 31926 on a closely related degraded condition.

NOTE: The Maine Yankee plant had a large number of non-conservative HELB analyses, including that for the turbine building.

6. **DER No. 31923, Maximum Flood Level of Switchgear Room**

This DER reports that water could back up into the switchgear room from the floor drains to a depth greater than documented in the VY FSAR. The DER does not indicate if that higher depth will disable equipment powered from the switchgear. If so, this problem could affect multiple safety-related systems.

The NRC issued Information Notice No. 83-44, "Potential Damage to Redundant Safety Equipment as a Result of Backflow Through the Equipment and Floor Drain System," to all licensees, including this licensee, on July 1, 1983. This 15 year old Info Notice described a virtually identical problem at the Calvert Cliffs plant. It appears that VY's operational experience review program may be weak.

7. **DER No. 31925, Commitment to Seal Four Equipment Hatches**

This DER reports that the licensee failed to seal four equipment hatches in the RHR rooms. The hatches permit access between the RHR pump rooms on the 213' elevation and the upper rooms on the 232' and 252' elevations. According to this DER, sealing these hatches was a commitment.

This licensee retracted DER No. 31531, which also involved an unfulfilled commitment, because the event that the commitment mitigated did not occur. This logic appears to apply to DER No. 31925. Since DER 31925 was not retracted, this licensee is wrong – either for retracting DER 31531 on unjustified grounds or for not retracting DER 31925. The NRC should look into these DERs to arbitrate a correct determination.

8. **DER No. 31926, Turbine Building High Energy Line Break**

The licensee discovered that a high energy line break in the turbine building could increase the turbine building pressure to the point where steam could enter the switchgear rooms through duct work. The switchgear room is defined as a mild environment, which means that the breakers and electrical equipment inside it may not function properly when exposed to a steam environment. The switchgear room houses electrical equipment for many safety-related systems.

The DER does not indicate who performed the original HELB analysis. Yankee Atomic Electric Company performed considerable engineering work for this licensee and may have been responsible for this analysis.

See also DER No. 31915 on a closely related degraded condition.

NOTE: The Maine Yankee plant had a large number of non-conservative HELB analyses, including that for the turbine building.

9. **DER No. 31949, Potential Internal Flooding Outside Design Basis of Plant**

This DER involves the finding that a break in the fire system piping in the front office building could affect electrical equipment in the switchgear rooms due to water flowing under the west switchgear room door. The piping break could cause a flow rate of nearly 5,000 gpm causing a flood depth of about 14 inches in the lower level of the front office building within 10 minutes. The licensee estimated that approximately 20 to 30 minutes later, there could be an inch of water on the floor of the switchgear room due to flow under the door. Since the switchgear bus sits directly on the floor, the licensee indicated that its operability could be affected by an inch of water.

The DER also indicates that the floor drains in the room were intentionally plugged (at some unspecified dated) due to external flooding concerns. This is another example of a deficient 50.59 safety evaluation in that correcting one problem (external flooding) increased the probability and/or consequences of another problem (internal flooding).

10. **DER No. 32016, Design Basis LOCA in Conjunction with Containment Purge Would Damage the Standby Gas Treatment System (SBGTS)**

This DER involves the standby gas treatment system being disabled due to overpressurization if a loss of coolant accident occurred while the torus was being vented. The SBGTS is an integral part of secondary containment and must function to ensure that releases from the plant are filtered and controlled following an accident. This DER indicates that this vital SBGTS function could be disabled by the very event it must mitigate – namely, the loss of coolant accident.

See also DER No. 33789.

This problem was identified in BWRs years ago. For example, this very same problem is one of the reasons that the FitzPatrick plant was closed from 1991 through 1994. It is not clear why this licensee is just now discovering this problem. The FitzPatrick licensee, and many others, reported this problem in LERs years ago. This belated discovery at VY suggests that this licensee has a problem with its operational experience review program. What other industry problems have not been properly evaluated at VY?

11. **DER No. 32035, Fire Protection Lighting Cable Run in Both Division I & II Cable Trays**

This DER reports that an improperly routed cable could render both trains of safety-related equipment inoperable. As compensatory action, the licensee tagged the power feeder breaker for the cable in the open position.

The wayward cable supplied power to the Appendix R lights on the refueling floor. Although this DER does not specify, it is assumed that this licensee can justify these Appendix R light not being

available.

See also DER 32057.

12. **DER No. 32057, Feeder Cable for a Lighting Panel Run in Both Division I & II Cable Trays**

This DER reports that a power cable for a lighting panel is routed in cable trays for both divisions of safety-related equipment. The licensee took credit for the safety class breakers for this wayward cable in preventing a fault from affecting both divisions.

In DER 32035, the licensee opened the wayward cable's supply breaker. In this DER, the licensee left the wayward cable powered. Although the information in DER 32035 is not sufficiently detailed, it is assumed that the applicable breakers for that cable were non-safety-related, thus explaining the different compensatory action taken.

13. **DER No. 32106, Erroneous 1988 Reactor Building Flooding Analysis**

According to this DER, the 1988 analysis performed for the reactor building flooding from the postulated break of a fire system pipe mistakenly concluded that a 7,000 gpm flooding rate could be successfully handled. The DER indicates that a pipe break could flood the northeast RHR corner room, affecting the RHR pumps, core spray pumps, and RHR service water pumps in that room.

This DER involves a deficient 1988 flooding analysis. More importantly, it involves another example of an inadequate 50.59 safety evaluation. During the last refueling outage at VY, a modification installed a new 8-inch fire system pipe in the reactor building. This modification, according to the licensee, introduced a greater flooding rate than previously analyzed. Yet, the impact on the 1988 flooding analysis was not identified, pursued, and properly handled.

14. **DER No. 32146, Cable Separation Condition Which Does Not Meet the Division 1 & 2 Separation Criteria**

This DER involves feeder cables for the Division 2 LPCI injection valves and reactor recirculation valves and the Division 1 HPCI injection valve and torus suction valves being routed together.

The licensee discounted the significance of this condition based on the design basis loss of coolant accident scenario in which only the HPCI cable will be energized. It appears that the licensee did not adequately address <u>all</u> design and licensing bases events to ensure that this one scenario is the limiting case.

15. **DER No. 32163, Non-nuclear Safety Cables May Not Meet Cable Separation Criteria**

The information in this DER is sketchy and confusing. It seems that 59 non-nuclear safety cables may be improperly routed in violation of cable separation criteria. It also appears that because these cables are low voltage, the consequences of these potential violations are negligible at most. It further seems that all but two of the problems dated back to original construction of the plant.

16. **DER No. 32192, Plant Had a Group 3 Isolation Due to a Spurious Radiation Alarm**

No comment.

UCS Comments on Vermont Yankee DERs

17. **DER No. 32544, Offsite Weather Alert – Radio Transmitter Inoperable for 15 Minutes**

    No comment.

18. **DER No. 32833, Two Recirculation System Primary Containment Isolation Sample Valves Inoperable**

    The licensee retracted this DER. The DER reported that isolation valves on the sample lines from the reactor recirculation piping to the chemistry sample station failed. The DER was retracted when the licensee discovered that the test was performed at 1,000 psig and the valves are operated against a peak pressure of only 44 psig. The licensee argues that the test conditions at 1,000 psig are invalid.

    This logic is conditionally true. These valves are normally closed and are only used following an accident to sample reactor water chemistry. The peak containment pressure is 44 psig, thus defining the maximum pressure that these valves need to close against.

    However, since VY has operated for many years with these valves and this surveillance requirement, I presume that they have performed this test before at pressures above 44 psig. There is something fundamentally flawed when test conditions are valid when the test passes and invalid when the test flunks. VY cannot have it both ways – the test conditions are either always valid or never valid. It's their choice. (Valid only when the test passes is <u>not</u> a choice).

19. **DER No. 33152, Licensee Notified the State of Slight Increase in Plant Off-Gas Activity**

    This DER indicates that the licensee identified a potential fuel pin failure based on a slight increase in the amount of airborne radioactivity leaving the facility.

    A UCS report dated April 2, 1998, documented our concerns about reactors operating with failed fuel. This licensee operated VY for months with known fuel leaker(s). It is not apparent to UCS that such operation is either safe or legal.

    See also DER 33990.

20. **DER No. 33259, Loss of Instrument Air Could Cause Inability to Refill Emergency Diesel Generator Tanks**

    According to this DER, there are air-operated valves in the fuel supply lines to the emergency diesel generator day tanks. These air-operated valves are normally closed and they are designed to fail in the closed position on loss of instrument air. These valves must be opened to refill the day tanks. The day tanks contain enough fuel to operate the emergency diesel generator for only about three hours.

    The licensee reported that their response to NRC Generic Letter 88-14, issued by the NRC ten years ago, did not identify this consequence. The licensee downplayed the significance of this degraded condition because operators could intervene and restore fuel makeup to the day tanks.

    This DER does not specify who prepared the faulty response to NRC Generic Letter No. 88-14. Yankee Atomic Electric Company, which has provided engineering services for Vermont Yankee in the past, may have been responsible.

UCS Comments on Vermont Yankee DERs

21. **DER No. 33308, Automatic Reactor Scram from 85% Power**

    No comment.

22. **DER No. 33310, One Gallon Spill in the Connecticut River**

    No comment.

23. **DER No. 33502, Peak Torus Temperature Post-LOCA Could Exceed Containment Design Temperature**

    The narrative indicates that computer code FROSSTEY-2 contained an error which yielded non-conservative results. Although not specified in the DER, the consequences from this mistake could have been higher containment pressure and temperature during an accident. Safety-related equipment may not have functioned as needed at the higher pressure and temperature conditions. The DER does not indicate who developed and used this computer code. Maine Yankee experienced non-conservative safety analysis based on a computer code error by Yankee Atomic Electric Company. Since YAEC also did work for Vermont Yankee, YAEC may have been responsible for this FROSSTEY-2 code error. Either way, could other plants have relied on FROSSTEY-2? If so, has anyone submitted a report to the NRC under 10 CFR Part 21?

    The licensee indicated that their interim compensatory actions included maintaining torus temperature <80°F and shutting down the plant when river temperature exceeds 50°F. If the corrected analysis does not allow Vermont Yankee to return to the original conditions (90°F torus temperature and 85°F river temperature), then an evaluation should be performed to determine the consequences of an accident at the as-found degraded conditions.

24. **DER No. 33545, Potential for Water Hammer in HPCI or RCIC Turbine Exhaust Lines During Operation with Elevated Suppression Pool Pressure**

    By letter dated January 29, 1998, UCS notified Mr. David Vito in NRC Region I of my concerns with this DER. Quoting from that letter:

    > "From reading VY's FSAR (latest version in the NRC's Public Document Room is Revision 14, submitted April 30, 1997), I found no discussion of the design or licensing bases for the vacuum breaker installed in the HPCI and RCIC turbine exhaust lines. By letter dated November 30, 1971, VYNPC provided the NRC with the reason for the installation of these vacuum breakers. I note that VY FSAR Figure 6.4-1 for the HPCI system does not show the vacuum breaker in the exhaust line. Should the FSAR text and figures be updated to reflect installation of the vacuum breakers? If yes, have prior safety evaluations performed per 10 CFR 50.59 involving the HPCI and RCIC systems been reviewed to confirm that they were not affected by this missing information?"

    This DER was submitted on January 15, 1998. On March 4, 1998, the licensee retracted the DER after they determined that a water hammer could not disable the systems. On March 23, 1998, following discussions with the NRC, the licensee withdrew its retraction and indicated it would submit an LER. This DER clearly demonstrates that this licensee has regulatory performance problems.

UCS Comments on Vermont Yankee DERs

25. **DER No. 33705, The Licensee Identified an Outside Design Basis Condition Involving Non-Safety-Related Electrical Cables Routed in Safety-Related Electrical Raceways**

    The detail in the DER is too sketchy to predict significance. The DER refers to basis for maintaining operability BMO 97-13 Rev. 3. Reviewing that BMO would enable me to assess the significance of this cable routing problem.

26. **DER No. 33763, Discovery of Inadequate Corrective Action in Response to Info Notice 89-55, High Energy Line Break**

    The licensee retracted this DER after additional engineering analysis concluded that the RBCCW licensing basis was satisfied. There is insufficient detail in the DER to confirm or refute that claim.

27. **DER No. 33779, Licensee Identified an Electrical Cable Which Did Not Meet Cable Separation Criteria**

    The detail in the DER is too sketchy to predict significance. The DER refers to basis for maintaining operability BMO 97-13 Rev. 4. Reviewing that BMO would enable me to assess the significance of this cable routing problem.

28. **DER No. 33789, Licensee Completed an Analysis Which Concluded That The Standby gas Treatment System (SBGTS) Could Overpressurize During a Design Basis Accident If Containment Purging or Venting Was in Progress**

    This DER involves the standby gas treatment system being disabled due to overpressurization if a loss of coolant accident occurred while the torus was being vented. The SBGTS is an integral part of secondary containment and must function to ensure that releases from the plant are filtered and controlled following an accident. This DER indicates that this vital SBGTS function could be disabled by the very event it must mitigate – namely, the loss of coolant accident.

    See also DER No. 32016.

    This problem was identified in BWRs years ago. For example, this very same problem is one of the reasons that the FitzPatrick plant was closed from 1991 through 1994. It is not clear why this licensee is just now discovering this problem. The FitzPatrick licensee, and many others, reported this problem in LERs years ago. This belated discovery at VY suggests that this licensee has a problem with its operational experience review program. What other industry problems have not been properly evaluated at VY?

29. **DER No. 33808, Power Cable is Routed Through Control Power & Instrumentation Cable Trays**

    The licensee retracted this DER after concluding that this configuration, in violation of its UFSAR, did not affect or challenge any safety systems. The DER did not provide sufficient information to confirm or refute that claim.

30. **DER No. 33870, Non-Safety-Related Cables Routed in Both Safety-Related Division Raceways**

    According to the narrative with this DER, these cable routing problems could have disabled cables of both safety-related divisions of the same emergency system, violating the cable separation criteria of

UFSAR Section 8.4.6. Along with several other cable routing DERs, it seems that VY has extensive cable separation problems.

31. **DER No. 33919, Discovery That All Four Containment Air Monitoring System Isolation Valves Are Subject to a Single Failure**

The design allowed the failure of a single switch to prevent all four isolation valves on the lines to the containment air monitoring system to remain open. The licensee closed the valves, entering a 7-day limiting condition for operation.

Although there's no evidence to prove it, the timing of this "discovery," within 7 days of a scheduled refueling outage, raises at least the possibility that this condition was discovered earlier but stalled until the refueling outage was pending. At least one utility, in my experience, sat on a safety issue until with 72 hours of a scheduled outage and then reported it. That utility received credit from the NRC for self-identifying a safety concern. The NRC never looked into the timeline close enough to realize that the utility knew about the problem for 3 weeks prior to the outage.

32. **DER No. 33943, Main Steam Line "B" and "C" Inboard and Outboard Isolation Valves Failed Their Local Leak Rate Test**

According to the DER, these four primary containment isolation valves had measured leak rates of 3.52, 13.6, 2.8, and 8.1 times the allowable leak rate. The main steam lines are very large lines connected to the reactor vessel which pass through secondary containment to the turbine building. With this actual excessive leakage, the offsite radiation exposures in event of an accident may have approached or exceeded the 10 CFR Part 100 limits.

33. **DER No. 33990, Damage to Fuel Rods Due to Foreign Material in Fuel Bundle**

A UCS report dated April 2, 1998, documented our concerns about reactors operating with failed fuel. This licensee operated VY for months with known fuel leaker(s). It is not apparent to UCS that such operation is either safe or legal.

See also DER 33152.

34. **DER No. 33994, Core Spray Pump Inoperable Due to Extra Installed Washers in Circuit Breaker**

Apparently, extra washers had been installed in the power supply breaker to the core spray pump during "recent" maintenance activity. When exactly was this problem caused?

Appendix B to 10 CFR Part 50 requires all licensees to have a quality assurance program. Part of the QA requirements are provisions to ensure that maintenance is performed properly. This provisions generally require independent party verification of safety related work. Putting extra washers into the breaker should have been detected by QA. This DER demonstrates that this licensee has QA problems.

35. **DER No. 34004, Cooling Tower Support Column Would Not Meet Seismic Requirements**

The licensee appears to have self-identified and properly evaluated this degraded condition. The only fact that might change this conclusion would be the length of time that this degraded condition

existed and the number of opportunities the licensee had to discover it. Based on the information provided in the DER, it is assumed that the licensee found the problem at the first opportunity.

36. **DER No. 34005, Design Basis Analysis Lacking for the Anticipated Transient Without Scram (ATWS) Mitigation System**

    Assuming that the subject analysis cannot be located, this DER begs the question of how could this licensee have conducted safety evaluations pursuant to 10 CFR 50.59? Without the design basis analysis, it seems impossible to determine if proposed changes (either modifications or procedure revisions) could have affected safety margins.

    In addition, this licensee responded to the NRC's 10 CFR 50.54(f) request of October 9, 1996, with information suggesting that it had its design bases under control. This DER strongly suggests otherwise.

37. **DER No. 34052, Non-Contaminated Contractor Transported to Offsite Hospital**

    No comment.

38. **DER No. 34135, Refuel Floor Blowout Panels Will Relieve at 0.47 psig vs. 0.25 psig as Stated in the FSAR**

    This DER involves the discovery that metal panels on the refueling floor will not open outward to relieve differential pressure as necessary. The licensee states that the only reason for this design provision is in event of a high energy line break. (For such an event, the steam released from the broken pipe will pressurize the building.)

    Not having researched the Vermont Yankee design and licensing bases on this point, I cannot say for sure but many other boiling water reactors like Vermont Yankee have another, more often quoted, purpose for these blowout panels. In event of a tornado, the refueling floor blowout panels serve to ensure that the water remains in the spent fuel pool. The blowout panels relieve outward (i.e., to let high pressure inside the reactor building to get out to the atmosphere). This condition can result from a high energy line break which increases the pressure inside the building. It can also occur from a tornado which drops the pressure outside the building. I strongly suspect that the tornado protection design and licensing bases for Vermont Yankee relies in part on the refueling floor blowout panels. If this is the case, then this licensee has not correctly evaluated this degraded condition.

39. **DER No. 34136, Emergency Response Facility Information System for the Emergency Offsite Facility Not Operating**

    According to this DER, the problem was caused by cables being disconnected from the terminals and was quickly corrected. The significance of this problem is very low since it is reasonable to assume that this condition could have been quickly rectified had there been an accident.

40. **DER No. 34144, Torus Vent System Design Pressure Setpoint Lower Than Emergency Operating Procedure Permitted Containment Flooding Pressure**

    According to this DER, the licensee's emergency procedures could cause containment pressure to exceed the rupture disc set pressure following a design basis loss of coolant accident. If this were to occur, primary containment integrity would be lost and there could be unfiltered, uncontrolled

release of radioactivity to the atmosphere.

According to this DER, the licensee discovered this condition over a year earlier, but chose not to report it because they concluded in a basis for maintaining operation that it was outside the design basis of the plant. The NRC recently reviewed the licensee's bases for maintaining operation (BMOs) and reminded the licensee that the design basis loss of coolant accident is indeed within the design basis of the plant.

Last year's architect/engineer inspection at VY by the NRC raised the concern that the licensee's BMO process was weak. Following that inspection, the licensee committed to review its BMOs. Apparently, they either missed reviewing this BMO or reviewing this BMO and again came to the wrong conclusion.

41. **DER No. 34145, Potential Invalidation of Appendix J Leak Rate Testing**

Sometime during the early to mid 1980s, the licensee submitted and received NRC approval to operate the plant based on an extended load line analysis. Basically, this change allows the plant to operate at higher power levels when at less than 100% core flow.

This DER indicates that this operating change was implemented without realizing that it caused a higher (specifically 2.6 psig higher) primary containment pressure during an accident than previously analyzed. This DER also reports that the original primary containment pressurization analysis was non-conservative by 1.0 psig because it used a lower-than-actual air space volume within the torus. Collectively, these errors mean that the original peak pressure analysis is 8.5% non-conservative.

This DER does not indicate who made the calculation/analysis errors. Yankee Atomic Electric Company performed considerable work for this licensee and may have been involved in this error.

42. **DER No. 34152, Peripheral Fuel Bundle Channel Fastener Discovered in Incorrect Position**

This DER reports that one fuel bundle remained in the core at Vermont Yankee for an entire operating cycle misoriented by 90°.

By letter dated May 5, 1997, UCS notified the Commissioners that GE's probability of a rotated bundle was non-conservative. GE suggested that the chances were 6.0×10^{-6} or 6 chances in a million. It clearly occurs more often than that GE figure, as once again demonstrated at Vermont Yankee.

Fortunately, it was a peripheral bundle at Vermont Yankee. Bundles in these core locations have usually resided in the core for two operating cycles. At the edge of the core, these high-burnup bundles cannot experience high power levels. Thus, the consequences from being misoriented, which can be quite severe for a bundle in the center of the core, are minimal for a peripheral bundle.

However, this DER, along with DER No. 33994, suggests that this licensee has a quality assurance problem. During core alterations, an independent verifier assures that the correct bundle is placed in the correct location in the correct location. That process failed at Vermont Yankee. In addition, the as-built reactor core is verified to ensure proper loading, That process also failed at Vermont Yankee. Both should have worked – neither did.

UCS Comments on Vermont Yankee DERs

43. **NRC Inspection Report No. 50-271/98-05 dated April 13, 1998**

According to this report, the NRC team was able to gain undetected access into the protected area of the plant by climbing over the fence without generating a security alarm in six of the ten zones. In addition, an NRC team member with a handgun in a backpack gained entrance to the facility despite having that backpack hand searched by a security guard.

Federal regulations for nuclear plant security are supposed to prevent any undetected entries into the protected area and to prevent any unauthorized handgun from entering the protected area. Vermont Yankee's security capability seems seriously degraded.

Just last year, security awareness at Vermont Yankee was, or should have been, heightened following the discovery that a man who killed some people in New Hampshire before taking his own life had unescorted access to several nuclear plants in New England, including Vermont Yankee. Whatever reviews and evaluations performed by the Vermont Yankee licensee following that dsicovery did not appear to identify and/or correct the serious problems uncovered by the NRC inspectors.

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January 29, 1998

Mr. David J. Vito
Senior Allegation Coordinator
Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

SUBJECT: VERMONT YANKEE HPCI/RCIC WATERHAMMER, DER NO. 33545

Dear Mr. Vito:

I reviewed NRC daily event report (DER) 33545 dated January 15, 1998, at the request of the Citizens Awareness Network. This DER summarized the report made by Vermont Yankee of its discovery for the potential of a waterhammer in the HPCI and RCIC turbine exhaust lines during operation with elevated suppression pool pressure. By letter dated January 23, 1998, I addressed concerns from my review of this DER to Mr. David McElwee at Vermont Yankee. Mr. McElwee informed me today that Vermont Yankee Nuclear Power Corporation was not interested in opening a dialogue with the Citizens Awareness Network or its associates (i.e., me). Hence, I am referring my concerns to the NRC.

The following discussion of my concerns is taken verbatim from my letter to Mr. McElwee:

> From reading the DER, it appears that the potential waterhammer condition is primarily a concern for HPCI during a small break LOCA and for RCIC during a station blackout. Does VY's analyses for these events assume that either HPCI or RCIC starts and stops? If so, is the suppression pool pressure such that the conditions for the potential waterhammer exist? I reviewed the analyses presented in Chapter 14 of the VY FSAR, but was unable to answer these questions myself based on this information.
>
> From reading VY's FSAR (latest version in the NRC's Public Document Room is Revision 14, submitted April 30, 1997), I found no discussion of the design or licensing bases for the vacuum breaker installed in the HPCI and RCIC turbine exhaust lines. By letter dated November 30, 1971, VYNPC provided the NRC with the reason for the installation of these vacuum breakers. I note that VY FSAR Figure 6.4-1 for the HPCI system does not show the vacuum breaker in the exhaust line. Should the FSAR text and figures be updated to reflect installation of the vacuum breakers? If yes, have prior safety evaluations performed per 10 CFR 50.59 involving the HPCI and RCIC systems been reviewed to confirm that they were not affected by this missing information?
>
> The DER mentions that the potential waterhammer condition could challenge containment integrity. Since VY is currently operating with a known fuel leaker, it would seem appropriate for the LER on this matter to discuss the increased risk to the public from two barriers being degraded – the fuel cladding and the primary containment boundary.

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The licensee is under no legal obligation to respond to safety concerns from a public interest group like UCS or a local citizens group like CAN and has consciously elected not to meet its moral obligation. Despite my extreme reluctance to initiate another allegation, I cannot ignore my moral obligation and am therefore notifying the NRC about my concerns. I advised Ms. Deborah Katz of the Citizens Awareness Network of my inability to get the licensee to address my concerns and that these concerns would be passed along to the NRC.

Sincerely,

David A. Lochbaum
Nuclear Safety Engineer

cc: Mr. Paul Gunter
Ms. Deborah Katz
Mr. William K. Sherman

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May 5, 1997

Chairman Shirley A. Jackson
Commissioner Kenneth C. Rogers
Commissioner Greta J. Dicus
Commissioner Nils J. Diaz
Commissioner Edward McGaffigan, Jr.
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: MISLOCATED FUEL BUNDLE LOADING ERROR

Dear Chairman and Commissioners:

The Oyster Creek licensee reported by letter dated May 24, 1972,[1] that the plant had operated a cycle with a fuel assembly misoriented 90° from its proper position. At the time, Mr. Stephen H. Hanauer of the NRC (then AEC) staff reported that General Electric had been asked about such a misloading event during the Browns Ferry licensing process and had responded, "They swore it couldn't happen and would surely be detected if someone was out of his mind and violated the obvious symmetry of the layout."[2] Eight years later, the Tennessee Valley Authority informed the NRC that Browns Ferry Unit 1 had in fact gone through its third operating cycle with two fuel assemblies misoriented 90° from their proper positions.[3] According to the TVA report, the verification process after loading the core for Cycle 3 had identified the misoriented bundles, but their misorientation had not been corrected.

By letter dated September 27, 1993,[4] GE reported the revised probability of a rotated bundle as 6.0×10^{-6}. The low probability was justified on empirical data which indicated that no misoriented fuel bundles had been experienced since licensees incorporated the high level TV scan and independent checker features into their core verification procedures. Last year, the Hope Creek licensee reported

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1 Ivan R. Finfrock, Jr., Manager - Nuclear Generating Stations, Jersey Central Power & Light Company, to A. Giambusso, Deputy Director for Reactor Projects, Atomic Energy Commission, "Docket No. 50-219 / Oyster Creek Station / Fuel Assembly Loading Error," May 24, 1972.

2 Stephen H. Hanauer, Director - Office of Technical Advisor, Atomic Energy Commission, to Roger S. Boyd, Assistant Director for Boiling Water Reactors, Atomic Energy Commission, and Donald E. Knuth, Assistant Director for Reactor Safety, Atomic Energy Commission, "Mis-Orientation of a General Electric Fuel Element," June 1, 1972.

3 Licensee Event Report 50-260/80-037, September 26, 1980.

4 J. F. Klapproth, Fuel Licensing Manager, General Electric Company, to Nuclear Regulatory Commission, "Additional Information on the Rotated Fuel Bundle Event," September 27, 1993.

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by letter dated March 25, 1996,[5] that the plant had operated a cycle with a fuel assembly misoriented 180° from its proper position. According to the PSE&G report, "bundle orientation was reviewed by looking at four bundles at a time (a fuel cell) during a continuous scan of the core by the refueling bridge camera" and "the independent verification processes failed to identify the error."

By letter dated February 10, 1995,[6] GE informed the NRC that it was performing a mislocated bundle analysis for plants where the resultant critical power ratio response may establish the operating limit minimum critical power ratio. GE also indicated these analyses were an interim measure until the NRC concurred with a request to revise the acceptance criteria for the event.

Given GE's longstanding history of invalidated assumptions regarding the mislocated fuel bundle loading error, it seems highly imprudent to pretend that such events cannot happen. Despite repeated assurances and enhanced core verification procedures, the event still occurs far more often than indicated by GE's estimated probability of 6.0×10^{-6} per reactor year.

UCS urges the NRC to revisit the misoriented fuel bundle loading error issue for operating boiling water reactors and for the advanced BWR design. In addition, the NRC staff should investigate GE's submittals to the staff regarding the probability of this event to determine if GE has been candid and forthcoming in its characterization of the probabilities. The apparent non-conservatisms that GE applied to generate such an unrealistically low probability value should cause the NRC concern. If GE low-balled the NRC on other probabilities, the NRC cannot even hope to make risk-informed decisions.

Sincerely,

David A. Lochbaum
Nuclear Safety Engineer

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5 M. E. Reddeman, General Manager - Hope Creek Operations, Public Service Electric & Gas Company, to Nuclear Regulatory Commission, "Hope Creek Generating Station / Licensee Event Report No. 95-042-00," March 25, 1996.

6 J. F. Klapproth, Manager - Fuels and Facilities Licensing, General Electric Company, to Nuclear Regulatory Commission, "Mislocated Fuel Bundle Loading Error," February 10, 1995.

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Potential Nuclear Safety Hazard
Reactor Operation with Failed Fuel Cladding

The Union of Concerned Scientists has identified a potential safety hazard at nuclear power plants that operate with small cracks and holes in the metal tubing, also called cladding, containing their fuel. The fuel cladding is a vital barrier between highly radioactive materials and the environment. From a review of available documentation, UCS concludes that federal regulations require this barrier to be intact during plant operation. There is a good reason for these regulations – the public cannot be harmed as long as the fuel cladding remains intact. If it is not intact, radioactivity will be released to the plant and the environment. Such a release could affect the health of plant workers and members of the public. In addition, fuel rods with degraded cladding may break apart during an accident and prevent safety equipment from functioning. Despite these potentially serious consequences, nuclear plants routinely operate with defective fuel cladding. In fact, many, if not all, nuclear plants have operated with damaged fuel cladding.

UCS recommends that the Nuclear Regulatory Commission (NRC) enforce federal regulations which prohibit nuclear plants from operating with defective fuel cladding. These regulations allow the NRC to permit nuclear plants to operate with defective fuel cladding, but only when their owners establish acceptable boundaries based on studies of both normal operating and accident conditions. Until these safety concerns are resolved, UCS considers nuclear plants operating with fuel cladding failures to be potentially unsafe and to be violating federal regulations.

Background

The following sections discuss: design and licensing bases requirements for nuclear plants; their specific application to nuclear fuel design; the use of multiple barriers in protecting the public; the role of the fuel cladding as a barrier; the experience with fuel cladding failures, and the potential safety hazards from fuel cladding failures.

Design and Licensing Bases Requirements

Design and licensing bases requirements establish safe operating boundaries which are supported by extensive safety analyses. Operating within the boundaries provides reasonable assurance that the public will be protected if there is an accident. The safety or danger of operating outside the boundaries has not been analyzed. As a result, safety margins may be compromised when boundaries are crossed, increasing the risk to the public. Therefore, federal regulations do not permit plants to operate in unanalyzed conditions.

Fuel Design

Nuclear plant are powered by fuel rods which contain uranium dioxide pellets roughly the size and shape of a large pencil eraser stacked within 12 to 14 feet long metal tubes sealed at each

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end with welded metal caps.[1] A simplified drawing of a fuel rod is shown in Figure 1. The fuel tubes are also called the fuel cladding. Fuel cladding is like the gas tank in a car – if the tank is breached, highly volatile gasoline can spill out to threaten the safety of its passengers and innocent bystanders, as well as degrading the environment. When fuel cladding is breached, highly radioactive material spills out to threaten the safety of plant workers and the public.

All operating US nuclear power plants use fuel assemblies containing square arrays of fuel rods. A typical fuel assembly is illustrated in Figure 2. As shown in this figure, the fuel rods must remain intact to provide the overall structural integrity of the fuel assemblies. The fuel design bases ensure that "the fuel is not damaged as a result of normal operation and anticipated operational occurrences." [2] The phrase "not damaged," as used by both the NRC and nuclear plant owners, means that the fuel rods are not damaged to the point where they would fail.[3] Thus, the fuel design bases includes the explicit requirement that fuel cladding remains intact during normal operation.

Defense-in-Depth Barriers

The splitting, or fissioning, of uranium atoms in the fuel rods releases energy that heats water – nuclear energy that powers the plant. Byproducts of the fission process include radioactive gases and solids. Plutonium is also produced by the nuclear reactions. These radioactive materials emit gamma rays along with alpha and beta particles which can cause damage to the human body. The fuel cladding keeps the radioactive materials contained. If the cladding is defective, radioactive materials will leak into the water which surrounds the cladding and keeps the fuel rods cooled. This water is contained within the reactor vessel and the piping connected to it, which form a second barrier to contain the radioactive materials. If the piping fails, contaminated water spills into the reactor containment building. The reactor vessel and its piping are located within a reactor containment building which forms a third barrier. Because the reactor containment building is not leak tight, it reduces, but does not eliminate, the possibility that radioactive material would escape. Figure 3 shows a simplified drawing of these three barriers.

Three barriers between the radioactive material and the environment imply that one barrier can be breached during plant operation leaving two intact barriers to protect the public. However, the safety analyses assume that all three barriers are intact prior to any accident. Let's assume the rupture of a pipe connected to the reactor vessel breaches one of the barriers. If the pipe rupture occurs when the fuel cladding is defective, then two of the barriers are breached. The remaining barrier, the reactor containment building, only reduces the amount of radioactive material released to the environment. Thus, all three barriers must be intact during plant operation for the public to be protected.

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[1] Baltimore Gas & Electric Company, Calvert Cliffs Nuclear Plant Updated Final Safety Analysis Report, Section 3.3.2.1, "Fuel Rod Mechanical Design," and General Electric Company, "Licensing Topical Report / General Electric Standard Application for Reactor Fuel," NEDO-24011-A-4, January 1982.

[2] Nuclear Regulatory Commission, NUREG-0800, Standard Review Plan, Section 4.2, Fuel System Design.

[3] Nuclear Regulatory Commission, NUREG-0800, Standard Review Plan, Section 4.2, Fuel System Design, and GPU Nuclear Corporation, Oyster Creek Nuclear Generating Station Updated Final Safety Analysis Report, Section 4.4.2, "Description of Thermal and Hydraulic Design of the Reactor Core."

Potential Nuclear Safety Hazard
Reactor Operation with Failed Fuel Cladding

The fuel cladding is the most important of the three barriers. If the fuel cladding remains intact, the other two barriers can completely fail and the public will still be protected. The intact fuel cladding contains the radioactive gases and solids and prevents them from being released to the atmosphere. The public cannot be harmed from a nuclear plant accident in which the fuel cladding remains intact. But, as the next section indicates, nuclear plants routinely operate with this vital barrier seriously degraded.

Fuel Cladding Failure Experience

Numerous fuel cladding failures from various causes have been reported over the years. For example, the water flowing through the reactor core has caused fuel rods to sway back and forth. In this situation, the fuel rods vibrate against the grid (shown in Figure 2) and damage the cladding. At other plants, debris in the reactor water, such as metal flakes from rusted piping, has lodged against the grid. The friction from the vibration of this debris damaged the cladding. Another failure mode results when fuel pellets expand faster than the fuel rod cladding (see Figure 1) as their temperatures increase. The expanding pellets stretch the cladding, sometimes until it cracks or splits. Finally, the welds holding the upper and lower end plugs to the fuel rod cladding (see Figure 1) have sometimes been defective, causing pinhole leaks or even cracks to form. Other failure modes have been experienced too. Many, if not all, nuclear plants have experienced fuel cladding failures during their lifetimes. Few plants have shut down early to remove failed fuel rods.

Leaking fuel rods are detected by increased radioactivity levels in the reactor vessel's liquid and gaseous releases.[4] Not surprisingly, the radioactivity levels rise significantly when fuel cladding fails. The causes of fuel cladding failures cannot be determined until the plant is shut down and the leaking fuel rods examined.

The following reports illustrate recent fuel cladding failure incidents and include some serious events.

The Vermont Yankee plant recently operated with at least one failed fuel rod for many months.[5] Its owners elected to operate with the leaker(s) until the plant's next scheduled refueling outage in the spring of 1998 rather than incur the cost of an unscheduled shut down.[6] The Brunswick Unit 1 plant in North Carolina operated during 1997 with fuel cladding failures that its owners tolerated.[7] The Surry plant in Virginia also operated in 1997 with failed fuel cladding.[8] These incidents demonstrate that nuclear plants continue to operate with fuel cladding failures.

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[4] Entergy Operations, River Bend Station Updated Final Safety Analysis Report, Section 4.2.4.2, "Online Fuel System Monitoring," and Section 11.5.2.2.1, "Main Steam Line Radiation Monitoring System."

[5] Nuclear Regulatory Commission, Daily Event Report, DER No. 33152, October 28, 1997.

[6] Vermont Yankee Nuclear Power Corporation, Presentation to Vermont State Nuclear Advisory Panel, December 3, 1997.

[7] Johan Blok and Roger Asay, Centec XXI, "Pinpoint fuel leaks to improve nuclear economics," *Power*, January/February 1998.

Potential Nuclear Safety Hazard
Reactor Operation with Failed Fuel Cladding

A few years ago, the owner of the Point Beach Nuclear Plant in Wisconsin reported a significant event in which "The fuel cladding was failed to the extent that fuel pellets could be seen through the hole in the clad. However, no pellets escaped from the rod." The fuel rod failure was detected when the radioactivity levels of the reactor water rose to a level that was "10 percent of that allowed by [Point Beach Nuclear Plant's operating license]."[9] In other words, the plant's operating license would have allowed it to remain running with up to nine other similarly failed fuel rods. This event suggests that the restrictions on reactor water radioactivity levels are too high to prevent operation with gaping holes in fuel rod cladding.

At the Palisades plant in Michigan, three portions of a broken fuel rod were discovered in different parts of the reactor. One segment, nearly 5½ feet long, was missing about one-third of its fuel pellets. A second segment, 4½ feet long, and a third segment, 1½ feet long, appeared to contain all their fuel pellets.[10] This event is disturbing because it highlights how fragile the cladding can become during normal operation. At Palisades, this fuel rod literally fell apart as it was being removed from the reactor core and radioactive material was lost, including highly toxic plutonium.

Fuel Cladding Failure Consequences

What is the safety threat from a nuclear plant operating with fuel cladding failures? The fact that many plants have operated for many years with failed fuel cladding could be taken to imply an acceptable safety record. However, that is not the case. That fact demonstrates, at most, that the public is protected with fuel cladding failures during normal plant operation. It does not provide any reason to believe that the public will be protected in the event of an accident. It also does not provide any reason to believe that nuclear workers will be protected during normal plant operation with failed fuel cladding.

What might happen if a nuclear plant with failed fuel cladding had an accident? A common accident scenario involves breaking a large pipe connected to the reactor vessel. Water and steam rush out of the reactor vessel through the broken pipe. The water flow in the reactor core, instead of flowing from the bottoms of the fuel assemblies to their tops, may flow across the fuel assemblies. This cross-flow 'pushes' the fuel rods to the side rather than towards the top. Cladding that is weakened may fail under this side force. The plant's response to the pipe break is to shut down. Control rods are automatically inserted into the reactor core to stop the fissioning process. Fuel rods which fail and shift out of their vertical alignment may prevent the insertion of control rods. The safety analyses assume that the control rods can be inserted and shut down the reactor. Can fuel cladding failures cause such problems during this accident scenario? No one knows. Pre-existing fuel cladding failures have not been considered in the

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[8] Nuclear Regulatory Commission, Inspection Report 50-280/97-10, December 15, 1997.

[9] Wisconsin Electric Power Company, Licensee Event Report No. 85-002-01, "Failed Fuel Rod in Assembly H14, Point Beach Nuclear Plant Unit 1," May 19, 1986.

[10] United States Nuclear Regulatory Commission, Information Notice 93-82, "Recent Fuel And Core Performance Problems In Operating Reactors," October 12, 1993.

safety analyses for this accident or any other accident. Yet, nuclear plants routinely operate with such fuel cladding failures.

What happens if fuel cladding failures increase the severity of nuclear plant accidents? Since plant safety analyses assume that fuel cladding is undamaged when accidents occur, the failures may cause more radioactivity to be released to the environment than has been previously considered. After all, a key barrier confining this highly radioactive material is already breached when the accident begins. Under no circumstances will less radioactivity be released. Thus, it is imperative from a public health standpoint that nuclear plants do not operate with fuel cladding failures unless safety analyses are performed which demonstrate that the consequences from accidents under these conditions are acceptable.

Summary

The fuel cladding is the most important of the three barriers between highly radioactive material and the environment. As long as the fuel cladding remains intact, no nuclear plant accident can threaten public health and safety. Yet, nuclear plants routinely operate with damaged fuel cladding.

Safety analyses assume that the fuel cladding is intact when accident scenarios begin. Operation with pre-existing fuel cladding failures may mean that a nuclear accident will have more severe consequences than predicted by the invalidated safety analyses. Thus, UCS considers a nuclear plant operating with defective fuel cladding to represent an increased risk to the public.

The fuel design bases require the fuel cladding to remain intact during normal plant operation. Federal safety regulations require that plants operate within the boundaries established by their design bases. Therefore, UCS concludes that operating a nuclear plant with failed fuel cladding violates federal safety regulations.

See Attachment 1 for details of UCS's assessment of reactor operation with failed fuel cladding.

ALARA Issue

Nuclear plant owners are required by federal regulations to keep the release of radioactive materials "as low as reasonably achievable" (ALARA).[11] According to the NRC, "a plant operating with 0.125 percent pin-hole fuel cladding defects showed a general five-fold increase in whole-body radiation exposure rates in some areas of the plant when compared to a sister plant with high-integrity fuel (<0.01 percent leakers). Around certain plant systems the degraded fuel may elevate radiation exposure rates even more."[12] The "sister plants" were virtually identical because they were built at the same time by the same owner on the same site. The

[11] Title 10 of the Code of Federal Regulations, Sections 50.34a, "Design objectives for equipment to control releases of radioactive material in effluents – nuclear power reactors," and 50.36, "Technical specifications," and Title 10 of the Code of Federal Regulations, Part 50. Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low As Reasonably Achievable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents."

[12] United States Nuclear Regulatory Commission, Information Notice No. 87-39, "Control Of Hot Particle Contamination At Nuclear plants," August 21, 1987.

significant variation in radiation exposure rates is not due to thicker concrete or other design differences – it is due to the failed fuel cladding. UCS is troubled by this NRC evidence because it shows a significantly increased risk to nuclear plant workers at a facility operating with just 0.125 percent fuel cladding failures. Many plants consider it permissible to operate with eight times as many fuel cladding failures (up to 1.0% failures).

Fuel cladding defects release radioactive materials into the reactor water. The water carries them to all parts of the plant, contaminating equipment throughout the facility. Workers conducting equipment inspections and maintenance receive higher radiation exposures. Indeed, some plant workers have received radiation doses far greater than allowed by federal regulations from highly radioactive material released through fuel cladding defects.[13]

It is a well-documented fact that plant operation with defective fuel cladding significantly increases personnel exposures. Federal regulations requires nuclear plant owners to keep the release of radioactive materials as low as reasonably achievable. Therefore, it is both an illegal activity and a serious health hazard for nuclear plants to continue operating with fuel cladding damage.

Conclusions And Recommendations

Conclusions

It is UCS's considered opinion that existing design and licensing requirements do not allow plants to operate with known fuel cladding failures. In addition, federal regulations require formal NRC approval prior to any nuclear plant operating with fuel cladding failures. Such approval has neither been sought nor granted.

UCS's evaluation (see attachment 1) suggests that both the probability and consequences of postulated accidents may be increased when nuclear plants operate with pre-existing fuel cladding failures. Thus, operation with fuel cladding failures is a violation of federal regulations which represents a potential threat to public health and safety.

UCS's assessment was generic. Consequently, this conclusion does not explicitly apply to any operating plant. However, UCS's assessment identified the strong potential for operation with fuel cladding failures to be an illegal activity unless the plant's owners performed a plant-specific safety evaluation which established such operation as acceptable and the NRC has formally reviewed and approved this safety evaluation. Absent both of these conditions, it seems highly probable that any plant operating with fuel cladding failures is violating its design and licensing bases requirements, a condition not allowed by federal safety regulations. It further appears that such illegal operation may have serious safety implications. Finally, operation with fuel cladding damage also seems to violate the ALARA concept mandated by federal regulations, thus exposing plant workers to undue risk.

[13] United States Nuclear Regulatory Commission. Information Notice No. 87-39, "Control Of Hot Particle Contamination At Nuclear plants," August 21, 1987.

Potential Nuclear Safety Hazard
Reactor Operation with Failed Fuel Cladding

UCS's research for this assessment did not locate any information which suggests that operation with failed fuel cladding has been previously evaluated pursuant to federal regulations. There is considerable documentation on fuel cladding failure events, on inspections of failed fuel rods, and on various fuel damage mechanisms. Despite extensive, focused efforts, UCS was unable to find any indication that the safety implications of plant operation with failed fuel cladding have been considered by the fuel vendors, the NRC, or nuclear plant owners. This non-existent data further reinforces UCS's conclusions that operation with failed fuel cladding has not been properly analyzed by the industry, has not been approved by the NRC, and is both potentially unsafe and illegal.

Recommendations

UCS recommends that the Nuclear Regulatory Commission take appropriate steps to prohibit nuclear power plants from operating with fuel cladding damage until the safety concerns raised in this report are resolved. These appropriate steps include, but are not limited to, the following:

- Plant owners should be required to shut down their facilities upon detection of a fuel cladding failure. The plants must not restart until the failed fuel rods are removed.

- Plant owners should be required to evaluate the safety implications of operating with failed fuel cladding in accordance with federal regulations. If these safety evaluations are unable to justify continued operation, the plants should be shut down.

For the long term resolution of the safety concerns raised in this report, UCS recommends that the Updated Final Safety Analysis Reports (UFSARs) be revised. These revisions would establish safe boundaries for operation. After these boundaries are drawn and incorporated into the UFSARs, plants could continue to operate with failed fuel cladding as long as the failures remained within the previously analyzed region. If the amount of failed fuel cladding exceeded the boundaries, then the plant should face the options recommended above.

Attachment 1
Unreviewed Safety Question Assessment

Unreviewed Safety Question Assessment

This attachment contains UCS's evaluation for reactor operation with failed fuel cladding. Our evaluation applied federal regulations for determining when a proposed mode of operation crosses the plant's authorized boundaries and thus requires prior NRC approval. As the results clearly indicate, reactor operation with failed fuel cladding requires NRC approval. Yet, such approval has neither been sought nor granted.

The NRC issues an operating license for a nuclear power plant after reviewing its design and procedures. The plant's owners may modify the facility and revise its procedures as long as the changes do not alter the bases for the NRC's approval of the operating license. A change which alters the operating license bases is called an unreviewed safety question (USQ). For example, a proposed change that reduces the plant's safety margin is an unreviewed safety question because the NRC may have relied on the greater margin in granting the plant's operating license. Likewise, a proposed change that maintains the existing safety margin but does so by operator actions instead of automatic equipment operation is also an USQ because the NRC's approval may have relied on the automatic protective features. When a proposed change involves an USQ, NRC approval must be obtained in advance. Federal regulations specify that a proposed change involves an USQ if:

(1) the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased; or

(2) a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report may be created; or

(3) the margin of safety as defined in the basis for any technical specification is reduced.[14]

Federal regulations require nuclear plant owners to obtain NRC permission prior to conducting any activity for which the answer to one or more of these questions is anything but "NO." As UCS's nuclear safety engineer, I reviewed publicly available documentation to determine if these criteria are satisfied for plants operating with fuel cladding failures. Prior to joining UCS, I worked in the nuclear industry for over 17 years where I developed, reviewed, and assessed literally thousands of USQ determinations.

I divided the first criterion above into the "probability" and "consequences" elements for clarity. The scope of this evaluation was limited to four types of documentation: 1) the Updated Final Safety Analysis Reports (UFSARs) for four of UCS's focus plants (the Calvert Cliffs plant in Maryland, the Oyster Creek plant in New Jersey, the River Bend plant in Louisiana, and the Millstone Unit 3 plant in Connecticut); 2) the non-proprietary version of the fuel design topical report submitted by a vendor (General Electric); 3) the standard technical specifications prepared by all four reactor manufacturers (Westinghouse, General Electric, Babcock & Wilcox, and

[14] Title 10, "Energy," of the Code of Federal Regulations, Section 50.59, "Changes, tests and experiments,"

Combustion Engineering); and 4) NRC correspondence on fuel cladding failure events. The results from this evaluation follow.

- Criterion 1a: May the probability of occurrence of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report be increased by operation with failed fuel cladding?

The standard technical specifications prepared by Westinghouse, General Electric, Combustion Engineering, and Babcock & Wilcox (vendors for all of the plants operating in the United States) specify that "The fuel cladding must not sustain damage as a result of normal operation."[15] The NRC considers fuel cladding to be damaged when its integrity is lost.[16] The detection of fission products *outside* the fuel rods is irrefutable evidence that fuel cladding integrity has been lost.

The standard technical specifications are the templates from which individual plant operating licenses were derived. Since these specifications establish zero defects as the minimally acceptable standard, operation with fuel cladding failures increases the probability of "malfunction of equipment important to safety," namely the fuel itself, to 100%. For this reason alone, the answer to this question is YES.

To apply the above generic assessment to a specific plant, UCS looked at available documentation for the Oyster Creek Nuclear Generating Station in New Jersey. A design basis for Oyster Creek is "to ensure that no fuel damage will occur in normal operation or operational transients caused by reasonable expected single operator error or equipment malfunction."[17] Fuel rod damage "is defined as a perforation of the cladding which would permit the release of fission product to the reactor coolant."[18] Thus, the detection of failed fuel rod(s) at Oyster Creek would be an equipment malfunction placing the plant outside its design basis. Again, the answer to this question is YES.

A fuel cladding defect may allow gases within a fuel rod to leak out. A defect may also allow water to leak in. It appears that leakage in either direction may also increase the probability that the fuel cladding will not perform its necessary safety function.

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[15] Babcock & Wilcox Company, Standard Technical Specifications, Section B 2.1.1., "Reactor Core SLs," Combustion Engineering, Standard Technical Specifications, Section B 2.1.1, "Reactor Core SLs," General Electric Company, BWR/4 Standard Technical Specifications, Section B 2.1.1, "Reactor Core SLs," and Westinghouse Electric Corporation, Standard Technical Specifications, Section B 2.1.1, "Reactor Core SLs."

[16] Nuclear Regulatory Commission, NUREG-0800, Standard Review Plan, Section 4.2, "Fuel System Design."

[17] GPU Nuclear Corporation, Oyster Creek Nuclear Generating Station Updated Final Safety Analysis Report, Section 4.4.1, "[Thermal and Hydraulic Design] Design Basis."

[18] GPU Nuclear Corporation, Oyster Creek Nuclear Generating Station Updated Final Safety Analysis Report, Section 4.4.2, "Description of Thermal and Hydraulic Design of the Reactor Core."

A fuel cladding defect which allows gases to leak out of a fuel rod has at least two potentially adverse consequences. The fuel rods are pressurized with helium during their fabrication to minimize a problem called cladding creep-collapse. The pressure inside a nuclear plant ranges from 960 to 2,100 pounds per square inch at full power. The difference between a fuel rod's external pressure and internal pressure can exert sufficient inward force to cause the cladding to fill the gaps between fuel pellets.[19] The stress on the cladding can cause it to break. The leakage of helium from a fuel rod reduces its internal pressure, thus potentially increasing the probability of fuel rod damage from cladding creep-collapse.

Inadequate cooling of the fuel is another potential consequence from gases leaking out of a fuel rod. Helium is used to pressurize fuel rods because of its high thermal conductivity.[20] The leakage of helium through a fuel cladding defect may slow down the transfer of heat from the fuel to the water. When heat cannot be dissipated from the fuel as quickly as assumed, the fuel temperature will increase and may reach the point at which it begins to melt. The leakage of helium from a fuel rod may reduce heat transfer rates, thus potentially increasing the probability that the fuel is seriously damaged during a loss-of-coolant accident.

A fuel cladding defect which allows water to leak into a fuel rod also has at least two potentially adverse consequences. During plant operation, high fuel temperatures prevent water from leaking in through a cladding defect. However, water can enter defects when the plant is shut down and cause fuel rods to become waterlogged. If the plant increases power quickly, the rising fuel temperature may cause the water inside the fuel rods to evaporate and perhaps even boil. The water vapor and steam produced inside the fuel rods, unless it is able to leak out through the defects, increase their pressure. This pressure buildup is suspected to have caused the "bursting" of fuel rods at the Point Beach plant in Wisconsin. Sections of the cladding and several fuel pellets could not be located when the damaged assemblies were later inspected.[21]

There is another potential adverse consequence from water leaking into fuel rods. The high operating temperature dissociates the water into hydrogen and oxygen gases. The hydrogen gas interacts with the cladding to form blisters. The blisters embrittle the cladding, leading to perforations.[22] To minimize the moisture content, the fuel pellets are dried prior to being loaded

[19] Baltimore Gas & Electric Company, Calvert Cliffs Nuclear Plant Updated Final Safety Analysis Report, Section 3.7.1.1.a, "Clad Creepdown/Creep-Collapse."

[20] Baltimore Gas & Electric Company, Calvert Cliffs Nuclear Plant Updated Final Safety Analysis Report, Section 3.3.2.1, "Fuel Rod Mechanical Design."

[21] B. Siegel, Nuclear Regulatory Commission, "Evaluation of the Behavior of Waterlogged Fuel Rod Failures in LWRs," NUREG-0303, March 1978.

[22] Baltimore Gas & Electric Company, Calvert Cliffs Nuclear Plant Updated Final Safety Analysis Report, Section 3.7.2.1, "Burnable Poison Rod Design Evaluation."

into the fuel rods.[23] Thus, water leaking into a fuel rod may increase the probability that fuel cladding suffers this type of damage, which is called hydriding.

In fact, failure propagation due to hydriding has already been identified. Recent inspections of failed fuel rods at the Salem plant in New Jersey, the Beaver Valley plant in Pennsylvania, and the Wolf Creek plant in Kansas revealed that, "In some of the affected assemblies, secondary hydriding also was evident."[24] A fuel rod at the Perry Nuclear plant in Ohio experienced a cladding crack measuring 20 inches long, or nearly 13% of the fuel rod's length, caused by secondary hydriding.[25] In these events, the initial fuel cladding failures were caused by other mechanisms. These failures later propagated due to hydriding.

Thus, operation with fuel cladding failures has the potential for increasing the probability that an important barrier protecting the public, namely the fuel cladding itself, fails to adequately confine radioactive materials during a postulated accident. The fuel cladding is considered "equipment important to safety." A fuel cladding failure is therefore a malfunction of equipment important to safety. For this reason, too, the answer to this criterion is YES.

Finally, the NRC's Standard Review Plan states that the fuel design bases ensure that "fuel damage is never so severe as to prevent control rod insertion when it is required." [26] Nuclear plant operation with failed fuel cladding has caused individual fuel rods to break into segments during fuel handling evolutions. If degraded fuel cladding were to similarly break during an accident, the fuel rod segments might interfere with control rod insertion. Thus, for this additional reason, the answer to this criterion is YES.

- Criterion 1b: May the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report be increased by operation with failed fuel cladding?

The NRC reported that the nuclear fuel's design bases are intended to "provide assurance that the fuel system is not damaged as a result of normal operation. 'Not damaged,' as used in the above statement, means that fuel rods do not fail. Fuel rod failure is defined as the loss of fuel rod [integrity]."[27] Thus, the fuel system, including the fuel cladding, must remain undamaged during normal operation.

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[23] Baltimore Gas & Electric Company, Calvert Cliffs Nuclear Plant Updated Final Safety Analysis Report, Section 3.3.2.1, "Fuel Rod Mechanical Design, and Nuclear Regulatory Commission, NUREG-0800, Standard Review Plan, Section 4.2, "Fuel System Design."

[24] United States Nuclear Regulatory Commission, Information Notice 93-82, "Recent Fuel And Core Performance Problems In Operating Reactors," October 12, 1993.

[25] United States Nuclear Regulatory Commission, Information Notice 93-82, "Recent Fuel And Core Performance Problems In Operating Reactors," October 12, 1993.

[26] Nuclear Regulatory Commission, NUREG-0800, Standard Review Plan, Section 4.2, Fuel System Design.

[27] Nuclear Regulatory Commission, NUREG-0800, Standard Review Plan, Section 4.2, "Fuel System Design."

The safety analysis for the recirculation flow control failure with increasing flow event[28] at the River Bend Station in Louisiana concluded that "An evaluation of the radiological consequences is not required for this event since no radioactive material is released from the fuel."[29] If this event were to occur with pre-existing fuel cladding failures, this analysis would be rendered invalid. Since this analysis assumes that the fuel cladding remains intact, its conclusions are invalidated when there are fuel cladding failures.

The safety analysis for the feedwater controller failure maximum demand event[30] at River Bend concludes that fuel and pressure vessel "barriers maintain their integrity and function as designed."[31] Obviously, this analysis's conclusion is invalidated when the plant operates with pre-existing fuel cladding failures.

The safety analysis for the rod withdrawal error event[32] at River Bend specifies that "An evaluation of the barrier performance was not made for this event since this is a localized event with very little change in the gross core characteristics."[33] Fuel cladding damage is a localized event. The failed fuel rod has a pinhole leak or a hairline split in its cladding or a cracked weld at its end cap. If the rod withdrawal error occurs in the vicinity of the fuel cladding defect, the big change in local characteristics could propagate that defect. Thus, this analysis's conclusion is invalidated when the plant operates with a fuel rod defect.

The safety analysis for a control element assembly ejection event[34] at the Calvert Cliffs Nuclear Plant concluded that "the site boundary [radiological] dose guidelines will be approached." [35]

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[28] This potential accident is comparable to a mistake using a bellows to flame a wood fire. If too much air is supplied, the fire may blaze up out of control. Likewise, putting too much water through the River Bend reactor core can cause it to run out of control.

[29] Entergy Operations, River Bend Station Updated Final Safety Analysis Report, Section 15.4.5.5, "[Recirculation Flow Control Failure with Increasing Flow] Radiological Consequences."

[30] This potential accident is similar to the recirculation flow control failure with increasing flow event in that too much water to the reactor core results in an uncontrolled power increase.

[31] Entergy Operations, River Bend Station Updated Final Safety Analysis Report, Section 15.1.2.4, "[Feedwater Controller Failure Maximum Demand] Barrier Performance."

[32] This potential accident involves the inadvertent withdrawal of a control rod causing the power produced by the adjacent fuel assemblies to increase significantly.

[33] Entergy Operations, River Bend Station Updated Final Safety Analysis Report, Section 15.4.2.4, "[Rod Withdrawal Error] Barrier Performance."

[34] This potential accident is comparable to car engine throwing one of its pistons. The piston may break the engine casing. Likewise, the ejected control element assembly may break the reactor coolant pressure boundary and allow reactor water to leak out.

[35] Baltimore Gas & Electric Company, Calvert Cliffs Nuclear Plant Updated Final Safety Analysis Report, Section 14.13.2, "Sequence of Events [Control Element Assembly Ejection]."

The analysis found the postulated event acceptable because the plant's design features "will prevent fuel clad failure, will prevent exceeding the [reactor coolant system] Pressure Upset Limit, and will therefore limit the radiological site boundary dose [i.e., the radiation levels experienced by a member of the public at the plant's fence] to below the criteria in 10 CFR 100 guidelines." [36] Since this analysis assumes that fuel cladding failures are prevented, its conclusions are invalidated when there are pre-existing fuel cladding failures.

The NRC's Standard Review Plan states that the fuel design bases ensure that "the number of fuel rod failures is not underestimated for postulated accidents." [37] Yet, the previous accident analyses underestimated the number of fuel rod failures if those plants operated with fuel cladding failures. Thus, the answer to this criterion is YES.

The Wolf Creek plant recently experienced fuel cladding failures affecting 44 fuel rods in three fuel assemblies. According to an NRC report on the problem, "The most severely degraded fuel rod fragmented into three segments during fuel handling operations while offloading the core."[38] Fuel handling operations include removing a fuel assembly from the reactor core, placing it in a device called an upender, lowering the assembly to a horizontal position, transferring it through the reactor containment wall into the fuel handling building, raising the assembly to a vertical position, and moving it to a storage location in the spent fuel pool. These manipulations put dead load force (i.e., gravity) on the fuel assembly and its fuel rods. Fuel assemblies are designed to withstand the force associated with these handling evolutions, at least when their fuel cladding is undamaged. Apparently at Wolf Creek, the force of gravity was sufficient to cause the structural failure of a fuel rod with previously damaged cladding.

What if an accident occurred when the fuel assemblies with the damaged cladding still resided in the reactor core? For example, consider the hydrodynamic forces inside the reactor vessel following a break of a large pipe connected to it. The high energy water escaping through the break exerts considerable force. The side force on the fuel rods may approach, or even exceed, the dead load force during fuel handling. The weakened fuel cladding may experience structural failure as was encountered during fuel handling. Fuel rod structural failure could have very serious consequences during an accident. The dislodged fuel rod segments could interfere with the insertion of control elements attempting to shut down the reactor. Fuel assemblies are tightly packed into the reactor vessel. The clearance between fuel assemblies and control elements is fractions of an inch at most. Fuel rod segments would not have to move much in order to interfere with control elements. Thus, the consequences of previously analyzed accidents could be increased by operation with fuel cladding failures. The answer to this criterion is YES.

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[36] Baltimore Gas & Electric Company, Calvert Cliffs Nuclear Plant Updated Final Safety Analysis Report, Section 14.13.4, "Conclusion [Control Element Assembly Ejection]."

[37] Nuclear Regulatory Commission, NUREG-0800, Standard Review Plan, Section 4.2, Fuel System Design.

[38] United States Nuclear Regulatory Commission, Information Notice 93-82, "Recent Fuel And Core Performance Problems In Operating Reactors," October 12, 1993.

- Criterion 2: May the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report be created by operation with failed fuel cladding?

After residing in the reactor core for one or more cycles of operation, fuel assemblies are moved to the spent fuel pools. "Spent" fuel assemblies continue to generate considerable amounts of heat and release deadly amounts of radiation for many years. The worst-case spent fuel pool accident is typically assumed to be a fuel handling event. The analysis for this event assumes that a fuel assembly is dropped onto another fuel assembly.[39] Fuel rods in both assemblies are assumed to fail to evaluate the radiological consequences of the event. The spent fuel pools are also analyzed for possible damage resulting from an earthquake. These analyses generally assume that no fuel damage occurs as long as the fuel storage racks remain structurally intact.

Some spent fuel pool accident analyses take credit for operation of the spent fuel building's ventilation system. This system routes the building's exhaust air through filters, thus lowering the radiological dose to the public. At many plants, the ventilation system only performs this safety function when fuel handling operations are underway.

Spent fuel assemblies with cladding failures may have those failures propagate when subjected to earthquake forces. Radioactive gases released from spent fuel assemblies following an earthquake may cause radiological consequences which exceed those for the fuel handing event if (a) the inventory from more than the fuel rods in two assemblies is released, or (b) credit is taken in the fuel handling event analysis for operation of the spent fuel building's ventilation system but the system is unavailable. Consequently, the answer to this criterion is MAYBE.

- Criterion 3: May the margin of safety as defined in the basis for any technical specification be reduced by operation with failed fuel cladding?

The standard technical specifications prepared by Westinghouse, General Electric, Combustion Engineering, and Babcock & Wilcox (vendors for all of the operating plants in the United States) specify that "The fuel cladding must not sustain damage as a result of normal operation and [anticipated operational occurrences]."[40] The NRC considers fuel cladding to be damaged when its integrity is lost.[41] The detection of fission products *outside* the fuel rods is irrefutable evidence that fuel cladding integrity has been lost.

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[39] Baltimore Gas & Electric Company, Calvert Cliffs Nuclear Plant Updated Final Safety Analysis Report, Section 14.18.2, "Method of Analysis [Fuel Handling Accident]."

[40] Babcock & Wilcox Company, Standard Technical Specifications, Section B 2.1.1., "Reactor Core SLs," Combustion Engineering, Standard Technical Specifications, Section B 2.1.1, "Reactor Core SLs," General Electric Company, BWR/4 Standard Technical Specifications, Section B 2.1.1, "Reactor Core SLs," and Westinghouse Electric Corporation, Standard Technical Specifications, Section B 2.1.1, "Reactor Core SLs."

[41] Nuclear Regulatory Commission, NUREG-0800, Standard Review Plan, Section 4.2, "Fuel System Design."

Attachment 1
Unreviewed Safety Question Assessment

The standard technical specifications are the templates from which individual plant operating licenses are derived. Since these specifications establish zero defects as the minimally acceptable standard, operation with fuel cladding failures clearly represents a safety margin reduction. Consequently, the answer to this question appears is YES.

Conclusion

Federal regulations specify that an unreviewed safety question is indicated when the answer to any one of the criteria is non-negative. UCS's assessment determined that none of the answers is negative. Three of the answers are unequivocally YES and a fourth is MAYBE. Thus, nuclear power plant operation with failed fuel cladding is clearly an unreviewed safety question. NRC approval is required for a plant to continue operating with fuel cladding failures.

Performed by: David A. Lochbaum 04-02-98

David A. Lochbaum
Nuclear Safety Engineer

Figure 1
Fuel Rod Schematic

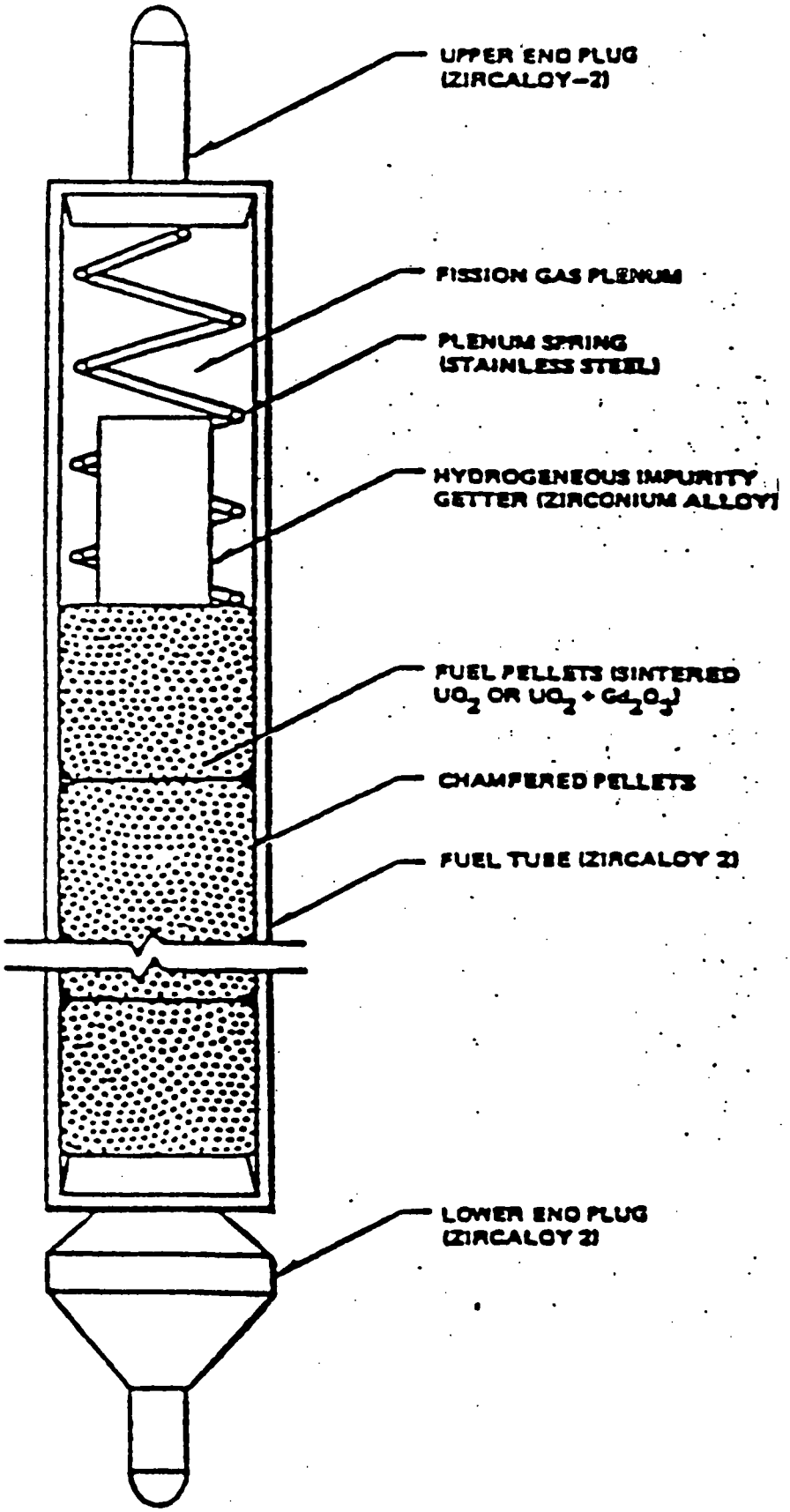


Figure 2
Fuel Assembly Schematic

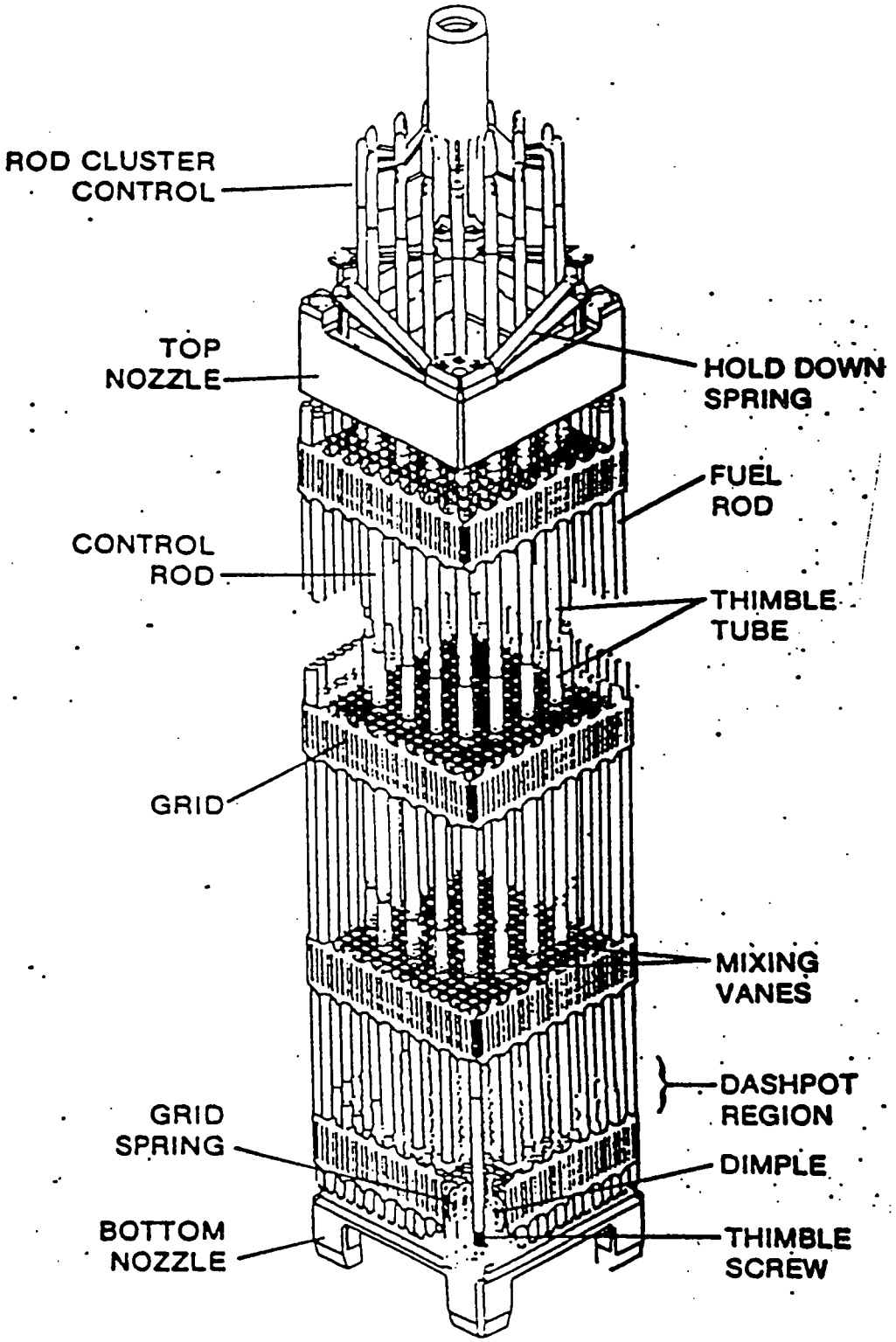
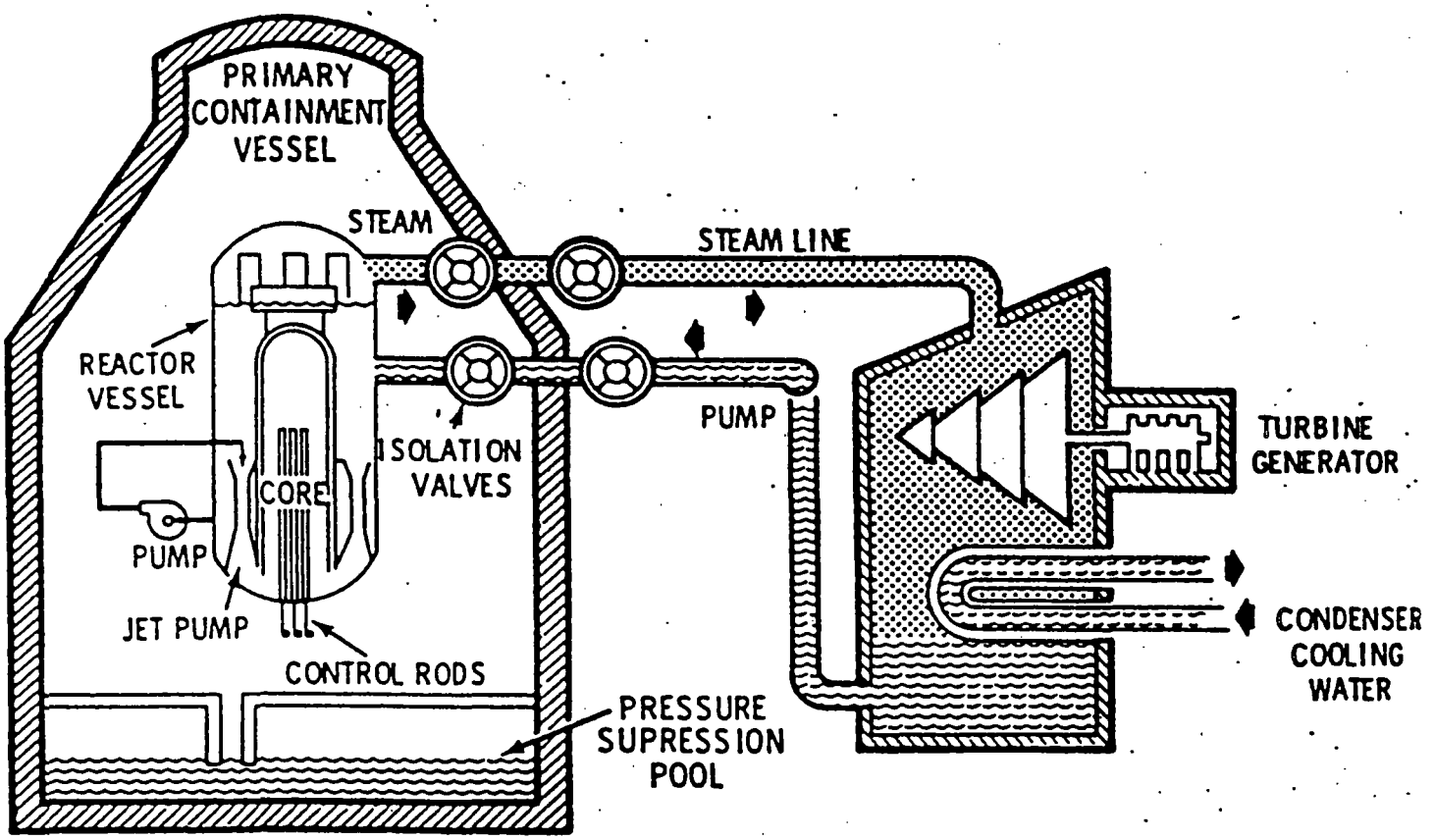


Figure 3
Defense-in-Depth Barriers



FRIENDS OF

A SAFE

MILLSTONE

PRESENTATION OUTLINE

TO THE

NUCLEAR REGULATORY COMMISSION

Shirley Jackson, Chairman
Greta Dicus, Commissioner
Nils Diaz, Commissioner
Edward McGaffigan, Commissioner

June 2, 1998

Rockville, Maryland

BY

FRIENDS OF A SAFE MILLSTONE (FOSM)

Ronald P. McKeown, FOSM Founder

REGARDING THE RESTART READINESS PROCESS OF
MILLSTONE STATION

Specifically:

* The Employees
* Safety Consciousness
* Effectiveness of Nuclear Regulatory Commission (NRC)

OUTLINE OF PRESENTATION

1. FRIENDS OF A SAFE MILLSTONE (FOSM)

* Brief Introduction.
* 4,025 members.
* Members not nuclear, yet with unique and extensive insight into the attitudes and feelings of Millstone workers and their families;
* Goals: a) Support the workers and families in their extensive rectification efforts and personal sacrifices; b) To bring fairness, truth, and balance to the public discussion on Millstone issues, especially when it comes to health, safety and radiation issues; and c) to support a "safe, financially viable, and operating Millstone Station";
* Communication to FOSM via phone, email, web page, community/region sign-up, and mail (ca.: 6,900 communications since November of 1997; and 12 to 17 email letters, and 12 phone messages a day).

2. OBSERVATIONS: Past & Present.

* Past Concerns Within Public.
  - Profit Motivator;
  - Lack of Cohesiveness;
  - Question of Priority Placement of Safety;
  - Compliance with NRC requirements.
* Safety Training for Employees & Management.
* Communication Training for Employees and Management.
* Integration of Safety Conscious Work Environment Issues into Day-to-Day Operations.

Current Observations:

* Profit Not the Motivator. Safety is the fundamental core.
* Proud of Personal Safety Awareness. There is a Greater Pride in Working in the Nuclear Industry.
* Progressive Attitude of Protecting Everyone's

Right and Obligation to Point Out Problems, Even Costly Ones.

* Professional/Civil Questioning of Management.
* The Lessons have been Learned.
* Daily Consciousness to Comply with NRC Requirements to Create Confidence about Safety.
* Employees have Reached a Higher Plane in their Professional Attitude, Behavior, & Thinking.
* "A NEW GRADUATE DEGREE FOR EVERY EMPLOYEE". A new confidence, an enlightened professionalism.

3. THE NUCLEAR REGULATORY COMMISSION & THE RECTIFICATION PROCESS.

* Overall Beliefs of Regional Citizens.
* Acceptance by Mainstream Regional Society of Process.

4. FOSM'S SUGGESTION.

Background Information

Observations. <Please note that the comments contained herein represent the observations of laypersons, with little technical knowledge of the nuclear industry>

Early last year and into the spring of 1997 there appeared to be a great amount of discussion between employees about ECP, safety and extra training programs. There was frustration and confusion related to "wasting time" on seemingly superfluous training programs, when "we needed to get our job done and get the plants open". <During the same time period many of us in the nearby communities noticed volunteerism and community involvement by Millstone workers plummeting.> Their voices of consternation continued into the beginning of last summer. Then the verbalizations of confusion and dissatisfaction diminished significantly sometime during the beginning of the summer.

Sometime mid-summer and early fall we noticed that there was a great increase in chats/discussion about how the ECP worked, and how to deal with differing opinions, and safety issues. We heard chats about people searching for things that could go wrong. We heard conversations theorizing "what if" this happened and "then this happened". We noticed the change, in that now the workers seemed to be excited about finding anything wrong or unsafe, and reporting it to management. Frustration, anxiety and annoyance about training programs were essentially gone. There was some frustration about the press focusing on radiation claims which were not factually stated, however it struck us in that we no longer heard complaints about the ECP, safety programs, or consultants. We sensed that everyone seemed to feel as if they had just received a new professional degree - somehow prouder, somehow smarter. This "rebirth" became evident to me from last summer through the fall and into the early months of this year (1998). <During this time FOSM actually created a flyer which we titled: "The Page Has Turned"; as it seemed very appropriate.>

Now there appears to be a sense of higher expectancy, greater pride, or perhaps an "enlightened normalcy" is the right phrase. We never hear any complaints about safety, training, or the need to develop communication/management skills. In my 12 years active

and living in this region, I have never observed a stronger pride in being a Millstone professional. A small thing perhaps, but just this month 4 different Millstone employees have talked to me about running Boy Scout merit badges on Nuclear Energy and Energy. That rarely every happened before. We see a sense of greater pride - of somehow being at a better place professionally speaking. No doubt the process they have been in, with the NRC and Little Harbor Consultants, has had a tremendous impact on Millstone and the employees. The public and press have certainly not focused on this qualitative growth. The process has been hard, costly and painful - yet it is clear to me that the public has been well served, for our health and safety (and our economy) is better off for this process of rectification that the NRC is overseeing

The other thing which has impressed us in this long process is the patience and respect that the employees, company (and the NRC) have had with the anti-nuclear community. Quite honestly I personally have been amazed. I cannot think of another business or industry which would have had the patience with the amount of distortions, untruths and insults verbalized about it. The employees and Northeast Utilities (and the NRC) deserve just praise for a near-saintly level of professional patience considering the massive exaggerations and misstatements about radiation and safety alone.

I personally have talked with hundreds and hundreds of people since last October about these issues. FOSM members have talked with several thousand persons first-hand. We can honestly state that more than 95 to 98% of independent regional citizens we have talked to want a safe, financially viable and operating Millstone. Most people also think this process has been a healthy one, and think Millstone has learned necessary and valuable lessons. In our 4,025 collective member mindset, the lessons have been learned, and we feel safe and well protected by the NRC's policies and the employees and management of Millstone Station.

Ronald P. McKeon

UNION OF

CONCERNED

SCIENTISTS

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SCIENTISTS

Comments on Selected Issues Related to Restart of Millstone Unit 3

David Lochbaum

Nuclear Safety Engineer

dlochbaum@ucsusa.org

June 2, 1998

NRC Commission Briefing

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Work Completed at Millstone Unit 3

- Millstone Unit 3 accomplishments during this outage:
  - 182 physical plant modifications (79 configuration management related)
  - 12,039 restart assignments
  - 450 UFSAR change requests
  - 2,283 restart configuration management items
  - 219 restart ICAVP discrepancy reports
  - 140 LERs (including 15 moderate and 4 high safety significance)
- Source: NU Presentation to the NRC, 05/01/98

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ICAVP Criteria & NRC Actions

- Level 1: System does not meet licensing/design bases and cannot perform its intended function
  - NRC ACTION: Would likely result in selection of additional systems(s) for ICAVP review.

- Level 2: Single train of redundant system does not meet licensing/design bases and cannot perform its intended function
  - NRC ACTION: Would likely result in expansion of ICAVP scope to evaluate for similar nonconformance issues in other systems.

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ICAVP Criteria & NRC Actions

- Level 3: System does not met licensing/design bases but is able to perform its intended function.
  - NRC ACTION: Could result in expansion of ICAVP scope to evaluate for similar issues in other systems.

- Level 4: System meets licensing/design bases but contains minor calculational errors or inconsistencies of an editorial nature.
  - NRC ACTION: Multiple examples could result in expansion of ICAVP score to evaluate for similar errors/inconsistencies in other systems.

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ICAVP Data

- S&L Status Report dated April 7, 1998:
  - 5 of the Level 3 DRs involved calculations, more than the next two DR causes combined
  - 158 of the Level 4 DRs involved calculations, more than the next three DR causes combined
  - S&L only reviewed about 1,650 calculations; thus nearly 10% of those calculations reviewed contained discrepancies)

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Millstone Unit 3 Operating License

- **Facility Operating License dated 01/31/86:**
  - The Nuclear Regulatory Commission has found that:
    - » "The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission"
    - » "There is reasonable assurance: (1) that the activities authorized by this operating license can be conducted without endangering the health and safety of the public, and (2) that such activities will be conducted in compliance with the Commission's regulations"
  - The Commission hereby licenses Northeast Nuclear Energy Company (NNECO), pursuant to Section 103 of the Act and 10 CFR part 50, to possess, use and operate the facility"
- **Civil Penalty dated 12/10/97:**
  - $2.1 million for more than 60 violations of 10 CFR Part 50 and operating license (fine would have been greater except for the extended shut down of all three units)

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SCIENTISTS

Conclusions

- Like the initial licensing process, the issues before the Commission are:
  - (a) whether Millstone Unit 3 meets the regulations, and
  - (b) whether Millstone Unit 3 will be operated in compliance with these regulations.
- Testimony by NU, independent contractors, and NRC staff suggests that NU satisfied criteria for restart.
- Even if true, this testimony only addresses issue (a).
- NU's future performance cannot be predicted, but it is known that the NRC staff lacks the ability to reliably shut down plants with regulatory performance problems.
- Millstone Unit 3 should <u>not</u> restart without that adequate protection standard being met.

Prepared Statement: NRC Commission Briefing on Millstone 3 Restart

<SLIDE 2>

According to NU, more than 180 physical changes to the plant, 450 changes to the UFSAR, and more than 2,000 configuration management items have been completed in the past two years at Millstone Unit 3. Over 100 LERs have been submitted, including nearly 20 having moderate or high safety significance. Several of the modifications and LERs involved problems dating back to original construction while the remainder involved problems introduced since that time. By any yardstick, considerable progress has been made fixing plenty of problems.

What does this volume of work tell us about the condition of this plant when it last operated in March 1996? It is not just an academic question. Its answer is directly relevant to your restart deliberations. The question itself was first asked nearly three years ago.

In August 1995, George Galatis and We The People submitted a 2.206 petition contending that because NU willfully neglected longstanding safety deficiencies, it lacked the corporate ethics to safely operate Millstone. We think this petition initiated a chain reaction which led to the March 1996 cover story in *TIME* and the shut down of all three Millstone units. Absent that sequence of events, we sincerely believe that Millstone would be operating today with inadequate safety margins.

That's our opinion and we understand that the Commission and the NRC staff may not agree. That's fine. That debate is not germane to today's agenda. But what is germane is the fact that the Galatis petition remains unresolved two and a half years later. The huge volume of work completed by NU suggests strongly that Mr. Galatis was right. We do not understand how the NRC can contemplate allowing Millstone Unit 3 to restart with this petition still open.

It's not the only thing we do not understand about the NRC's actions at Millstone. The NRC ordered NU to obtain an independent evaluation of its corrective action program. Sargent & Lundy was selected as the Independent Corrective Action Verification Program (ICAVP) contractor for Unit 3.

<SLIDE 3>

The NRC's Special Projects Office (SPO) established a four-level ranking scheme for Sargent & Lundy's findings along with possible NRC responses. Level 1 findings are most significant and Level 4 findings are least significant under this scheme.

<SLIDE 4>

Sargent & Lundy's findings were classified as Level 4 when the "System meets licensing/design bases but contains minor calculational errors or inconsistencies of an editorial nature." SPO's stated response for Level 4 findings was: "Multiple examples could result in expansion of ICAVP scope to evaluate for similar errors/inconsistencies in other systems."

<SLIDE 5>

According to Sargent & Lundy, 158 of its Level 4 findings involved calculation problems. Calculation problems caused more Level 4 findings than the next three causes combined. 158 findings would seem to constitute "multiple examples" warranting the NRC to probe further. Yet, SPO elected <u>not</u> to follow its own stated intentions. Why not? Perhaps you should ask them. When the public asked them, Mr. Imbro replied that while there were indeed numerous calculational problems, none were safety significant and none affected equipment operability.

Even if this were so, it contradicts SPO's stated protocol. By definition, no Level 4 finding could be safety significant or affect equipment operability. If it was safety significant or affected equipment operability, then it could not be a Level 4 finding. Thus, we suspect that SPO was unwilling or unable to stand behind its stated action for Level 4 findings. In other words, SPO seems to have misled the public – either by developing a criterion with no chance of ever triggering the specified action or by not taking the additional action which was required by the criterion.

As bad as those implications are, it gets worse. The root cause for the RSS orifice plate modification fiasco was a calculation problem. The results from this bad calculation were used in a 50.59 safety evaluation that yielded the wrong answer. Ultimately, all four RSS pumps were rendered inoperable during what was intended to be non-destructive testing. Thus, a calculation problem directly contributed to equipment inoperability in one of the most risk significant systems at the plant.

Sargent & Lundy reviewed the RSS orifice plate modification *before* the problem became self-evident. Had they discovered the problem during that review, a Level 1 finding would have been generated. Recall that the criterion for a Level 1 finding is that the "System does not meet licensing/design bases and cannot perform its intended function." The RSS system, with all four of its expansion joint liners demolished, satisfied that criterion. NU is extremely fortunate that Sargent & Lundy failed to identify the problem.

<SLIDE 6>

Speaking of failing to identify problems, in January 1986, the NRC issued NU an operating license for Millstone Unit 3. That issuance followed the NRC's determination that the facility met all applicable regulatory requirements and that there was reasonable assurance that the facility would be operated and maintained in accordance with these requirements. The extensive remediation in the past two years demonstrates that neither criterion was satisfied. If further proof is needed, the 2.1 million-dollar fine imposed on NU last December for more than 50 violations of your regulations, some dating back to 1986, should satisfy any skeptic.

How does that history affect today's restart deliberations? During the May 1st Commission briefing, many of the public presenters, including UCS, advocated measures intended to provide margins above and beyond the restart criteria. If confidence existed that the NRC could detect declining performance and would take action to prevent troubled plants from operating with inadequate safety margins, then the public would not feel the need for these measures. But, no reason exists for the public to have such confidence. The NRC tracks, trends, charts, watches, and may soon begin coloring plant performance, yet the NRC lacks objective criteria to determine when performance at a troubled plant has declined to the point that it must be shut down. That was a key conclusion of the GAO report issued in May 1997. We feel that GAO's conclusion was valid then and, more importantly, remains valid today.

<SLIDE 7>

According to all the testimony by NU, the independent contractors, and the NRC staff, NU has satisfied all of the criteria for restart of Unit 3. Even if this were so, it only addresses one of the two questions before you. That question is whether the facility and its operator meet all applicable regulations.

The second, equally important, question is whether the plant will be operated in compliance with regulations in the future. We remain truly concerned that the NRC staff lacks both the criteria and the resolve to trigger the shut down of this facility in a timely manner if its performance falls short of regulatory requirements. We cannot predict with any degree of certainty what NU's regulatory performance will be after the restart of Millstone Unit 3. But neither can the NRC staff. Everyone hopes that it will better than in the past.

What if it is not? We build nuclear plants with massive containments and emergency systems for accidents that no one thinks will happen because public health and safety must be adequately protected even if they *do* occur. Likewise, adequate protection demands that the NRC staff have the wherewithal to shut down Millstone when it fails to meet regulatory requirements. History and ample circumstantial evidence strongly suggests that the NRC staff in general, and the SPO at Millstone, is not meeting this vital adequate protection standard.

Therefore, UCS respectfully urges you not to allow restart of Millstone Unit 3 until you, and the public in New England, have reasonable confidence that the NRC staff can and will step in and stop declining performance at a troubled nuclear plant. Allowing Millstone Unit 3 to restart without that confidence would simply be repeating the mistake made by the Commission in January 1986. Please don't repeat that injustice to the people of Connecticut.

There were no winners at Millstone. The licensee, its employees, its stockholders, its ratepayers, the citizens living near the plant, the nuclear industry, and the NRC all lost. There cannot be a repeat of the regulatory meltdown at Millstone Unit 3 or at any other nuclear plant. Worse yet, there cannot be an accident at any plant operating with inadequate safety margins, as the three units at Millstone operated for too many years.

DONALD W. DEL CORE, SR.

UNITED STATES DISTRICT COURT
DISTRICT OF CONNECTICUT

DONALD W. DEL CORE, SR.,	CIVIL ACTION NO.
Plaintiff	
v.	
SHIRLEY ANN JACKSON, Personally and in Her Official Capacity As Chairman of the United States Nuclear Regulatory Commission UNITED STATES NUCLEAR REGULATORY COMMISSION,	
Defendants	JUNE 1, 1998

COMPLAINT

Introduction

1. This is an action for injunctive relief pursuant to 42 U.S.C. §1983 and attorney's fees pursuant to 42 U.S.C. §1988 and under the common law of the State of Connecticut against Shirley Ann Jackson, Chairman, United States Nuclear Regulatory Commission, and the United States Nuclear Regulatory Commission.

2. It is alleged that the Defendants, acting under color of state law, did knowingly, wilfully and wrongfully deprive the Plaintiff of his rights under the First and Fourteenth Amendments to the Constitution by denying him access to public records.

Jurisdiction

3. Jurisdiction is based upon 28 U.S.C. §1331 and §1343 and on the pendent jurisdiction of this Court to entertain claims arising under state law.

Parties

4. The Plaintiff, Donald W. Del Core, Sr., is a citizen of the United States of America and a resident of the Town of Montville in the State of Connecticut.

5. The Defendant, Shirley Ann Jackson, is Chairman of the United States Nuclear Regulatory Commission.

6. The Defendant, United States Nuclear Regulatory Commission, is an administrative agency created pursuant to federal law.

Facts

7. The Plaintiff is a former employee of the Millstone Station nuclear generating plant located in Waterford, Connecticut.

8. The Plaintiff was terminated from his employment by the owner-operator of Millstone ("Northeast Utilities") on November 8, 1991.

9. The Plaintiff alleged that he was terminated from employment at Millstone because of his activities as a whistleblower raising concerns about safety issues at the plant; ultimately, he reached a settlement with Northeast Utilities as to his alleged wrongful termination on March 12, 1994.

10. Continuously since such settlement was reached, the Plaintiff has been involved in the gathering and dissemination to the public and to the media of information concerning the operations of Millstone Station.

11. At all times pertinent to this complaint, the Millstone Station, consisting of three nuclear generating plants, has been in a shutdown mode because of persistent safety violations.

12. By order of the NRC, none of the three plants will be allowed to restart except upon the vote of the four Commissioners of the NRC.

13. At all times pertinent to this complaint, the Plaintiff has been engaged as a consultant to the Citizens Regulatory Commission ("CRC"), an organization of residents of southeastern Connecticut concerned about the safety of operations of the Millstone Station.

14. In his individual capacity and in his capacity as consultant to CRC, the Plaintiff has attended numerous public meetings concerning Millstone and analyzed and reviewed virtually all materials pertaining to Millstone which have been made publicly available by the NRC.

15. At all times pertinent to the complaint, the Plaintiff has frequently aired criticisms in public and to the news media concerning failures of safety systems at Millstone, mismanagement at Millstone, allegations of harassment and retaliation against Millstone employees who raise safety issues, and shortcomings of NRC as a regulator overseeing the operations of Millstone, among many other issues.

16. In addition, at all times pertinent to the complaint, the Plaintiff, in his capacity as consultant to CRC, has provided CRC with information and analysis of Millstone issues to assist CRC in its role as a citizen participatory group.

17. On November 14, 1997, Paul Blanch, a highly paid consultant working on Millstone issues for Northeast Utilities, met privately with Defendant Jackson and two other NRC commissioners, Nils Diaz and Edward McGaffigan, in their Rockville, Maryland NRC offices.

18. Upon information and belief, Blanch met with the Defendant Jackson and Diaz and McGaffigan, three of the four NRC commissioners whose votes are required for restart, as an authorized representative of Northeast utilities to lobby and pressure the NRC to approve restart of Millstone Station.

19. Such ex parte meetings by the Defendant Jackson, Diaz and McGaffigan violate the letter and spirit of 10 C.F.R. §2.780 and violate the public trust in the integrity of the NRC.

20. At other times both before and after Blanch's meetings with the three NRC commissioners on November 14, 1997, Northeast Utilities executives and managers at the highest levels have met improperly ex parte with Defendant Jackson, Diaz and McGaffigan as well as NRC Commissioner Greta Dicus. On April 1, 1998, both Blanch and Bruce Kenyon, Northeast utilities president and CEO, testified before the Connecticut Department of Public Utility Control that Millstone Unit 3 restart was "imminent and certain."

21. Following his November 14, 1997 meeting with Defendant Jackson and Commissioners Diaz and McGaffigan, Blanch reported in writing to Northeast Utilities his assessment that Diaz and McGaffigan were prepared to give affirmative votes to approve Millstone restart based on his meetings with them.

22. Blanch also reported in writing to Northeast Utilities that Defendant Jackson will "be very sensitive to public opinion" as she weighs whether to approve Millstone restart.

23. Also following his November 14, 1997 meeting with Blanch, Diaz told a reporter for The Wall Street Journal that in his meetings with Blanch, the latter had made "a very good case" for allowing restart.

24. Diaz has subsequently denied making such comment to The Wall Street Journal, according to the Event Inquiry dated May 27, 1998 which was issued by the NRC Office of Inspector General following an investigation of Blanch's meetings with the NRC commissioners.

25. A copy of The Wall Street Journal article so quoting Diaz is annexed hereto as Exhibit A.

26. On or about March 12, 1998, the Plaintiff addressed a communication to Defendant Jackson concerning The Wall Street Journal article and Blanch's meetings with the NRC commissioners, including Defendant Jackson. A copy of such letter is annexed hereto as Exhibit B.

27. Further on March 12, 1998, the Plaintiff addressed a formal request to Defendant Jackson seeking the release pursuant to the provisions of the Freedom of Information Act ("FOIA") of her records pertaining to her meetings with Blanch and other NRC commissioners' meetings with Blanch; in light of Northeast Utilities' recently announced intention to seek a restart vote, the Plaintiff requested that the information be provided "as expeditiously as possible." A copy of such letter is annexed hereto as Exhibit C.

28. Shortly after May 1, 1998, NRC announced that it would conduct a final public briefing on whether NRC should approve Millstone restart on June 2, 1998 at its Rockville, Maryland headquarters.

29. The Defendant Jackson and the Defendant NRC did not timely comply with the Plaintiff's FOIA request for production

of Defendant Jackson's records of the Blanch meetings, and thereby they acted in violation of the Freedom of Information Act.

30. On or about May 29, 1998, the Defendant Jackson and NRC delivered certain documents by mail to the Plaintiff pursuant to his FOIA request for records of the Blanch meetings.

31. Certain of the documents so provided contain passages which have been redacted from the originals.

32. More particularly, the entire meeting summary of the meeting between Defendant Jackson and Blanch which lasted approximately 45 minutes on November 14, 1997, has been redacted from Defendant Jackson's records of the meeting.

33. Defendant Jackson and Defendant NRC claim they properly redacted the meeting summary pursuant to exemptions which are applicable under FOIA, namely, that such information is privileged as a component of the NRC deliberative process; that disclosure of the information would result in an invasion of privacy; and that the information is privileged by the attorney-client privilege.

34. Each of the claimed exemptions does not apply to the 45-minute meeting between Defenant Jackson and Blanch and each claimed exemption, moreover, is completely bogus.

35. Other records provided to the Plaintiff pursuant to his FOIA request were improperly redacted pursuant to claimed exemptions which do not apply.

36. Defendant Jackson and Defendant NRC improperly redacted passages and information from Jackson's records without legal cause.

37. The records sought by the Plaintiff are public records within the meaning of FOIA.

38. Thereby, Defendant Jackson and Defendant NRC, acting under color of state law, have unlawfully deprived the Plaintiff of his legal entitlement and access to public records and thereby deprived him and interfered with his First Amendment and Fourteenth Amendment rights.

39. In conjunction with his activities as a consultant to CRC, CRC engaged the Plaintiff to obtain all available pertinent information concerning the NRC's Operational Safety Team Inspection ("OSTI") conducted at Millstone Station during April 13 - April 24, 1998.

40. The OSTI inspection and its results are key issues to be considered by NRC prior to a vote on Millstone restart; the OSTI inspection and its results are a specific issue on the agenda of the NRC's scheduled June 2, 1998 meeting.

41. On April 30, 1998, the Plaintiff submitted a request to Defendant Jackson pursuant to FOIA seeking the expedited release of all records pertinent to OSTI and requesting a waiver of fees. A copy of such letter is annexed hereto as Exhibit D.

42. The Plaintiff requested said OSTI records so that he could fully inform himself about the OSTI inspection for himself and as a consultant to CRC in time for the NRC last public briefing prior to a vote on Millstone restart.

43. On May 1, 1998, the NRC communicated to the Plaintiff that NRC would take two to four weeks to comply with his request. A copy of such letter is annexed hereto as Exhibit D.

44. On May 18, 1998, NRC communicated to the Plaintiff that it would charge him a fee in the amount of $2,235.02 to comply with his OSTI request, which fee includes copying charges for the 1,400 pages of the documents deemed necessary by NRC to comply with the Plaintiff's FOIA request. A copy of such statement of estimated fees is annexed hereto as Exhibit E.

45. By letter dated May 18, 1998, the Plaintiff reiterated his request for a fee waiver. A copy of such letter is annexed hereto as Exhibit F.

46. To date, the Plaintiff has received no further response from Defendant Jackson or from Defendant NRC with respect to his OSTI request, notwithstanding that NRC has scheduled its final public briefing on OSTI on June 2, 1998.

47. Thereby, Defendant Jackson and Defendant NRC have acted under color of state law to deprive the Plaintiff of his ability to participate meaningfully in NRC proceedings concerning Millstone Station as an individual and as a consultant to CRC by unlawfully depriving him of public records.

48. Thereby, Defendant Jackson and Defendant NRC, acting under color of state law, have deprived the Plaintiff of and interfered with his First Amendment and Fourteenth Amendment rights.

49. The Defendants have acted wilfully with knowledge that their deprivation of Plaintiff's access to the requested public records would handicap his ability to air to the public and to the news media information concerning the Blanch meetings and the OSTI which would prove to be embarrassing to Defendant Jackson, Defendant NRC, as well as Northeast Utilities and its top management.

50. The Defendants have thereby acted in clear abuse of the public trust.

51. The Plaintiff is without an adequate remedy at law.

COUNT I

51. Paragraphs 1 through 51 are incorporated by reference as though fully set forth herein.

52. By the above-stated conduct, the Defendants have denied the Plaintiff his rights and liberties under the First Amendment.

COUNT II

53. Paragraphs 1 through 51 are incorporated by reference as though fully set forth herein.

54. By the above-stated conduct, the Defendants have denied the Plaintiff his right to due process and equal protection of the laws under the Fourteenth Amendment.

COUNT III

55. Paragraphs 1 through 51 are incorporated by reference as though fully set forth herein.

56. By their above-stated conduct, the Defendants have wrongfully interfered with the Plaintiff's contractual rights and obligations with the CRC.

WHEREFORE, the Plaintiff claims the following relief:

1. An injunction barring the Defendant Shirley Ann Jackson and the Defendant United States Nuclear Regulatory Commission from engaging in conduct in the future to unlawfully deprive him of his right of access to public records.

2. Attorney's fees;

3. Costs of this action.

THE PLAINTIFF
DONALD W. DEL CORE, SR.

By: Nancy Burton

Nancy Burton, Esq.
147 Cross Highway
Redding Ridge CT 06876
Tel.203-938-3952
Fed. Bar No. 10836

Exhibit A

THE WALL STREET JOURNAL

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INTERNET ADDRESS: http://wsj.com

Utility Players

Two Pals Whose Work Closed a Nuclear Plant Come to Bitter Parting

Reopening of Facility Hangs On Which One of Them Regulators Side With

'Have We Hired the Enemy?'

By ROSS KERBER
Staff Reporter of THE WALL STREET JOURNAL

WATERFORD, Conn. — After Paul Blanch quit his engineering job at Northeast Utilities, he drove to the home of Donald Del Core Sr., a technician whom the company had fired.

"I needed some consoling," recalls Mr. Blanch, who says managers harassed him and repeatedly ignored his safety warnings about the company's Millstone nuclear-power plant in this small Connecticut town. "I was pretty down. I'd just given up a 27-year career."

The two friends, both strapping Navy veterans, drank coffee and reassured each other for hours. On that day five years ago, they made an unspoken pact to stick together, and their warnings about Millstone were finally heeded by the U.S. Nuclear Regulatory Commission, which has forced Northeast to keep Millstone closed since March 1996.

Paul Blanch

Vindicated in the past as allies, the two men today are barely speaking as their paths veer in opposite directions. Mr. Del Core, 58 years old, remains an unrelenting critic of the plant, railing against its managers, digging up evidence against it, and taking medication to control his temper and blood pressure. Mr. Blanch, 55, is back at Northeast Utilities, rehired in the role of ombudsman, arguing that the Berlin, Conn., power company has changed its ways and that Millstone should be allowed to reopen.

Mr. Del Core is outraged. Calling Mr. Blanch "a sellout," he alleges that his longtime colleague is engaged in a conflict of interest — assigned to ensure that employees' concerns about safety are heeded while at the same time lobbying regulators to overlook them. "He gives me the same company line as everybody else there, and that p— me off," Mr. Del Core says.

As Mr. Blanch sees it, Mr. Del Core has become irrational and obsessed with Millstone, a rabblerouser who "doesn't understand that at some point, you have to stop hitting them over the head with an ax and sit down and talk."

The fate of Northeast hangs on which man regulators believe. If a majority of NRC commissioners judge that Millstone is ready to run, at a vote expected in coming months, the resulting revenue likely will help Northeast avoid a bankruptcy filing or default. The shutdown, one of the most damaging blows ever to the U.S. nuclear-power industry, has so far cost Northeast $1.2 billion, cut its share price in half, wiped out its dividend, and weakened the company as the New England region it serves moves rapidly toward utility deregulation.

The NRC acted against Millstone after George Galatis, an engineer whom Mr. Blanch had helped persuade to come forward, exposed how Northeast was overloading a cooling reservoir with highly radioactive fuel rods to save time and money. That problem and others led to a record $2.1 million fine from the NRC last December. The Connecticut U.S. Attorney's office is also investigating whether Northeast managers lied about their safety practices.

Donald Del Core Sr.

Mr. Del Core contends that Northeast still hasn't solved a myriad of other serious safety problems. He says training on safety procedures is shoddy, and he cites recent NRC findings that the utility still doesn't know whether thousands of pipes, pumps and wires would perform properly in the event of an accident. In February, Northeast reported that a valve controlling the flow of coolant through one of Millstone's three reactors might jam during an emergency.

Northeast executives acknowledge the technical problems but say that most of them can be safely addressed after the first of the reactors begins to run. They say a recent management shake-up of Millstone's training department should allay Mr. Del Core's concerns regarding training.

Mr. Blanch says that most of these problems are minor and shouldn't bar a restart because "you have got to be real, you can't assure compliance with 100% of the regulations all the time." The NRC appears to agree; William D. Travers, who heads the agency's Millstone inspection team, says most of the equipment uncertainties "aren't safety-significant."

Mr. Del Core also says employees who raise safety concerns are still being harassed by Northeast. He obtained and made public a Jan. 11 memo approved by Dave

Please Turn to Page A10, Column 1

Two Pals Split Over a Power Plant

Continued From First Page

Goebel, vice president for nuclear oversight at Northeast, that criticized plant managers for their "inability to 'isolate' cynics from group culture." After the NRC chastised Northeast over the memo, the company announced that Mr. Goebel had resigned in a "mutual decision." Mr. Blanch plays down the memo's significance, saying it's not clear just what was meant by the reference to cynics.

Mr. Blanch joined Northeast in 1972, shortly after leaving the Navy's nuclear-submarine service and earning an engineering degree. The utility put him to work overseeing the design of electrical systems during the construction of Millstone's second reactor. He became known for his thorough understanding of the plant's inner workings and his insistence that every system work exactly as designed.

In the late 1980s, however, Northeast began a company-wide cost-cutting effort that Mr. Blanch viewed as a threat to safety. In 1988, Mr. Blanch discovered that sensors designed to monitor reactor pressure could fail without warning. He later found that gauges used to measure the level of cooling water inside Millstone's oldest reactor could be inaccurate by as much as 37 feet, meaning the radioactive fuel core could be exposed and begin to melt down before operators realized water levels had dropped. He says managers rebuffed his demand for fixes in the first case. In the second case, Mr. Blanch convinced Northeast to replace its own gauges but met with resistance when he raised the issue with the owners of 36 other U.S. reactors that had the same problem. Mr. Blanch eventually began to discuss his concerns with NRC officials, who determined he was right in both cases.

Outspoken Maverick

In 1989, while working with Connecticut state legislators to draft a "Whistle-Blower Protection Act," Mr. Blanch met Mr. Del Core. Hired out of the Navy in 1979 as an instruments technician, Mr. Del Core was known around Millstone as an outspoken maverick who was also critical of the cost-cutting.

In time, Mr. Del Core and his colleagues began flooding the NRC with safety and managerial concerns — at least 130 in 1989 alone. The allegations ranged from failure to test a radiation alarm to matters unrelated to safety, such as improper control of overtime costs. The agency eventually found some justification for 58 of the complaints, although none were determined to be significant safety violations.

Undeterred, Mr. Del Core continued his campaign. In November 1991, Northeast fired Mr. Del Core, an action the company still declines to discuss. He turned to the U.S. Labor Department, which investigated and found a company document that described Mr. Del Core as "arrogant, boisterous and profane." But the Labor Department still ruled in favor of Mr. Del Core's complaint that he was fired for raising safety concerns. The finding helped Mr. Del Core negotiate a settlement — he won't say how much — with Northeast that has helped to subsidize his work as a full-time critic. A Navy pension also helps to pay his bills, and he sometimes helps his wife, Margherita, hand out samples of new food products at supermarkets.

Still at Northeast at the time, Mr. Blanch says his supervisors were intimidating him. Colleagues would fall silent when he entered a room, he says. Superiors audited authorizations he made for employee expenses, an action the NRC later found to be harassment. Mr. Blanch quit his $78,000-a-year job in 1993 and received an undisclosed settlement. He launched a lighting-consulting business and remained friends with Mr. Del Core. The two men and their wives would go out for Chinese food. When Mr. Del Core's wife underwent surgery, Mr. Blanch brought flowers. Mr. Del Core did the same when Mr. Blanch's wife had surgery. "I used to see Paul more than I saw my own family," recalls Mr. Del Core.

The two men talked of reforming their former employer. They testified at public hearings and helped found a group called the "Citizens Regulatory Commission," to publicize safety issues. They trained its members — teachers, merchants and homemakers who lived near Millstone — how to locate and interpret NRC records. "It was because of Blanch and Del Core's input that we kept asking questions," says Susan Perry Luxton, an elementary-school teacher. "The rest of us were just citizens who didn't know squat."

A Big Phone Tab

Mr. Del Core relishes his role as an activist, faxing documents far and wide, dishing tips to the media and running up $4,000 annual phone bills. Friends say it's not unusual for him to ignore dinner guests while he confers on the telephone with reporters and state officials about Millstone. A study in his house in Uncasville, Conn., rivals the NRC's nearby public-documents room. Maura Casey, an editorial writer for the Day newspaper of New London, Conn., and a critic of the utility, estimates her file cabinet contains nearly 800 pages of material provided by Mr. Del Core. "He's practically a research assistant," she says.

But Mr. Blanch was frustrated by his estrangement from decision-makers. "My whole career has been about making nuclear power work," he says. After his resignation, he stayed in touch with old friends at Northeast and the NRC, at times even putting himself forward as a candidate for Northeast's board and as NRC commissioner.

When Northeast hired a new nuclear-operations chief in August 1996, Mr. Blanch found a way back. The new chief, Bruce D. Kenyon, remembered Mr. Blanch when both men worked at Millstone in the early 1970s, and offered him the newly created job of ombudsman, designed to help resolve internal and external complaints.

Making a Deal

"His concerns had been upheld and yet he was outside the company, and I thought that was a sad state of affairs," Mr. Kenyon says. Mr. Blanch accepted the offer, despite objections from Mr. Del Core and other Northeast critics. He declines to state his salary, but says he earns more than he did as an engineering supervisor.

Mr. Del Core insists that it was he who first came up with the idea of an ombudsman, in a memo he showed to Mr. Blanch in the summer of 1996, and he says he resents that Mr. Blanch "took all my ideas and set himself up." Mr. Blanch says he took nothing from Mr. Del Core, and never believed an ombudsman post would fly at Northeast until Mr. Kenyon mentioned it to him.

Mr. Del Core says Mr. Blanch has become a company apologist, and dismisses his hiring as a public-relations move, which Mr. Kenyon disputes. "I was looking for somebody who could help me fix Millstone, who could give me perspective," he says.

Hiring the Enemy?

Mr. Blanch says he loves his new job. He says he helps about seven employees a month settle their differences with managers. He takes credit for the rehiring of half a dozen employees who were laid off in January 1996 for what Mr. Blanch describes as retaliation for their outspokenness. "No one would touch us before Paul Blanch spoke up," says one of the returnees, engineer Harry S. Blank.

"He lends us a lot of credibility," says William R. Carr, a Millstone contracts manager. "When he first got here, I used to think, have we hired the enemy?"

Mr. Blanch has been telling local newspapers that Millstone should be reopened and has met several times privately with NRC officials, including November sessions with agency chairwoman Shirley Jackson and commissioners Nils Diaz and Edward McGaffigan Jr. at NRC headquarters outside Washington. Mr. Blanch says he isn't lobbying the NRC to reopen the plant because he believes that would be a conflict of interest for him. Nonetheless, Dr. Diaz says that in his meetings with Mr. Blanch, the ombudsman has made "a pretty good case" for allowing a restart.

Suspicious Friends

Outside Northeast, other old friends view Mr. Blanch with suspicion. Mr. Galatis, the former Millstone engineer who raised the fueling-pool concerns, says that soon after Mr. Blanch returned to Northeast, Mr. Blanch called him and asked him if he knew which utility managers were targets of the U.S. Attorney's criminal investigation. Mr. Galatis, who has spoken to investigators, labels the phone call potential "obstruction of justice" because such information would allow Northeast to block or channel the inquiry. After Mr. Galatis' attorney complained to the NRC about the phone call, Mr. Blanch wrote to the agency to apologize and said that he had misunderstood a request from a superior as asking him to contact Mr. Galatis for the information. The NRC says it is satisfied with Mr. Blanch's response.

Mr. Del Core is dealing with problems of his own regarding the impression he makes. In February, he drove seven hours to a Millstone hearing at NRC headquarters. Although the meeting centered on the implications of the "isolate cynics" memo he had unearthed, Mr. Del Core was denied an opportunity to testify. Connecticut State Rep. Terry Concannon, also a critic of Northeast, says Mr. Del Core's blunt style sometimes results in his being disregarded, and drowns out his otherwise valid criticisms. "His intensity overwhelms him," she says.

Mr. Del Core acknowledges that he often gets too worked up for his own good. Last September, unhappy with the outcome of a hearing in which Northeast pledged to give managers more sensitivity training to avoid the firing of whistle-blowers, Mr. Del Core stormed out, shouting "You people don't need more training, you need heads off!"

Exhibit B

Donald W. Del Core, Sr.
4 Driscoll Drive
Uncasville, CT. 06382-1808

Dr. Shirley Ann Jackson
Chairman
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555-0001

March 12, 1998
FACSIMLE

Dear Dr. Jackson:

I write to you today regarding an article which appeared in today's Wall Street Journal. Apparently, Mr. Paul Blanch, a current NU employee, or consultant, has met "several times" with the NRC Commissioners, including yourself, about Millstone Station. While Mr. Blanch denies lobbying for a restart, on behalf of Northeast Utilities (NU) before the Commission, the quoted comments by Commissioner Diaz in that article, seem to support that lobbying, did take place. Has the Commission had lobbying efforts by NU, or it's consultants, to make a case for the restart of any Millstone unit? Does a transcript, or taped record, exist of those meetings? How can a utility representative have personal, or private, access to you, and your fellow Commissioners, to " make a pretty good case " for allowing a restart?

The public has not been allowed that kind of access. We in fact, have been severely restricted from public questioning, and commenting by NRC officials, at all public meetings with your staff, and very few questions, and comments, were allowed during your visits to Millstone. I believe the practice of allowing NU representatives that much access, while limiting public access is an unacceptable practice. I also believe it to be illegal, and a conflict of interest. Furthermore, allocation of equal time should be allotted to those of us that wish to proffer our case to the Commission.

Was Mr. Blanch acting as a company representative, or as a private citizen? In either capacity, he was afforded much more access than others, and that access appears to be a lobbying effort by him, NU, or both. Please make available to the public all NRC records associated with the meetings. Additionally, public access must be improved at public meetings. We continue to be restricted, with regard to the number of questions we allowed to ask, and the subject matter of the questions. Your staff constantly indicates to us, that they are receiving complaints from individuals, that they cannot ask questions at the meetings, because a few people are asking all the questions. The same individuals ask questions at every meeting, with one exception, the leader of the newly formed group Friends of a Safe Millstone (FOSM). In the last few meetings he has begun to make comments, and has complained to your staff about the meeting format. Your staff

immediately changed a format they had established through trial and error, over many meetings to accommodate the newcomers.

The meetings cover too much information. That is to say, we are given a review of the ICAVP, the ECP, and an update on the restart progress. On most evenings, we receive extra presentations by the licensee, and third party contractors. All of the information is important, and necessary, especially for those that do not attend the daily meetings. We have pointed out many times to your staff, that too much is covered in one evening, and that the update meetings need to be spread over a few evenings. It has fallen on deaf ears! The public will not be satisfied with the present system, nor should they be. If the public meetings are necessary to solicit public opinion, and input on it's perception of the situation, and progress at Millstone, then the meetings are not accomplishing their goal. Your attention is needed to move your staff on this issue.

As with my previous letters to you, I have provided the Office of Inspector General with a copy of this letter. Thank you in advance for your prompt attention to these issues so very important to the public.

Sincerely,

Donald W. Del Core, Sr.

Exhibit C

Donald W. Del Core, Sr.
4 Driscoll Drive
Uncasville, CT. 06382-1808

Dr. Shirley Ann Jackson
Chairman
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555-0001

March 13, 1998
FACSIMLE

Dear Dr. Jackson:

With regard to my letter of March 12th, 1998, I would like to formally request the release of all information, including personal notes, inter-office memos, tapes, computer records, and other documentation associated with the visit/ visits of Mr. Paul Blanch with you, and other Commissioners. In the Wall Street Journal article referred to in yesterdays' letter, there was also an indication that Mr. Blanch met with other NRC officials, and therefore, this request includes a request for the release of the information related to those visits.

This request is made to you, under the provisions of the Freedom of Information Act (FOIA). In view of the fact the Northeast Utilities has just recently revealed it's intention to request a restart vote, I would expect that this information be provided as expeditiously as possible. Again, I thank you in advance for your prompt attention in this important public matter.

Sincerely,

Donald W. Del Core, Sr.

Exhibit D

Donald W. Del Core, Sr.
4 Driscoll Drive
Uncasville, CT. 06382-1808

Dr. Shirley Ann Jackson
Chairman
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555-0001

April 30, 1998
FACSIMLE

Dear Dr. Jackson:

With regard to the Operational Safety Team Inspection (OSTI) conducted between April 13[h], 1998, and April 24, 1998, I would like to formally request the release of all information, including Team observation reports, minutes of team meetings, and other team shared information. Additionally, please provide copies of team shared personal notes, inter-office memos, tapes, computer records, and other documentation associated with the visit/ visits of all team members, and others associated with the team. I would also like any information utilized by NRC management at the Millstone site, or in the Region 1 office. Also please provide all team shared information utilized by the NRC team at the preliminary exit meeting with Millstone management.

This request is made to you, under the provisions of the Freedom of Information Act (FOIA). In view of the fact the Northeast Utilities has just recently revealed it's intention to request a restart vote, I would expect that this information be provided as expeditiously as possible. This information will be utilized to inform and educate the public on these important restart issues, and therefore should be exempt from any fees. It is important that this information be addressed as soon as possible to prevent the loss of important public disclosure. Again, I thank you in advance for your prompt attention in this important public matter.

Sincerely,

Donald W. Del Core, Sr.

c/c : Mr. George Mulley, OIG
Ms. Susan Perry Luxton, CRC
Nancy Burton, Esq.

Exhibit E

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 1, 1998

FOIA/PA 98-186

Mr. Donald W. Del Core
4 Driscoll Drive
Uncasville, CT 06382-1808

Dear Requester:

We received your Freedom of Information Act/Privacy Act (FOIA/PA) request on 4-30-98.

Your request has been assigned the following reference number that you should use in any future communications with us about your request: FOIA/PA 98-186.

Based on your description of the records you are seeking, we estimate completion of your request will take 10-20 workdays (2-4 weeks). We will advise you of any change in the estimated time to complete your request.

For purposes of assessing fees in accordance with our regulations (10 CFR 9.33), we have placed your request in the following category: Non-Excepted.

If applicable, you will be charged appropriate fees for Search and Duplication of records.

A sheet has been enclosed that explains in detail the fee charges that may be applicable. **Please do not submit any payment unless we notify you to do so.**

You requested that fees be waived for your request and I have determined that your request for a fee waiver does not provide sufficient information under 10 CFR 9.41 for the NRC to make a determination to waive fees. A copy of the factors which must be addressed is enclosed.

The following person is the FOIA/PA Officer who has been assigned responsibility for your request: **(Natalie Brown) at (301-415-6978)**.

If you have questions on any matters concerning your FOIA/PA request please feel free to contact the assigned FOIA/PA Officer or me **(301-415-7169)**.

Sincerely,

Russell A. Powell
FOIA/Privacy Act Officer

Enclosures:
Incoming Request
Explanation of Fees
Fee Waiver Justification Requirements

Exhibit F

NRC FORM 509 (5-93)

U. S. NUCLEAR REGULATORY COMMISSION
APPROVED BY OMB 5130-0043 EXPIRES: 5-31-96

STATEMENT OF ESTIMATED FEES FOR FREEDOM OF INFORMATION ACT (FOIA) REQUEST

REQUEST NUMBER: FOIA-98-186

DATE: MAY 13 1998

REQUESTER: Donald W. DelCore, Sr.

NRC CONTACT: Natalie O. Brown

TELEPHONE: (301) 4156878

Pursuant to the NRC's regulations, 10 CFR 9.40, 52 FR 49350, the NRC notifies a requester when estimated applicable fees exceed $25.00 or a limit stated in an FOIA request. The estimated fees for processing your FOIA request are noted below. If you wish to re-scope your request to reduce fees, you may telephone the NRC contact identified above to discuss re-scoping the request. Otherwise, please provide a written response on required action noted below. If the NRC does not receive notice from you on re-scoping your request or the required written response within 20 days from the date of this notice, the NRC will presume that you have no further interest in NRC processing your request and will close the file on your request.

ESTIMATED FEES

SEARCH	$ 973.26 [22 hours, SES and professional]
REVIEW	$ 981.76 [24 hours, SES and professional]
DUPLICATION *	$ 280.00 [1400 pages @ $.20 per page]
TOTAL	$ 2235.02

* Duplication estimate is based on the assumption that you want copies of disclosed records mailed directly to you. If you prefer, the NRC will make disclosed records available at the NRC Public Document Room, Washington, D.C., or at a Local Public Document Room for inspection free of charge and copying at fees charged at those locations. Please note your preference in the Response section below.

	Please note the comments provided on the attached NRC Form 509A.
	For fee purposes, the NRC has aggregated the multiple requests identified above under the presumption that the requested records could have been the subject of a single request.
X	Your request for a waiver or reduction of fees does not provide sufficient information under 10 CFR 9.41 for the NRC to make a determination to waive or reduce fees. If you want the NRC to consider this matter further, please submit a written request pursuant to 10 CFR 9.41 within 10 working days from the receipt of this notice.

REQUIRED ACTION

	Please agree in writing to pay fees as high as estimated by signing and dating the Response section of this form and returning the form to the NRC contact identified above at the U.S. Nuclear Regulatory Commission, Washington, D.C., 20555-0001, within 20 days from the date of this notice.
X	Please provide an advance payment of the estimated fees by submitting a check made payable to the U.S. Nuclear Regulatory Commission within 20 days from the date of this notice. Mail the check to the NRC contact identified above, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Any overpayment of fees will be refunded to you.

SIGNATURE - CHIEF, FOIA/LPDR BRANCH: Natalie Brown

DATE: 5/13/98

RESPONSE

As required above, I agree to pay fees as high as estimated, or enclose advance payment. I agree to pay estimated search fees even if the NRC conducts an unsuccessful search for responsive records or determines records located are exempt from disclosure. I prefer that copies of disclosed records be provided as stated below.

☐ MAILED TO ME BY THE FOIA/LPDR BRANCH

☐ PLACED IN THE NRC PUBLIC DOCUMENT ROOM

☐ PLACED IN THE LOCAL PUBLIC DOCUMENT ROOM

SIGNATURE – FOIA REQUESTER

DATE

Exhibit G

Donald W. Del Core, Sr.
4 Driscoll Drive
Uncasville, CT. 06382-1808

Chief, Freedom of Information
& Local Public Documents Room Branch,
Office of Information Resources Management,
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

May 18, 1998

Dear Sir/ Madam:

Attached please find a copy of my original letter to Chairman Jackson requesting documents associated with a recent inspection conducted by the NRC staff under the FOIA.. Also please find the response by your Ms. Natalie O. Brown. Apparently the request for a waiver of fees was not clear enough, therefore please allow me to provide the necessary information to support my request.

The intended use of the requested information is to provide the general public with the results of the Operational Safety Team Inspection, including the areas reviewed, the findings of the members of the Team, and a more in-depth review than what was provided in the exit meeting. As you may be aware the public exit meeting was conducted during the daytime working hours for most individuals, preventing them from receiving the information on the results of this very important inspection.

I have more than 30 years experience in the nuclear business, about half of which is associated with nuclear power generating facilities under the jurisdiction of the NRC. In addition I have spent the last 10 years reviewing NRC records and reports associated with the Millstone Station reactors. I was employed at Millstone Station for more than 12 years, and feel more than qualified to review such documents and convey their meaning to the public in the area of the plants.

The public will be informed of the information through public access television, which is currently distributed to approximately 15 local access channels throughout the State of Connecticut, and on Long Island, N.Y. I act as a technical advisor to the Citizens Regulatory Commission, and as such provide my services on a volunteer basis, and no fees or payments are paid to me, nor are there any charges to the public, or to any access channels showing the videos produced at the host channel. Neither I, nor the CRC have any private or commercial interest in the information requested. Other public groups receiving the benefit of the public information provided by myself and the CRC are: The Citizens Awareness Network, Don't Waste Connecticut, and the Green Party.

The CRC is a grassroots neighborhood group formed in 1995 as a result of problems at the Millstone Station. Our membership is 300+ citizens from many towns surrounding the Millstone Plants, and from cities as far as 50 miles away.

I requested a waiver of fees in my original letter, and I am well known to the NRC staff, and Commissioners. I generally correspond with the Chairman, and the other 3 Commissioners about every other week on issues related to Millstone on behalf of the general public. I resent very much the delays your staff have caused in getting the requested information. A previous FOIA has yet to be fulfilled. I would like any future FOIA requests to be acted upon based on the usage information in this letter. Thank you for your prompt attention in this matter so important to public disclosure regarding their health and safety.

Sincerely,

Donald W. Del Core, Sr.

MILLSTONE STATION

EMPLOYEE CONCERNS

TASK FORCE

The Millstone Station Employee Concerns Task Force
Statement of Position on Readiness for Restart of Millstone Unit 3

We, are the volunteer members of the Ad Hoc Millstone Station Employee Concerns Task Force. Our mission, as it was assigned in late 1996, was to develop a comprehensive Employee Concerns Program (ECP) addressing all of those issues identified in the process of both NU and NRC evaluations of the program as it existed at that time.We took this charge seriously and proceeded to develop a comprehensive plan which went considerably beyond the normal bounds of such a program. We did this recognizing that, as the culture changes at Millstone, the program could be scaled back when all agree that that is the appropriate action. More importantly, we went above and beyond in recognition of the depth of problems from which Millstone Station needed to recover.Millstone senior management fully supported our recommendations which included:

- Possibly the most comprehensive Employee Concerns Program in the industry,
- A "triage" methodology for prioritizing the Program's activities
- An Employee Concerns Oversight Panel (ECOP) to overview performance of the ECP, and,
- A statement of openness to the receipt of employee concerns for signing by all within management positions for posting at the entry to their offices.

Further, the Employee Concerns Task Force did not consider our business finished with the issuance of our recommendations. Several meetings were convened thereafter, during which we looked closely at how "our" program was working. We recommended to management, the inclusion of a key professional who had provided consultation to our Task Force, in the makeup of the Little Harbor Team. We are particularly proud of that recommendation and the effectiveness that was added to the ECP third party oversight process as a result of our actions.

Finally, many of us continue to this day, to be key contributors to the success of "our" Employee Concerns Program. The creation of the Comprehensive Plan is thought by many members to be among the most significant accomplishments they have been involved in at Millstone, we have a deep sense of ownership, and a committment to ensuring no "slippage" happens in the future. Three task force members have gone on to become liasons to the ECP, as Peer Representatives. One task force member recently chaired a group that wrote an alternate dispute resolution procedure that will feature a Peer Review Panel to hear disputes. Several of our task force members are filling key positions on ECOP; one person as Manager of ECOP and several as either full and part time members of ECOP. Most interesting is the fact that one of our Team recently received the Runners-Up Chairman's award for work completed with the ECOP. This is solid evidence that management up to the CEO level is taking our efforts seriously.

In closing, we wish to convey to the Chairman and her fellow Commissioners, that the Millstone Station volunteers involved in developing and then helping to implement the current Employee Concerns Program, have witnessed and been involved in marked change for the better. Further, we recognize much in the way of areas for improvement and will continue with our efforts to cause that to happen. We are confident that the culture at Millstone has gone through a marked improvement and is now at a level which is fully supportive of return to operation of the of the Millstone units.

Yours:

Members of the Employee Concerns Task Force

MILLSTONE

EMPLOYEE

AD HOC GROUP

Millstone Employee Ad Hoc Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128

June 1, 1998

Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

Dear Dr. Jackson, Dr. Diaz, Ms. Dicus and Mr. McGaffigan:

As workers at Millstone, we know that we are the front line people most responsible for public health and safety. **We accept that responsibility**.

The changes at the Millstone site go far beyond the restoration of plant programs and processes. As employees, we have made a fundamental shift in our attitudes and behaviors, particularly with respect to our understanding of accountability.

We hold ourselves accountable. As individuals, we hold ourselves accountable to fulfill our responsibilities in such a way as to protect the public health and safety.

We hold each other accountable. While we are respectful of differing opinions and defend each worker's right to raise issues, we do not hesitate to challenge each other to maintain high standards.

We hold the management of Millstone Station accountable. We expect our management to maintain a commitment to public health and safety, but fully recognize that we provide an important check and balance for decisions with safety implications.

We are an empowered work force. We will never again tolerate a lowering of standards, a compromise of safety, or a neglect of our commitment to do the right thing.

In conclusion, **we, as the workers of Millstone Station, understand and accept our responsibility** to protect the public health and safety. We respectfully request that you approve the restart of Millstone Unit 3.

Sincerely, *(ORIGINAL SIGNED BY OVER 1600 MILLSTONE WORKERS)*

Millstone Employee Ad Hoc Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128

May xx, 1998

Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

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Sincerely,

SIGNATURES

SIGNATURES

Millstone Employee Ad Hoc Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128

May xx, 1998

Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
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Edward J. Rick Jr.
George H. O'Brien Jr
Carl W. Colman
Harold Galina
David A. Austin
James A. Tumlin
Henry V. Wolff
Dan N. Wilbur Jr.
R. E. Sills
V. S. Somanthi
John H. Rein
Wilderman A. Surgeh

SIGNATURES

Kathryn
Gary F. Perdome
Michael W. Merk
Janet H. Novak
John J. Schrader
R. S. Schaffer
Chris Mahr
J. Gilbert
M. Pupello

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Bill Hurt
Ronald W. Marcaurele Sr.
Robert O'Neil
Ronald Marcaurele Jr.
James Lebedeau
Bacon
Mark J. Brennan
Charlene O'Meara
Joseph N Lulli
Andrew J. Seifert
David H. Sleeper
Brian McCorrigan
Allan M. Johnson

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Paul A. Wilson
Ray Swol
Gary Kennedy
Gary Fallesen
Jean M. Murphy
Gwen Horsley
Barry Williams
Kurt Vilcher

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Ralph Albanese

Mark J. Chaplis

Daryl Marchak

Karen R. Gavin

Gary R. Hanle

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Donna Long

Laurie Weckison

Ruth E. Heasley

Geraldine Byrnes

Maureen Becker

Michelle Cooper

Joseph Eklund

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Jeri Duefrene
Jeri Fortney

SIGNATURES

Frank J. Perry
Bob Romer
Russell B. Miller
Robert Sife
Richard A. Zaffiro
William J. Hayes
Frank D'Alessandro
Barbara A. Phelps
Vernon W. Jones
Marjie Ambrosander

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Robert Johnson
Patricia Cassidy
Helen Lee Cuccaro
Tony Pierce
Brad A. B.
Helene Hunter
Stephen W. Wattke

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William M. Mashkay
Kevin Edwards
David S. Brady
Raymond Foster
Patricia Cassidy
Jeanne M. Carpentier

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SIGNATURES

Terry McNall

SIGNATURES

Elizabeth A. Farbotka

William M. Wing

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In conclusion, **we, as the workers of Millstone Station, understand and accept our responsibility** to protect the public health and safety. We respectfully request that you approve the restart of Millstone Unit 3.

Sincerely,

SIGNATURES

Patrick L. Walker
Tom McDonald
Thomas Rybodo
Robert F. Blake
Charles R. Chace
Kirk McKenzie
Fred D. Cite
Debbie Goodman
Stephany C. Abate
Jennifer Lenk
Mary K Pratt
Tracey Kimmel
Craig Geller
Tom Morris

SIGNATURES

Millstone Employee Ad Hoc Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128

May xx, 1998

Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

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Cynthia Cocola
Daniel McDougherty
Laura Wagner
Peter G. Lipka
Kevin Lahe
Alan Kowalky
James J. Raleigh
Ronald Dennis
Greg Haines
Richard W. Hart
Scott Lowe
N.E.M.D.
Bryan Champion
Paula Green
David Sheikh
David E. McDonald
Philip Seymour

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Robert W. Fosdick
Edward L. Cummins
Jacqueline M. Williams
Stephen C. Neuman
Heldi Sanders
Liz Mueller
Joseph Mangan
Antonio L. Alsly
Joni Wilson
Peter L. Wells
Brenda Beatrice

SIGNATURES

Angela Tenczar
Brian Bohnbach
Charles M. Rehem
Paul J. Paulis
Ninja
Robert Papkin
Thomas C. Fortin
Philip Potter
James Morello
Rob Davis

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SIGNATURES

Patrick McMonegal
Mark Johnson
Tom Gardner
Thomas Shea
Peter Ambler
Roy Partridge
Eugene P. Weed
[illegible]
[illegible]
[illegible]
Jerry Gross
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
P. Sullivan
Kyla Shea
George Spires
Robert Dau
Michael Caronia
Charles V. Boughton

SIGNATURES

Eileen Fletcher
Dennis B. Simmons
Paul DeFelice
Rafael A. Brown
Alan A. Kelley
Craig [illegible]
M.F. Swiacke
[illegible]
Kevin P. Flanna
Giuseppe Caccatore
Robert F. Edwards
[illegible]
[illegible]
Steve Allegrad
Mark Pignatiello
[illegible]
[illegible]
[illegible]
John F. Abbiati
Michael J. Garrity

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SIGNATURES

Paul M. Jacobson
Jeffry R. Bloran
B. L. Garnett
William H. Rosche
Ronnie Cunningham
Gini Goodhind
Kim Bagby
Peter Wright
Joseph J. Mazzer

SIGNATURES

Christian Lin
Yan-jing Wu
Fabian
Sinwood A. Bullock
W. Willis
Peter Talbot
Sherri Huffman
Robert H. Page
Aarij A. Kirmani
Dilip Mukherjee
Richard W. Blakeslee Jr.

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Sincerely,

SIGNATURES

Keith Brothers
Paul Slamkowski
Jr Jerm
Barry L Lorby
David S. [illegible]
Paul [illegible]
Don Zinnelle
Craig A [illegible]
[illegible]
[illegible]
[illegible]
Thomas M Dagata
[illegible]
David [illegible]
Tom Ashley
[illegible]
Sharmaine McDaniel
Natoshe Mathews
Cindy Shamu
Gary L. Johnson

SIGNATURES

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
Kenneth E. [illegible]
Anthony J. Ames
[illegible]
David A. Bryant
Gina Grant
Elena Lockett
Jackson Dalton
Joel Yancy
[illegible]
Robert Stanley
William J. Chalton
[illegible]
[illegible]
[illegible]
[illegible]

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SIGNATURES

Mike King
Dean R. McRobbie
Peter Beach
Scott P. Sallie
Alan A. Hardin
Robert Carter
John
P. West
Carl H. Olsen
Edward H. Hay
Bruce
Joseph Hoey
David B. Johnson
Richard Schmitt
Johanna Christoffel
John Cook
Anne Spinelli
Gary H. Wells
B. McDaniel

SIGNATURES

J. S.
Sara A.
Marjorie B. Raymo
Yvonne
Joseph T. Rocha
Gary Mathis
Monique
David E.
Pietro A. Adamo
Jan
Al
Alfred E. Hechemy
Jane
Mike
Mike C. Tuyn
John Nagle
Jason Hulsman
Marge Malone
Leo Quintos
[illegible]

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Sincerely,

Richard K. Walker

5/21/98

Millstone Employee Ad Hoc Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128

May22, 1998

Nuclear Regulatory Commission
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11555 Rockville Pike
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Sincerely,

Robert S. Iliff

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Millstone Employee Ad Hoc
Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128
May 21, 1998

Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

Dear Dr. Jackson, Dr. Diaz, Ms. Dicus and Mr. McGaffigan:

As a worker at Millstone, I know that I am a front line person most responsible for public health and safety. **I accept that responsibility**.

The changes at the Millstone site go far beyond the restoration of plant programs and processes. As an employee, I have made a fundamental shift in my attitude and behavior, particularly with respect to my understanding of accountability.

I hold myself accountable. As an individual, I hold myself accountable to fulfill my responsibilities in such a way as to protect the public health and safety.

I hold each of us accountable. While I am respectful of differing opinions and defend each worker's right to raise issues, I do not hesitate to challenge others to maintain high standards.

I hold the management of Millstone Station accountable. I expect my management to maintain a commitment to public health and safety, but fully recognize that I provide an important check and balance for decisions with safety implications.

I am an empowered employee. I will never again tolerate a lowering of standards, a compromise of safety, or a neglect of our commitment to do the right thing.

In conclusion, **I, as a worker at Millstone Station, understand and accept my responsibility** to protect the public health and safety. I respectfully request that you approve the restart of Millstone Unit 3.

Sincerely,

Francis W. Chamberland
Sr. Construction Representative
Nuclear Construction Services

Millstone Employee Ad Hoc Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128

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Sincerely, Roger P Weymouth

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5/21/98

Sincerely, Timothy F. Sullivan Sr Engineer, Nuclear Oversight

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Sincerely,

Jodie M. Bushey

SPECIAL EDITION

To The Point

A Nuclear Communications Publication Thursday, May 21, 1998

SUPPORT THE LETTER CAMPAIGN

On May 1, four members of the Millstone Employee Ad Hoc Group (Ad Hoc: a group of people who got together for a common goal) traveled to Rockville, Maryland, to speak before the NRC Commission on the progress made in the recovery of the Millstone Station. One of the goals of the Ad Hoc group was to communicate employee confidence in the safe operation of the Millstone plants and in the Millstone Leadership Team, as demonstrated by your support for the pledge and the ad in The New London Day. A copy of the ad was given to the Commission and entered into the public record on behalf of those Millstone employees who had provided their support. Group members also provided their first-hand accounts of the progress they had witnessed in the development of a Safety Conscious Work Environment.

We have received a great deal of positive feedback regarding the impact that employee participation had on the proceedings from NU management, the NRC Commission and Staff, and other external stakeholders. Recently, the NRC extended a second invitation to the Employee Ad-Hoc Group to make a presentation to the Commission at the June 2 briefing. This will be the final briefing prior to a Commission decision on whether to authorize restart of Unit 3. We are planning to attend.

One of the major issues discussed at the May 1 briefing was a concern that Millstone may not sustain its current performance, and that without the "unprecedented and extraordinary level of management attention, legal advice, and other resources", we will revert to our former behaviors. As employees we can help diffuse this concern by communicating our commitment to act as the "front line" in maintaining plant safety.

We have drafted a letter to the Commission which describes individual, workforce and management accountabilities in this regard. The text of the letter has been reprinted on the reverse side of this Special Edition for your review. Copies will also be posted in the foyer of Building 475 and circulated throughout departments beginning on May 22, 1998. We ask that you show your support by signing a copy of this letter so that we can present it to the Commission.

Help us to send a powerful message that Millstone will sustain quality and safety because, *as empowered employees*, we will not permit anything else!

As always, we appreciate your support of this important effort.

Millstone Employee Ad Hoc Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128

May xx, 1998

Nuclear Regulatory Commission
One White Flint North
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Sincerely,

SIGNATURES	SIGNATURES
Mahendra Jshah	
Kenneth Lanham	
[illegible]	
Lyle D. Gerdes	
Bruce H. Smith	
David N Bunter	
Michael Sergio	
M Chaink	
Peter J. Duff	
Syed S. Ali	
Larry Mitchell	
[illegible]	
Joseph M. Etem	
Gerhard Stomers	
Edward Thlodarczyk	
Lee Rhame	
[illegible]	
[illegible]	
Rich Stofga	
[illegible]	

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Sincerely,

SIGNATURES

Brent Hussey
Rik Wells
Richard Pelly
Kenneth J. Burke
R F Boden
Karen Shannon
William J. Baranowski
John Cunningham
Robert Wilinski
George A. Kane
Joseph Mahn

SIGNATURES

Charles T. Ryan
R Dzewiecki
Raymond Shea
Gail Farwell
Gary Poppino
Jerry Harrington
John Millman
Lawrence Meyers
David Irons
John K. Watson

Millstone Employee Ad Hoc Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128

May xx, 1998

Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

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Elizabeth Boulen

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Nancy D. Sandone
David A. Doolittle
Charles Castagna
James Perry
Gerald L. Hayward Jr.
G. C. Myers
Pat B. Lusi
William Longo
Bob Strickland
Robert D. Fife

SIGNATURES

Eileen D. Cummins
Rodney R. Dell
Donna Filler
Mark C. Cappuccio

T.

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Mary Jane Levesque
Kenneth Edwards
C.H. Mudrick
Jennifer C. Cook
Margaret Heald
Anne Bellone
Donald O. Lajoie
W. Mandry

SIGNATURES

P.L. Raymond
M. A. Smith

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Mark E. Lamb
Veronica Allen
John H. Collins Jr.
Sylvia Williams
Hamid Shaikh
Sol Coley
Charles A. Cain
Diane White
Rosemarie M. Vinci
James C. Ventura
Timothy B Lacey
Robert Tuzzolo
Douglas Tuttle
Alfred Rondeau

SIGNATURES

Thomas J. Bergel

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SIGNATURES

Kathleen M. Luis
Becky Ryan
Shirley Katavsto
Daniel Bendyke
Richard M. Malinowski
Catherine Grimes
Susan H. Buehler

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Nicholas V Rizzi
Carl Baker
Sal Cisarente
Thomas E Weitbel
Ron Starkelmann
Michael J. Murphy
Al Zeerytra
William A. Silva Sr.
Jerry Picardi Jr
Kayla Thomlinson

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John Schubert
Michael C Sanfargo
Gary B Card
Gary Picard
Rick Duncan
Stephen E. Kimball
Gary Costagna
John M. Coleman

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SIGNATURES

Mary E. Ryley
Larry D. Brosper
Walter C. Davis
Chris Dal
Sergio R. Campacho
Rita Stessier
Bill Farrell

SIGNATURES

Bonnie Standing
Thomas M. Nelson

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SIGNATURES

Craig D. Stevens

William J. West

William A. Weseman

Margaret P. Stern

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John W. Dalzell
Greg D'Auria
David Peiffer
Jeffrey Elliott
Chris Biasi
Susan Kolodziej

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Paul Fattmann
Robert G. Smith
Joyce M. Carlin
Lynette McNiece
Kathy Wellin
Phil Chalpay
Skip Gilbert
Roger R. Hanna
Edward Everett
Luann Catanzella

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Sarah Olson

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SIGNATURES

Mark Fall
Wayne Gambin
Jerome T. Mahoney Jr.
Brian P. Kenoffer
Bill Brickenstein
Jacqueline Schelkly
John E. Rogers, P.E.
Brad W.
Jan Chanzia

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Hugh E. Crow
George R. Herrera
Michael Dwyer
Paula Quosso
Sandra M. Martin
Fernon V. McPhee
Matt T. Fenn
Lisa L. Lik
Beth Whittington
Robert S. Bernstein
M. Schmeichel
Terry Sahen

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SIGNATURES

Doro Tylsbruce
Jeffry McGinn
Michael J. Horza
Jack Weingarten
Patrick Cirio
Reagan Freeman

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Sincerely,

SIGNATURES

John A. Tolleson Jr.
Stephen F. Cardozo
Gary Chenigo
Nick Jaccaro
Steve Jones
David Compton
Paul R. Raines Jr.
William P. Labille
Paul J. Mastro
William Tyson
Daniel J. Murray
C E Hall
Dan Cabey
G M Hessling
Michael S. Logan
Jeff Baner
Steven Savage
Christopher Lee
Bill Gorman

SIGNATURES

Gene O'Brien
Steven E. Dubiale
Lawrence P. Barnett
Eric Gatt
Joseph C. O'Brien
Tom Gow
D Summers
Mike Edwards
Peter
Kevin
Dan
William
Kenneth
David
Bridget Roberts
John C Barbour
Mark

38

Millstone Employee Ad Hoc Group
c/o Ms. Jeri Duefrene, Secretary
P. O. Box 128
Waterford, CT 06385-0128

May xx, 1998

Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

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Samuel J. Poole	Joseph C. Beauregard
Robert A. Bourque	William S. Rowley
Rob Burnett	Debra Miller
Butch Negrelli	Jerry Kerns
Lori Montone	R. Sundaw
Thomas Milhomme	[illegible]
[illegible]	
Ken Sajewski	
George Woolley	
George Menghi	
Wayne R. La Plume	
[illegible]	
Michael Minski	
[illegible]	
Raymond S. Crow	
[illegible]	
Harry Afonso	
Joseph Baile	
Robert J. Gomez	

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SIGNATURES

Alan C. [illegible]
Anthony Wayland
Glen Newberry
[illegible] Meany
[illegible]
[illegible]
Michael Fong
[illegible]
David Volpe
Gary W. Roll
Carl [illegible]
Holley A. Burnham
Susan [illegible]

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SIGNATURES

Boyce Atkinson U2 I&C
MAMZ
Joanne Orlando
Shawn Goodyear
Roger P. Carmichael
Charles J. Sladky
Wilson T. Veal
Jerry Bolen
William N Sandy
Steven F. Sauthoff
Joseph Ball
JALE BROWNE
Archie Sherman

SIGNATURES

Stewart L. Kelly Jr.
Payne
Tardif
David B Johnson
Donald A Burnetta
Schulz
JK Fowler

fax 444-5146
Jeri Duchene
x0434

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SIGNATURES

R.W. Steiner
John R. Barnett
Joe Parillo
Josh SPALTER

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R.S. HARNAL, Nuclear Engineering Division, New Britain Office.

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SIGNATURES

Deborah A. Pugliaqui

SIGNATURES

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J. Scott Shultz

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SIGNATURES

Robert B. Wall
Ken Wallace
Walter H. Burk
Kideoai

SIGNATURES

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Sincerely,

SIGNATURES

Judy Lewis

SIGNATURES

ALLIANCE FOR

SUSTAINABLE

CONNECTICUT

JOINT RESOLUTION PROTESTING THE PROPOSED RESTART
OF MILLSTONE NUCLEAR POWER PLANT UNIT III
Drafted by
The Alliance for a Sustainable Connecticut
Lyme, Connecticut
May 16,1998

IT IS HEREBY JOINTLY RESOLVED BY THE UNDERSIGNED THAT,
for the reasons set forth below, the proposed restart of Unit III, Millstone Station, Waterford, by approval of the U.S. Nuclear Regulatory Commission, is unacceptable. We the undersigned organizations, having followed events surrounding the prolonged shutdown of Millstone Station since early 1996, do resolve as follows:

* In consideration of Northeast Utilities' long history of regulatory violations and the N.R.C.'s acquiescence or collusion, continuing to the present;

* In consideration of persistent lax maintenance and corrective action policies, financial and ethical mismanagement, and cost-cutting at the expense of safety;

* In consideration of the reality that in the new "de-regulated" energy market, Millstone can be expected to reduce staff and cut costs radically, further jeopardizing the health and safety of the public;

* In consideration of erroneous or incomplete plant documentation and the failure to bring the plant's FSAR (Final Safety Analysis Report) up to date;

* In consideration of the N.R.C.'s practice of summarily approving license amendments expediting or justifying current or anticipated operations, whether safe, regulation-approved or no, as witnessed in the retroactive licensing of full-core off-loading into spent fuel pools not designed for such loads;

* In consideration of the need for resolution of numerous license amendments which involve unreviewed safety questions;

* In consideration of N.R.C.'s failure to answer definitively serious employee-initiated petitions, such as those of George Galatis and Albert Cizek, addressing basic issues of licensing and design-basis violations;

* In consideration of the demonstrated failure of the N.R.C. and N.U. to foster a safety-conscious work environment at Millstone;

* In consideration of the long history and persistence of cases of harassment, intimidation, retaliation and discrimination against employees with legitimate safety-related concerns;

* In consideration of the failure of enforcement actions to date against Northeast Utilities for retaliatory demotion and termination of conscientious employees raising serious safety issues;

* In consideration of the pending criminal investigations by the U.S. Department of Justice, investigations by the N.R.C. Office of Investigations, and pending petitions to revoke N.U.'s operating license;

* In consideration of the historically excessive and continuing "routine" releases of radioactive and other toxic pollutants into the air and water by Millstone;

* In consideration of the escalating incidence of cancers among the population closest to Millstone, disproportionate to cancer rates elsewhere in the state;

* In consideration of the impracticality of carrying out the emergency evacuation plan and the failure of N.R.C. to require the updating of the plan to reflect and provide for the recent surge in tourist traffic

within close proximity to the plant, as well as to provide for the evacuation of the population of Long Island, New York, in the event of nuclear accident;

* In consideration of the serious inadequacy of the N.R.C.'s I.C.A.V.P. or plant readiness evaluation criteria, requiring that only a small percentage, 5 out of 88 of even the most critical, designated "safety- and risk-significant," plant systems be examined prior to restart;

* In consideration of Northeast Utilities' plans to defer correction of at almost 7,000 material deficiencies until an undefined post-restart date, 526 of these falling within the perameters of N.R.C.'s own I.C.A.V.P. program;

* In consideration of the recent serious engineering failure in the RSS (Recirculating Spray System), a critical safety system which was permitted to be inoperable by the N.R.C. for ten years;

* In consideration of the serious valve failure associated with the reactor coolant system on May 15, 1998,
which failure reflects incompetent operator training, inadequate knowledge of plant procedures, failed leadership and the absence of quality control and oversight;

* In consideration of Northeast Utilities' failure to demonstrate that Millstone III is truly ready for restart;

NOW, THEREFORE, BE IT RESOLVED THAT THE THREE UNITS OF MILLSTONE STATION REMAIN SHUT FOR AN INDETERMINATE PERIOD UNTIL ALL THE OUTSTANDING CONCERNS EXPRESSED HEREIN ARE APPROPRIATELY ADDRESSED AND DEFINITIVELY RESOLVED IN THE INTEREST OF THE PROTECTION OF THE SAFETY AND WELFARE OF THE PUBLIC.

ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL

RETU RN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations; 161 Park St; New Haven, CT 06511. ~~Ph & Fax: 203-785-0198~~ or 860-822-1352. E-mail: cheney@99main.com

ph: 860822-1352 or 860 [illegible] 4339
fax: 860-3[illegible]-2157

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ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
Northeast Chapter Ct. Green Party	Chris Demont	45 Marcy Rd. Chaplin CT	860 455-0459
Grassroots Network	Jennifer Gutshall	161 PARK ST New Haven CT 06511	203-019
DONT WASTE CT	MITZI BOWMAN	97 Longhill Terrace New Haven	upthesun@aol.com 203. 387. 20
Forces of Nature	Amy Antonucci	1049 1st NH Tpke Northwood NH	603-942-88
Citizens Regulatory Commission		180 Great Neck Rd Waterford CT 06385	860-444-447-1
Citizens Awareness Network	Sal Manzagol	54 Old Turnpike rd Haddam CT 06438	860 345-2157

RETURN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations: 161 Park St; New Haven, CT 06511. Ph & Fax: 203-785-0198 or 860-822-1352. E-mail: cheney@99main.com

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* In consideration of the recent serious engineering failure in the RSS (Recirculating Spray System) a critical safety system which was permitted to be inoperable by the N.R.C. for ten years

* In consideration of the serious valve failure associated with the reactor coolant system on May 15, 1998,
which failure reflects incompetent operator training, inadequate knowledge of plant procedures, failed leadership and the absence of quality control and oversight

* In consideration of Northeast Utilities' failure to demonstrate that Millstone III is truly ready for restart

NOW, THEREFORE, BE IT RESOLVED THAT THE THREE UNITS OF MILLSTONE STATION REMAIN SHUT FOR AN INDETERMINATE PERIOD UNTIL ALL THE OUTSTANDING CONCERNS EXPRESSED HEREIN ARE APPROPRIATELY ADDRESSED AND DEFINITIVELY RESOLVED IN THE INTEREST OF THE PROTECTION OF THE SAFETY AND WELFARE OF THE PUBLIC

ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL FAX E-MAIL
Clean PIRG	Steve Gurney	41 Main St. #1 West Hartford, CT 06107	P (860) 233-7554 F (860) 233-7574

RETURN TO: Alliance for a Sustainable Connecticut, a network of over forty non-profit organizations, 261 Park St. New Haven, CT 06511. Ph & Fax: 203-787-0198 or 860-822-7352. E-mail: shaw@600main.com

within close proximity to the plant, as well as to provide for the evacuation of the population of Long Island, New York, in the event of nuclear accident;

* In consideration of the serious inadequacy of the N.R.C.'s I.C.A.V.P. or plant readiness evaluation criteria, requiring that only a small percentage, 5 out of 88 of even the most critical, designated "safety- and risk-significant," plant systems be examined prior to restart;

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ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
Nuclear Information + Resource Service	Michael Mariotte	1424 16th St NW # 404 DC 20036	202-328-0002 202-462-2183 (f) nirsnet @ igc.org

RETURN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations, 161 Park St, New Haven, CT 06511. Ph & Fax: 203-785-0198 or 860-822-1352. E-mail: cheney@99main.com

within close proximity to the plant, as well as to provide for the evacuation of the population of Long Island New York, in the event of nuclear accident;

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ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
Bridgewater Solar Works	Edward [illegible]	Box 434 Bridgewater CT 0675	

RETURN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations; 161 Park St, New Haven, CT 06511. Ph & Fax: 203-785-0198 or 860-822-1352. E-mail: cheney@99main.com

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ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TELE
Bridgewater Solar Works	Sandwich	Box 434 Bridgewa	

RETURN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organiz Park St, New Haven, CT 06511. Ph & Fax: 203-785-0198 or 860-822-1352. E-mail: cheney@99main.com

within close proximity to the plant, as well as to provide for the evacuation of the population of Long Island, New York, in the event of nuclear accident;

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ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
Nuclear Information + Resource Service	Michael Mariotte	1424 16th St NW # 404 DC 20036	202-328-0002 202-462-2183 (f) nirsnet@igc.org

RETURN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations, 161 Park St, New Haven, CT 06511. Ph & Fax: 203-785-0198 or 860-822-1352. E-mail: chenev@99main.com

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CONCERNS EXPRESSED HEREIN ARE APPROPRIATELY ADDRESSED AND
RESOLVED IN THE INTEREST OF THE PROTECTION OF THE SAFETY AND
PUBLIC.

ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	T
WESPAC	Joe S. Chamberlin	255 Grove St White Plains, NY 10601	

RETURN TO: Alliance for a Sustainable Conn., a network of over forty non-profit o
Park St, New Haven, CT 06511. ~~Ph & Fax: 203-865-0198~~ or 860-822-1352 E-mail
cheney@99main.com
ph 1860822-1312 or 860
Fax: 860-385-2157

PETITION TO:

The President of the United States, the United States Congress, the U.S. Attorney General, the U.S. Nuclear Regulatory Commission, the Governor and Attorney General of Connecticut, the Department of Public Utility Control and the Office of Consumer Counsel

Regarding the proposed restart of Millstone Nuclear Power Plant in Waterford, CT by approval of the U.S. Nuclear Regulatory Commission:

IN CONSIDERATION OF Northeast Utilities' longstanding and continuing pattern of regulatory and ethical violations; of lax maintenance and corrective action policies; of cost-cutting at the expense of public safety; of the serious inadequacy of NRC's plant restart criteria requiring that only 5 out of 88 risk- or safety-significant systems at Unit III be examined and allowing the deferral of almost 7,000 material deficiencies and unreviewed safety and design basis issues beyond the restart date; of the retention of out of date or inaccurate records with the creation of fraudulent documentation; of the NRC's failure to answer and act upon the legitimate claims of employee-initiated petitions pertaining to basic licensing and design-basis issues of known safety significance to the public; of the deliberate suppression of past and current employee concerns, with the withholding or misrepresentation of key information to the public pertaining to their health and safety; of the NRC's summary passage of numerous licensing amendments justifying violatory or unsafe operations; of pending criminal investigations by the U.S. Department of Justice, as well as of petitions calling for the revocation of N.U.'s license; of the historic and continuing release of radioactive and other toxic materials into the ambient air and water; and finally, of the longstanding and recent demonstration of unacceptable operator training and negligence in the use of improper procedures to correct serious accident-related conditions at Millstone Station;

WE THE UNDERSIGNED DEMAND THAT Millstone Station remain closed for an indeterminate period, pending completion of a Federal investigation into current N.U. and N.R.C. policies and operations, with the appropriate closure of all issues raised herein.

SIGNATURE	PRINTED NAME AND AFFILIATED ORGANIZATION (IF APPLICABLE)	ADDRESS	TEL/FAX/E-MAIL
Peg Kyglesyn	CT Opposed to Waste	57 Grahamtd, Broad Brook, C 06011	860.623.8982
Michael Allegrezza	CT Opposed to Waste	Broad Brook CT 06016	860-623-8982

RETURN PETITION TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations. 161 Park St; New Haven, CT 06511. Ph & fax: (203) 785-0198 or 860-822-1352 E-mail: cheney@99main.com.

PETITION TO:

The President of the United States, the United States Congress, the U.S. Attorney General, the U.S. Nuclear Regulatory Commission, the Governor and Attorney General of Connecticut, the Department of Public Utility Control and the Office of Consumer Counsel

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RETURN PETITION TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations. 161 Park St; New Haven, CT 06511. Ph & fax: (203) 785-0198 or 860-822-1352. E-mail: chaney@99main.com

PETITION TO:

The President of the United States, the United States Congress, the U.S. Attorney General, the U.S. Nuclear Regulatory Commission, the Governor and Attorney General of Connecticut, the Department of Public Utility Control and the Office of Consumer Counsel

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within close proximity to the plant, as well as to provide for the evacuation of the population of Long Island, New York, in the event of nuclear accident;

* In consideration of the serious inadequacy of the N.R.C.'s I.C.A.V.P. or plant readiness evaluation criteria, requiring that only a small percentage, 5 out of 88 of even the most critical, designated "safety- and risk-significant," plant systems be examined prior to restart;

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* In consideration of the recent serious engineering failure in the RSS (Recirculating Spray System), a critical safety system which was permitted to be inoperable by the N.R.C. for ten years;

* In consideration of the serious valve failure associated with the reactor coolant system on May 15, 1998, which failure reflects incompetent operator training, inadequate knowledge of plant procedures, failed leadership and the absence of quality control and oversight;

* In consideration of Northeast Utilities' failure to demonstrate that Millstone III is truly ready for restart;

NOW, THEREFORE, BE IT RESOLVED THAT THE THREE UNITS OF MILLSTONE STATION REMAIN SHUT FOR AN INDETERMINATE PERIOD UNTIL ALL THE OUTSTANDING CONCERNS EXPRESSED HEREIN ARE APPROPRIATELY ADDRESSED AND DEFINITIVELY RESOLVED IN THE INTEREST OF THE PROTECTION OF THE SAFETY AND WELFARE OF THE PUBLIC.

ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
PACE- People's Action for Clean Energy	Judi Friedman	101 Lawton Rd — Canton, CT. 06019	860-693-2822 (fax)

RETURN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations; 161 Park St; New Haven, CT 06511. ~~Phone~~ Fax: 203-785-0198. E-mail: ~~ASCT@[illegible]com~~ cheney@99mail.com
or 860-822-1372

within close proximity to the plant, as well as to provide for the evacuation of the population of Long Island, New York, in the event of nuclear accident;

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ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
STAR Foundation	Tina Guglielmo	P.O. Box 4206 E.H.N.Y. 11937	516-329-2681

WE THE UNDERSIGNED DEMAND THAT Millstone Station remain closed for and indeterminate period, pending completion of a Federal investigation into current N.U. and N.R.C. policies and operations, with the appropriate closure of all issues raised herein.

Signature	Printed name and affiliated organiztion	Address
Bill Duesing	Bill Duesing	153 Bowers Hill Rd.
TEL./E-mail	Old Solar Farm	Oxford, CT 06478
203-888-9280		
71042.2023@ compuserve.com		

Part II.

JOINT RESOLUTION PROTESTING PROPOSED RESTART OF MILLSTONE POWER PLANT UNIT 3

-- The Alliance for a Sustainable Connecticut --
Lyme, Connecticut
May 16, 1998

IT IS HEREBY JOINTLY RESOLBED BY THE UNDERSIGNED THAT, for the reasons below set forth, the proposed imminent restart of Unit 3, Millstone Station, Waterford, by approbal of the U.S. Nuclear Regulatory Commission, is unacceptable. We the undersigned organization, having followe events surroundin the prolonged shutdown of the Millstone Station since early 1996, do resolve as follows:

* In consideration of Millstone's long history of regulatory violations and acquiescence by the NRC continuing to the present;

* In consideration of persistent lax maintenance and corrective action policies, financial and ethical mismanagement, cost-cutting at the expense of safety, and persistence of cases of harassment, intimidation, retaliation and discrimination against employees with legitimate safety-related concerns;

* In consideration of the serious inadequacy of the NRC's plant readiness evaluation criteria, which require that only a small percentage of even the safety and risk significant plant systems be examined prior to restart;

* In consideration of erroneous or incomplete plant documentation and the failure to bring up-to-date the plant's FSAR (Final Safety Analysis Report);

* In consideration of NRC's failure to address serious employee-initiated petitions regarding basic issues of licensing and design-basis violations;

* In consideration of Millstone's persistent and routine release of radioactive and toxic pollutants into the air, water and soil;

* In consideration of the recent serious engineering failure in the RSS (Recirculation Spray System), a critical safety system which was permitted to be inoperable by the NRC for ten years;

* In consideration of the serious valve failure associated with the reactor coolant system on May 15, 1998, which failure reflects incompetent plant operations, failure of leadership and absence of

quality control and oversight;

* In consideration of Northeast Utilities' plans to defer correction of seven thousand (7,000) items until an undefined date post-restart;

* In consideration of the need for resolution of numerous license amendments which involve unreviewed safety question;

* In consideration of NRC's practice of summarily approving license amendments already implemented to address license violation, such as retroactive licensing of full-core off-loading into spent fuel pools for which they were not designed;

* In consideration of the pendency of criminal investigations by the U.S. Department of Justice; investigations by the NRC Office of Investigations; and the pendency of petitions to revoke NU's operating license;

* In consideration of the escalating incidence of cancers among the population closest to Millstone, disproportionate to the rise in cancer rates elsewhere in the state;

* In consideration of the impracticality of carrying out the emergency evacuation plan and the failure of NRC to require the updating of the plan to reflect and provide for the recent surge in tourists within close proximity to the plant and to provide for the evacuation of the population of Long Island, New York, in the event of nuclear accident;

* In consideration of the reality that in the new "de-regulated" energy market, Millstone will reduce staff and cut costs radically and as a consequence the public's health and safety will be jeopardized;

* In consideration of the demonstrated failure of NRC and NU to foster a safety conscious work environment at Millstone;

* In consideration of Northeast Utilities' failure to demonstrate that Millstone 3 is truly ready for restart;

NOW, THEREFORE, BE IT RESOLVED THAT THE THREE UNITS OF THE MILLSTONE STATION REMAIN SHUT FOR AN INDETERMINATE PERIOD UNTIL ALL THE OUTSTANDING CONCERNS EXPRESSED HEREIN ARE APPROPRIATELY ADDRESSED IN ORDER TO PROTECT THE HEALTH AND SAFETY OF THE PUBLIC.

Old Solar Farm
Organization

Bill Duesing
Authorized Representative

Bill Duesing

within close proximity to the plant, as well as to provide for the evacuation of the population of Long Island, New York, in the event of nuclear accident;

* In consideration of the serious inadequacy of the N.R.C.'s I.C.A.V.P. or plant readiness evaluation criteria, requiring that only a small percentage, 5 out of 88 of even the most critical, designated "safety- and risk-significant," plant systems be examined prior to restart;

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which failure reflects incompetent operator training, inadequate knowledge of plant procedures, failed leadership and the absence of quality control and oversight;

* In consideration of Northeast Utilities' failure to demonstrate that Millstone III is truly ready for restart;

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ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
Toxics Action Center	Marc Pittinos	41 S. Main #5 West Hartford, CT 06107	860-233-7623 ToxicsAC@aol.com

RETURN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations, 161 Park St; New Haven, CT 06511. Ph & Fax: 203-785-0198 or 860-822-1352. E-mail: cheney@99main.com

within close proximity to the plant, as well as to provide for the evacuation of the population of Long Island, New York, in the event of nuclear accident;

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ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
CT Opposed to Waste,	Peg Ryglisyn Mickey Albrizio	57 Graham Rd,	Broad Br CT 860 · 623 · 8982

RETU RN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations; 161 Park St; New Haven, CT 06511. Ph & Fax: 203-785-0198 or 860-822-1352. E-mail: cheney@99main.com

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ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
CT Chapter of the Sierra Club	Molly McKay Conservation Chair	8 Riverbend Dr Mystic 06355	Tel 860 536 5450
			Fax 860 536 5482

RETURN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations: 161 Park St, New Haven, CT 06511. Ph & Fax: 203-785-0198 or 860-822-1352. E-mail cheney@99main.com

within close proximity to the plant, as well as to provide for the evacuation of the population of Long Island, New York, in the event of nuclear accident.

* In consideration of the serious inadequacy of the N.R.C.'s I.C.A.V.P. or plant readiness evaluation criteria, requiring that only a small percentage, 5 out of 88 of even the most critical, designated "safety- and risk-significant," plant systems be examined prior to restart;

* In consideration of Northeast Utilities' plans to defer correction of at almost 7,000 material deficiencies until an undefined post-restart date, 526 of these falling within the perameters of N.R.C.'s own I.C.A.V.P. program;

* In consideration of the recent serious engineering failure in the RSS (Recirculating Spray System), a critical safety system which was permitted to be inoperable by the N.R.C. for ten years;

* In consideration of the serious valve failure associated with the reactor coolant system on May 15, 1998,
which failure reflects incompetent operator training, inadequate knowledge of plant procedures, failed leadership and the absence of quality control and oversight;

* In consideration of Northeast Utilities' failure to demonstrate that Millstone III is truly ready for restart;

NOW, THEREFORE, BE IT RESOLVED THAT THE THREE UNITS OF MILLSTONE STATION REMAIN SHUT FOR AN INDETERMINATE PERIOD UNTIL ALL THE OUTSTANDING CONCERNS EXPRESSED HEREIN ARE APPROPRIATELY ADDRESSED AND DEFINITIVELY RESOLVED IN THE INTEREST OF THE PROTECTION OF THE SAFETY AND WELFARE OF THE PUBLIC.

ORGANIZATION	AUTHORIZED REPRESENTATIVE	ADDRESS	TEL/FAX/E-MAIL
Green Party / SE Conn. Chapter	Glenn Chase		
→ PO Box 284 Hamden CT 06350			562-2220
Green Party of Connecticut (State)			
P.O. Box 874, Storrs, CT 06268			
Karin Lee Morton, Sec'y for Green Party of CT			
Paul Bassler, [redacted] New Haven	Co-ordinator for Fairfield County Chapter of Green Party		

RETU RN TO: Alliance for a Sustainable Conn., a network of over forty non-profit organizations; 161 Park St; New Haven, CT 06511. Ph & Fax: 203-785-0198 or 860-822-1352. E-mail: cheney@99main.com

THE COST OF MILLSTONE

The cost of the plants in the rate base expressed in year/month (1997) (NU's #)
$938,225,000/$78,185,000(All owners)
$647,000,000/$53,900,000 (Connecticut Light and Power's share)

Costs broken down per plant per month /per year
Millstone I $14,800,000/$177,600,000
$12,229,203/$146,750,436 (CL&P only)

Millstone II $19,500,000/$234,000,000
$16,119,415/$193,432,980 (CL&P only)

Millstone III $30,937,000/$371,244,000
$25,568,728/$306,687,736(CL&P only)

Replacement power costs. (CL&P)
Millstone I $8,207,000, Millstone II --$10,754,000, Millstone III --$9,339,000

Plants from outage to April 1, 1998 (CL&P only)

Plant	Months out	$$$ collected in rate base	replacement power	overcharge
Millstone I	28	$342,417,684	$112,621,684	$229,796,000
Millstone II	26	$419,104,790	$279,604,000	$139,500,790
Millstone III	25	$639,218,200	$233,457,000	$405,743,200
TOTALS		**$1,400,740,674**	**$625,700,684**	**$775,039,990**
All owners:		**$1,694,895,000**	**$757,097,000**	**$937,798,000**

The cost of Millstone expressed above do not include all cost. Hundreds of millions of dollars spent in NU's attempt to fix these plants, but not allowed in rates by the Department of Public Utility Control, are not reflected.

DEGEREGULATION

STRANDED COSTS: The restructuring bill passed by the legislature is an economic assault on the ratepayers. The bill forces us to pay approximately two billion dollars to pay Northeast Utility's bad debt on Millstone III. Why pay money to NU for a plant that produces power at $.15+per kilowatt/hour when wholesale power is available for $.03 per kilowatt/hour?

DECOMMISSIONING: The bill forces us through a competitive transition charge to pay for the decommission these plants even if we choose not to buy power produced by them. Current estimates for decommission are running over $800,000,000 per plant. NU has been profiting on these plants by not paying all their cost.

Prepared by: Tom McCormick (860) 236-4923

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1. **"DAMAGE TO MILLSTONE 3 SAFETY SYSTEM RAISES MORE QUESTIONS", THE DAY, APRIL 3, 1998.**

2. **"MILLSTONE FOCUSES ON FAULTY VALVE", "MILLSTONE 3 NUCLEAR PLANT TO OPERATE WITH DAMAGED VALVE", THE DAY, MAY 27, 1998.**

3. **"THE TUMOR GENERATION", NEW HAVEN ADVOCATE, MAY 21-27, 1998.**

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SECY NOTE: ALL OTHER COPIES OF THIS TRANSCRIPT DISTRIBUTED WITH THIS PAGE INSTEAD OF THE ATTACHED 3 DOCUMENTS.

The Day

FRIDAY, APRIL 3, 1998, NEW LONDON · SERVING EASTERN CONNECTICUT SINCE 1881 · VOL. 117, No. 276 · 74 PAGES · 50 CENTS

Damage to Millstone 3 safety system raises more questions

Engineering review process taken to task

By **PAUL CHOINIERE**
Day Staff Writer

Waterford — In early March, engineers testing a newly modified safety system at the Millstone 3 nuclear power plant watched in alarm as pipes began to vibrate. Later, when the system was dismantled, engineers discovered that a stainless steel liner inside the pipe had been ripped away.

The sleeve was found to be badly damaged, large chunks broken from it like bites from an apple. Three other pump systems — which had already passed vibration tests — were taken apart and found to have similar damage. The pumps are needed to cool the reactor during a nuclear accident.

The incident provided dramatic evidence that the engineering review process had failed. On Dec. 23, a report from the Nuclear Oversight Department had warned that the planned modifications could cause serious problems. As a result of the warning, plant engineers repeatedly analyzed the proposed changes and concluded they would work. They were wrong.

Millstone critics point to the incident as evidence that Millstone 3 is not ready to restart. They say they fear that corners are being cut in the rush to get the plant back on line.

"This is engineering 101 stuff," said David Lochbaum, a nuclear engineer with the Union of Concerned Scientists. "Most disconcerting is nuclear oversight. Their sole job is to point out potential problems. When they raise a flag and it's ignored, something's wrong."

Michael Brothers, vice president of nuclear operations, said the warning was not ignored. He admitted that in retrospect engineering should have done a better job reviewing the modification. The review was too narrow in scope and as a result a problem was missed, he said.

The incident, Lochbaum said, raises doubts whether one of the most serious and longstanding problems at Millstone 3 has been solved: the inability of management to take effective corrective action when a problem surfaces. Failing to correct documented problems was at the core of the Mill-

See **MORE** page **A2**

5/27/98

Millstone 3 nuclear plant to operate with damaged valve

From A1 p.A5

said.

The pressure relief valve that was damaged no longer serves a purpose during reactor operation because the system is being operated differently than the original design called for, Brothers said. The valve is now only operated during maintenance work.

But the valve is under pressure and there was concern that the valve stem, because it is broken, could be ejected from the valve like a missile, Brothers said. To address that concern, workers devised a clamp to keep the valve steam in place. It is being repacked to prevent leaking. Brothers said the valve would be replaced in some fashion when Millstone 3 is shut down for its next refueling, which should take place 10 to 11 months after it restarts.

Other repair options involved draining water from the system to make the repair. That would have caused a delay of several weeks and raised the potential for other problems, Brothers said. Another option was to remove the fuel rods from the reactor and make the repairs. That would heave meant a delay of several months, he said. There was no justification to accept such delays, he said.

"We have a technically adequate fix," Brothers said.

The state Department of Public Utility Control has ruled that if Millstone 3 is not back in service by July 1 it will be removed from the rate base until it is. NU would lose $13 million a month if that happens.

During Tuesday's meeting, several engineers asked technical questions about the valve problem, but no one voiced disagreement with the decision not to repair or replace it.

The valve leak led to the removal of Denny Hicks, then the unit director, because no contingency plan was ready when the leak grew worse as engineers tried to repair it. Hicks was reassigned.

Brothers said a review of the valve incident reached several conclusions:

- Those supervising the leak should have recognized sooner the possibility that the stem had separated from the disk.
- Personnel who did recognize that such damage might be the root cause of the problem failed to communicate that information.
- Critical decisions were allowed to be made at too low of a level in the management chain.
- Engineers failed to recognize that there was a substantial chance that the leak would get worse and that a contingency plan had to be ready if it did.

WEDNESDAY, MAY 27, 1998, NEW LONDON

A1

Millstone 3 to operate with damaged valve

Decision poses no threat to safety, officials claim

By **PAUL CHOINIERE**
Day Staff Writer

Waterford — Millstone officials have decided to bring Millstone 3 back into operation with a damaged valve rather than delay the restart by several weeks or several months to repair it. The decision does not compromise safety, a top executive said Tuesday.

Michael Brothers, vice president of operations, announced the decision to about 300 workers who gathered in the plant cafeteria to learn the latest details about the valve problem. The valve does not have to be operational while the plant is running because of changes in procedures since the plant was designed.

"It's safe. It's warranted and we're making a decision based on the technical adequacy of what we're doing," Brothers said.

In an unrelated matter, engineers are inspecting the motor-driven main circulation pump for the reactor coolant system because of vibrations detected there. If problems are found, it could cause more delays.

Dealing with the damaged valve has caused about a 10-day delay in getting the plant heated up and prepared to operate, Brothers said. Millstone 3, along with the two older reactors at the Millstone nuclear power station, has been out of operation for more than two years because of regulatory violations and safety concerns. The federal Nuclear Regulatory Commission will meet June 2 to review whether Millstone 3 is ready to return to service. Brothers said he did not think the valve issue would delay restart approval.

The leaking valve, first disclosed by Northeast Utilities on May 15, is part of the reactor coolant system. Brothers said mechanics have determined that the valve stem is severed from the disk that opens and closes to regulate the flow of steam through the pipe. Turning the valve handle too far probably damaged it. The damage was discovered when workers were trying to determine the cause of the leak. Another 112 valves are being inspected to make sure none of them suffered the same mechanical failure, Brothers

See **MILLSTONE** page **A5**

Millstone focuses on faulty valve

Norwich Bulletin
page 1 5/27/98

By FRANCESCA KEFALAS
Norwich Bulletin

WATERFORD — A leak of radioactive water in Millstone Unit 3's reactor coolant system has been stopped but a permanent repair is still more than 10 months away.

Mike Brothers, vice president of operations at Millstone, said Tuesday at an all-hands meeting of employees that numerous options for stopping the leak and repairing the valve that caused it have been reviewed over the last eight days. Brothers said he will decide how to deal with the leak, and he believes a solution has been found that is both technically sound and economically feasible.

"We've spent a significant amount of time trying to repair this valve," Brothers said. "I don't think it's warranted to take a month or more at this point to repair the valve. I'm not embarrassed to say that."

The leak was discovered about a month ago. An attempt to repair the leak June 14 by repacking the valve exacerbated the leak and led to the discovery of a mechanical break in the valve. The valve stem had broken away from the valve disk.

Millstone Unit 3 has been shut down for two years and needs a vote from the Nuclear Regulatory Commission before it can be restarted.

NRC spokesman Neil Sheehan said the leak is of concern, but of greater concern is the lack of a contingency plan.

Millstone employees began a temporary fix of the valve Tuesday. The valve is being repacked to stop the leak and then bolted to ensure the stem does not eject from the valve.

Repair options such as defueling Unit 3, a process which takes several months, cutting away the valve stem and running a mid-loop, which reduces pressure in the coolant system by sending less water through, were all considered. Brothers said it is his belief the mid-loop option puts the heating core at greater risk than the temporary fix.

The valve will be repaired when the plant is defueling, which will be about 10 months after restart. Brothers said the valve leak has delayed efforts at Unit 3 to gear up for restart. He will make a presentation to the NRC June 2 and had planned to tell commissioners all of the final 100 action items had been addressed. Brothers said he will probably have to tell them about 20 are still being dealt with.

"It's my hope the commissioners will upgrade us to a category 2 plant, which means we have to go to the office of the executive director to get final approval for restart," Brothers said. "I don't believe the valve situation will change that."

MEMO

To: Carmine DiBattestia, Chief, Bureau of Air Management
From: Kevin McCarthy Kevin
Subject: NRC Cooperative Agreement
Date: March 5, 1998

Since the 1970's, the U.S. Nuclear Regulatory Commission (NRC) has participated in a partnership with state Governments to perform radiological environmental monitoring in the vicinity of NRC licensed facilities. This partnership, known as the Independent Radiation Monitoring Program (IRMP), was a contract between states with such facilities and the NRC. This contract provided funding to state agencies in return for the performance of two types of radiological environmental monitoring: radioassay of environmental samples and direct radiation measurement using thermoluminescencent dosimeters (TLDs). The Connecticut Department of Environmental Protection's Radiation Control Section participated in both phases of this program. The Department has performed monitoring in the surrounding environment of the Connecticut Yankee and Millstone Nuclear Power Stations since 1975.

It has come to our attention that the NRC has decided to cancel the program and to eliminate funding of the IRMP. It is imperative that environmental surveillance by the agency is continued, in present form, even without federal finical assistance.

The IRMP is a collaborative effort between the NRC and States that provides a confirmation of measurement and accuracy on environmental measurements. Measurements of samples collected by NRC-licensed facilities on data that is crucial to public health and safety. The variety and methods of analysis consist of radioiodine and gross particulate analysis of air samples, radioisotopic identification and radioisotopic quantification of water, soil, vegetation, milk, fish and shellfish samples. Many of these sample types have a direct ingestion pathway implication to the citizens of Connecticut.

These varied and critical samples are indications of an unknown release of radioactive material and work as a "backup system" for other detection methods that may fail in the event of a release of radioactivity.

There are many examples of the important uses of information provided by such an environmental monitoring system. Two past examples of this are notable. One was the British Windscale reactor core fire which was detected by downwind air sampling. Another was the detection by Western nations of the Chernobyl incident, again by downwind air sampling. Analysis of data can be utilized to obtain statistical information concerning radionuclide pathways from source to population and environment. Data is also examined to study the movement of large contaminated air masses and currents in contaminated bodies of water.

Knowledge of these movements is crucial in performing population dose estimates. In addition, negative data (data which indicates little or no activity) indicates those control measures implemented by licences are being performed correctly.

This program also satisfies public opinion in many ways. It gives assurance that their state government is concerned for their environment and well being. Also that their state government maintains an attitude that they will protect the public. At present, the public is very suspicious of Northeast Utilities. Our continuation of this program reassures the public that we are performing the duty of "public watchdog."

Recent events at both Millstone and specifically at Connecticut Yankee magnify the extreme importance of maintaining this program. It is vital that this program be continued if not increased at its present level of operation. With recent ground contamination at offsite locations emanating from Connecticut Yankee, public confidence is extremely low with regards to Northeast Utilities and NRC. Many citizens now see the DEP as the only reliable source of oversight of NU's activities. During Governor Rowland's press conference, he repeatedly quoted and referenced data which this program provides. Historical data from this program has been continuously referenced during recent events.

We are now faced with two choices: one, to end the program due to the end of federal funding and two, to continue the program without federal assistance. Recent events demonstrate that ending the program would be unacceptable. To the contrary, recent events indicate that the program should be expanded. Northeast Utilities inability to maintain proper radiological controls over their radioactive material indicate the need for stricter surveillance.

Currently, in compliance with state statute Section 22a-135 the commissioner charges each of the four nuclear powered commercial electric power generating plants an annual fee of forty thousand dollars for monitoring radiation released from such plants. This amounts to Northeast Utilities being assessed $160,000 annually for radiological environmental monitoring. It is our understanding that currently none of these fees are returned to the Radiation Division.

It is now vital that the Radiation Division have access to these resources in order to perform the functions mandated in state statues "monitor radiation origination from nuclear plants and perform tests to detect any buildup of radioactivity in the soil, water, plants or animal of the state." Without utilizing these funds the Monitoring and Radiation Division will be unable to perform this task.

POLICY ISSUE

(NEGATIVE CONSENT)

July 30, 1997 SECY-97-169

FOR: The Commissioners

FROM: L. Joseph Callan
Executive Director for Operations

SUBJECT: PROPOSED CHANGE TO THE INDEPENDENT RADIATION MONITORING PROGRAM UNDER WHICH THE NRC CONTRACTS WITH STATES TO MONITOR THE ENVIRONMENT AROUND NRC-LICENSED FACILITIES

PURPOSE:

This paper responds to COMSECY-96-054 to present for the Commission's consideration the staff's recommendation regarding the scope of work performed by States under contract to the Office of Nuclear Reactor Regulation (NRR) for the Independent Radiation Monitoring Program (IRMP).

BACKGROUND:

In the 1970s, the NRC initiated a radiation monitoring program in which NRC contracted with States to measure radioactive materials released into the environment from NRC-licensed facilities. The IRMP contracts provide for two types of monitoring: radioassay of environmental samples and direct radiation measurement using thermoluminescence dosimeters (TLDs). The cost to the NRC for this program in fiscal year 1997 is $1.167 million. Most of the facilities that are monitored under this program are nuclear power plants.

Contact:
Stephen P. Klementowicz, PERB/NRR
301-415-1084

NOTE: TO BE MADE PUBLICLY AVAILABLE WHEN THE FINAL SRM IS MADE AVAILABLE

The IRMP is a collaborative effort between NRC and the States that provides a comparison with the environmental measurements made by NRC-licensed facilities. The program serves as an avenue for the NRC to assist State radiological health programs to develop their own environmental monitoring programs, but not to fully fund them. NRR maintains 35 contracts with 34 States and the University of Florida. Participation by the States is voluntary.

In late 1994, NRR considered terminating the environmental monitoring portion of the IRMP in calendar year 1995. The consideration to eliminate that portion of the IRMP arose from a perception that the information received from the States was of limited value from a safety perspective. In addition, NRR believed that the States had been provided ample opportunity to fully develop their radiological programs, considering the NRC financial and technical assistance that was provided since the mid-1970s.

NRR sought informal feedback from the affected States, the Office of Nuclear Material Safety and Safeguards, the Office of State Programs, the Office for the Analysis and Evaluation of Operational Data, the Office of the General Counsel, and NRC regional offices. As expected, the affected States and the regional offices strongly supported the program, while the others expressed limited support. The support focused on the program's merits to promote mutual cooperation between the NRC regional offices and the States, the "independent" nature of the data, problems the States would have with their budgets if funding was cut so late in the year, and the negative public perception if the program was terminated.

Upon consultation with NRC senior management, including the Executive Director for Operations and the Chairman, the staff decided to take the following course of action. The program would be funded for calendar year 1995. A letter would be sent to the States asking for comments on NRC's proposed plan to eliminate the environmental monitoring part of the cooperative agreement program in 1996 and beyond. Additionally, a *Federal Register* notice would be issued requesting comments on the proposed elimination of the environmental monitoring part of the State contracts. NRR would evaluate the comments and decide on the status of the program for 1996 and beyond.

On April 11, 1995, NRR published an announcement in the *Federal Register* (60 FR 18428) of its intent to eliminate the environmental monitoring portion of the IRMP. The announcement stated that eliminating the data supplied by the States should not interfere with NRC's ability to effectively monitor and regulate NRC licensees, considering the excellent record maintained by the facilities in controlling the release of radiological effluents into the environment within regulatory limits, combined with effective radiological environmental monitoring programs. It stated that NRR believed that eliminating this portion of the IRMP was prudent to ensure that public health and safety are protected in a cost-effective manner.

A total of 17 sets of comments were received on the IRMP. Of the total, 15 sets of comments came from State or local government agencies that were

against reducing the program. The other two sets of comments came from the nuclear power industry and supported NRC's proposed action.

Comments that opposed reducing the program focused on public perception of nuclear power and the environment. These commenters stated that the public demands that independent environmental monitoring be performed to ensure that nuclear power plants are not causing a long-term change in the environment. Also, some commenters indicated that the public does not trust the NRC or the utilities to fully monitor the environment and disclose any problems.

Some States noted that a reduction in NRC funding would likely cause a reduction in personnel who work for State environmental monitoring laboratories.

Certain States believe that a reduction in the environmental monitoring performed by the States will send a message to licensees that they can decrease their vigilance. This course of action, they believe, will cause a long-term degradation of the nuclear power plant radioactive effluent discharge programs.

In the views of some States, the environmental monitoring program ensures that operating monitoring equipment and supporting laboratory capability will continue to be available in the State programs in the event of an accident at a nuclear facility.

Comments supporting NRC's proposed action came from the Nuclear Energy Institute (NEI) and were based on a survey of the nuclear power industry. NEI stated that the environmental monitoring performed by the States has been beneficial but that incurring continued costs to gather and analyze the comparison data, given a record of several years of excellent comparisons from several facilities, is not the most cost-effective use of the NRC's, and ultimately the nuclear industry's, resources. One nuclear utility added that the State environmental monitoring program has demonstrated very good comparisons among State, NRC, and licensee environmental monitoring programs, and the continuation of the program is redundant and unnecessary on the basis of technical merit and cost-effectiveness.

In October 1995, at the direction of NRC senior management, the information on the IRMP was submitted to the Strategic Assessment and Rebaselining Committee for consideration. The committee included the IRMP as part of the Strategic Assessment Issue Paper 4 (DSI 4) on NRC's relationship with Agreement States. In response to DSI 4, the Commission directed the staff to evaluate the cost effectiveness of the program and make a recommendation for the continuation or elimination of the program.

DISCUSSION:

All licensed U.S. nuclear power plants are required by General Design Criterion 64 of Appendix A and Section IV.B of Appendix I to 10 CFR Part 50 to periodically collect and analyze samples from the environment and perform

direct radiation measurements around the plant site for indications of radioactive materials originating from the plant. This environmental monitoring program is to verify that measurable concentrations of radioactive material and levels of radiation are not higher than allowed or expected on the basis of a measurement of plant effluents and the analytical modeling of the environmental exposure pathways. In turn, the measurements program certifies that the plant is in compliance with regulations and that the measured releases do not exceed the amounts defined in the final environmental statements as representing very small risks to members of the public.

Extensive monitoring is required for each plant, with sampling/measurement frequencies ranging from weekly to annually in accordance with its technical specifications. The radiological environmental monitoring program records when, if ever, radioactive materials above natural background levels are detected around the plant site. Samples come from sources such as lakes, rivers, and well water for waterborne contaminants; radioiodine adsorbers and particulate dusts for airborne contaminants; and milk, fish, shellfish, and vegetables for radioactive materials that might be ingested as foods. As part of this program, the laboratories of the licensee and of the licensee's contractors where environmental sample analyses are performed must participate in an interlaboratory comparison program. Such participation ensures that independent checks are performed on the precision and accuracy of the measurements of radioactive materials in environmental samples. In addition to the radioassay of environmental samples, licensees also monitor direct radiation using TLDs in each of up to 16 sectors of land surrounding the plant. The TLDs measure the cumulative radiation dose at locations in each sector for each calendar quarter. All licensee measurements in the radiological environmental monitoring programs are recorded in a radiological environmental monitoring report, which is submitted annually to NRC and placed in the local public document rooms.

NRC periodically inspects licensees' radioactive effluent and environmental monitoring programs. The inspection program requires an NRC inspector to review the licensee's effluent release program, the environmental monitoring program, calculated doses to members of the public, the meteorological monitoring program, the environmental monitoring quality assurance program, and the licensee's audits and self-appraisals. The inspection program will continue to ensure that licensees operate and maintain effective programs in compliance with NRC requirements.

Although the IRMP provides supplemental data that the regions may use as part of their inspection effort, the program represents only a small part of NRC's oversight activities of licensed facilities to ensure compliance with NRC requirements. The data are not routinely included as part of the NRC inspection program.

The States have the option of participating in either or both of the components of the IRMP: environmental monitoring and direct radiation measurement. The environmental monitoring portion of the contract requires the State to obtain and analyze environmental samples (air, water, soil, and

food products) that duplicate as closely as possible certain parts of licensee environmental monitoring programs. The States send an annual report to NRC noting all analyses they perform and comparing them with similar analyses performed by individual nuclear facilities. NRC regional offices can use these data to supplement their assessments of environmental monitoring programs conducted by nuclear power plants. Not all States participate in the environmental monitoring portion of the contracts. Twenty-seven States, of a possible 34, are under contract to perform this monitoring. Of the total $1.167 million budgeted for the IRMP, the cost of the environmental monitoring portion of the contracts is $975,000.

The direct radiation measurement portion of the contract involves the placement of TLDs to continuously measure radiation exposure rates in the air outside the licensee's facility. This program was initiated following the accident at Three Mile Island to supplement the monitoring performed by licensees. The TLDs provide the NRC with the capability to independently assess the radiological impact in the event of an accident. State personnel place TLDs on poles in specific locations around a nuclear facility, typically near the licensees' TLDs. The exposed TLDs are replaced quarterly and are shipped to NRC's Region I office, which performs the analyses and compares TLD data with licensee data. The cost to NRC of this portion of the IRMP contracts is $192,000.

Under the IRMP, the States act as agents of NRC by providing personnel, equipment, and analytical services to conduct an independent environmental monitoring program. The States do not directly inspect NRC-licensed facilities. NRC regional staff members constitute the principal contact with the States, providing administrative and technical coordination and conducting periodic performance appraisals to determine the adequacy of State performance under the contract. The regional offices work with the States to uncover problems and to assist the States as necessary. NRC Headquarters manages the administration of the contracts and funds the program.

An important aspect of the IRMP is NRC's appraisal of each participating State's environmental monitoring program. The appraisals, conducted every 3 years by NRC regional inspectors, are used to assess the adequacy of the State's program to determine whether to renew the contract. The appraisal process examines the following aspects of the State's program: management support, policies and standards, organization, staff, training, communications, quality assurance, facilities and equipment, and performance. On the basis of this appraisal, the region makes a recommendation on whether the NRC should continue to maintain a contract with the State. No State contract has ever been denied renewal; however, there was a situation in which payment of an invoice from a State was delayed pending actions by the State to correct significant deficiencies in its program.

A selected review of the appraisal reports indicates that the capability and performance of the States vary widely. Some State programs are very good and provide useful material to the regional office concerning licensees' capabilities in environmental monitoring. On the other hand, some States

maintain only a limited radiological measurement program and treat the NRC contract as a low priority. In recent years, some States have requested relief from specific monitoring or analysis requirements in the contract because of technical or financial constraints. These requests have generally been granted with no reduction in the amount of funding provided. Also, in numerous instances, States have not delivered the annual data comparison report within the 120 days specified in the contract. Other situations involve States sending NRC an invoice for work not performed, and in one unusual case, the NRC was not sent an invoice for work until several years after the work was performed.

Overall, the NRC reactor inspection program has shown that licensees are conducting their radioactive effluent and environmental monitoring programs in conformance with NRC regulations. The confidence that has been gained in licensee programs through the inspection program was used as the basis for NRR to originally consider eliminating the environmental monitoring portion of the State contracts and recently to include elimination of the TLD program as well. Recent inspections of licensees' environmental monitoring programs continue to show that these programs are maintained in conformance with NRC requirements, thus providing further support for NRR's position.

CONCLUSION:

The staff has concluded that although the program has provided a source of data independent from the NRC and the licensee, the data are not needed to support the NRC inspection program to ensure that licensee programs are operated and maintained in compliance with NRC requirements.

Eliminating both components of the IRMP will save the NRC $1.167 million per year in direct contract costs. These funds have not been included in the NRC's fiscal year 1999 Internal Program/Budget proposal.

Note: There are staff members who disagree with the information in this paper and believe it misrepresents the value of the NRC TLD Direct Radiation Network. A proposed Differing Professional Opinion is presented in the attached memo. The differing opinion will be handled in accordance with the agency DPV/DPO procedures, but we are forwarding this paper and the DPO memo to the Commission because they could affect Commission decisions on the FY 1999 budget.

COORDINATION:

OGC has no legal objection to the staff's position contained herein.

The Office of the Chief Financial Officer has no objection to the resource estimates contained in this paper.

RECOMMENDATION:

The Commission note that, unless otherwise directed by the Commission, the staff will eliminate the IRMP beginning in fiscal year 1999. The staff believes that one year is adequate time for States to prepare for an orderly termination of their program or to find other sources of funding in order to continue the program.

L. Joseph Callan
Executive Director
for Operations

Attachment: Memo to H. Miller, RI
dtd 7/21 fm DRS, RI
members re: DPO

SECY NOTE: In the absence of instructions to the contrary, SECY will notify the staff on Friday, August 15, 1997 that the Commission, by negative consent, assents to the action proposed in this paper.

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WASHINGTON, D.C. 20555-0001

January 9, 1998

DPT. OF ENVIRONMENTAL PROTECT.
JAN 15 1998
RECEIVED

Mr. Kevin McCarthy
State of Connecticut Department of Environmental Protection
Bureau of Air management - Radiation Control Unit
79 Elm Street
Hartford, CT 06106-5127

SUBJECT: RADIATION MONITORING COOPERATIVE AGREEMENT NRC-28-83-604

Dear Mr. McCarthy:

This letter is to provide you with the status of the subject contract with the U.S. Nuclear Regulatory Commission (NRC). The Commission recently accepted a staff recommendation to sunset the independent radiation monitoring program (IRMP) contracts. However, with the reduction in appropriations by Congress for this fiscal year, the Commission accelerated the closeout of the program to December 31, 1997. In recognition that an abrupt termination could result in a potential hardship, the Commission authorized a short-term (no more than six months) extension to ensure an orderly closeout. An amendment to the contract is being prepared and should be sent to you in February 1998. The amendment will also address the disposition of materials supplied to you by the NRC or procured on behalf of the NRC under this contract.

For your information, we plan to inform licensees monitored under this program that the radiological environmental monitoring still required by the NRC may be performed under an agreement with a State agency. This action will ensure that licensees are aware of the options available to perform this work.

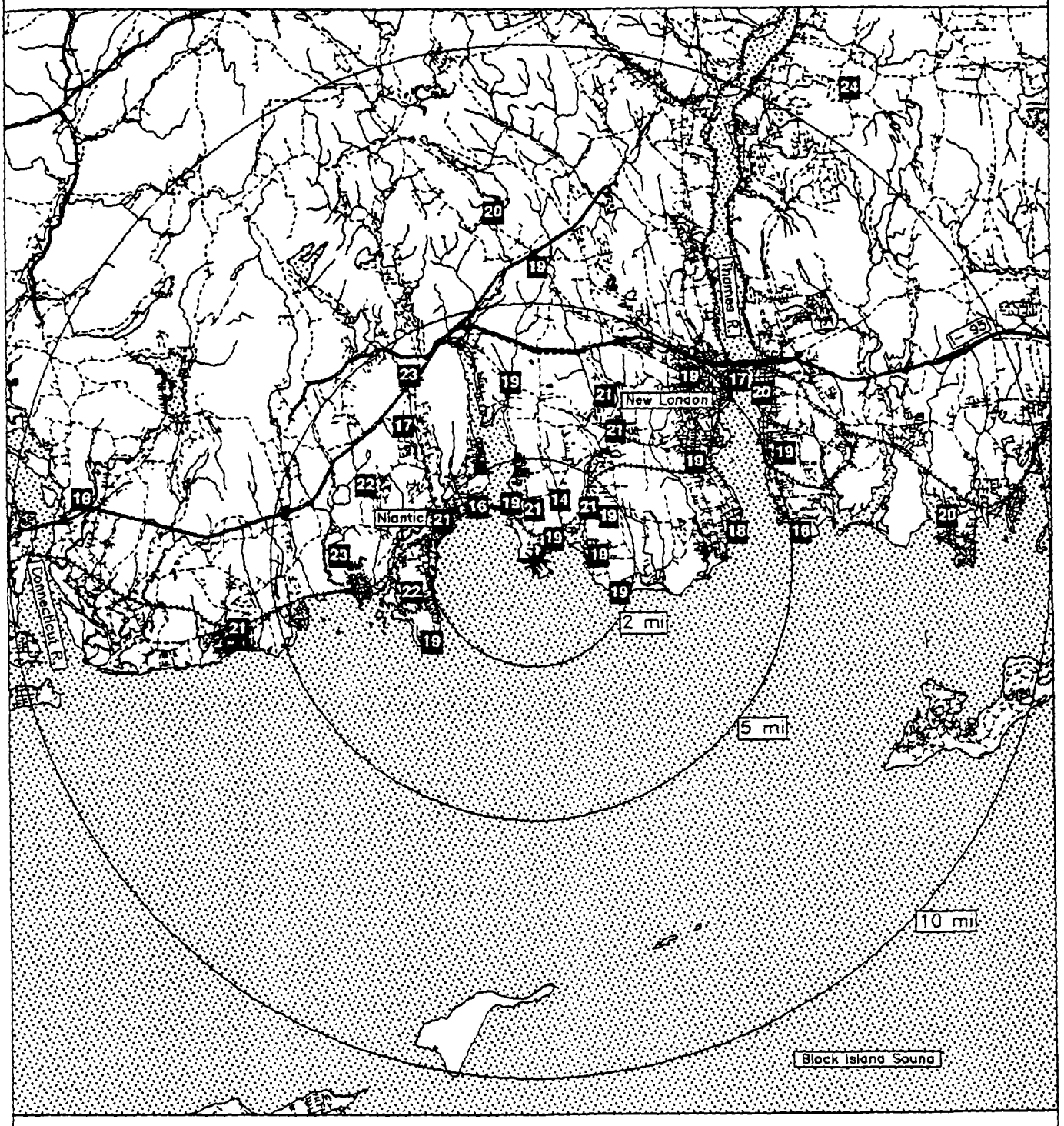
The NRC recognizes the high quality of work performed by your agency on this program over the years and looks forward to maintaining a good professional working relationship on items of mutual interest in the future. In closing, we encourage your agency to review its accounting records and send an invoice for any outstanding money owed so that we may proceed with an expeditious reconciliation. If you have any question on this matter, please call Mr. Stephen Klementowicz of my staff at 301-415-1084.

Sincerely,

Charles L. Miller

Charles L. Miller, Chief
Emergency Preparedness and Radiation
Protection Branch
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

NRC TLD DOSES FOR MILLSTONE AREA



Miles

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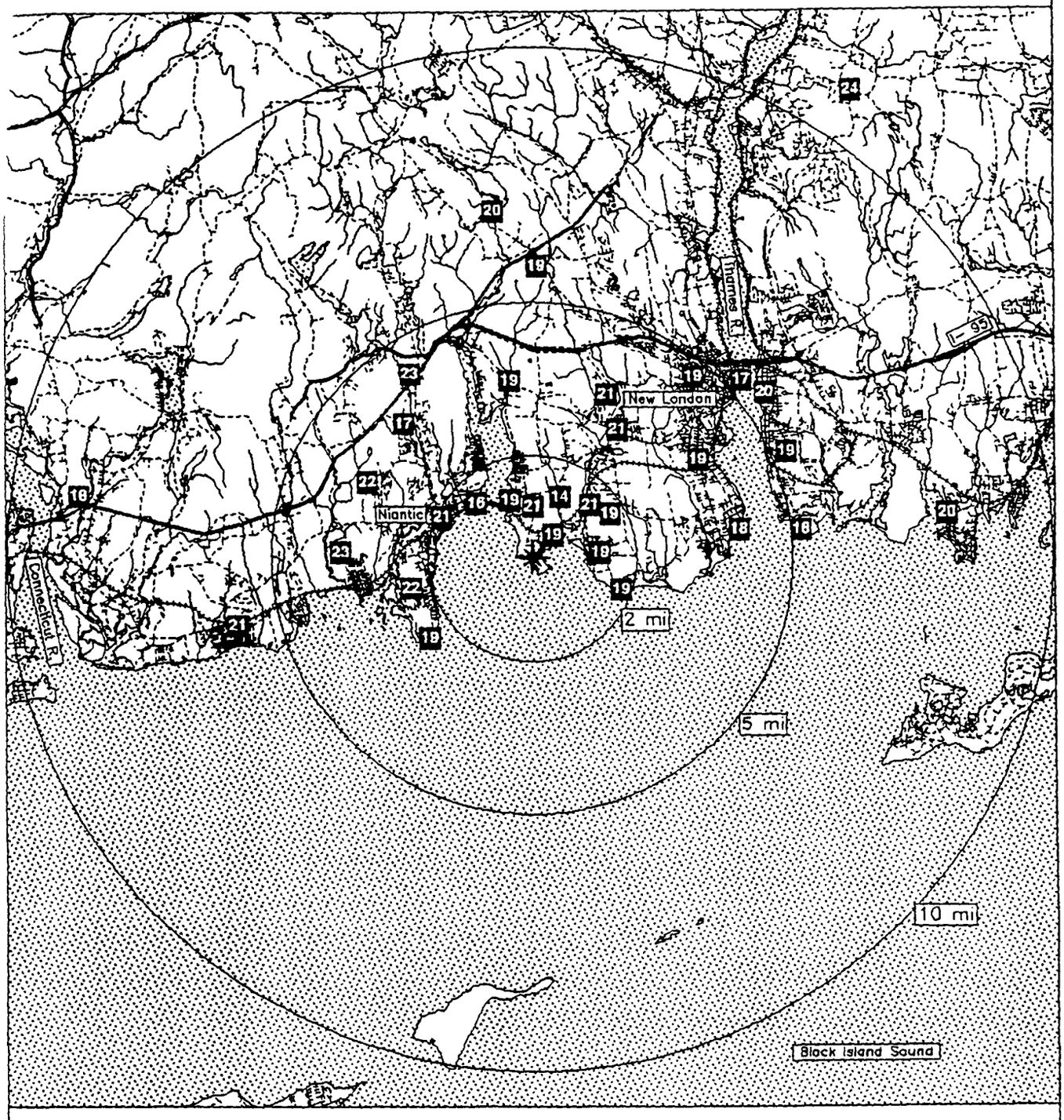
Legend

Water
Highways
Railroads
Roads
Plant..site

NRC TLD DOSES FOR MILLSTONE AREA



Miles

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Legend

Water
Highways
Railroads
Roads
Plant..site

Nancy Burton

Fax 203.938-3[illegible]

Dear Sir,

Fishers Islands sits in the immediate shadow of the 3 nuclear facilities of Millstone. Therefore, we summer residents, homeowners have a deep interest in the safety of this nuclear facility. So far Millstone has had a very poor record.

Just of all it sits in a high risk area; is poorly sited, vulnerable to high winds and open waters; Not at all in a safe harbor area.

It is poised next to a large diverse population from three states. This makes safety proposals convoluted and uncoordinated. Plans for evacuations and for emergencies have no relation to existing situations and are pro forma only.

Even the increased amount of boats in Long Island sound could add to possible confusion in an emergency. On the other hand boater education could include emergency recommendations.

All should have the right to know of possible dangers.

For a plant that has suffered such technological set backs, that faces such risks to have been poorly managed and maintained as well adds an unconscionable jeopardy to us all in Long Island Sound.

At the very least the NRC should demand first rate personell who assume responsibility and are capable to administer [redacted] Millstone. who will not allow it to operate unsafely; who might even look to the future conversion to a more reliable energy source.

Ellene H. Kelly
summer resident, Home owner on Fishers Island
Vice President Fishers Island Conservancy

MOTHBALL MILLSTONE

STOP NUCLEAR MADNESS

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PETITION TO NUCLEAR REGULATORY COMMISSION

We the undersigned petition the United States Nuclear Regulatory Commission to permanently retire the Millstone Nuclear Power Station in Waterford, Conn.

Name	Address	Phone #
ISAAC JACOBS	105 EDEN ST ME. 04609	(207) 288-2057
Jeanne Fletcher	" " " " "	(207) 288-3863
André Heinz	265 College St #11Q NH, CT 06510	203 7765757
Megan Burke	971 State St #1 NH CT 06511	203 624 2444
Nicole Parcher	279 E 10th #13 N.Y.C. 10009	
Jordanna Hertz	173 Mansfield St. New Haven, CT 06511	
Mark Velázquez	173 Mansfield St, New Haven, CT 06511	
ANNA ERICKSON	P.O. BOX 204034 NEW HAVEN, CT 06520-4034	(203) 436-1441

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Name	Address	Phone #
Brad Jacobs	53 Martin St West Haven CT	932-9865
Yvonne van der Horst	16 California St West Haven	931-6978
Scott Sun	20 Kim	776-1178
[illegible]	53 S. Main, Bfd	488-1412
[illegible]	216 Bishop St	
[illegible]	125 Canner St.	776 4642
Melanie Greenwa	222 Church St. Wesleyan Univ. Middletown, CT 06459	(860) 685-5303
RAHUL RAJKUMAR	PO Box 205236 New Haven, CT 06520	(203) 436-1079

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Name	Address	Phone #
[illegible]	Box 583 Pinedale CO 81471	436-0871
Jennifer [illegible]	Box 203386 New Haven, CT 06520	
[illegible]	PO Box 204371 " "	436-1423
[illegible]	PO Box 204338 "	436-1512
Karen [illegible]	1227 Main St Branford CT 06405	481-9307
Vicki Hende	1227 Main St Branford, CT 06405	481-9307
Laray Collins	228 Avenue B #7 NY, NY 10009	
Christina McKnight	185 St. Marks Ave #1L Bklyn, NY 11238	

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Name	Address	Phone #
PETE BOWMAN	97 LONGHILL TERR NEW HAVEN 06515	203 389-2067
Ben Weiner	75 Prentice Rd. Newton, MA 02159	617 969-1924
[illegible]	345 Reamer Cotonin 071 44074	440-775-2990
Jeremy [illegible]	P.O. Box 201715 New Haven, CT 06520	203-436-1351
Elisabeth Goldstein	PO Box 200685 New Haven 06520	203 4361099
Edward N. Dougherty II	P.O. Box 202367 New Haven CT 06520-2367	(203)436-1346
BRENDA NG	PO BOX 201089 NEW HAVEN CT 06520-1089	(203) 436-0874
[illegible]	RD Box 513 Salem, CT 06438	

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Name	Address	Phone #
Jeff Gore	15 Grove St Stratford Ct. 06497	203-377-1819
SHAWN MANJONEY	114 KINGS COLLEGE PLACE Stratford CT 06497	203-377-1819
Melissa Krutoholow	213 Lasky Rd. Beacon Falls Ct 06403	
[illegible]	175 Jefferson Dr Guilford, Ct. 06437	
Daniel Chard	79 Murray St Norwalk CT 06851	
Suzanne Kolb	Dept. Sci. Ed. Env. Studies SCSU New Haven	
Mike Bolinski	120 Randolph Ave. WTBY CT	
Stacey Hoxley	792 Elm St. New Haven 06511	773-0660
Myron D. Moss	862 State St. New Haven CT 06511	

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Name	Address	Phone #
Chris Malis	87 Meadowlark Rd. Vernon, Ct. 06066-4310	860-872-7137
John Peyman	448 Mixville Rd. Cheshire CT 06410	203-250-9578
Jim Gaski	41 Dunbar St. #13 Wtby. Ct. 06705	(203) 574-3128
Ramon Morant	670 Hillside Ave. Hartford Ct.	860-956-4050
Ricardo Morant	10 Sefton Dr N.B. CT	860 229 2706
Aaron Paulson	1366 westbrook St. Portland Me	207-772-7023
Diane Ritchie	147 School St Bristol Ct	860 583 3150
Joseph Toner	77 Winthrop St New Britain 06052	860 225 8270

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Name	Address	Phone #
Kim Punk Rock	KimPunkRock@Yahoo.com	
Lance Morosini	lmorosin@student.umass.edu	413-5464029
Brian Smith	136 Seabreeze Ave Milford Ct.	1(800)691-9775
Heather Neil	86 Hillside Ave #2 Waterbury CT	2037564960
Christine Matyasovsky	P.O. Box 3681 Milford, CT 06460	(203) 877-2476
Brandy Melanie-Becker	749 Mix Ave Apt E Hamden CT	06415
J. McLaughlin	33 Young St New Haven CT	06511
Jan Kurowski	385 Ocean Ave West Haven CT	06516
Christian DiMenna	257 Blake Street New Haven CT	06515

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Name	Address	Phone #
Jacqueline M. Grillo	1185 Wells Pl. Stratford CT 06497	3780233
Seth R. Warner	4 Birch Ridge RD Burlington CT 06497	1860-675-3255
Michael Morrotte	4166 29th St Mt. Rainier MD 20712	
Yoshimi Endo	P.O. Box 203548 New Haven, CT 06520	436-3159
Theresa Gan	P.O. Box 200332 New Haven, CT 06520	60541
Matt Rinkle	PO Box 20206 New Haven 06520	63073
Clark C Freifeld	PO Box 202081 New Haven 06520	6-1373
Deborah Sabater	PO Box 203366 New Haven, CT 06520	436-3366

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Name	Address	Phone #
Malka Ary	448 Mixville Rd Cheshire CT 06410	203-250-9578
Bernadette K. McGann	23 Santa Anita Ct. Holbrook, N.Y. 11741	516-472-9773
Chad LeBaron	126 Wales Rd. Andover, CT 06232	860-792-5020
Chris Hines	46 Laurelbrook Dr. Guilford, CT 06437	203 458 1472
Katie Wengertsman	35 Herschel Ave Waterbury CT 06708	203-575-1644
Moira Duryea ☆	2 Horizon View Prospect CT 06712	203 758-4946
John Maher	12 Briarwood Newington	665 9133
Ken Pelyar	40 Hemlock Lane East Hartford CT	568-4409

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Name	Address	Phone #
DANIEL FLYNN	45 TEN ACRE LA., W. HARTFD CT 06107	860 561 4542
Sean Covino	20 Mohegan Rd Shelton CT	279-5103
Liz Anderton	15 Whiton St. W. Locks CT 06096	(860) 623-1975
Mel Beebe	116 Whiton. St Windsor Locks CT 06096	—
JASON MORAN	105 LANDERS RD. E. HARTFORD CT 06118	
Franca DiTommaso	7 Harlan Road Farmington, CT. 06032	
Dazjae Wilson	83 Laurdale ave. Bristol Ct. 06010	860 589 0664
Joe Grzybowski	53 Tame Buck Rd Wolcott Ct 06716	Joseph Grzybowski

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Name	Address	Phone #
ERIN GARVEY	70 APPLE HILL WETH, CT 06109	860 563 9787
Jessica Maliar	33 River ST Apt 2 windsor, CT	683-1246
Albert J. Marcum	27 Basswood St. Newington, CT 06111-3802	
A Cecere	142 Stone Ave Mdl Ct. 06450	
Diana Drummond	64 Goose Lane Coventry, CT 06238	
TODD DIASCIK	46 BRUA St. N.B., CT 06053	
Aemer Bell	305 Redwood Rd Manchester, CT 06040	
Ken [illegible]	PO Box 2292 MERIDEN CT 06450	

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PETITION TO NUCLEAR REGULATORY COMMISSION

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Name	Address	Phone #
Barry Tenin	PO Box 2660 Westport CT 06880	203-226-9396

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Name	Address	Phone #
Kristiania Clark	Box 201895 New Haven, CT 06520	
Samantha Godley	P.O. Box 202000 New Haven, CT 06520	
[illegible]	Box 201906 YS	436-1355
[illegible]	P.O. Box 201941 NH, CT 06520	436-1355
Anais Tekerian	91 Mansfield ~~PO Box 201204~~, New Haven CT 06510	

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Name	Address	Phone #
Sarah Reed	188 Dwight St. #1R New Haven, CT 06511	
Claire Fallender	16 Daly Cross Rd Mt Kisco, NY 10549	914 666-4625
Autumn Leonard	PO Box 203191 New Haven CT 06520	(203) 436-0685
Amy Mogulescu	396 9th St. Bklyn. NY, 11215	718-499-6821
Katherine Baker	PO Box 202383 New Haven CT 06520	203 436-7072
Sarah Winkler	509 E 5th St NYC 10009	
Ingrid Saukaitis	170 E 91st #5R NYC 10128	
Steve Dey	393 Orange New Haven CT 06511	

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Name	Address	Phone #
Gabriella Senya	61 Edgewood Avenue New Haven CT 06511	764-7119
Elizabeth Hanz	P.O. Box 208892 New Haven CT	436-1162
Natalie Eve Garrett	PO Box 201126 New Haven CT	785-1602
Janet Lasker	16413 KEATS TERR Rockville MD	
Abby Rubin	PO BOX 203826 New Haven, CT	
Elizabeth Nafke	PO Box 203929 New Haven, CT	
[illegible]	6 WHITE OAK LN MADISON CT	421-3507
Mary Beth Sullivan	Hinman Lane Southbury CT	

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Name	Address	Phone #
Alexandra Watson	Box 203967	436 3 8 9
Nikki R. Rusch	Box 201999, N.H., CT 06520	
Wm Ramm	Box 201801 NH CT 06520	
Charles Dunne	198 Livingston St New Haven CT	
Rebecca A Butler	79 Glenview Terr, 06515	
[illegible]	PO Box 206717 New Haven CT	
Bryan Neumdorf	35 E. 7th St. - Garth NY NY 10003	
Andrew Moon	PO 200506 N.H. CT	
Rachel Weller	183 Pine St 06457	

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Name	Address	Phone #
Katy M. B	22 Rockwell St. (Boston)	617-436-1548
Zedi [illegible]	463 Cabot Mall Center (Cambridge, MA)	617.493-5832
[illegible]	145 E. 27th St	2123293743
Anthony J. Taglianti	25 Ridge Rd Shirley, NY	516·399·4493
Adam Overett	225 S. Williams Denver, CO 80209	303-778-9246
[illegible]	287 WINTERGREEN AVE HAMDEN CT	(203) 288-7876
Tim Banks	P.O. BOX 36 S. Strafford Vt. 05070	(802) 765-4008
Erin Muller	Same as above	

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Name	Address	Phone #
[illegible]	345 E 14 St NY NY	
Sharon Bludau	545 E. 14 St NY NY	
Kathleen Wallace	3 Park Ave NY NY	
Alfonse Peterson	81 W 81st NY NY	
Ben Gebelle	14 Flying Point Rd Branford CT	
Eliza Hayes	4 Pinewood Rd. Branford, CT	
Amy Conly	Box 6001 Northampton MA	
Joel [illegible]	24 Woodward Ave CT.	

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Name	Address	Phone #
Terra Lawson-Remer	PO Box 203729 New Haven 06520	(203) 436-3367
Rob Proietto	45 Deerfield Rd. Westhaven CT. 06437	(203) 387-5254
Melissa Perkins	16 Forest Hill Rd. W. Haven CT 06516	
John Kwon	100 Howe St. #508 NH, CT 06511	
[illegible]		
Beth Whitney	137 Mansfield St New Haven CT 06511	
David F. Kolakoski	91 Olive St. New Haven, CT 06511	
Isaiah Wilson	Box 204416 New Haven CT 06520-9416	

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Name	Address	Phone #
[illegible]	138 Twin Oaks Rd Louisa VA 23093	540-894-5126
[illegible]	P.O. Box 202566 New Haven CT 06520	865-6537
[illegible]	P.O. 203833 " " " "	426-6713
Chris Dols	81 HURD RD Shelton, CT 06070	
[illegible]	480 Burton St. Branford, CT	483-8695
Elizabeth Hmelyarb	118 7th Ave apt 2R Brooklyn, NY 11215	718 957 8434
Kelly Forester	156 Brook St. Haworth, NJ 07641	201 384-6810
Marshall Avni	212 Hight ST. New Haven CT 06511	736-5488

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Name	Address	Phone #
Cassar Rosellett	PO Box 203287 New Haven, CT 06520	
Marygol Knuppel	45 Wormwood Hill Rd Mansfield Ctr, CT 06250	860-487-3908
[illegible]	924 State St #3 New Haven CT 06511	776 7310
Austin Lynch	POB 205967 New Haven 06520	436-0591
Sylvia [illegible]	Po Box 206691 New Haven, CT	203 436-1251
[illegible]	PO 200910	203 436-0657
[illegible]	PO 201599 " "	203-436-0436
[illegible]	PO 201795 New Haven 06520	203-436-0437

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Name	Address	Phone #
Jessica Haberer	123 York St #11A NH 06511	624-5040
Larry Baldino	6 Salem Dr Woodbridge CT	389-0791
THOMAS WHITNEY	125 Linden St 06511	562-0809
Daniel Smoller	PO Box 205854 06520	436-1595
[illegible]	3 North Bank St, New Haven 06511	
[illegible]	36 Lynwood, New Haven 06511	
[illegible]	725 whitney Ave New Ha.	
Thomas K DiNadres - Scientist		
Debbie Anne Armourgam	930 Prospect ST Hamden CT 06517	

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Name	Address	Phone #
Marilyn Zarkes	851 Meriden Wtby. Rd. Plantsville	357-2027
Katherine Unger	67 Edgewood New Haven	764-7057
Tanya Brown	P.O. Box 205409 New Haven	436-1146
Sarah Weeks	PO Box 206314	436-1146
Joseph Barrett	150 Johnson Lane Stratford, CT	
Michael Stafford	P.O. Box 204363 NH	436-1418
[illegible]	100 York St. NH	
[illegible]	100 York St	NH

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Name	Address	Phone #
Frances Massy	7 Tavern Lane #6 Colchester CT 06415	(860) 537-4581
Angela Walker	121 Echo Rd, Coventry CT 06238	(860) 742-1269
Laurie Wasielewski	284 Prospect Hill Rd. Colchester CT 06415	(860) 537-6119
Randy McMahon	93 Bellevue St. Wmtc. CT.	456-8089
Paul Onske	179 Windham Center Rd Windham Center, CT. 06280	
John Moran	29 Kathleen Dr. #5C Willimantic, CT 06226	
Lois Bailey	57 Hanover Versailles Baltic CT 06330	
Rhoda Micocci	83 Main St. PO Box 148 Hampton, CT 06247	(860) 455-0213

Paid for by Green Party of CT PAC
Karin Lee Norton Treasurer

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Name	Address	Phone #
MARK GIANGRAVE	87 SINGLETON ROAD CHAPLIN CT 06235	
Amy Watkins	238 Holcomb Hall Storrs, CT 06269	487-1050
Ara D'Aquila	23 Crouch ave, Norwich, CT 06360	
Peter Eschholz	514 Waterman Rd. Lebanon CT 06249	
ALLAN & LINDA SCHOENFELD	49 E. OID RT. 6. HAMPTON CT. 06247	
Owen Freeman	50 normandy ave	423-1557
Pat Miller	68 Maple Rd Storrs	429-3685
Lorraine Crandall	P.O. Box 275 Central Village CT.	

Paid for by Green Party of CT PAC
Karin Lee Motion Treasurer

MOTHBALL MILLSTONE

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Name	Address	Phone #
Carol Morrison	P.O. Box 324 Montauk 11954	668-5269
Cile Downs	956 Fireplace Rd EH 11937	324-2935
Arlene Coulter	92 Hawthorne Av EH 11937	329-0042
[illegible]	375 Ferry Rd Sag Harbor NY 11963	725 1658
GWYNN D. SCHROEDER	P.O. Box 59 Cutchogue NY	298-8202
[illegible]	171 SOUND AVE Riverhead	11901

Mail to: N. Burton 147 Cross St Way Redding CT 06876

Nancy Burton 147 Cross Highway Redding CT 06876
T. 203-938-3952/3168

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Name	Address	Phone #
Jean Hoffmann	924 Fireplace Rd East Hampton	324-5819
Gurgette Preston	26 Tuckahoe Lane Southampton NY 11968	283-9815
Gloria Beckerman	140 Redwood Rd. Sag Harbor, N.Y. 11963	725-3426
Diane Herrmann	122 Paul's Lane, Water mill, NY 11976	
Harvey Feinstein	80 Old Town Crossing - Southampton 11968	
Carol Sherman	Box 2083 Bridgehampton, NY 11932	
[illegible]	PO 2530 Sag Harbor NY	
Robert Rosini	6 Windward Walk, Sg Harbor	
Kiki Rosini	" " "	

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Name	Address	Phone #
Martha Adelletti	36 Trumbull Rd Waterford CT 06385	860-443-3950
S [illegible]	50 Seabreeze Ave Niantic	
Maura Benoit	11 Jolanne St. Niantic, CT	
Barb Tyson	15 Booth St [illegible]	
Heather McNamee	468 Buckland Hills	694-2291
Kathy Staples	335 Rope Ferry	
[illegible]		

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Name	Address	Phone #
Barbara Ellen Koch	339 Mary Ave. Riverhead, NY	
Judith McMurdo	190 Waterhole Rd East Hampton	
Diane Dippel	423 Washington Rd, Manorville, NY 11949	
Deborah J. Tuma	Box 2163 Sag Harbor, N.Y 11963	
Robert Strain	21 Palmer Terrace, Sag Harbor, NY 11963	
Janet Nakovendi	L.I. SNAP CARE 30 Meadowmere Ave Mastic NY 11950 516 399-0012	
RONALD HELLMAN	190 MARINE PL., EAST MARIOR NY 11939	
Irene Zola	545 West 111th St. #3B, NY, NY 10025	

Mail to: N. Burton 147 Cross Hway Redding CT 06876

MOTHBALL MILLSTONE

STOP NUCLEAR MADNESS

The Whole World is Watching!

PETITION TO NUCLEAR REGULATORY COMMISSION

We the undersigned petition the United States Nuclear Regulatory Commission to permanently retire the Millstone Nuclear Power Station in Waterford, Conn.

Name	Address	Phone #
Jack Churchill	42 Roger Rd.	376-2288
[illegible]	29 Orbwood	413-569-5465 Niantic
John Sullivan	53 ALDER ST	WATERBURY, CT.
Peter Ele	175 West Church St	Seymour, CT
William M. Monax	4 Allyns Alley	Mystic CT.
L.M. Candlish	5 Cottage Ln.	Niantic
Scott Smith	355 S. Edgewood	Niantic
Sara Goldy	23 Shawandassee Rd	Waterford

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Name	Address	Phone #
		860-423-4404
Amanda Mattoon	530 Back Rd. N. Windham, CT 06256	
MARK GIANGRAVE	SINGLETONS RD CHAPLIN CT 06235	
RENÉ TWARKONS	149 ASHFORD CTR RD AT ASHFORD, CT 06278	
JERUSHA NEELY	"	
Linda Rae Geer	41 Spring St. Windh. Ct 06226	
Jeff Cote	43 Plain Field Rd Moosup CT	
THERESA A PLANTE	Box 45 OLDE Mystic CT 06372	
DR. P. K. Willey	280 Tower Hill Rd. Chaplin, CT 06235	

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Name	Address	Phone #
RENE ERMILIO	424 HOLLY LANE WYNNEWOOD, PA 19096	(610) 642-4811
Cherie LeBlanc	115 Gardner Ave New London, CT 06320	(860) 437-8004 (please do not give out)
REBECCA TANNER	55 NORTH ST. MERIDEN, CT 06451	(203) 634-8247
Beverly Dunn	po Box 3643 Newtown Ct	203 426-8914
Ezra Bryans	91 Old Hawleyville Rd Bethel CT	203-778-2277
Cecile Serazo	8 Parkmore St New Britain CT	860-225-1496
Liz Corey	Norwich CT	
Judy Halleran	266 Main - Mystic	739-9061
Jean Bladwin	19 Indian Lock Rd Mystic	

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Name	Address	Phone #
Susan Ph		
Shuleene Sherwin	60 Lagoon Blvd. Massapequa	11758
CLARENCE "Pete" Reynolds	5 LANCASHIRE Court, WATERFORD, CT	06385
peter maniscalco	52 AVA CT. MANORVILLE NY	11949
Tina Guglielmo	62 BOW OARSMAN RD East Hampton NY	11937
ADRIAN DEAGS	271 Millstone Brook Rd Southampton, NY	11968
Scott Cullen	P.O Box 420 Montauk, NY	11954
Roger Snyder	331 Terry Rd Smithtown NY	11795 516-265-9430

Mail To: N. Burton 147 Cross Highway Redding CT 06876 T. 203-938-3952

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Name	Address	Phone #
Carol Morrison	P.O. Box 324 Montauk 11954	668-5269
Cile Doans	956 Fireplace Rd EH 11937	324-2935
Arlene Coulter	92 Hawthorne Av EH 11937	329-0042
[illegible]	375 Ferry Rd Sag Harbor NY 11963	725 1658
GWYNN D. SCHROEDER	P.O. Box 59 Cutchogue NY	298-[illegible]
[illegible]	171 SOUND AVE Riverhead	11901

Mail to: N. Burton 147 Cross H'way Redding CT 06896

Nancy Burton 147 Cross Highway Redding CT 06876
T. 203-938-3952/3168

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We the undersigned petition the United States Nuclear Regulatory Commission to permanently retire the Millstone Nuclear Power Station in Waterford, Conn.

Name	Address	Phone #
Jean Hoffmann	924 Fireplace Rd East Hampton	324-5819
Georgette Preston	26 Tuckahoe Lane Southampton NY 11968	283-9515
Gloria Beckerman	140 Redwood Rd. Sag Harbor, N.Y. 11963	725-3426
Diane Herrmann	122 Paul's Lane, Water Mill, NY 11976	
Harvey Feinstein	80 Old Town Crossing - Southampton 11968	
Carol Sherman	Box 2083 Bridgehampton, NY 11932	
Susan Pflumm	PO 2530 Sag Harbor NY	
Robert Rosin	6 Windward Walk Sg Harbor	
Kiki Rosin	" " "	

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Name	Address	Phone #
Martha Adelutti	36 Trumbull Rd Waterford CT 06385	860-443-3950
S Tenbert	50 Seabreeze Ave Niantic	
Maura Benoit	11 Johnson St. Niantic, CT	
Barb Tyborowski	15 Rosa St Groton CT	
Heather McNamee	465 Buckland Hills	694-2291
Kathy Stapleton	335 Rope Ferry Rd	
[illegible]		

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Barbara Ellen Koch	339 Mary Ave. Riverhead, NY	
Judith McMurdo	190 Waterhole Rd East Hampton	
Diane Dippel	423 Washington Rd, Manorville, NY 11949	
Deborah S. Tuma	Box 2163 Sag Harbor, N.Y 11963	
Robert Strain	21 Palmer Terrace, Sag Harbor, NY 11963	
Janet Nakovendi	L.I. SNAP CARE 30 Meadowmere Ave MASTIC NY 11950 516 399-8012	
Howard Hellman	190 Maine Pl., East Marion NY 11939	
Irene Zola	545 West 111th St #3B, NY, NY 10025	

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[illegible]	171 SOUND AVE Riverhead	11901

Mail to: N. Bourton 147 Cross Hwy Redding CT 06896

Recieved 5/19/98

STATEMENT OF SUPPORT AND RECONCILIATION

East Lyme Groton Ledyard Lyme Montville New London Old Lyme Waterford

The parties to this "Statement of Support and Reconciliation" sign this document as a sign of support to the workers, management, public interest groups, government agencies and regional citizens involved in or concerned about the rectification process concluding at Millstone Station. It is hoped that the hard work, sacrifices and valuable lessons learned will serve as the sustaining features to assure the health and safety of our region and it's citizens.

This document is intended:

* To celebrate the accomplishments of Millstone Station and its workers achieving a Safety Conscious Work Environment (SCWE) (4/7/98), and successfully completing the Nuclear Regulatory Commission's (NRC) Operational Safety Team Inspection (OSTI) (5/5/98); and,

* To help heal wounds, heighten mutual respect, and enhance civility in any/all differences among people and groups within Southeastern Connecticut; and

* To memorialize, congratulate and recognize the unprecedented accomplishments of the 4,000 Millstone workers on reaching "readiness" status after addressing serious performance issues; and

* To highlight the sacrifices, time and energies given by individuals and groups during this restart process, especially the families of the workers, and the new management team.

Specific Areas of Agreement:

a) We recognize and give credit to Millstone workers (and their families) for the hard work, dedication and sacrifices

they have exhibited in their efforts to rectify outstanding problems;

b) We recognize that there is a place, and a need (going forward) after restart of the Millstone Units for citizen groups and local government leaders to help insure the health and safety of the public;

c) We recognize that it is in the interest of the region to have a safe, operating and financially viable utility company;

d) We acknowledge the substantive work and contributions of the "whistleblowers"; the Nuclear Energy Advisory Council (NEAC) and various citizen-action groups (such as Citizens Regulatory Commission and the Friends of a Safe Millstone) in helping to protect the health and safety of our region;

e) We strongly agree that within the public discourse on radiation levels and related health and safety issues, that factual, well-substantiated information should be used in order to move forward toward solutions, and prevent unnecessary alarm of the public;

f) We strongly agree and acknowledge that differing viewpoints and differing opinions on the usage (or non-usage) of nuclear power have a right to be shared, respected, and listened to in a progressive, open, and civil manner; and

g) We endorse a strong and well managed Nuclear Regulatory Commission (NRC), and Connecticut Department of Public Utilities Control (DPUC) in order to assure that the best interests of the public are well protected.

ACKNOWLEDGED AND AGREED THIS 13th day of May, 1998:

TOWN OF GROTON

Jane Dauphinais
Mayor

NB CITY OF GROTON

Bette Geising
Mayor

860 446 4103

TOWN OF LEDYARD

Wesley Johnson
Mayor

BG TOWN OF LYME 860-434-7733

Selectman Ralph Emo is out of town

Selectman

TOWN OF MONTVILLE

Patrick Dougherty
Mayor

CITY OF NEW LONDON

Lloyd Beachy
Mayor

TOWN OF OLD LYME 860 434 1605

Timothy Griswold
First Selectman

TOWN OF WATERFORD

Thomas A. Sheridan
First Selectman

860 444 5834

TOWN OF EAST LYME

Wayne Fraser
First Selectman
860-739-6931

NRC STAFF

COMMISSION BRIEFING

Millstone

June 2, 1998

NRC STAFF PRESENTATION

• Introduction	Hugh Thompson
• Independent Corrective Action Verification Program	Gene Imbro
• Corrective Action Program	William Travers
• Operational Safety Team Inspection	Wayne Lanning
• Status	William Travers
– Significant Items List	
– Licensing Issues	
• Staff Conclusions and Recommendation	William Travers/ Hugh Thompson

INDEPENDENT CORRECTIVE ACTION VERIFICATION PROGRAM

Purpose: Provide Independent Verification of the Adequacy of NNECO's Efforts to:

- Establish Conformance with the Unit 3 Design and Licensing Bases
- Establish Programs that will Maintain Configuration Control
- Document and Utilize the Licensing and Design Bases to Resolve Identified Nonconformances

NRC MANAGEMENT OVERSIGHT OF ICAVP IMPLEMENTATION

- Organizational Approval of S&L
- Approval of Individual S&L Employees
- Approval of S&L Audit Plan
- Specified Tier 1 Systems and Review Boundaries
- Approval of Tier 2 Critical Design Characteristics
- Specified Configuration Change Process for Tier 3 Review
- Assured Adherence to the Communications Protocol
- Held Monthly ICAVP Status Meetings Onsite and Open to Public Observation

SCOPE OF S&L ICAVP

Tier 1

- 15 of 88 Maintenance Rule Group 1 & 2 Systems
  - Design Interfaces with 51 Additional Systems

Tier 2

- Limited Review of 22 Group 1 & 2 Accident Mitigation Systems
  - 230 Critical Design Characteristics

Tier 3

- 11 Configuration Change Processes and Sample of Changes From Each Process Since Initial Licensing
  - Approximately 300 Changes Reviewed

~160,000 Person-Hours Expended by S&L

S&L ICAVP RESULTS

- Licensee CMP Was Effective
- Issues Identified in the S&L DRs Did Not Affect the Functionality of Safety Systems
  - 0 ICAVP Significance Level 1
  - 0 ICAVP Significance Level 2
- Small Number of Licensing Bases/Design Bases Issues Relative to the Scope of Review
- Approximately 600 Confirmed DRs
  - 18 ICAVP Significance Level 3
  - ~580 ICAVP Significance Level 4

NRC ICAVP OVERSIGHT INSPECTIONS

Five NRC Multi-Discipline Team Inspections
(~12,000 Inspection Hours)

Implementation of NRC Approved Audit Plan	(Complete)
Out-of-Scope System Inspection (SSFI)	(Complete)
In-Scope System Inspection (SSFI)	(Complete)
Tier 2 / Tier 3 Inspection	(Complete)
Corrective Action Inspection	(Substantially Complete)

NRC INSPECTION RESULTS

- Issues Identified by NRC Did Not Affect the Functionality of Safety Systems Nor Trigger the Expansion of the ICAVP Scope
- 28 Violations Identified by the NRC
  - Violations Were Determined to be Equivalent to ICAVP Significance Level 3 DRs
  - Five Noncited Violations

NRC CONCLUSIONS ON ICAVP

- S&L Review was Comprehensive and NRC Staff has Confidence in Their Results
- NNECO's CMP was Effective in Establishing Confidence That Unit 3 Conforms With its Design and Licensing Bases
- NNECO's Configuration Management Process is Adequate to Maintain Conformance with the Design and Licensing Bases

CORRECTIVE ACTION PROGRAM

Importance

- Fundamental to Effective Nuclear Power Plant Operations
- Directly Affects Broad Range of Programs and Activities

Millstone Historical Issues

- Ineffective Management Leadership
- Weak Identification of Problems
- Weak Evaluation of Problems (Root Cause)
- Weak Implementation of Corrective Actions

LICENSEE CORRECTIVE ACTIONS

Management Emphasis

- Expectations Communicated
- Standards Raised

Formalized Corrective Action Program (RP-4)

- Low Threshold
- Timely Processing
- Management Involvement
- Performance Indicators
- Training

NRC EVALUATION

- Extensive Evaluation
  - Identification and Processing of Problems
  - Root Cause Evaluations
  - Corrective Action Plans / Implementation
- 40500 Team Inspection
- Operational Safety Team Inspection
- ICAVP Corrective Action Inspection
- ECP/SCWE Evaluations
- Routine Inspections

FINDINGS AND CONCLUSIONS

- Corrective Action Program Comprehensive and Acceptable to Support Restart
- Low Threshold for Problem Identification
- New Standards Effectively Communicated
- Root Cause Evaluations Functioning Adequately
  - Some Instances of Ineffective Evaluations Identified
- Adequate Implementation of Corrective Action Program Observed
  - Some Instances of Ineffective Corrective Actions Identified
- Management Involvement Should Continue
- NRC will Conduct a Team Inspection to Evaluate Continued Adequacy of Corrective Actions After Restart

OPERATIONAL SAFETY TEAM INSPECTION

Importance

- Current Assessment of Operational Readiness to Transition From an Extended Outage to Operations

Purpose

- Evaluate Readiness of Plant Hardware, Staff and Management Programs to Support Restart and Continued Operations

Extensive Effort

- About 2000 Inspection Hours Involving Four Regions, NRR, SPO, AEOD and Contractors

PERFORMANCE FOCUS AREAS

- Management Programs and Oversight
- Operations
- Engineering and Technical Support
- Maintenance and Surveillance

MANAGEMENT PROGRAMS AND OVERSIGHT

- Management Programs and Oversight are Adequate to Support Restart

- OSTI Assessment
  - Effective Management Processes
  - Adequate Corrective Action Program
  - Effective Oversight
  - Managing Backlog
  - Acceptable Technical Training Program

OPERATIONS

- Operations Are Adequate to Support Restart

- OSTI Assessment
  - Controlled Plant Evolutions
  - Acceptable Operator Performance
    - Some Performance Issues Identified
  - Acceptable Procedure Quality and Procedure Adherence
    - Some Equipment Control Issues Identified
  - Adequate Staffing Levels
  - Acceptable Training and Qualifications

ENGINEERING AND TECHNICAL SUPPORT

- Engineering and Technical Support Are Adequate to Support Restart
- OSTI Assessment
  - Support for Emerging Issues
  - Plant Modifications Controlled
  - Adequate System Readiness Reviews
  - System Engineers Qualified and Knowledgeable
  - Acceptable Operability Determinations
  - Acceptable Engineering Programs for Vendor Manuals, Operating Experience, and Setpoint Control

MAINTENANCE AND SURVEILLANCE

- Maintenance and Surveillance Are Adequate to Support Restart
- OSTI Assessment
  - Good Plant Material Condition
  - Backlogs Prioritized, Trending Downward
  - Good Implementation of Preventive Maintenance
  - Adequate Surveillance Testing
  - Acceptable Work Planning and Control
    - Some Instances of Ineffective Planning Identified
  - Acceptable Maintenance Activities

OSTI CONCLUSION

- Plant Hardware, Staff, and Management Programs Are Adequate to Support Restart and Continued Operations

SIGNIFICANT ITEMS LIST STATUS

(As of May 20, 1998)

Total SIL Packages	216
Remaining to be Submitted	0
SIL Packages Completed by NRC	210
Under NRC Review	6

LICENSING ISSUE STATUS

- Technical Specification Amendment Requests
  - 25 Technical Specification Amendments Proposed
  - 24 Completed and Issued
  - 1 Under NRC Review
- Other Licensing Issues
  - 10 Issues Need Resolution Prior to Restart
  - 7 Issues Completed
  - 3 Under NRC Review

STAFF CONCLUSIONS AND RECOMMENDATION

- Licensee Has Made Appropriate Improvements and Has Established Adequate Programs Needed to Support Restart of Millstone Unit 3
- NRC Has Confidence that the Unit 3 Licensing and Design Bases Has Been Reestablished
- An Adequate Corrective Action Program Has Been Established
- Licensee Has Demonstrated its Readiness to Begin Restart and Power Operations as Indicated by Recently Completed OSTI
- No Issues Have Emerged From Areas Previously Discussed With the Commission
- Staff Recommends That the Commission Provide its Restart Authorization for Millstone Unit 3

POLICY ISSUE
(Notation Vote)

May 28, 1998 SECY-98-119

FOR: The Commissioners

FROM: L. Joseph Callan
Executive Director for Operations

SUBJECT: REMAINING ISSUES RELATED TO RECOVERY OF MILLSTONE NUCLEAR POWER STATION, UNIT 3

PURPOSE:

To provide the Commission with (1) the staff's assessment of the remaining issues related to the Restart Assessment Plan (RAP) for Millstone Unit 3 that were not addressed in SECY-98-090, "Selected Issues Related to Recovery of Millstone Nuclear Power Station Unit 3," dated April 24, 1998, and (2) the staff's recommendation regarding restart authorization for Millstone Unit 3. The staff has evaluated these issues to be acceptable for a Commission restart authorization for Millstone Unit 3. A summary discussion of these issues is presented in this paper and, where appropriate, a more detailed discussion is attached.

BACKGROUND:

SECY-98-090 provided the appropriate background on the issues surrounding the extended shutdown of the three Millstone nuclear station units, including major NRC and licensee (Northeast Nuclear Energy Company [NNECO]) activities. The staff has frequently communicated with the Commission through various Commission papers and status reports over the past two years since Millstone station was designated as a watch list Category 3 facility in June 1996. The Commission has also received briefings on approximately a quarterly basis since January 30, 1997, from the staff, the licensee, pertinent contract organizations involved in oversight activities, and in the most recent May 1 meeting, members of the public and state and local officials.

Contact:
William D. Travers, SPO/NRR
301-415-1200

SECY NOTE: TO BE MADE PUBLICLY AVAILABLE AT COMMISSION MEETING ON JUNE 2, 1998

DISCUSSION:

At the Commission meeting on the status of Millstone on February 19, 1998, the Chairman presented issues for the staff to consider in preparation for upcoming Commission meetings. In its SRM of March 18, 1998, the Commission gave guidance to the staff on the information it needs to make a restart decision on Millstone Unit 3. In the SRM, the Commission directed the staff to provide crisp, clear analyses of the restart-related issues with recommendations (where appropriate) and a summary of independent NRC actions supporting staff decisionmaking on Millstone's restart. Three issues associated with restart readiness of Unit 3 discussed in the SRM were addressed in SECY-98-090 and discussed with the Commission in a May 1, 1998, meeting. These issues were (1) the licensee's progress in establishing a safety-conscious work environment (SCWE) and an effective employee concerns program (ECP); (2) an assessment of licensee improvements to oversight and quality assurance; and (3) NRC staff plans for monitoring licensee resolution of nonrestart-related issues or items (i.e., backlog management). In its May 19, 1998, SRM, the Commission agreed with the staff's conclusion that these areas were acceptable to support restart of Unit 3, with three noted conditions related to continued oversight and inspections. This SRM also directed the staff to provide the Commission information related to the staff's assessment of the Focus 98 document in which NNECO managers utilized the term "isolate cynics." The Commission will be briefed on this issue during a closed Commission meeting on May 29, 1998. Additionally, the staff's response to the 10 CFR 2.206 petition filed by the Citizen's Awareness Network related to this concern is expected to be issued soon, and will be submitted to the Commission. The remaining issues identified in the staff's RAP for Unit 3 and the March 18 SRM are discussed in more detail below.

For each Millstone unit, the staff developed a RAP which identifies the issues, including those related to the two NRC Orders, that require resolution before a unit restarts. Programmatic issues identified in the Unit 3 RAP include corrective action program improvements, work planning and control improvements, procedure upgrade programs, employee concerns program improvements, and oversight and quality assurance improvements. The RAP also includes staff activities to evaluate the completion of the ICAVP and the licensee's response to the NRC's 10 CFR 50.54(f) letters regarding Millstone. The actions listed in the Inspection Manual Chapter (IMC) 0350, "Staff Guidelines for Restart Authorization," restart checklist that are applicable to Millstone, such as those regarding management effectiveness and self-assessment capability, are also included in the plan. The plan provided for the conduct of an Operational Safety Team Inspection (OSTI), which was completed on April 24, 1998, and for which a public exit meeting was held on May 5, 1998. For key issues not addressed in SECY-98-090, the staff is providing its overall assessment related to restart readiness for Unit 3. Executive summaries of the basis for the staff's conclusions related to each of these areas follow. In addition to the executive summaries below, more detailed analyses of the licensee's and the NRC's activities to address three of the key issues are contained in Attachment 1 (Independent Corrective Action Verification Program); Attachment 2 (Corrective Action Program); and Attachment 3 (Operational Safety Team Inspection).

(1) Independent Corrective Action Verification Program (ICAVP)

The NRC has been maintaining heightened oversight of the corrective actions being conducted by NNECO at Millstone. On August 14, 1996, the NRC issued an Order

requiring NNECO to perform an ICAVP. The ICAVP was intended to independently verify, beyond the licensee's quality assurance and management oversight, that the licensee's corrective actions had (1) identified and satisfactorily resolved existing nonconformances with the design and licensing bases; (2) documented and utilized the licensing and design bases to resolve nonconformances; and (3) established programs, processes, and procedures for effective configuration management in the future. Prior to the ICAVP review, the licensee carried out its own review (i.e., Configuration Management Plan [CMP]) to reestablish the design and licensing bases for all 88 of the Unit 3 Maintenance Rule (10 CFR 50.65) Group 1 and Group 2 systems. The development and implementation of the ICAVP involved an extensive level of effort (approximately 160,000 engineering-hours) by an independent contractor, Sargent and Lundy (S&L). Additionally, the NRC carried out an extensive program for both onsite inspection and in-office review and approval of the S&L audit plan and oversight of S&L activities.

S&L was selected by NNECO and approved by the NRC to conduct the ICAVP at Millstone Unit 3. Implementation of the Unit 3 ICAVP was carried out using a three-tiered approach as described in SECY 97-003, "Millstone Restart Review Process," and specified in an NRC-approved audit plan. In Tier 1, S&L performed a detailed review of the design and licensing bases of 15 of the 88 Maintenance Rule (10 CFR 50.65) Group 1 or Group 2 systems, including a validation of design interfaces of those 15 systems with an additional 51 other systems. In Tier 2, S&L reviewed the critical design characteristics (CDCs) of the 22 systems required for mitigating the consequences of design-basis accidents, which are described in Chapter 15 of the Final Safety Analysis Report. In Tier 3, S&L reviewed 11 change processes other than the principal design change process (i.e., procedure changes, drawing changes, setpoint changes, etc.) used at Millstone that had the potential to result in nonconformances with the design or licensing bases of the facility. The Tier 3 review also included an historical review of approximately 300 changes, spanning the interval of licensed operation of the unit, made through the application of the 11 change processes. In addition to the Tier 3 review, S&L reviewed the completeness and technical adequacy of the corrective actions for nonconformances that were identified by the licensee during the NNECO CMP and corrective actions in response to S&L discrepancy reports (DRs) that required completion before restart of Unit 3.

Throughout the ICAVP, the Special Projects Office (SPO) oversaw and provided guidance to S&L regarding its implementation of the ICAVP. The Connecticut Nuclear Energy Advisory Council (NEAC) monitored interactions between S&L and NNECO and participated in frequent meetings and teleconferences. The NEAC was also given the opportunity to observe the oversight activities conducted by the SPO staff. The SPO oversight activities included (1) review and approval of S&L as the ICAVP contractor, including interviews and approval of S&L's staff; (2) review and approval of the ICAVP Audit Plan, implementing procedures, and changes to both; (3) selection of the systems and specification of the systems' boundaries, including the scope of S&L's ICAVP Tier 1 reviews (NEAC selected two of the system groups representing 11 of the 88 systems); and (4) performance of an ICAVP implementation inspection, an NRC Tier 1 (out-of-scope) inspection of a system reviewed by the licensee's CMP but outside the ICAVP scope, an NRC Tier 1 (in-scope) inspection of a system reviewed by S&L, an NRC Tier

2 and Tier 3 inspection, and multiple corrective action inspections. The five NRC oversight inspections of the Unit 3 ICAVP, which were performed in addition to the S&L activities, represented approximately 12,000 inspection hours.

The public was provided an extensive opportunity to observe the staff's interactions with the licensee and S&L throughout the course of the ICAVP. In addition, the public was provided many opportunities to interact directly with the NRC. The staff held monthly meetings that were open for public observation at Millstone to discuss the status of the ICAVP. Further, the SPO staff held periodic evening meetings at about 6-week intervals, during which members of the public were given the opportunity to express their concerns and question the status and results of S&L's implementation and NRC's oversight of the ICAVP. In addition, most of the meetings, including inspection exit meetings and predecisional enforcement conferences held between the NRC, S&L, and NNECO were open for public observation and conducted at Millstone or in the surrounding communities. To provide public access to concerns raised by S&L during the ICAVP, S&L posted its DRs, NNECO's DR responses, and any S&L comments to a website on the Internet 2 days after issuance.

S&L issued an interim report on May 8, 1998, which gave the preliminary results of its implementation of the ICAVP at Unit 3. S&L and the licensee were still resolving a relatively small number (approximately 100) of DRs at the time the interim report was issued, and the resolution of the remaining DRs was not expected to affect the conclusions reached in the interim report. In this interim report, S&L concluded that:

1. NNECO successfully implemented its CMP, and the CMP was effective at identifying and resolving deficiencies in the Unit 3 design and licensing basis.

2. The 15 Tier 1 systems are in conformance with their design and licensing bases and are capable of performing their intended functions.

3. NNECO has established programs, processes, and procedures to maintain effective configuration control of its design and licensing bases in the future.

S&L did not identify any Level 1 or Level 2 findings. These are defined as discrepancies in which nonconformances with the design and licensing bases would affect the functionality of a safety system. As of May 21, 1998, S&L had identified 18 nonconformances with the Unit 3 design and licensing bases. These 18 instances were documented in ICAVP Significance Level 3 DRs. Level 3 DRs were defined by the NRC as discrepancies that represented nonconformances with the design and licensing bases that would <u>not</u> have prevented the system from performing its intended functions. To date, the staff has inspected the implementation of NNECO's corrective actions for 12 of the 18 Level 3 DRs issued by S&L. Results to date indicate that the licensee's corrective actions are adequate for resolving the identified problems and for identifying and resolving similar issues in other systems. Thus, and in accordance with the staff's established criteria for evaluating the ICAVP findings, the SPO staff determined that it was not necessary to increase the scope of the ICAVP at Unit 3 for issues identified by S&L in Level 3 DRs.

In addition, as of May 21, 1998, S&L had issued 580 DRs that identified minor editorial errors, calculational errors that did not change the results or conclusions of the calculation, or inconsistencies between plant drawings and the plant configuration that did not result in nonconformances with the design or licensing bases. DRs that identify errors that do not result in the plant's being outside its design and licensing bases were defined by the NRC as ICAVP Significance Level 4 DRs. A number of these Level 4 DRs were identified as a result of a line-by-line review of calculations in which S&L identified minor errors. It was determined that the licensee, in order to focus on the identification of potentially safety significant issues, adopted a "graded systems review." The graded approach used during the CMP was a higher level review than the more detailed S&L review, concentrating on calculation inputs, assumptions, methodology and reasonableness of results. The fact that no Level 1 or Level 2 DRs and relatively few ICAVP Significance Level 3 DRs were identified by S&L indicates that the graded systems review methodology used by NNECO was effective. The number of Level 4 DRs that were identified by S&L's review was not viewed as indicative of a weakness in the CMP and did not, because of the minor significance of such findings, suggest the need for an expansion of the scope of the ICAVP.

In addition to the review of each individual issue identified by the DRs, S&L and the NRC examined DRs collectively to determine if any trends in these findings could be identified. On the basis of these reviews, a trend in the area of calculations (i.e., control and accuracy) was identified by S&L and the NRC. The safety significance of this trend was determined to be minor because of the fact that the noted calculational errors did not materially alter the results or conclusions of the calculations. Nonetheless, the trend indicates a need for improvement in calculational accuracy and in the thoroughness of the licensee's independent review. The staff determined that these improvements can be made on an ongoing basis. As specified in the NRC's ICAVP Order, NNECO is required to respond to the findings of S&L before entry into Mode 2 (restart). The staff will review the licensee's proposed corrective actions to the identified trend.

During performance of its ICAVP Oversight Inspection Plan, the SPO staff identified a number of issues that resulted in NNECO's taking additional corrective actions. As described in Attachment 1, these additional efforts by the licensee effectively resulted in a broadening of the scope of its CMP efforts to recover the design and licensing basis of Unit 3. In some cases, licensee corrective actions were significant. An example that has been previously discussed with the Commission is the issue involving the potential for air binding the charging and safety injection pumps. Although it was subsequently demonstrated to the NRC's satisfaction that the trapped air would not adversely affect system functionality, as part of its corrective actions, the licensee conducted an "Integrated Functional System Review" that included a review of about 25 systems that would be actuated to mitigate the consequences of a small break loss-of-coolant accident. For each finding documented in various NRC inspection reports related to oversight of the ICAVP, the SPO staff has completed, or will complete before restart, inspections to evaluate the effectiveness of the licensee's corrective actions. Results to date indicate that NNECO has taken adequate and timely corrective actions to address and resolve the specific issues, and to identify and resolve similar issues in other systems. Thus, the SPO staff determined that it was not necessary to increase the

scope of the ICAVP at Unit 3 for ICAVP Significance Level 3 issues identified during NRC inspections.

On the basis of its oversight of ICAVP activities, the SPO staff has concluded that S&L adequately conducted the ICAVP at Unit 3. The ICAVP provided the staff valuable information that enabled it to make the determination that (1) NNECO's CMP was effective at identifying and satisfactorily resolving existing nonconformances with the design and licensing bases; (2) NNECO had adequately documented the licensing and design bases and used them to resolve nonconformances; and (3) NNECO had established programs, processes, and procedures for effective configuration management in the future. Although both S&L and the NRC staff identified a number of nonconformances with the Millstone Unit 3 licensing and design bases, none of the issues affected the functionality of the plant's safety systems. Additionally, the number of such issues were relatively few and are indicative of an effective effort by the licensee to establish confidence that Unit 3 is in compliance with its design and licensing bases.

The scope of the ICAVP, while large, did not review all aspects of all 88 Group 1 and 2 Maintenance Rule systems. Therefore, it is reasonable to assume that similar types of findings may exist in other systems. However, the extent of the ICAVP reviews and the low safety significance of the findings identified by S&L and NRC provides confidence that any other issues would also be of low safety significance. Additionally, the licensee has taken broad corrective actions for noted design and licensing bases issues that the staff has judged to be thorough and effective. Therefore, the staff concludes that the Unit 3 ICAVP has been satisfactorily performed and the results of the ICAVP and the staff's oversight provide confidence that Unit 3 is in compliance with its design and licensing bases.

(2) Corrective Action Program

Previous licensee self-assessments and NRC inspections had identified that NNECO's corrective action program had been historically weak in the identification of problems and ineffective in ensuring comprehensive and effective corrective actions. Many instances existed of narrowly focused corrective actions that failed to encompass all aspects of the underlying problem. Additionally, the licensee often did not follow up on corrective actions to ensure they were effective. A correlation also existed between the ineffectiveness of the corrective action program and the issues related to the handling of employee safety concerns and the SCWE at Millstone. An important element of an effective corrective action program is that workers are encouraged to raise issues willingly without fear of retribution or retaliation. Consequently, the RAP determined that the licensee's corrective action program was an important issue.

NNECO initiated efforts in early 1997 to improve the corrective action program by adopting industry standards and processes and formalizing them in its procedure Reports (RP) 4, "Corrective Action Program." The fundamental changes to the process included lowering the threshold level for reportable problems, management emphasizing the need for employees to identify problems, greater management involvement in the process, timely processing of operability determinations, development of performance

indicators, training in root-cause analysis, and enhancement of the tracking and trending programs.

To verify the licensee's actions, the NRC, in addition to the day-to-day observations and interactions of the resident inspectors, performed a number of multi-purpose inspections to assess the effectiveness of the process. The NRC performed a team inspection using Inspection Procedure (IP) 40500, "Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems." The NRC conducted an inspection that assessed the effectiveness and the appropriateness of the licensee's corrective actions associated with design issues raised by the NRC in its ICAVP-related inspections, the licensee in its CMP, and S&L in its ICAVP. An Operational Safety Team Inspection (OSTI) was performed at Millstone Unit 3, which audited portions of the corrective action process. Within the context of the OSTI, the NRC staff reviewed the licensee's corrective action program and subordinate procedures, audit reports developed by NNECO's Oversight organization, the licensee's Independent Review Team Report on the Effectiveness of Corrective Actions, the NRC IP 40500 inspection team report, and outstanding corrective action items.

The NRC also obtained insights into the effectiveness of the corrective action program through its assessment of the licensee's implementation of the ECP and its efforts to establish an SCWE. Integral to the staff's evaluation of Millstone SCWE activities was its assessment of the licensee's programs for resolving safety issues raised in the line organization. Staff observations and interviews showed that managers and supervisors encouraged employees to identify problems. These observations and findings were consistent with those of Little Harbor Consultants, Inc. (LHC), the third-party organization specified by the NRC Order to oversee the licensee's implementation of the SCWE program. LHC also performed an assessment of NNECO's corrective action program and found the program and its implementation acceptable.

The foregoing inspections found that an appropriately low threshold exists at Millstone Unit 3 for the identification of conditions adverse to quality. NNECO management has effectively communicated new standards to the working staff so that problems are being identified and referred to the corrective action program for resolution.

Staff inspections have determined that the assessment and root cause evaluation process is functioning adequately to support restart of Unit 3, but the process is still maturing and warrants continued NNECO management oversight. The staff found that the licensee was effectively assessing root causes and assigning the proper corrective actions. However, in a few instances, the NRC staff found that the licensee did not identify associated proximal causes and, in one case, the licensee missed the actual root cause and failed to take effective corrective actions to prevent air binding of the boric acid transfer pumps.

The licensee staff responsible for managing the corrective action program have demonstrated that they can successfully evaluate and prepare appropriate corrective action plans. The NRC staff noted problems with a lack of thoroughness in corrective actions in the early stages of recovery during 1996 and early 1997. As the effects of the recovery process began to positively affect the work practices of the licensee's staff, the

NRC found that assigned corrective actions were, with some exceptions, complete and appropriately addressed the problem.

Though the staff's observations indicate that the licensee's corrective action program is adequate to support restart of Unit 3, the effectiveness of the corrective action program can be more completely assessed by evaluating long-term performance. In view of this and the licensee's historical problems in maintaining an effective corrective action program, the staff believes that it should assess the corrective action program after the plant has been in a more normal mode of operation for a period of time. This evaluation includes assessing the effectiveness with which the licensee addresses the deferred items list, which was discussed in SECY-98-090. Therefore, the staff will assess the effectiveness of the corrective action program in about 1 year by performing another team inspection using IP40500.

(3) Operational Safety Team Inspection

The objective of the OSTI was to provide current information to the RAP by evaluating the readiness of staff and management programs and the adequacy of plant hardware to support restart and continued operation of Millstone Unit 3. The OSTI focused on providing assessment in the areas of management programs, independent oversight, operations, engineering, and maintenance and surveillance. The OSTI was an intensive inspection activity conducted at Millstone Unit 3 between April 13 -24, 1998. Members of the team also observed selected plant activities in the two months prior to the inspection. The 14 inspectors selected for the team represented all four regional offices, the Office of Nuclear Reactor Regulation (NRR), the Office for Analysis and Evaluation of Operational Data, and SPO. The team monitored licensee activities during plant transition between modes of operation during both normal and off-normal work hours. The OSTI represents more than 2000 person-hours of effort.

The team noted that significant progress had been made in enhancing overall station performance. In making this determination the OSTI reviewed the licensee's Fundamental Cause Assessment Team Report, the Joint Utility Management Association Report, and the Root Cause Evaluation for ACR 7007, as well as NRC's Special Inspection Report 96-201, to acquire a background knowledge of the historical problems at Millstone that resulted in the current extended shutdown. In particular, the team observed management involvement in directing plant activities, an intrusive and independent quality assurance organization, an improved corrective action program, and an effective self-assessment process.

The conduct of operations, procedure quality and adherence, and operator training were all determined to be acceptable to support plant restart. The quality of command and control was usually good and shift turnovers were comprehensive. However, the team identified two operational issues that require certain corrective actions before plant restart. The first issue concerned operator performance during the initial plant heatup. The licensee identified several causes for operator performance weaknesses and the OSTI observed several effective short-term corrective actions. The OSTI did not observe similar weaknesses in operator performance during the subsequent plant evolutions it observed. The staff is currently reviewing the licensee's pertinent corrective actions.

The second issue concerned the administration and implementation of certain aspects of the valve and system alignment program. Problems included two valves not properly aligned in accordance with the valve alignment procedure, errors in documentation of valve and breaker alignments, and deficiencies in the locked valve program. The team determined that certain actions to correct these deficiencies were necessary before plant restart. The licensee's corrective actions are currently being reviewed by the NRC staff.

The team identified good performance in the engineering and technical support areas. These organizations routinely provided timely and technically sound support to resolve emergent plant issues. The plant design change program administrative controls were detailed and the design changes reviewed were properly installed. The team noted that the licensee was making improvements in several engineering-administered programs, such as setpoint control, operational experience reviews, and vendor manuals.

The teams' findings in the areas of maintenance and surveillance were generally positive. Plant material condition was good and deferred work items had been properly evaluated and prioritized. The team observed good work practices by the maintenance staff, quality procedures, and strong management oversight of maintenance activities.

The overall conclusion of the OSTI is that the Millstone staff and management are suitable and plant equipment, programs, and processes are in place to support restart and continued operation of Unit 3. There are still several corrective actions from issues identified during the OSTI where the staff must verify completion prior to restart. Additionally, the licensee still has to complete a number of its own identified Mode 2 issues (currently about 75) that were reviewed by the OSTI .

(4) Work Planning and Controls

Work planning and controls are areas in which the licensee has shown weaknesses in the past. The ability to plan, control, and complete work is an important element in achieving timely and effective corrective actions. Additionally, effective work planning and controls are prerequisites for reducing and managing work backlogs.

The NRC staff reviewed the licensee's revised automated work order (AWO) process, which was implemented site-wide in 1997. The AWO process is an integral part of the work planning and control system. It is instrumental in establishing the scope of the work, providing the appropriate procedures, and establishing the tagging boundaries. This process has resulted in a noticeable improvement over previous processes at Millstone.

Substantial progress has been made in reducing the backlog of preventive maintenance work orders to the point that none are overdue. There has been continued progress in completing power ascension-related AWOs and reducing the corrective maintenance backlog. Although the backlog of work is still a challenge, the licensee is close to reaching its restart goal of less that 500 online AWOs. As a result of the licensee's low threshold for identifying problems, the future outage AWO backlog has continued to grow

(approximately 550 items). The licensee has reviewed these AWOs in detail and concluded that none are required for startup.

The OSTI included an assessment of the adequacy of the licensee's work planning and controls. The principal focus of this assessment was to evaluate the adequacy of the licensee's program as it relates to ensuring the safety performance of personnel and plant equipment. The team found that the licensee's ability to accurately schedule and complete work continues to need improvement. On average, 60 percent of work orders on the 3-day look-ahead schedule were started, and 54 percent were completed on schedule. The licensee's self-assessment has resulted in corrective actions, such as instituting a 12-week rolling work schedule and appointing an experienced individual as a permanent Work Control and Outage Manager. The use of the 12-week rolling schedule should help improve planning and scheduling performance. These corrective actions are currently in progress.

The team did not find examples in which the noted inefficiency in planning and scheduling resulted in degradation of safety system performance. In fact, it was concluded that the material condition of safety-related systems was good. The team determined that the licensee had adequate controls in place to ensure that engineering work backlogs were properly screened for safety significance, and the work needed to support a safe plant restart had been identified. The team also did not observe any nonconservative decisions by plant managers for the purpose of meeting plant schedules.

The staff concluded that the work planning and scheduling process is adequate to support plant restart. It was determined that the noted inefficiencies in the work planning and scheduling process were not adversely affecting plant safety and that the root causes for the performance weaknesses had been identified by the licensee and program improvements were being implemented.

A recent issue occurred that indicates the need for the licensee to continue to emphasize the importance of work planning and control, particularly as the licensee transitions to normal operations. This issue involved the licensee's efforts to repack a leaking valve in the reactor coolant system. The licensee demonstrated appropriate decision-making in depressurizing the reactor coolant system to repair the 1½-inch loop equalization valve, even though the leakage was well within allowable limits. However, the maintenance and operations departments did not respond well to several precursors that indicated there was leakage past the valve's backseat and that there was separation between the valve stem and its disc. This situation led the licensee to treat the repair effort as a simple valve repacking and to not fully establish contingencies for repacking the nonisolable valve. The licensee's response to the issue, including a site-wide work standown, is an example of senior management's continued emphasis on assuring safe operations.

(5) Procedure Upgrade Program

The quality of and adherence to procedures had been a chronic problem at the Millstone site for all three units. The need to improve procedure quality was an element in the

Improving Station Performance program (circa 1995) and the earlier Performance Enhancement Program (circa 1992). In response to NRC concerns, the licensee developed the Procedure Upgrade Program (PUP) in 1992 to improve station procedure quality on a site-wide basis. The licensee's PUP commitment was included in a letter to the NRC dated June 4, 1992, in which the licensee described its overall Performance Enhancement Program. Because of the licensee's longstanding commitment to complete the PUP and address past procedure adherence and quality problems, the satisfactory performance of the licensee's PUP was identified as a separate issue in the NRC RAP.

Although various procedure improvement programs had been ongoing since the late 1980s, the licensee committed to improve procedures to reflect industry standards for format and to standardize procedures at all three units in the PUP. As a result of this process, the station document control administrative procedures were developed to apply to the three units. Recent inspections by the NRC have verified that most of the commitments made in the letter of June 4, 1992, were met. As of May 1998, the Unit 3 PUP has been essentially completed except for two procedures.

Additional insights regarding procedure quality have been obtained through three NRC ICAVP inspections of the licensee's CMP. The three inspections reviewed a combined total of 97 licensee technical procedures, and only minor problems were identified. In addition, the OSTI reviewed the adequacy and implementation of procedures during licensee operations in Modes 4 and 3 (plant non-critical heatup). The OSTI concluded that the quality of operating procedures was good. With few exceptions, such as the reactor coolant system surveillance procedure and the conduct of operations procedure, the procedures reviewed by the OSTI were technically accurate and provided an appropriate level of detail. Also, recent licensee performance indicators developed by both the licensee's nuclear oversight and its line organizations indicate acceptable performance in both the areas of procedure performance and the technical adequacy of the procedures.

These NRC inspections and the licensee's own evaluations indicate that Unit 3 procedures are acceptable for restart. As previously noted, the NRC's inclusion of the PUP as a separate issue in the RAP was to assess the licensee's implementation of this longstanding program. In addition, the staff has also had many opportunities to assess the technical adequacy and quality of the procedures, as well as the licensee's adherence to procedures. Although there have been some minor problems noted, such as those found during the OSTI and ICAVP inspections, there has been a substantial improvement over the past 2 years in this area. The staff considers the current condition and use of procedures to be adequate to support restart of Unit 3.

(6) Significant Items List

As part of its execution of IMC 0350, "Staff Guidelines for Restart Approval," the staff developed a RAP. The RAP was developed to include all expected NRC actions required before the NRC-approved plant restart. The staff developed a RAP for each Millstone unit to incorporate the appropriate aspects of IMC 0350 and to address site-specific and unit-specific issues. One of the elements of the RAP is the significant items

list (SIL). The SIL contains items that the NRC is using to audit and evaluate licensee programs and other significant safety and regulatory issues. The licensee provides a package to the staff when it has completed actions associated with a particular item on the SIL. The staff then reviews the package and performs any needed inspection activities before it closes out the issue.

The inspection and closure of the items on the SIL is about 98 percent complete. The RAP had identified 216 closure packages for the 83 items on the SIL and the licensee has submitted all 216 packages for NRC's review. The staff has closed 210 packages as of May 18, 1998. The licensee is providing additional information on two SIL packages related to the master equipment plant list and emergency preparedness (post-accident sampling system).

Early in the process, the quality of the SIL packages submitted by the licensee was sometimes insufficient to support the staff's review. However, the staff has observed substantial improvement in the past year, and has found the information provided by the licensee to be comprehensive and of good quality. The staff has substantially completed its efforts to review and close the 83 items on the SIL. The SIL items constitute the majority of the programmatic, technical, and regulatory issues included in the Unit 3 RAP.

(7) Licensing Issues

On the basis of the licensee's review of existing license amendment requests and an in-depth review of the Millstone Unit 3 TSs, the licensee has identified a number of licensing issues which required resolution before restart. By letter dated October 6, 1997, the licensee identified the known license amendment requests that were associated with Mode 2 and those associated with Mode 4. The licensee further updated the list by letters dated March 4 and 6, 1998.

As of May 27, 1998, the NRC had received 31 proposed TS changes, which the licensee initially determined were needed before restart. Of the 31 proposed TS changes, 24 have been issued, 5 have been withdrawn, 1 has been determined not to be needed before restart, and 1 is being reviewed by the NRC staff. The remaining issue involves TS 3/4.4.4, "Relief Valves," and would ensure that the power-operated relief valves will be capable of automatic cycling as well as manual cycling when in the TS action statements that allow indefinite continued operation. The staff is reviewing the licensee's submittal and supplemental information.

In addition, 7 of the 10 other licensing issues that had to be resolved before restart have been completed. Of the remaining three issues, two are under staff review and involve (1) the erosion of cement from the underlying porous concrete drainage system at Millstone Unit 3 and (2) recent changes to the Millstone station emergency plan. The remaining issue involves the use of alternative design provisions to the American Society of Mechanical Engineers Code related to the design of relief valve discharge piping. The staff has reviewed the licensee's May 20, 1998, submittal and requested that the licensee provide additional information to support its request.

The NRC has also received four license amendment requests that involve unreviewed safety questions (USQs). The licensee has also indicated that there is a potential for two additional amendments involving USQs to emerge. The licensee has indicated that the systems involved for all 6 existing or potential USQ issues are or will be determined to be operable and the amendments will not be required prior to restart. This approach is consistent with current guidance contained in Revision 1 to Generic Letter 91-18 regarding degraded and nonconforming conditions. Additionally, the staff intends to review the operability determinations associated with any USQs prior to restart of Unit 3.

With respect to two of the four USQ-related license amendment requests under review (associated with the recirculation spray system and the engineered safety features building sump pumping subsystem), the Citizens Regulatory Commission petitioned the NRC for leave to intervene in the proceeding on April 23 and May 21, 1998, respectively. Since the licensee has made the determination that the systems involved are or will be operable, approval of these amendment requests is not required to support Millstone Unit 3 restart.

(8) Enforcement

From January 1996 to December 1997, 51 potential escalated enforcement items (EEIs) (37 in 1996 and 14 in 1997) were identified at Millstone Unit 3 as a result of NRC inspection activities. The EEIs identified during 1996 were discussed with the licensee at a December 1996 enforcement conference. Subsequently, and in conjunction with enforcement actions against Units 1 and 2, a $2.1 million civil penalty was issued to NNECO on December 10, 1997.

Of the 37 EEIs identified in 1996, 33 were included in the $2.1 million civil penalty. Of the remaining four, two were determined not to warrant a civil penalty, one was granted enforcement discretion, and one was not a violation. Of the 14 EEIs issued in 1997, 8 were determined to be Severity Level IV violations, 1 was cited as a Severity Level III violation with a civil penalty, 3 were issued enforcement discretion notices, and 2 are yet to be dispositioned.

Thus far, for reports issued in 1998, one Severity Level III violation without a civil penalty was issued concerning the inoperability of the post accident sampling system. Recent inspection reports are currently under review and have issues under consideration for enforcement.

The corrective actions implemented by the licensee for the majority of the enforcement items issued in 1996-1998 have been evaluated by the staff and have been determined to be adequate. Prior to restart, the corrective actions for those issues that have not yet been assessed by the staff will be reviewed for both the adequacy of the corrective actions and any potential impact on the licensee's capability to safely conduct a plant restart and sustained power operations.

CONCLUSION

The staff concludes that for the issues discussed, the licensee has made appropriate improvements and has established adequate programs needed to support restart of Unit 3. The licensee's efforts to reestablish its licensing and design bases (LB/DB) and implement programs to maintain the LB/DB have been effective. An adequate corrective action program has been established, characterized by a low threshold for identification of issues, effective root cause analyses, and effective implementation of corrective actions. The recently completed OSTI indicates that the licensee has demonstrated its readiness to conduct power operations.

In addition to the staff's recommendations related to the areas covered in this paper, no issues have emerged since the Commission meeting on May 1, 1998, that would call into question the staff's recommendations related to the three key areas that were the focus of that meeting. Accordingly, the staff has substantially completed its assessment of the elements contained in the Millstone Unit 3 RAP, including evaluation of the licensee's actions in response to the two Orders issued in 1996. The staff concludes that the licensee has taken appropriate corrective actions to support restart of Millstone Unit 3.

RECOMMENDATION

That the Commission agree with the staff's conclusion that the licensee has taken appropriate corrective actions to support restart of Millstone Unit 3. The staff recommends that the Commission provide its restart authorization for Millstone Unit 3. As described in the May 19, 1998, SRM, should the Commission authorize restart, this would entail changing the watch list status of Unit 3 from Category 3 to Category 2 and designate the Executive Director for Operations (EDO) as the senior manager responsible for (1) verifying that the appropriate aspects of IMC 0350 are complete and (2) approving commencement of actions to restart Unit 3. All remaining issues requiring NRC verification before Unit 3 enters Mode 2 will be completed before the EDO gives approval for restart of Unit 3.

L. Joseph Callan
Executive Director
for Operations

Attachments:
1. Independent Corrective Action Verification Program
2. Corrective Action Program
3. Operational Safety Team Inspection

Commissioners' completed vote sheets/comments should be provided directly to the Office of the Secretary by c.o.b. Tuesday, June 9, 1998.

Commission staff office comments, if any, should be submitted to the Commissioners NLT June 4, 1998, with an information copy to SECY. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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ATTACHMENT 1

Independent Corrective Action Verification Program

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1.0 BACKGROUND

In the Fall of 1995, the NRC determined that refueling practices and operation of the Spent Fuel Pool Cooling systems at Unit 1 were not consistent with the Final Safety Analysis Report (FSAR). In February 1996, the licensee issued Adverse Condition Report (ACR) 7007 - Event Response Team Report that described in detail the causes for numerous inaccuracies contained in Millstone Unit 1's FSAR. ACR 7007 documented a programmatic breakdown in the configuration management controls at Unit 1. ACR 7007 acknowledged that the potential existed for similar configuration management problems at Unit 3.

In March and April 1996, the NRC conducted a special inspection at Unit 3 that identified design and other deficiencies similar to those reported in ACR 7007. On March 30, 1996, Unit 3 was shut down when the containment isolation valves for the Auxiliary Feedwater System turbine-driven pump were declared inoperable because the valves were not in compliance with NRC requirements. Shortly thereafter, the licensee discovered that the stress calculations for the containment recirculation spray system (RSS) piping and supports had not adequately addressed design temperature conditions resulting in Unit 3 being operated outside its design basis. Both of these deficiencies had existed since initial operation of Unit 3.

The licensee's own findings and NRC inspections indicated significant design control deficiencies, and degraded and nonconforming conditions existed at Unit 3. Three major types of design control problems had been identified that included (1) errors in the licensing and design bases documentation; (2) failures to translate design bases into procedures and hardware; and (3) inadequate engineering and modifications.

To recover the design and licensing basis of Unit 3, the licensee implemented its Configuration Management Plan (CMP). The scope of the CMP included those systems that it had categorized to meet the requirements of the Maintenance Rule (10 CFR 50.65) as either Group 1 (safety-related <u>and</u> risk significant) or Group 2 (safety-related <u>or</u> risk significant). Included within the licensee's CMP were reviews of the design and licensing bases for the Maintenance Rule systems and reviews of topical program areas (e.g., fire protection, high energy line break, and environmental qualification).

By July 1996, the licensee had identified 1187 design or licensing bases discrepancies, 597 of which it determined were required to be completed before restart of Unit 3. (During the April 1998, NRC-sponsored Regulatory Information Conference, the licensee indicated that the CMP had resulted in 491 changes to the FSAR, 195 procedure changes, 28 changes to Technical Specifications (TS), 138 drawing changes, 74 calculation changes, 223 modifications, and 141 Licensee Event Reports (LERs). Further the licensee indicated at the April 1998, Regulatory Information Conference, that it had expended approximately 700,000 person-hours of effort implementing its CMP at Unit 3.)

On August 14, 1996, the NRC issued a Confirmatory Order directing the licensee to contract with a third-party to conduct an Independent Corrective Action Verification Program (ICAVP) at all three Millstone units to verify the adequacy of its efforts to reestablish adequate design bases and implement effective design controls. The ICAVP was intended to provide additional assurance, prior to unit restart, that the licensee has identified and corrected existing problems in the design and configuration control processes.

The Order required that the ICAVP be performed and completed to the satisfaction of the NRC by an independent contractor approved by the NRC. Sargent & Lundy (S&L) was the contractor approved by the NRC to conduct the ICAVP at Unit 3. The Order required S&L to submit for NRC approval a plan for conducting the ICAVP. The plan was required to include (1) provisions for an in-depth review of the design and design bases of selected systems; (2) the risk- and safety-based criteria for system selection; (3) an audit plan that provided assurance that the results of the licensee's problem identification and corrective action programs for the selected systems were representative of and consistent with that of other systems; (4) procedures and schedules for reporting findings to both the NRC and the licensee in parallel; and (5) procedures to comment on the licensee's resolution of the ICAVP findings and recommendations.

The Order defined the ICAVP scope as encompassing all modifications made to the selected systems since initial licensing, and included (1) review of engineering design and configuration control processes; (2) verification of current, as-modified conditions against design and licensing basis documentation; (3) verification that the design and licensing bases requirements were translated into operating, maintenance, and test procedures; (4) verification of system performance through review of specific test records and/or observation of selected testing; and (5) review of proposed and implemented corrective actions for licensee-identified design deficiencies.

The licensee was required, by the Order, to provide a written response to the NRC that addresses ICAVP findings and recommendations. The Order requires that the licensee's written replies to the ICAVP findings and recommendations include a statement of agreement or disagreement with the reason(s) for each ICAVP finding or recommendation, the status of implementation of corrective actions, and that subsequent written replies shall be made until all corrective actions have been implemented. The Order indicated that the replies were to be sent to the Regional Administrator, Region I, and to the Director, Office of Nuclear Reactor Regulation (NRR). With the creation of the Special Projects Office (SPO) within NRR, the replies will be sent to the Director of SPO and to the Director of NRR.

2.0 ICAVP PROCESS

The purpose of the ICAVP, as stated in the August 14, 1996, Order, was to confirm that the plant's physical and functional characteristics were in conformance with its licensing and design bases. The ICAVP provided independent verification, beyond the licensee's quality assurance and management oversight, that the licensee's corrective actions had identified and satisfactorily resolved existing nonconformances with the design and licensing bases; documented and utilized the licensing and design bases to resolve nonconformances; and established programs, processes, and procedures for effective configuration management in the future.

Communication protocols were necessary to ensure the independence of S&L during performance of the ICAVP. The protocol required NRC to monitor all but administrative interactions between S&L and the licensee. To minimize the potential for adversely impacting the independence of S&L's technical reviewers, the protocol limited direct interaction between S&L's technical reviewers and the licensee's staff. Further, the protocol required that most of

the communication between S&L and the licensee be in writing. In order to provide assurance to the public that S&L was maintaining its independence, the Connecticut Nuclear Energy Advisory Council (NEAC), was invited to observe the interactions between S&L and the licensee. During the conduct of the ICAVP, the NEAC has observed many of these interactions during meetings and telephone conferences. These, and other communication protocols, were incorporated into the ICAVP Audit Plan and implementing procedures prepared by S&L and approved by the NRC to maintain the independence of S&L during the ICAVP at Unit 3. Imposition of the communication protocol made the exchange of technical information time consuming and inefficient. In many instances, S&L provided supplemental written requests for information in order for the licensee to understand the scope of the information requested, to clarify the question raised by S&L, or to request the licensee to clarify its responses.

To provide the level of assurance necessary to support a unit restart decision, the ICAVP was structured in a three tier format to validate many aspects of configuration management. In Tier 1, 15 systems were selected from the 88 Maintenance Rule (10 CFR 50.65) Group 1 and Group 2 systems to test the thoroughness of the licensee's reviews at identifying potential nonconformance with the design and licensing bases. S&L was tasked to conduct a thorough multidisciplined review of all design changes made to these systems after the issuance of the operating license, the remaining part of the original system configuration, and all operational aspects of these systems. Some of the design features included in the Tier 1 review for each system were system fluid flow and heat transfer characteristics, system capability to function assuming a single failure, piping and pipe hangers, equipment anchorages and supports, electrical power requirements, instrumentation and control, seismic design and electrical equipment environmental qualification. Also included in the Tier 1 scope were maintenance, surveillance testing, and training to insure that design requirements were appropriately translated into the applicable procedures. As a part of the Tier 1 effort, S&L was also tasked to review the licensee's corrective actions for previously identified design-related deficiencies for the selected systems, including the deficiencies discovered during the implementation of the licensee's corrective action programs. In order to provide a broader perspective on the adequacy of the licensee's corrective actions, S&L also reviewed a sample of corrective actions selected by NRC, for licensee-identified problems in systems outside of the 15 system Tier 1 ICAVP scope. The scope of the corrective action implementation reviews was a verification that the corrective actions were appropriate and that the documentation necessary to implement the corrective action (i.e., modification packages, revised calculations, procedure change requests, etc.) were prepared and appropriate to effectively resolve the issue. The type of multidisciplined, multifaceted review, performed in Tier 1, is referred to as a "vertical slice" design review because the review encompasses many aspects of system design necessary for a selected system to perform its specified function.

Tier 2 of the ICAVP was developed to review configuration management from a different perspective than the "vertical slice" Tier 1 review described above. The basis or starting point for the Tier 2 review was the accidents and transients analyzed in the FSAR. The purpose of the Tier 2 review was to validate the critical design characteristics (CDCs) of accident mitigation systems that formed the bases for the inputs to the accident and transient analyses contained in the FSAR. The Tier 2 review provided an additional level of confidence that plant configuration had been appropriately maintained and that changes to plant configuration affecting CDCs of accident mitigation systems had been properly translated in the accident

analyses. Tier 2 included a validation of CDCs for the 22 Maintenance Rule Group 1 or Group 2 accident mitigation systems described in the FSAR. The validation of CDCs was performed by reviewing test and surveillance data, design calculations, instrument setpoints and setpoint analyses, and plant abnormal and emergency operating procedures.

Tier 3 of the ICAVP required the review of a sample of changes made to Unit 3's configuration since issuance of the operating license through processes other than the design change process. These included processes such as calculation changes, proposed Technical Specification (TS) changes, temporary modifications, drawing changes, procedure changes, set point change requests, and replacement item evaluations. Tier 3 provided insights into the effectiveness of the various change processes in controlling the plant's configuration over the lifetime of the plant.

In developing the process for implementing the ICAVP, the NRC established a threshold for handling findings identified by S&L. This threshold was defined in SECY 97-003, "Millstone Restart Review Process," dated January 3, 1997, as a "defect" that represents any condition resulting in the plant being outside its current licensing bases. In addition to a focus on the identification of any defects, S&L and the NRC evaluated deficiencies identified by S&L that did not meet the definition of a defect (such as a calculation error that does not place the plant outside the licensing bases), to determine if any programmatic trends existed. A very low threshold was established by the NRC for issues that S&L was required to document during the ICAVP.

S&L documented its ICAVP findings in discrepancy reports (DRs). The DR process allowed any of S&L's reviewers to initiate a DR after they identified that a potential for a discrepant condition existed. After being initiated, if S&L determined, based on further review of the information available that a discrepant condition did not exist, the DR was issued as an Invalid DR. As an Invalid DR, no response was expected from the licensee and the DR was considered closed by S&L. If S&L determined, based on a review of the information available at the time, that there existed a discrepant condition, the DR was issued as a Valid DR. All DRs (Valid and Invalid) were issued to the NRC and the licensee concurrently, with a copy provided to the NEAC. To allow public access to the DRs, S&L posted information related to the DRs, including the licensee's responses, to a website on the Internet 2 business days after the DR was issued.

When a Valid DR was issued, S&L assigned the DR an ICAVP significance level as a measure of the DR's importance to the design and licensing basis of the unit. The NRC established four levels of ICAVP significance for identified programmatic, procedural, or design issues, or editorial inconsistencies. The most significant DRs are considered Level 1 and the least significant are considered Level 4. Level 1 DRs are discrepant conditions that identify instances when the system does not meet its licensing or design bases and could not perform its intended function, i.e., has the potential to simultaneously affect redundant trains. Level 2 DRs are discrepant conditions that identify instances when a single train of a redundant system does not meet its licensing or design bases and that the train could not perform its intended function. Level 3 DRs are discrepant conditions that identify instances when a system does not meet its licensing or design bases, but the system is capable of performing its intended function. Level 4 DRs are discrepant conditions that identify instances when the system meets

its licensing and design bases, however, there existed minor errors such as minor arithmetic errors that do not significantly affect the results of the calculation or are inconsistencies between documents of an editorial nature.

The licensee was required to respond to all Valid DRs. S&L reviewed the licensee's response, including any proposed corrective actions. While being reviewed by S&L, the DRs were considered In process. During its review of the licensee's response, S&L could disposition the DR in four ways as described below -

1. **Followup:** S&L requested additional information from the licensee to resolve any disagreements or to clarify the proposed corrective action.

2. **Unresolved:** When S&L and the licensee can not reach consensus on the ICAVP significance level, the adequacy of the proposed corrective actions, whether the issue was discrepant, or whether the issue was previously identified by the licensee. Unresolved DRs were forwarded to the NRC for review and final resolution.

3. **Pending:** Both S&L and the licensee agree that a new discrepant condition existed, that the assigned ICAVP Significance Level was appropriate, that the proposed corrective actions were adequate to resolve the discrepant condition, and that the corrective actions were required to be completed before restart, but the corrective actions to reestablish the design or licensing basis had not been completed at the time of S&L's review.

4. **Closed:** A DR was closed after S&L had completed its reviews of the licensee response and supporting information, and determined that the response was adequate to address the issues discussed in the DR. Based on S&L's reviews, Closed DRs fell into three categories -

    a. **Confirmed DRs** - both S&L and the licensee agreed that a new discrepant condition existed, that the assigned ICAVP significance level was appropriate, that the proposed corrective actions were adequate to resolve the issue, and that the corrective actions required to reestablish the design or licensing basis had been implemented.

    b. **Nondiscrepant DRs** - S&L agreed with the licensee that the issue described in the DR was not a discrepant condition based on its review of the additional information provided by the licensee.

    c. **Previously Identified DRs** - S&L agreed that the licensee had previously identified the issue based on its review of the additional information provided by the licensee.

Confirmed Level 3 or higher (Level 1 or 2) DRs satisfy the definition of a "defect" as stated in SECY 97-003, but they may contain several issues, some of which may individually be Significance Level 4 in that the individual issue did not call into question conformance with the design or licensing bases. The corrective actions required to restore or reestablish compliance with design or licensing bases requirements for discrepancies identified in all Confirmed Level 3 and higher DRs were required to be completed before restart of the associated unit.

Confirmed Level 4 DRs were below the threshold of a "defect." These DRs generally represented enhancements to procedures or processes, or corrected minor editorial or calculational errors that did not adversely affect the design or licensing bases of the unit. The type of issues documented in Level 4 DRs would generally not be included in NRC inspection reports. However, during the ICAVP, a low threshold for documenting discrepant conditions was established to provide a method for identifying adverse programmatic trends. While S&L reviewed the licensee's response to individual Level 4 DRs to assess the licensee's response and proposed corrective actions, S&L also screened and sorted Confirmed Level 4 DRs to identify programmatic trends that required corrective action before restart of the associated unit.

S&L issued an interim report on May 8, 1998, based on the status of the ICAVP as of April 22, 1998. A final report is expected to be issued about May 30, 1998, documenting S&L's efforts, findings, recommendations, and conclusions regarding the effectiveness of the licensee's processes to reestablish the design and licensing basis for Millstone Unit 3. A summary of S&L's findings is provided in Section 6.0 below.

3.0 NRC OVERSIGHT AND MANAGEMENT OF ICAVP

3.1 Review and Approval of S&L as The ICAVP Contractor For Unit 3

The August 14, 1996, Confirmatory Order, required that the ICAVP be conducted by an independent verification team whose selection must be approved by the NRC. The licensee submitted information regarding the selection of S&L as the contractor for the Unit 3 ICAVP on December 18, 1996. Additions and corrections to the proposal were submitted on January 8, February 21, and March 26, 1997. On February 5, 1997, the staff held a public meeting with the licensee to discuss the contractor selection process and the staff met with interested members of the public on evening of February 5, 1997, to obtain comments regarding the proposed contractor.

Members of the public expressed concern about the process used to select and approve S&L. The principal concerns related to the potential for bias by a contractor that derives a substantial portion of its income through work in the commercial nuclear power industry and was selected and paid for by the licensee. The staff included checks and balances in the ICAVP contractor selection and implementation processes to assist in ensuring independence. In conducting the organizational review, the staff recognized that a threshold existed for both technical and financial interactions above which the independence of the contractor could not be assured. In making the determination, the staff balanced the need to ensure adequate financial independence with the need to ensure that the contractor had the necessary skills and experience to effectively conduct the ICAVP.

The staff conducted a review of the information submitted by the licensee regarding the selection of S&L, to ensure that S&L was technically and financially independent of the licensee, and its design contractors, and technically capable of effectively performing the ICAVP. To complete this task, the staff performed the following activities -

1. Evaluated whether S&L had any financial interest or had any technical involvement with the design or construction of Millstone Unit 3.

2. Evaluated whether S&L had adequate technical and managerial qualifications to conduct the ICAVP.

3. Evaluated whether S&L's proposed specialists had the appropriate technical background to participate in the ICAVP.

4. Evaluated the financial and technical independence of the S&L proposed specialists.

The staff conducted interviews with each specialist during review of the ICAVP Audit Plan submitted by S&L. The interviews were conducted to confirm that the individual specialists had no financial interest in Northeast Nuclear Energy Company (NNECO) or other entities named on the operating license, the nuclear steam supply system (NSSS) vendor, or the architect-engineer (AE) for Millstone Unit 3 and to confirm that the team members had no prior technical involvement with Millstone Unit 3. As new team members were added to S&L's ICAVP team during the implementation of the ICAVP, the staff interviewed each new member and reviewed the conflict of interest statement completed by the new team member.

Regarding S&L's financial independence from the licensee, the staff found sufficient independence in that, organizationally, S&L, its subsidiaries, its Retirement Plan, and its Savings Investment Plan, did not directly own any licensee stock, bonds, or other financial instruments issued by Northeast Utilities (NU), NNECO, or other entities named on the Millstone Unit 3 operating license. In addition, each of the proposed ICAVP team members completed a written statement regarding conflict of interests that included financial interests that was reviewed by the staff. To further ensure the continued independence of S&L during the performance of the ICAVP at Millstone, the licensee stated that S&L will be restricted from performing or seeking new work at any NU facility for the duration of the ICAVP contract and that S&L will not seek work at any NU facility for 12 months following the completion of the ICAVP.

The staff determined that S&L was sufficiently independent from the design and operation of Unit 3, in that, it had not been involved in design activities that would affect its ability to perform the ICAVP, with the exception of interactions between nonseismic Category 2 systems and seismic Category 1 safety systems at Unit 3. The staff provided conditional approval, pending the receipt of sworn statements from S&L, and the licensee regarding the financial independence of S&L as the ICAVP contractor for Unit 3, in a letter to the licensee dated April 7, 1997. On August 1, 1997, the staff provided final approval of S&L as the ICAVP contractor for Unit 3 following receipt and review of the financial independence statements.

3.2 Review and Approval of S&L's ICAVP Audit Plan

The staff reviewed and approved S&L's ICAVP Audit Plan and implementing procedures for Unit 3. The review was conducted to ensure that the plan accomplished the objectives of the August 14, 1996, Order, included sufficient scope and depth, and provided sufficient guidance and instructions to its specialists to effectively implement an assessment of the capability and

effectiveness of the licensee's CMP at identifying and addressing design- and licensing-bases deficiencies. During its review, the staff verified that S&L's ICAVP Audit Plan and implementing procedures included the following attributes:

1. A vertical slice system review method for selected systems similar to the guidance provided in NRC's Inspection Procedure (IP) 93801, and NRC's Inspection Manual Chapter 2530 (this is considered the Tier 1 review). The staff verified that included within S&L's review was the confirmation that for the selected Tier 1 systems, the regulatory requirements, and design and licensing bases were correctly implemented in specifications, drawings, calculations and procedures, and that systems can perform their specified functions. S&L's ICAVP Audit Plan and implementing procedures were verified by the staff to contain the controls necessary for S&L to confirm that for the selected Tier 1 systems (1) the scope encompassed all modifications since original construction; (2) the FSAR accurately reflected the current licensing bases, and current plant configuration and operational characteristics; (3) the analyzed facility configuration in the design bases was consistent with the current plant configuration and operational characteristics; (4) the correct design and licensing bases information was reflected in the appropriate engineering, maintenance, and operations procedures and; (5) system design changes had not invalidated preoperational and startup acceptance testing.

2. Selection and review of CDCs to ensure that the systems and components can perform their specified safety functions as assumed in the accident analyses (this is considered the Tier 2 review). This activity required the staff to review and approve the CDCs proposed by S&L. In reviewing the CDCs, the staff verified that for accident mitigation systems, the CDCs were adequate to ensure the systems fulfilled their safety functions. This was accomplished by verifying that the CDCs included (1) the parameters necessary to measure system performance (pressure, flow, volume, voltage, current, temperature, etc.); (2) the changes of state (pump start from stop, solenoid energize from de-energized, check valve close from open, etc.) required of the various components; (3) the interactions between safety-related systems necessary to mitigate the consequences of the accident scenarios and; (4) the required operator actions necessary to mitigate the consequence of the accident scenarios.

3. A review of examples from the various processes used by the licensee to change the facility design or change the characteristics, procedures, or practices for maintaining, operating, testing, and training on safety or risk significant systems, structures, and components (this is considered the Tier 3 review). The staff verified that S&L's Audit Plan and implementing procedures had controls for verifying that design controls, as applied to the original design, had also been applied in the design change processes used to change the configuration or operation of the facility. Also, the staff ensured that appropriate methods were used by S&L to select representative samples from each of the licensee's changes processes.

4. Controls for verifying the adequacy of the licensee's corrective actions and assessing the effectiveness of the licensee's implementation of the corrective actions developed during the CMP and in response to the ICAVP findings.

5. Controls for documenting observations and findings, providing them to the NRC and the licensee concurrently on an ongoing basis, and to provide the NRC with comments on the licensee's proposed resolution of S&L's findings and recommendations.

6. Controls for communicating with the licensee that were consistent with the need to maintain independence from the licensee.

7. Administrative and technical instructions and guidance to S&L's specialists sufficient to enable them to implement the ICAVP Audit Plan as approved by the NRC staff.

8. Adequate system selection criteria that applied appropriate risk and safety criteria.

Based on the verification that the attributes listed above were satisfied, the staff, in a letter dated June 16, 1997, approved S&L's ICAVP Audit Plan and implementing procedures with the exception of the CDCs. S&L developed the CDCs after the Audit Plan was approved and submitted them for staff review and approval in a letter dated June 30, 1997. The staff completed its review and provided approval of the CDCs in a letter to S&L dated August 21, 1997. Throughout the implementation of the ICAVP, the staff reviewed and approved all of the changes made to the ICAVP Audit Plan and implementing procedures to ensure the conditions of the August 14, 1996, Order continued to be met.

3.3 Selection of ICAVP Tier 1 Systems

SECY 97-003 stated that a minimum of four systems would be selected for the ICAVP Tier 1 review. These systems were to be selected from the 88 Unit 3 Maintenance Rule Group 1 and Group 2 systems. A minimum of two of the systems were to be selected by the NRC with the other two systems available for selection by the NEAC from a list of systems provided by the NRC.

In identifying the systems for inclusion within the ICAVP Tier 1 scope, the staff decided to take a broader definition of a system rather than using the method used by the licensee to identify Group 1 and Group 2 Maintenance Rule systems. The system definitions used by the staff were more aligned to the system functional descriptions provided in the FSAR, including the associated safety-related subsystems necessary for safety-related functions to be accomplished. The staff developed a set of attributes for evaluating the systems to identify those that would be the best candidates for ICAVP Tier 1 reviews. These attributes included -

1. Risk significance - An NRR Senior Reactor Analyst (SRA) reviewed the Unit 3 Individual Plant Examination and updated Probabilistic Risk Assessment (PRA) to gain insights regarding the Unit 3 plant design and system interactions. On the basis of this review, which included a week with the licensee's PRA staff members, the SRA recommended a group of systems for the ICAVP and included a discussion of the risk-significance of these systems and the rationale for the recommendations. Although the selection process did not include assignment of numerical scores or weighting factors for each objective element, the risk significance element was considered as the most important in the selection of systems.

2. System characteristics and complexity - The staff reviewed the Group 1 and Group 2 systems to determine which systems had multiple safety-related functions, multiple system

interfaces, and operate in multiple operational modes. The FSAR description was used to develop a general understanding of the system characteristics and complexity. The staff also reviewed a list of the number of safety-related components included in each system to evaluate the complexity of the systems.

3. Previous opportunities for introducing inappropriate changes - The staff reviewed a list of Plant Design Change Records (PDCRs) for the systems to determine the number of design changes that had been performed on each system since initial licensing. In addition, the titles of the design changes were reviewed to attain a general understanding of the scope and depth of the modifications performed.

4. Previous problems with a system - The staff reviewed a list of the LERs for the period between 1990 and 1997. The LERs were reviewed for the number of previous problems reported regarding each system, and the number of design-related problems reported for each system. The staff also discussed the operating history of the systems with the current resident inspectors to determine if any particular systems appeared problematic.

5. Engineering disciplines involved with system - The staff reviewed the FSAR discussion of the systems to evaluate the scope of the engineering disciplines that were likely to be involved with the system design. In general, fluid systems with active functions (pumps and valves) included most of the engineering disciplines (electrical, instrumentation and control (I&C), mechanical, civil/structural).

6. Results of previous reviews - The staff discussed the general inspection history of Unit 3 with the resident inspectors to determine whether specific systems had been a subject of significant inspection activity in the last few years.

On June 3, 1997, the staff forwarded to S&L the first group of Unit 3 ICAVP Tier 1 systems. Based on the Maintenance Rule classification, S&L was requested to review the service water system (SWS), the quench spray system (QSS), the recirculation spray system (RSS), and the reactor water storage tank (RWST). The staff considered these four systems to be the first "two" systems since it considered QSS, including the RWST, and RSS as one system (designated RSS) because they function in conjunction to remove heat from containment.

Consistent with SECY 97-003, NEAC was given the opportunity to select the remaining Unit 3 ICAVP Tier 1 systems. In Early July 1997, the NRC provided NEAC with a list of systems from which it could choose the remaining systems, using the method of its choice, for S&L to include within the ICAVP Tier 1 reviews. The list contained 24 Maintenance Rule Group 1 or Group 2 systems that when combined based on functional requirements, resulted in nine system groups that the NEAC could select.

On July 17, 1997, the licensee notified the NRC that the problem identification phase of its CMP was completed for the Maintenance Rule Group 1 and Group 2 systems. On that evening, the NEAC selected the last systems. The NEAC selected the Emergency Diesel Generator (EDG) and; the Auxiliary Building Heating, Ventilation, and Air Conditioning (HVAC) and Supplemental Leakage Collection and Release (SLCRS) system. These "two" systems included 11

Maintenance Rule Group 1 or Group 2 systems. A listing of the four system groups that encompasses 15 Maintenance Rule Group 1 or Group 2 systems is provided in Section 6.1.

3.4 NRC Oversight of ICAVP Implementation

To ensure that the ICAVP was being implemented to the satisfaction of the staff, as required by the August 14, 1996, Order, the staff provided instructions to S&L regarding the scope and depth of the ICAVP during meetings, teleconferences, through the review and approval of its audit plan and implementing procedures, and through the review and approval of changes to the Audit Plan and implementing procedures. The staff also reviewed and approved the S&L staff assigned to conduct the ICAVP reviews.

To assess the effectiveness of S&L's implementation of the ICAVP, the staff conducted a number of multidisciplined inspections, including inspections similar to the three tiers employed by S&L during the ICAVP. Details regarding the inspection plan can be found in SECY 97-003. The inspection plan included reviews of S&L's implementation of the Unit 3 ICAVP Audit Plan and implementing procedures, a design and licensing basis inspection of portions of the ICAVP Tier 1 systems that S&L reviewed (Tier 1 In-Scope), a design and licensing basis inspection of portions of one system that was not included in the ICAVP scope (Tier 1 Out-of-Scope), an inspection of the CDCs associated with two accident scenarios from the FSAR (Tier 2), an inspection of the design change processes (Tier 3), and an inspection of the implementation of corrective actions for issues identified during the CMP, the ICAVP, and NRC inspections. The implementation inspection, and the Tier 1 In-Scope, Tier 2, and Tier 3 inspections directly assessed S&L's implementation of the Unit 3 ICAVP Audit Plan, and implementing procedures by either directly observing S&L's activities or comparing the results of the NRC's inspections with the findings made by S&L. The results of these inspections are provided in Section 7.0.

During the ICAVP, the NRC was required to monitor all but administrative interactions between the licensee and S&L. To facilitate the communication and to reduce the inefficiency inherent with the requirement to monitor the interactions between the licensee and S&L, the staff made sure it was available when necessary to support these interactions, including attending frequent meetings at the site and monitoring frequent teleconferences. In addition, the NRC maintained a full time presence onsite (NRC ICAVP Site Coordinator). The NRC ICAVP Site Coordinator was responsible for ensuring the independence of S&L during the ICAVP by monitoring the interactions between the licensee's staff and S&L's onsite organization that conducted walkdowns in the plant; facilitating and monitoring telephone conference between the licensee and S&L; coordinating and monitoring meetings between S&L, the licensee, the NRC, and the NEAC; participating in inspections of both the licensee's and S&L's efforts; and maintaining a general awareness of the ongoing efforts and results of the ICAVP, CMP, and NRC inspections.

3.5 Review of Discrepancy Reports

Throughout the ICAVP, the staff reviewed the DRs issued by S&L to identify issues that required additional NRC followup or that potentially impacted the design or licensing basis of the unit, determine the need to increase the scope of the ICAVP, verify that the DRs were properly classified and dispositioned, assess the thoroughness of S&L's review of the licensee's

response, identify programmatic trends, and measure the effectiveness of the CMP. The DRs were reviewed and inspected by the staff using the steps outlined below:

1. Screen issue(s) described in the Preliminary DR. During this screening, the staff categorized the DRs to determine if the DRs exhibit discernable trends and identified questions with the DRs that S&L was required to address (i.e., correct significance level assigned, valid versus invalid, etc). The DRs were categorized by disciplines, types of documentation reviewed by S&L, apparent causes, programmatic areas, and regulatory bases. The categorization information was used to identify potential programmatic problem areas that, when the DRs were closed, may have warranted further NRC or S&L review.

2. Review Closed DRs. The purpose of this review was to identify those DRs that required further NRC followup or for which the DR did not provide sufficient information for the staff to determine whether the disposition of the DR was appropriate. The staff evaluated whether the DRs were appropriately responded to by the licensee and disposition by S&L, that the final ICAVP significance level was appropriate, that the proposed corrective actions were appropriate, and that the timeliness of implementing the corrective actions was appropriate (i.e., restart required or deferrable). In addition, Confirmed DRs were trended to identify programmatic areas that warranted additional NRC or S&L focus.

3. Inspect the resolution of selected DRs. DRs that required additional NRC review were inspected during the NRC's ICAVP corrective action inspections. All Confirmed or Pending Level 3 and higher DRs, and a sample of Confirmed, Nondiscrepant, and Previously Identified Level 4 DRs, were included within the scope of the NRC's inspection of DRs. The results and scope of the NRC's corrective action inspections are provided in Section 7.0.

During the review of the DRs, the SPO staff identified concerns with S&L's classification of a number of DRs. Shortly after the development of the ICAVP Significance Levels in July 1997, the SPO staff raised concerns with the Significance Levels assigned to a number of DRs. The staff requested S&L to review the DRs issued to date and revise the levels appropriately. Also, the SPO staff identified a number of DRs that S&L initially issued as Invalid based on them being minor editorial errors that the staff directed S&L to reissue to the licensee as Valid Level 4 DRs.

In assessing whether an issue could be deferred until after restart, the staff determined that the corrective actions required to restore or reestablish the design or licensing bases of the unit for all Level 3 and higher Confirmed or Pending DRs were required to be completed before the unit could restart. Since most of the issues identified in Level 4 DRs represent enhancements to procedures or processes, or corrected minor editorial or arithmetic errors that did not impact the design or licensing bases, the corrective action for Confirmed Level 4 DRs, and those corrective actions for Level 3 and higher Confirmed DRs that were not required to restore or reestablish the design or licensing bases, were determined by the staff to be deferrable till after restart. However, the staff recognized the importance of ensuring that the licensee completes the corrective actions for all of the issues identified during the ICAVP in a reasonable period. For the corrective actions associated with the ICAVP, the licensee committed to the following -

1. Complete, before restart, items identified in Confirmed DRs that:

   a. Support or implement a Technical Specification (TS) change required for startup.

   b. Correct or resolve a licensing basis or design basis deficiency.

   c. Involve a commitment to the NRC for completion of specified activities before restart.

   d. Are required for a Maintenance Rule Group 1 or 2 system to be operable or perform its design basis function. Discrepancies associated with Group 1 or 2 systems that do not impact operability were deferrable, subject to available materials and resources.

2. Submit quarterly reports on the status of open Level 4 DRs on Millstone Unit 3 from the time the unit returns to operation. The period that the quarterly reports will be provided is from the time Unit 3 enters Mode 2 until the associated action plan is closed.

3. Submit any significant changes to the Corrective Action Plans for Level 4 DRs.

4. Complete the corrective actions on all Level 4 DRs at the first opportunity prior to completion of the next refueling outage (RFO) on Unit 3, RFO 6.

Based on its review of the licensee's implementing procedures for determining which corrective actions associated with Confirmed DRs could be deferred, its review and inspection of the DRs issued by S&L, and the licensee's commitments, the staff determined that the commitments made by the licensee regarding the closure of Confirmed DRs was reasonable.

3.6 Assessment Method for Determining ICAVP Scope Increase

In response to a finding by the NRC's Office of the Inspector General, and concerns expressed by the NEAC and other interested members of the public, the staff defined four levels of significance that were used during the ICAVP to classify DRs. In addition to the four significance levels, the staff developed likely or potential NRC actions corresponding to each level. The public had asked that the staff develop and provide specific, predetermined NRC actions that were automatically triggered by ICAVP findings. However, the complexity inherent in detailed licensing and design reviews does not lend itself to the establishment of automatic thresholds to trigger the expansion of the ICAVP scope.

The staff provided the licensee with its discussions regarding the expansion of ICAVP scope in a letter dated January 30, 1998. In summary, this letter indicated that (1) if there was a Confirmed Level 1 finding, the NRC would likely increase the scope of the ICAVP by the selection of an additional system(s) for review; (2) if there was a Confirmed Level 2 finding, the NRC would likely expand the ICAVP scope to evaluate similar nonconformance issues in other systems; (3) if there were Confirmed Level 3 findings, the ICAVP scope could be expanded to evaluate similar issues in other systems if the staff determined that the licensee's corrective actions were ineffective or that adverse trends were identified when multiple Level 3 findings were considered and the licensee had not implemented effective corrective actions to address the adverse trend; and (4) for Confirmed Level 4 issues, if the staff determined that these DRs

identified an adverse trend that raised questions with the design and licensing bases, and the licensee had not implemented effective corrective actions, the ICAVP scope would be expanded as determined appropriate by the Millstone Restart Assessment Panel.

4.0 INVOLVEMENT OF THE NUCLEAR ENERGY ADVISORY COUNCIL (NEAC)

The NEAC was invited to observe ICAVP implementation at the Millstone site as part of NRC's efforts to provide additional assurance of public participation in the oversight of the ICAVP. The State of Connecticut established the NEAC pursuant to Section 17 of Public Act 96-245. The NEAC is required to hold regular public meetings to discuss issues relating to the safety and operations of nuclear power plants, and to advise the governor, legislature, and municipalities within a 5-mile radius of the plants on these issues. Also, the NEAC is responsible to work with Federal, state, and local agencies, and the companies operating nuclear power plants to ensure public health and safety.

In meeting its responsibilities, the NEAC has invited and NRC representatives have attended, the regularly scheduled meetings of the NEAC held on October 10, 1996, February 20, 1997, June 19, 1997, July 17, 1997, November 20, 1997, and May 14 ,1998, to discuss issues relating to the conduct of the ICAVP. In addition, the NEAC designated two members as observers and named two alternates, the NRC staff has kept apprised of NRC's oversight of ICAVP activities.

In order to facilitate NEAC's observations of NRC oversight activities, the designated observers entered into a Memorandum of Understanding (MOU) with the NRC. The MOU allows the NEAC representatives to be informed on nuclear-related matters that may involve proprietary, safeguards, and predecisional inspection-related information. Additionally, the MOU details the process used if the NEAC observers becoming aware of apparent nonconformance with safety or regulatory requirements and if the NEAC observers have conclusions or views that are substantially different from those of the NRC oversight team members. The NEAC has documented their involvement and reviews of the NRC's ICAVP process, in part, in their annual reports to the legislature dated January 9, 1997 and January 29, 1998. A number of actions were taken by the NRC to support the NEAC observation of ICAVP activities that included -

1. S&L's Unit 3 ICAVP findings (DRs) were made available to the NEAC.

2. S&L Project Instruction, PI-MP3-01, "Independent Corrective Action Verification Program communication Protocol," provided the guidance for interaction with the NEAC and also identified the organizational-points of contact for the NEAC.

3. NRC oversight activities during meetings or teleconferences, whether conducted at the site, NRC Headquarters, or S&L's offices, included invitations for NEAC participation. NEAC has been diligent in implementing their State charter. To that end, they have participated in many of the frequent teleconferences between the NRC staff, the licensee, and S&L, and have attended most of the exit meetings including those at the offices of S&L in Chicago, IL. NEAC representatives have attended and participated in Commission meetings in Rockville, MD.

In a cooperative effort on the part of the NRC staff and NEAC to ensure the independence of the ICAVP, the public was afforded the opportunity to select the last two systems for the Tier 1 assessment. A NEAC subcommittee reviewed the system groupings provided by the NRC for the random selection process. Using data provided by the licensee and the NRC, the subcommittee analyzed the risk and safety significance of the relevant systems and approved the 9 groups of systems (consisting of 24 separate systems) as reasonable candidate systems to be used to validate the licensee's CMP. At the July 1997, NEAC meeting, members of the public then randomly selected two system groups for the Unit 3 ICAVP.

The Communications Protocol, a formal element used to facilitate independence of the ICAVP, included the NEAC as a means of ensuring that they were provided with documents, notifications, and opportunities to participate in the oversight of S&L activities. As such, requests for informal working conferences by any of the organizations involved in the conduct of the ICAVP included the prior notification of the NEAC. As indicated above, NEAC observed most of these interactions.

5.0 NRC INTERACTIONS WITH THE PUBLIC DURING THE ICAVP

Starting early in the process, the public showed an active interest in all regulatory activities related to plant recovery and restart. In response, the SPO took extraordinary measures to assure that to the maximum extent possible regulatory business was conducted in a manner that was open to public observation. The staff used input from local public interest groups such as the Citizens Regulatory Committee, the Citizens Awareness Network, and the NEAC to structure evening meetings that provided an opportunity for the public to interact directly with the NRC staff. The staff established and implemented the following avenues of communication that allowed the public to observe NRC activities and interact with the SPO -

1. Public participation, at approximately 6 week intervals, in evening public meetings where the SPO solicited public comments on recovery and restart activities.

2. Public observation of monthly meetings where S&L presented the status of its review efforts to the NRC and the licensee.

3. Public observation at all exit meetings of inspections conducted by the NRC ICAVP inspection teams, including inspections held at the offices of S&L in Chicago.

4. Public access to S&L's Website that included the Audit Plan, DRs, DR responses, subsequent S&L comments, and the final S&L report.

5. Public access to two local public document rooms located near the plant.

6. Public access to SPO external correspondence through direct distribution to representatives of public interest groups.

The SPO staff made a concerted effort to hold the vast majority of meetings in the vicinity of the Millstone Station to make them accessible for public observation.

6.0 S&L's ICAVP IMPLEMENTATION AND FINDINGS

S&L implemented the ICAVP at Unit 3 as described in its NRC-approved ICAVP Audit Plan and implementing procedures. A summary of the ICAVP process is provided in Section 2.0 above. S&L indicated to the staff that in implementing the ICAVP at Unit 3, it had expended approximately 160,000 person-hours of effort. Included, in part, within S&L's review were approximately 1,500 calculations, 2,600 drawings (P&IDs, one-line, logic diagram, etc.), 690 procedures, 2,000 maintenance work orders, 2,520 components, and 140 modifications to the Tier 1 systems. At Unit 3 the ICAVP started on May 27, 1997, after the licensee declared that they had completed discovery on one-half of the risk and safety significant systems, and is expected to end about May 30, 1998, essentially one full year of effort. During this period S&L stated that about 100 different individuals participated as technical reviewers for S&L, with about 75 people assigned at any given period. The scope and results of S&L's Tier 1, Tier 2, Tier 3, and corrective action reviews follows.

6.1 Scope of S&L's ICAVP Tier 1 Review

The Tier 1 system reviews performed by S&L focused on two objectives (1) to verify the system design elements being reviewed were technically adequate and consistent with the licensing and design bases, and (2) to verify the modifications implemented after receipt of the operating license were technically adequate and that configuration control of design documents was maintained. S&L accomplished these objectives by implementing reviews that included:

1. A review of design documents to verify the technical adequacy of each document and its conformance to the design and licensing bases. Some of the design features included in the Tier 1 review for each system were system fluid flow and heat transfer characteristics, system capability to function assuming a single failure, piping and pipe supports, equipment anchorages and supports, electrical power requirements, instrumentation and control, seismic design and electrical equipment environmental qualification. The design process document conclusions and/or assumptions were verified against actual operating data, where available.

2. A drawing review that included piping and instrumentation drawings (P&IDs), electrical schematics, electrical single line drawings, instrument loop diagrams, and logic diagrams to verify the system design was capable of performing the functional requirements described in the design and licensing bases and to verify the drawings were consistent with the design documents.

3. A component review to verify consistency between the licensing and design bases documents and the design output documents such as, component specifications, system calculations, and vendor component drawings.

4. A review of hazards resulting from postulated pipe breaks in the selected systems including as appropriate, pipe whip, jet impingement, missiles and flooding. This review verified that the effects of these hazards on adjacent safety systems had been included in the hazards analysis.

5. A review of the licensee's implementation of licensing commitments and design bases requirements for the selected systems to ensure safe shutdown following a fire.

S&L's review verified the technical adequacy of all parameters, including operating ranges and/or limitations contained in procedures. Additionally, all operating modes not explicitly identified in the licensing basis were reviewed to verify that the design and analysis supported operation in that mode. The scope of the modification review during Tier 1 included all major modifications (Design Change Requests - DCRs), Minor Modifications (MMODs) and all Design Change Notices (DCNs) generated to support the DCR and MMOD processes. The modification review included only the modifications to the Tier 1 systems.

S&L also conducted a physical configuration review of the Tier 1 systems. This review focused on verifying that the current as built condition of the plant matched the current design and licensing bases documents. During this review S&L also performed a physical and functional walkdown of the Tier 1 systems to verify that the as built condition conformed to the modifications and to verify the modifications had been accurately incorporated into the affected design drawings or were posted against the affected design drawings.

Also, S&L reviewed operating, maintenance, and testing procedures to verify that these procedures and associated training documents conformed to the Tier 1 systems' design and licensing bases, including post-modification testing for selected modifications made to the Tier 1 systems to verify the testing was adequate to maintain the design and licensing bases. The w15 Maintenance Rule Group 1 or Group 2 systems that were selected to be included within the scope of S&L's Tier 1 review were combined into four functional groups as outlined below:

RSS	SWS	HVX	DGX
1. RSS	1. SWS	1. Auxiliary Building HVAC	1. EDG Engine
2. QSS		2. SLCRS	2. EDG Fuel Oil
3. RWST		3. EDG Room Ventilation	3. EDG Generator
			4. EDG Lube Oil
			5. EDG Starting Air
			6. EDG electrical & control systems
			7. Station Electrical Service - 4160 Volts
			8. Engineered Safeguards Actuation System (diesel sequencer only)

Legend: RSS (Recirculation Spray System); QSS (Quench Spray System); RWST (Refueling Water Storage Tank); SWS (Service Water System); HVX (Heating and Ventilation Systems); HVAC (Heating, Ventilation, and Air Conditioning); SLCRS (Supplemental Leak Collection and Release System); EDG (Emergency Diesel Generator); DGX (EDG Systems)

The Tier 1 systems interfaced with 51 other systems. Portions of these 51 interfacing systems were included within the scope of the Tier 1 review or were reviewed to a lesser extent as necessary to ensure the functions of the Tier 1 systems could be satisfied. Descriptions of the general approaches for establishing the Tier 1 interface boundaries for mechanical, electrical, and I&C systems are provided below -

Tier 1 Systems' Mechanical Interface Boundaries

For the mechanical systems, the boundary of the ICAVP Tier 1 system reviews extended to the first isolation valve in the interfacing system and to the first structural support outside the ICAVP Tier 1 system (beyond the isolation valve). For interfaces with mechanical systems, S&L reviewed the interfacing system calculations, drawings, and procedures to the extent needed to verify that the functions required to support the ICAVP Tier 1 system were addressed in the design of the interfacing system (e.g., the HVAC system was capable of maintaining environmental conditions required for the Tier 1 system), or that the Tier 1 system was capable of performing its functions necessary to support operation of the interfacing system (e.g., heat removal from the interfacing system).

Tier 1 Systems' I&C Interface Boundaries

For indirect I&C input signals, those signals that originated in another system and input into the Tier 1 system by first passing through another system (i.e. Reactor Protection System), the scope of the Tier 1 system review included a single channel for each of the process variables. The system that the indirect signal passed through was assumed to operate as intended. Direct I&C input signals were those signals that originated in another system and input directly into the Tier 1 system without passing through another system. For direct I&C input signals, the review included the signal path from the interfacing system instrument to its input into the Tier 1 system. Both indirect and direct I&C input reviews verified that the functions required to support the Tier 1 systems were addressed in the design of the interfacing system. The Tier 1 review of output signals, those signals that originated in the Tier 1 system and output to the interfacing system, included the I&C output signals from the Tier 1 system through to the input point (usually up to the control relay; or in the case of an analog signal, up to and including the signal isolator) of the interfacing system. The reviews included the signal paths as they appeared on interfacing system P&IDs, logic diagrams, and schematics as appropriate. During these reviews, signal parameters, divisional power supplies, setpoints, ranges, and accuracies were verified by S&L. Also, setpoint and loop accuracy calculations for the affected instrumentation were reviewed for technical adequacy.

Tier 1 Systems' Electrical Interface Boundaries

In addition to the detailed Tier 1 review of the EDG, S&L reviewed, in detail, the portion of the electrical distribution system from the motor control center (MCC) or switchgear, as applicable, to the Tier 1 system component loads. S&L performed a load path review for the remainder of the electrical distribution system (EDG to switchgear or MCC). S&L identified the busses that fed the Tier 1 system components (including indirect I&C signal input components) and determined their load-time profiles. The load paths from these busses were identified up to the onsite electrical sources (i.e. EDG, battery and charger, inverter). After the Tier 1 systems and most of the components that were fed from MCCs were identified, S&L selected two MCCs with different electrical loads for a review of feeder cable sizing, circuit breaker coordination, and other design attributes. S&L also reviewed the 10 CFR 50, Appendix R, and safe shutdown requirements for components and cables associated with the Tier 1 systems, including a detailed review of selected fire zones that addressed associated circuits that could impact the Tier 1 systems.

The load carrying components in the load path were checked for design sizing using the total operating load of the bus based on the bus loading calculations. Loading for components of non-Tier 1 systems were accepted (without verification) as shown in the bus loading calculations. S&L verified coordination of protective devices (i.e., relays, breakers, fuses) for the load paths required to supply the components of the Tier 1 systems to confirm acceptable coordination and that the required bus operating loading was addressed. S&L verified the onsite electrical source load-time profiles included the loads (including transient loads) associated with the components of the Tier 1 systems. The adequacy of the overall sizing of the onsite electrical sources were verified against total loading of the source using the associated bus loading calculations. In addition, the battery charger (or inverter) and its continuous loading profile were checked to confirm the size was appropriate, that the load path was complete to the EDG, and that the load profile matched or enveloped the EDG loading input from the charger (inverter).

6.2 Scope of S&L's ICAVP Tier 2 Review

S&L reviewed the initiating events in the Unit 3 FSAR and identified the accident mitigating systems and components within the system. The reload analysis and the FSAR were used to identify the specific CDCs that were required to mitigate the events. S&L verified that the CDCs were satisfied using a documented system or component test, a surveillance test required by the Unit 3 TS, a post maintenance test, or as applicable design bases calculations or analyses. The Tier 2 review was not as detailed a systems review as the Tier 1 review. Tier 2 of the ICAVP was developed to review configuration management from a different perspective than the "vertical slice" Tier 1 review described above. The bases or starting point for the Tier 2 review was the accidents and transients analyzed in the FSAR. The Tier 2 review did review in a limited manner 22 of the 88 Maintenance Rule systems. The systems for which the CDCs were validated during the Tier 2 review included -

1. Auxiliary Feedwater System
2. Anticipated Transient without Scram (ATWS) Mitigation System Actuation Circuitry
3. Auxiliary Building HVAC* and SLCRS*
4. Chemical and Volume Control System
5. Containment Purge system
6. Containment Structure (penetrations)
7. Control Room Ventilation
8. Engineered Safeguards Actuation System
9. Feedwater System
10. Fuel Building Ventilation System
11. High and Low Pressure Safety Injection Systems
12. Main Steam System
13. Nuclear Instrumentation Systems: shutdown margin; source, intermediate, and power range
14. QSS*
15. Radiation Monitoring System
16. Reactor Coolant System
17. Reactor Head - Missile Shield
18. Reactor Protection System (RPS)
19. RSS*
20. RWST*
21. Rod Position Indication System
22. Spent Fuel Pool Cooling and Purification System

*Included in the scope of the Tier 1 review.

6.3 Scope of S&L's ICAVP Tier 3 Review

The Tier 3 review conducted by S&L encompassed a programmatic review on a horizontal bases (a so called "horizontal" review is one in which the same design attribute, for example electrical equipment qualification, is reviewed across systems) to determine whether the licensee's change processes were effective at maintaining the design and licensing bases and whether the current change processes were satisfactory to maintain the design and licensing bases in the future. The licensee's current plant change processes were reviewed for both their adequacy with respect to industry standards and for the effectiveness by which they were being implemented. Both design change processes and procedure change processes were included in this review. As part of the Tier 1 review, S&L assessed the plant modifications made to the Tier 1 systems. The Tier 1 review evaluated the effectiveness of the change processes involved in these modifications (i.e. if the resulting modification was found to be acceptable, it was inferred that the process used in performing the modification was acceptable). In addition to the Tier 1 system review, S&L performed specific process-related reviews that included the following -

1. drawing changes
2. specification changes
3. calculation changes
4. procedure changes
5. temporary alterations
6. minor modifications
7. modifications
8. setpoint changes
9. changes to licensing documents
10. vendor manual updates
11. like-for-like replacements

S&L evaluated the licensee's procedure for the processes listed above for content and completeness to determine whether the procedure exercised adequate controls on the change process and invoked appropriate interface reviews to ensure that the plant design bases and configuration were, and will be maintained in the future, consistent with the licensing bases. The evaluation was based on guidance provided in (1) Regulatory Guide 1.33, Quality Assurance Program Requirements (Operation), (2) NRC Inspection Manual, (3) Institute of Nuclear Power Operations (INPO) guidelines, (4) INPO 87-006, "Report on Configuration Management in the Nuclear Industry," and (5) Nuclear Energy Institute guidelines.

S&L also evaluated the adequacy of NU's implementation of the change processes and procedures for the modifications reviewed in Tier 1. Since the Tier 1 review assessed the technical adequacy of the changes, the programmatic review evaluated only the procedural adequacy of the change. The evaluation determined whether the current procedures were followed, that the required checklists were accurate and complete, and that other associated documentation was complete and accurate.

In addition to the process and implementation reviews noted above, S&L reviewed select past changes on a plant-wide basis. For each of the eleven change processes selected by the NRC (listed above) that are not generally associated with modifications, S&L selected a sample of changes made during each 5-year interval following receipt of the operating license and reviewed them for technical adequacy. The changes were selected from various systems other than the Tier 1 systems in order to maximize plant coverage. This review ensured that these past changes did not compromise the unit's design or licensing basis.

6.4 Scope of S&L's Review of Licensee-Initiated Corrective Actions

In addition to S&L's review of the proposed corrective actions associated with DRs, S&L reviewed the corrective actions for degraded or non-conforming conditions identified by the licensee and for the design deficiencies identified by the architect engineer before initial operation. This review was conducted for corrective actions associated with the Tier 1 systems and for a representative sample of corrective actions, identified by NRC, associated with the other CMP systems reviewed by the licensee. S&L assessed the corrective actions for the following -

1. Root-cause determination - the extent to which plant processes and procedures were affected.

2. Extent of condition determination - the extent to which other systems, structures or components were affected.

3. Plant restart - was the corrective action required prior to restart?

4. Content - was the corrective action adequate in resolving the issue?

In addition to the technical adequacy review of corrective actions, S&L evaluated the effectiveness and completeness of the implementation of certain corrective actions. The implementation reviews included restart required corrective actions associated with all Confirmed Level 3 DRs, other restart required corrective actions associated with the Tier 1 systems, and a sample of corrective actions identified by the NRC. The scope of these reviews included the review of (1) completed engineering assessments, (2) major calculation changes, (3) significant procedure changes, (4) significant FSAR changes, (5) training and personnel qualification requirement changes, (6) new test procedures, (7) inspection acceptance criteria changes, and (8) major changes to design or installation specifications.

6.5 ICAVP Findings (Note: Terms, such as "Preliminary, Valid, and Confirmed," used in this section are defined in Section 2.0.)

S&L issued 1100 preliminary DRs during the ICAVP at Unit 3. Of the Preliminary DRs, 126 were issued as invalid, with the remaining 974 DRs issued as valid. As the ICAVP nears completion, the status of the DRs changes rapidly. Based on information provided by S&L, the status of the DRs as of May 21, 1998, is that of the 974 Valid DRs, 934 were Closed, three were Pending, and seven were Unresolved. Following completion of S&L's review of the licensee's response and proposed corrective actions, as of May 21, 1998, two of the Pending DRs were categorized as Level 3 and one was categorized as Level 4; 595 DRs were closed as Confirmed DRs (16 as Level 3 and 579 as Level 4); 98 were closed as Previously Identified; and 241 were closed as Nondiscrepant. Section 2.0 provides a discussion of the DR process, including how the DRs were classified during various phases of their review and closure. For the Tier 1 systems, Valid Preliminary DRs were issued as noted in Table 1 to Attachment 1 for various discrepancy types based on information provided to the staff by S&L. S&L did not identify any Level 1 or 2 DRs during the ICAVP.

Using the information contained in Table 1 to Enclosure 1, the areas of calculations, component data, drawings, and installation implementation appear to standout as potential programmatic trends. Based on its review of Confirmed DRs, S&L determined that the potential for a programmatic trend existed in the area of calculations (calculational control and lack of attention to detail in the performance and checking of calculations). Table 2 to Enclosure 1 provides a breakdown by ICAVP Significance Level and discipline of the calculation area. The trends identified by S&L were consistent with the trends identified by the NRC, based on its independent classification of Confirmed DRs.

S&L issued an interim report on May 8, 1998. This report provide the preliminary results of its implementation of the ICAVP at Unit 3. S&L and the licensee were still resolving a relatively small number of (approximately 100) DRs at the time the interim report was issued, and the resolution of the remaining DRs was not expected to significantly affect the conclusions reached in the interim report. In this interim report S&L concluded that -

1. NU successfully implemented its CMP and the CMP was effective at identifying and resolving deficiencies in the Unit 3 design and licensing basis.

2. The 15 Tier 1 systems are in conformance with their design and licensing bases and are capable of performing their intended functions.

3. NU has established programs, processes, and procedures to maintain effective configuration control of their design and licensing bases in the future.

This conclusion was based on S&L's findings in each of the three tiers and the corrective action reviews conducted during the ICAVP. While S&L made the overall conclusion noted above, there were a number of areas that they determined improvements and enhancements could be achieved as noted below -

1. The Production Maintenance Management System (PMMS) and the Plant Design Document Summary (PDDS) databases contained a number of errors and omissions that render the data suspect for design input.

2. Component procurement specifications and vendor drawings could be kept up-to-date better.

3. Calculation control problems resulted in incorrect use of design inputs in a number of instances (limited to mechanical system sizing and electrical system calculations).

4. The quality of mechanical system sizing calculations could be improved based on the number of minor discrepancies identified in both old and recently revised calculations.

5. Information in the cable and raceway database and the electrical design documents related to cable tray cover and conduit support data were inconsistent, such that the cable and raceway database should not be used as approved design input without prior verification.

6. A number of undocumented attachments to supports (none of which affected the structural adequacy of the supports) indicate that the licensee should review its controls to prevent recurrence.

7. The component tagging and labeling programs should be improved to prevent future labeling and tagging issues.

The licensee is required by the ICAVP Order to respond to S&L's findings. This response and any corrective actions will be reviewed by the NRC. It should be noted that the seven items listed above represent recommendations for program enhancements and are not required to be accomplished before restart.

7.0 NRC INDEPENDENT OVERSIGHT OF ICAVP

In accordance with SECY-97-003, the SPO staff implemented an oversight of the ICAVP contractor (S&L) and performed independent inspections at Unit 3. NRC's oversight was planned to provide confidence that the licensee's configuration management corrective action programs have been effective, and to assure that the review conducted by S&L was performed (1) in a critical manner, (2) in accordance with the NRC-approved audit plan, and (3) in a manner independent of the licensee and its design contractors. The NRC inspections included vertical slice inspections of out-of-scope (i.e., not included in the scope of S&L's Tier 1 review), and in-scope systems (i.e., included in the 15-system Tier 1 ICAVP scope), to verify Tier 1 reviews, evaluation of CDCs of accident mitigation systems for Tier 2 reviews, and evaluation of change processes other than the principal design change process, to verify Tier 3 reviews. The inspections generally followed the guidelines of IP 93801, "Safety System Functional Inspection," IP 92701 "Followup," and IP 92702, "Followup on Corrective Action for Violations and Deviations," of the NRC inspection program. The licensee's corrective actions in response to all inspection findings were evaluated and the results are, or will be, detailed in inspection reports (IRs) IR 50-423/98-205 and IR 50-423/98-211. Table 3 of Enclosure 1 provides the level of effort associated with each of the various ICAVP oversight inspections. The implementation of all licensee corrective actions in response to Level 3 DRs identified by S&L or NRC Notices of Violation, necessary to restore compliance with the licensing and design bases, will be inspected by NRC prior to Unit 3 restart.

7.1 S&L ICAVP Implementation Inspection (IR 50-423/97-201)

The SPO staff initiated a plan to monitor S&L's implementation of the ICAVP. The plan encompassed the assessment of S&L's project manual and associated project instructions, the evaluation of the technical experience of project personnel, and scheduled inspections of implementation activities. Specifically, the team evaluated S&L's implementation of the ICAVP Audit Plan, as discussed in the Project Manual (PM) that was approved by the NRC on June 3, 1997. Critical aspects of the S&L ICAVP inspection included the evaluation of the system requirements checklist (SRC); FSAR Chapter 15, CDCs; S&L's threshold for writing DRs; the DR disposition process; the depth of checklist driven reviews on the Tier 1 systems; and the adequacy of S&L's internal oversight of the ICAVP.

The SPO staff inspected S&L's activities during the periods of July 28 - August 1; August 26 - 28; and September 15 -19, 1997. On October 6 - 10, 1997, a followup inspection was conducted to assess S&L's corrective action in response to the issues identified by the team. The team consisted of seven technical discipline specialist inspectors including a team leader. The SPO staff continued to assess the status and evaluate the quality of the ICAVP through follow-up activities that involved additional visits to S&L's offices, as part of scheduled NRC Tier 1 In-Scope and Tier 2/3 team inspections, and during monthly public status meetings with S&L.

The team concluded that S&L's Tier 1 reviews were being conducted in a critical manner. The review of system calculations were generally acceptable. Component checklists were compiled in accordance with the approved procedures. S&L established an adequate threshold for the identification of problems. Reviewers demonstrated no hesitancy in the generation of DRs. The team found no evidence of any attempt to minimize or prevent the issuance of a DR by S&L management. (At the time of this inspection, Tiers 2 and 3 were in there early phases of implementation and the team could not perform a meaningful assessment. These were subsequently reviewed in the Tier 2/3 inspection discussed below.)

The team identified weaknesses within the S&L's operations review group (ORG) that involved the lack of adherence to project instructions and a failure to anticipate documents that would be required from the licensee. NRC follow up in this area verified appropriate corrective actions were taken by S&L to resolve this concern.

7.2 Tier 1 Out-of-Scope Inspection (IR 50-423/97-206)

During the periods of August 18 - 29 and September 8 - 19, 1997, an SPO inspection team conducted an SSFI at Unit 3 as part of the NRC's oversight of the ICAVP. This inspection assessed the effectiveness of the licensee's CMP at identifying areas of nonconformance with the plant's design and licensing bases by inspecting a system that was not in the scope of S&L's ICAVP review. The team's review focused on the emergency core cooling and seal injection functions of the charging system. The multidisciplined inspection team consisted of six members, including the team leader. The inspection identified issues in the areas of operations, surveillance, and maintenance.

The issues found by the team included the potential for air binding the charging and safety injection pumps due to air trapped in certain portions of the dry RSS piping; the licensee's program for minimizing leakage outside the containment (a requirement of TS 6.8.4) did not address intersystem leakage through check valves that could potentially result in radioactive water leaking into places where it could be vented to the atmosphere, such as the RWST, following a loss-of-coolant accident (LOCA). Subsequent to the inspection, the licensee recognized that this issue had been discovered during CMP, and the valve lineup procedure for verifying the Technical Specification requirement that all charging pump injection flow path valves, not locked or otherwise secured in position, were in their correct positions every 31 days was found to be inadequate.

As a result of the fact that the potential for air binding the charging and safety injection pumps was not identified and evaluated during the CMP, the licensee initiated a review of other

systems for similar issues that could occur during system actuation. This review was called the "Integrated Functional System Review" and included a review of approximately 25 systems that would be actuated to mitigate the consequences of a small break LOCA and applicable industry operating experience. The small break LOCA event was chosen because it results in the actuation of a majority of the accident mitigation systems. This review was conducted by a 6- person team with operations, design, accident analysis and startup testing experience. The review effort was for 8 weeks and resulted in 14 conditions reports, 12 of which are required to be closed before restart. This additional "Integrated Functional System Review" performed by the licensee and inspected by the NRC was considered to be equivalent to an expansion of the ICAVP scope. The licensee's response to correct inadequate conditions identified by the team, was prompt and effective. However, issues such as the effects of air entrainment in RSS piping, inadequate intersystem leakage monitoring of valves, and an example of a valve lineup procedure that failed to meet TS requirements, were expected to have been identified during the licensee's CMP. The NRC inspected the licensee's corrective actions and concluded that they were acceptable (see Section 7.5). Therefore, while these issues were considered to be equivalent to S&L identified ICAVP Significance Level 3 DRs, no expansion of ICAVP scope was necessary.

The team found the material condition of the charging system and associated support systems to be good. Other licensee strengths noted by the team included an aggressive licensee maintenance program, knowledgeable system engineers, and a document control organization that appeared to have a good understanding of the programmatic challenges that remained to improve the unit's calculation control program.

7.3 Tier 1 In-Scope Inspection (IR 50-423/97-210)

For the periods of January 5 - 16 and January 26 - February 6, 1998, an SPO inspection team conducted a system functional inspection at Unit 3. Following the three weeks of inspection at Unit 3, the team spent a week at the offices of S&L. The multidisciplined inspection team consisted of six inspectors, including the team leader. This inspection was conducted to continue the assessment of the effectiveness of the CMP, as well as the effectiveness of S&L's review of the 15 ICAVP Tier 1 systems. The team focused its inspection on QSS, RSS, the EDG sequencer, and a portion of the plant's emergency ventilation system, all of which were included as part of S&L's ICAVP Tier 1 review.

During the onsite portion of the inspection, the team identified three violations and a number of other findings. Individually and in aggregate, these findings were considered of low safety significance. Overall, the team found that the material condition of the inspected systems to be good.

The team determined that S&L's assessments were generally thorough. Based on its onsite inspection of specific focus areas such as single-failure and ongoing modifications, the team requested that S&L augment their review to include, (1) single-failure vulnerability of electrical control circuits that have inputs from redundant trains; (2) a review, by S&L's Systems Review Group, of DRs written by ORG, and DRs associated with temporary modifications to determine whether there were any design weaknesses being resolved by temporary modifications or operator workarounds; (3) additional structural calculations for fans and steel component

supports. S&L's augmented reviews did not identify additional issues thus confirming the adequacy of the CMP in these areas.

Based on the results of the team's independent design review, the team's assessment of the S&L's Tier 1 review, and the relatively small number of Confirmed Level 3 DRs identified by S&L, the team determined that preliminary indications were that the licensee's CMP was generally effective at identifying and correcting nonconformances with the plant's design and licensing bases.

7.4 Tier 2/Tier 3 Inspection (IR 50-423/97-209)

Between October 27, 1997, and January 28, 1998, an SPO inspection team conducted an inspection at Unit 3 and at the offices of S&L, in accordance with the guidance provided in SECY 97-003, of characteristics of the systems used to mitigate the consequences of accidents as described in Chapter 15 of the FSAR and of the processes by which the licensee could potentially change the design or licensing bases of the facility. The multi-disciplined team consisted of eight inspectors, including the team leader. The inspection was conducted to (1) independently assess the licensee's ability to identify and resolve licensing bases deficiencies; (2) determine if the licensee's change processes were adequate to maintain the Unit 3 design and licensing basis; (3) determine if the critical functions of accident mitigation systems credited in FSAR Chapter 15, can be accomplished; and (4) assess the effectiveness of S&L's Tier 2/Tier 3 ICAVP reviews.

For Tier 2, the team selected the spectrum of LOCAs and the steam generator tube rupture (SGTR) accident CDCs for its Tier 2 inspection. For the Tier 3 review, the team used risk-insights to select key change processes and a relatively large sample of recent changes to the facility. The selected change processes were evaluated to determine if they met regulatory requirements and were capable of maintaining the facility's design and licensing bases. The team reviewed approximately one hundred changes to the plant implemented since January 1996. In addition, the team selected thirty past changes for which S&L had completed its ICAVP review.

The NRC determined that S&L successfully implemented the Tier 2 verification of the CDCs and the Tier 3 evaluation of plant configuration control change processes in accordance with the NRC-approved ICAVP Audit Plan and implementing procedures. However, based on observations during the inspection, the team requested that S&L expand its review efforts in several areas including I&C surveillances, operations, and verification of dose assessment calculations. The expanded reviews did not result in additional findings. The team also verified that adequate process and program control documents such as the Design Change Manual, Revision 5, and the Regulatory Affairs and Compliance procedure "Safety Evaluations" Revision 10, that are important to the maintenance of plant configuration, have been successfully implemented by the licensee.

The inspection team identified several issues that were not identified during the licensee's CMP. These issues included failure of the licensee account for RSS heat exchanger tube leakage in their TS 6.8.4 program reduce leakage from systems outside containment, errors and inconsistencies between the design and licensing bases associated with the control room

and offsite dose consequences following a LOCA, calculations performed for temporary modifications that were not controlled to the same level as design changes, emergent conditions were not evaluated adequately on systems that had temporary modifications installed; and an incomplete corrective action in response to a licensee-identified issue regarding an inappropriately high threshold for writing a safety evaluation (SE) for an FSAR Change Request (FSARCR). S&L identified similar problems with the threshold for writing SEs.

As a result of this inspection, the licensee acknowledged that the CMP did not review the implementation or conformance to administrative requirements contained Chapter 6 of the plant's TS. The licensee is implementing corrective actions that include a comparison of the TS administrative requirements to established procedural controls to ensure that the intent of the requirements are clearly translated into the associated procedures and when implemented the procedures will confirmed that the requirements are satisfied. The NRC will complete its inspection of the licensee's corrective actions during the final corrective action implementation inspection before restart of Unit 3.

7.5 ICAVP Corrective Action Implementation Inspections
(IR 50-423/98-205 and IR 50-423/1998-211)

The ICAVP corrective action inspection is being conducted in several phases as corrective actions are completed by the licensee. To date, the SPO team inspecting corrective actions staff has spent four weeks on site. The first 2-week inspection is documented in Inspection Report 50-423/98-205. The scope of the corrective action inspections includes reviewing (1) a sample of licensee corrective actions in response to issues self-identified during CMP (including items that were reviewed within the 15-system ICAVP review scope and items that were not in the scope of the ICAVP); (2) corrective action for all Confirmed Level 3 DRs identified by S&L; (3) corrective actions implemented in response to findings identified during the NRC inspections associated with the NRC oversight of the ICAVP; and (4) corrective actions for a number of design-related LERs, including some of those associated with RSS. In addition, to further validate the conduct of the ICAVP process, the staff inspected a sample of Confirmed Level 4 DRs to verify that they were properly categorized in accordance with the ICAVP Significance Levels developed by the SPO staff. The team also inspected a sample of DRs that were determined to be either Previously Identified or Nondiscrepant to verify that a proper assessment had been made by the licensee and S&L. Also included in the scope of the corrective action inspection were the licensee's corrective actions taken in response to the RSS expansion bellows failure (Enclosure 2 provides additional information regarding this issue) and the corrective actions taken in response to the NRC-identified issues with Chapter 6.0 of the Unit 3 TS, and the potential for air binding of the charging and safety injection pumps.

The corrective action inspections to date have reviewed the corrective actions for 12 of 18 Confirmed or Pending ICAVP Significance Level 3 DRs currently issued. In addition, the team inspected the implementation of the corrective action for 22 of the 24 NRC violations. The teams preliminary conclusions are that the licensee has developed and implemented corrective actions that appropriately address the specific issue as well as identifying and correcting similar issues on other systems.

In addition, the NRC staff, as part of the ICAVP corrective action inspection, reviewed the licensee's evaluation of the effect of any remaining expansion bellows liner slivers on RSS functionality. On the basis of its inspection of the licensee's analyses, the staff concluded that the liner slivers, if any exist, would not affect the operability of the RSS, including pumps and motor-operated valves. As a result of the failed RSS expansion bellows, the licensee conducted a review of the approximately 195 plant modifications made during the current outage to verify that the root causes attributed to the failure of the RSS bellows did not adversely affect any of these modifications. Also, the licensee is reviewing, in detail, the RSS modifications made during the current outage. As of May 20, 1998, the licensee had not completed its review of current modifications to the RSS. Prior to restart, the staff will verify that the licensee's corrective actions were effective at ensuring problems similar to those identified on RSS did not adversely affect other modifications.

In its review of Level 4 DRs, the team focused on those DRs that identified instances where the existing plant configuration was different than that represented on plant drawings because these DRs had a potential to be Level 3 DRs, if the installed configuration was not bounded by the existing analyses. S&L in their initial categorization of preliminary DRs relied on engineering judgement in their determination of ICAVP significance level (i.e., if they had a reasonable expectation based on their design experience and professional judgement that an error or discrepancy would not rise to the threshold of a nonconformance with the plant's licensing and design bases, they categorized the preliminary DR as a Level 4). The team inspected the licensee's process for handling Level 4 DRs to determine whether Level 4 DRs that identified differences between design drawings and plant configuration were being reviewed to determine if in fact the existing physical condition was bounded by the plant's analyses and therefore in conformance with its design bases. The team reviewed approximately 70 Confirmed Level 4 DRs and concluded that the licensee had verified that the existing configuration was bounded by the existing analyses. The licensee recategorized one S&L Level 4 DR to a Level 3 DR as a result of its review. In all instances inspected, the team validated the licensee's determination of ICAVP significance level and that the original S&L categorization of ICAVP Significance Level 4 versus Level 3 was appropriate.

At this time the corrective actions inspection is substantially complete. The team needs to review the corrective actions for the remaining six ICAVP Significance Level 3 DRs currently identified and several other potential Level 3 DRs that are currently under discussion between the licensee and S&L that may be determined to be Confirmed DRs. In addition, the team needs to complete its inspection of corrective actions for several recently issued violations. Nonetheless, a sufficient a number of issues have been reviewed to allow preliminary conclusions to be drawn based on what has been inspected to date. The team's conclusions at this time indicate that the licensee's corrective action program has been effective in resolving the issues identified by both the NRC and S&L as well as those that were self-identified by the licensee during its CMP. NRC inspection of the implementation of all remaining corrective actions associated with ICAVP Level 3 issues required to restore compliance with the design and licensing basis is planned to be completed before restart of Unit 3.

8.0 SUMMARY OF NRC's CONCLUSIONS ON THE ICAVP AT UNIT 3

The SPO staff, as described above, conducted its oversight of the ICAVP program through a series of inspections to verify that S&L implemented the ICAVP in accordance with the NRC-approved audit plan and to validate S&L's conclusions. The oversight inspections focused on the plant's conformance with its design and licensing bases, the licensee's corrective actions taken in response to self-identified, NRC- and ICAVP-identified nonconformances, and licensee programs currently in place to manage and control the plant configuration subsequent to unit restart.

The SPO staff, through its oversight, concluded that the ICAVP fulfilled the requirements of the NRC's August 14, 1996, Order and that the ICAVP provided valuable information to the NRC staff to make the determination that (1) the licensee's CMP was effective at identifying and satisfactorily resolving existing nonconformances with the design and licensing bases; (2) the licensee had adequately documented the licensing and design bases, and used it to resolve nonconformances; and (3) the licensee had established programs, processes, and procedures for effective configuration management in the future. Although both S&L and the NRC staff identified a number of nonconformances with the Unit 3 licensing and design bases, none of the issues impacted the functionality of the plant's safety systems. These issues are documented in ICAVP Significance Level 3 DRs issued by S&L and in NRC Notices of Violations contained in inspection reports. These are summarized in Enclosure 1, Tables 4 and 5, respectively. Table 6, of Enclosure 1, provides a list of NRC identified issues equivalent to ICAVP Significance Level 4. Additionally, the number of such issues were relatively few and indicative of a generally effective effort by the licensee to reestablish confidence that Unit 3 is in compliance with its design and licensing bases.

For each Level 3 DR, and the other comparable findings documented in various NRC inspection reports related to oversight of the ICAVP, the SPO staff determined, for those issues reviewed during the performance of its ICAVP corrective action implementation inspections as of May 15, 1998, that the licensee was taking adequate and timely corrective actions to address not only the specific issue, but to address the extent of condition, i.e, applicability to other systems, and correct other identified nonconformances. The review of the implementation of the remaining corrective actions, resulting from Confirmed Level 3 DRs and NRC violations, required to restore the design and licensing basis of Unit 3 will be reviewed by the SPO staff before restart.

The large majority of Confirmed or Pending DRs (580 of 598) identified by S&L as of May 21, 1998, were categorized as ICAVP Significance Level 4. ICAVP Significance Level 4 DRs document minor errors, e.g., calculation errors that do not significantly alter the results or conclusions of the calculation or minor errors of an editorial nature, that are not nonconformances with the design and licensing bases. These types of errors are not typically included in NRC inspections reports because they are not violations of NRC requirements or regulations. (Occasionally, NRC inspection reports contain inspector followup items (IFIs). For the purposes of drawing a comparison between NRC and the S&L ICAVP results, IFIs are being considered as equivalent to Level 4 DRs.) Nonetheless, S&L was required to identify, document and trend such errors to gain additional insights into areas where further enhancements could be made to licensee programs. Areas identified by S&L through trending

of Confirmed Level 3 and Level 4 DRs that should be improved include calculational control and a lack of attention to detail in the performance and checking of calculations. NRC identified similar issues during the conduct of our inspections. The licensee is developing corrective actions in response to these issues that will be reviewed by the staff. However, the judgment of the staff is that these programs and the performance of the Unit 3 engineering organization is at an acceptable level to support restart of Unit 3.

There have been concerns expressed regarding the total number of DRs, even though the vast majority are ICAVP Significance Level 4. As previously discussed, Level 4 DRs are not instances of noncompliance with the plant's design and licensing bases. As a result of a line-by-line review of calculations, S&L identified a number of minor errors that it recorded in Level 4 DRs. The licensee adopted a "graded systems review" during the CMP in order to focus on the identification of potentially safety significant issues. The graded approach used during CMP was a higher level review, concentrating on calculation inputs, assumptions, methodology and reasonableness of results. The fact that no Level 1 or Level 2 DRs and relatively few ICAVP Significance Level 3 DRs were identified by S&L, indicates that the graded systems review methodology used by NNECO was effective. The number of Level 4 DRs that resulted from the graded review is not viewed by the staff as weakness in the CMP and does not, due to the minor significance of such findings, suggest the need for an expansion of ICAVP scope.

The scope of the ICAVP, while extraordinarily large, did not review all aspects of all systems. Therefore, it is reasonable to assume that similar types of findings may exist in other systems. However, the extent of the ICAVP reviews, the low safety significance level of the findings identified by the S&L and the NRC staff, and the corrective actions implemented by the licensee provides confidence that any other issues would also be of low safety significance. Therefore, the staff concludes that the Unit 3 ICAVP has been satisfactorily performed and the results of the ICAVP and the staff's oversight provide reasonable assurance that Unit 3 is in compliance with its design and licensing bases.

Table 1 - S&L Confirmed/Pending DRs by Tier 1 System, Discrepancy Type, and Level (5/21/98 data)

	Totals		Other		SWS		RSS		HVX		DGX	
DISCREPANCY TYPE	Level 3	Level 4	Level 3	Level 4	Level 3	Level 4	Level 3	Level 4	Level 3	Level 4	Level 3	Level 4
1. Calculations	6	233	1	29	0	53	2	89	3	30	0	32
2. Component Data	3	83	0	2	0	9	0	33	3	27	0	12
3. Corrective Actions (CAs)	2	21	1	7	0	4	1	2	0	3	0	5
4. CA Implementation	0	12	0	2	0	1	0	6	0	1	0	2
5. Design Control Procedure	3	9	2	4	0	1	0	3	0	0	1	1
6. Drawings	1	93	0	4	0	27	0	27	1	14	0	21
7. Installation Implementation	1	74	0	5	1	31	0	21	0	9	0	8
8. Installation Requirements	1	6	0	0	1	3	0	1	0	1	0	1
9. Licensing Documents	0	26	0	14	0	4	0	5	0	2	0	1
10. O&M, Test Implementation	0	4	0	2	0	1	0	1	0	0	0	0
11. O&M, Test Procedures	0	7	0	4	0	1	0	2	0	0	0	0
12. Procedure Implementation	0	4	0	1	0	1	0	0	0	1	0	1
13. Test Implementation	1	4	0	1	0	1	0	2	1	0	0	0
14. Test Requirements	0	3	0	0	0	0	0	3	0	0	0	0
TOTALS	18	579	4	75	2	137	3	195	8	88	1	84

The RSS totals include DRs for the RSS, QSS, and new scope (RSS modifications)

Table 2 - S&L Calculation Area Confirmed/Pending DRs by Discipline and Significance Level (5/21/98 data)

		Totals	Mechanical	Electrical	Piping/Structural	I&C	EQ	Other
1. Calculations	Level 3	6	5	0	1	0	0	0
	Level 4	234	112	32	64	14	1	11

Table 3 - NRC ICAVP Inspection Level of Effort

INSPECTION	Team Size	PREP and DOC days	SITE or S&L days	INSPECTION EFFORT staff-hours (8 X days X size)
50-423/97-201 Implementation Inspection	7	15	13	1568
50-423/97-206 Tier 1 Out-of-Scope Inspection	6	15	22	1776
50-423/97-209 Tier 2/Tier 3 Inspection	8	27	34	3904
50-423/97-210 Tier 1 Inscope Inspection	6	15	20	1680
50-423/98-205 Corrective Action Inspection - Phase 1	6	7	11	864
50-423/98-211 Corrective Action Inspection - Phase 2	7.5	2	5	420
	6	0	5	240
*	4	5	3	256
TOTAL EFFORT				10708
ICAVP SITE COORDINATOR LEVEL OF EFFORT (4/17/97 to 5/1/98) HOURS				1545
TOTAL INSPECTION EFFORT IN HOURS				12253

Table 4 - Confirmed and Pending Level 3 DRs Issued by S&L (5/18/98 data)

	DR Number	DR Title	Type of Discrepancy
1	DR-MP3-0001	Consistency with Technical Specifications	Design Control Procedure
2	DR-MP3-0006	PORC/SORC Review of Minor Modifications	Design Control Procedure
3	DR-MP3-0051	Embedded plate calculation discrepancy	Calculation
4	DR-MP3-0331	Filter Unit Drain Valve Normal Position	Drawing
5	DR-MP3-0355	Cable Routing Is Not Consistent With TS02	Installation Implementation
6	DR-MP3-0434	Conclusions Documented in Technical and Reportability Evaluations for ACR No. 012327	Corrective Action
7	DR-MP3-0588	SLCRS and ABVS Filter Units Adsorbent Cooling	Component Data
8	DR-MP3-0624	Storage of Reference Material as QA Records	Corrective Action
9	DR-MP3-0639	Not Obtaining NRC Relief for Temporary Non-Code Repair	Installation Requirements
10	DR-MP3-0669	Fan 3HVR*FN14A/B Motor Requirements	Component Data
11	DR-MP3-0670	CCP & CHS Area Ventilation System Winter Operation	Calculation
12	DR-MP3-0686	ABVS Filter Unit Bypass Leakage	Calculation
13	DR-MP3-0687	Fan Blade Missiles	Calculation
14	DR-MP3-0762	PDCR MP3-92-024 Fan 3HVR*FN12B Vibration Test	Test Implementation
15	DR-MP3-0795	Specifications 2176.430-141 and 2170.430-140 Vibration Test Requirements	Component Data
16	DR-MP3-1011	Unreviewed Safety Questions Concerning the MP-3 Emergency Diesel Generators	Design Control Procedure
17	DR-MP3-1016	Secondary Containment Bypass Leakage Penetrations	Calculation
18	DR-MP3-1026	Revision of Calculation US(B)-353 for DCR M3-97045	Calculation

Table 5 - NRC Identified Violations Equivalent to ICAVP Significance Level 3

	NRC Issue No.	Level	Issue Description	Type of Issue
1	50-423/97-206-01	VIO 4	Failure to update FSAR per 10 CFR 50.71, multiple examples	FSAR
2	50-423/97-206-02	VIO 4	Failure to follow procedures, multiple examples	Procedure
3	50-423/97-206-03	VIO 4	Failure to comply with ASME code	Design
4	50-423/97-206-06	VIO 4	Failure to include valves in the environmental qualification program	Design
5	50-423/97-206-12	VIO 4	Inadequate corrective actions, multiple examples	Corrective Action
6	50-423/97-206-13	VIO 4	Failure to have adequate procedure, multiple examples	Procedure
7	50-423/97-206-16	VIO 4	Structural amplification not considered in pipe support calculation	Design
8	50-423/97-206-20	EEI 3	Failure to address air entrapped in RSS piping	Corrective Action
9	50-423/97-206-21	VIO 4	Failure to vent RSS piping per TS 4.5.2.5.1	Procedure
10	50-423/97-209-01	VIO 4	Failure to include acceptance criteria in surveillance procedure	Procedure
11	50-423/97-209-03	VIO 4	Failure to update FSAR per 10 CFR 50.71	FSAR
12	50-423/97-209-02	VIO 4	Licensee to implement valve leakage surveillance	Surveillance
13	50-423/97-209-04	NCV	Inadequate Service Water System surveillance procedure	Surveillance
14	50-423/97-209-06	VIO 4	Failure to correct dose calculations	Corrective Action
15	50-423/97-209-08	NCV	Minor inadequacy in temporary modification procedure	Procedure
16	50-423/97-209-09	VIO 4	Failure to meet EDG limiting condition for operation	Procedure
17	50-423/97-209-10	VIO 4	Inadequate temporary design modification	Design
18	50-423/97-209-11	VIO 4	Inadequate control of calculations for temporary modifications	Procedure
19	50-423/97-209-12	VIO 4	Inadequate temporary design modification	Design
20	50-423/97-209-13	VIO 4	Failure to include safety evaluations with FSAR changes	Procedure
21	50-423/97-210-03	VIO 4	Failure to correct fire protection system water leak in SLCRS charcoal filter	Corrective Action
22	50-423/97-210-04	VIO 4	Potential cycling of flow control valves with the potential loss of redundant ventilation fans	Design
23	50-423/97-210-09	VIO 4	Inadequate procedures to maintain containment integrity and to implement TS 3.0.3	Procedure

	NRC Issue No.	Level	Issue Description	Type of Issue
24	50-423/98-205-01	NCV	RSS Containment Sump Inspection Procedure Discrepancies	Surveillance
25	50-423/98-205-02	VIO 4	Failure to incorporate corrective actions into applicable procedures	Corrective Action
26	50-423/98-205-03	VIO 4	Failure to incorporate changes to relay settings into control documents	Corrective Action
27	50-423/98-205-04	NCV	Portion of Auxiliary Feedwater System outside of design basis	Design
28	50-423/98-205-05	NCV	Pipe supports not consistent with design basis	Design

Table 6 -NRC Inspector Followup Items Equivalent to ICAVP Significance Level 4

	NRC Issue No.	Issue Description	Type of Issue
1	50-423/97-206-08	Licensee to verify cable short circuit qualifications	Procedure
2	50-423/97-206-10	Licensee to label hydrogen analyses indicators	Procedure
3	50-423/97-206-14	Licensee to correct calculation errors - CR M3-97-3169	Calculation
4	50-423/97-206-18	Adequacy of the licensee's proposed change to the bases of the pressurizer level TS	Procedure
5	50-423/97-206-19	Resolution of charging pump area temperature inconsistencies	Design
6	50-423/97-209-05	Minimum short circuit current not evaluated	Calculation
7	50-423/97-209-14	Licensee to upgrade safety evaluation procedure	Procedure
8	50-423/97-209-15	Licensee to develop operator response to Auxiliary Feedwater System pipe break	Design
9	50-423/97-210-01	Licensee to verify test acceptance criteria	Procedure
10	50-423/97-210-02	Switch over time from RWST to recirculation will be changed from 10 minutes to 25 minutes	Calculation
11	50-423/97-210-05	Licensee to provide water seal for radiation monitor enclosure	Design
12	50-423/97-210-06	Licensee to clarify methodology for waterhammer and seismic load calculations	Design
13	50-423/97-210-10	Operators to complete training on RSS modifications	Procedure
14	50-423/97-210-11	Licensee to assess RSS functions for risk significance	Procedure

DISCUSSION OF RSS EXPANSION BELLOWS FAILURE DURING TESTING

One of the more significant problems discovered by the licensee during the Configuration Management Plan (CMP) was that the net positive suction head (NPSH) required by the Recirculation Spray System (RSS) pumps was below that available following a loss of coolant accident. To correct this deficiency with the original design, the licensee decided to lower the flow of the RSS pumps by installing a flow restricting orifice at the discharge of each pump, immediately upstream of an expansion bellows. The licensee was aware that the installation of the orifice immediately upstream of the expansion bellows was not a standard configuration. However, as a result of other design considerations such as RSS pump NPSH, minimization of waterhammer, and a short run of piping in which to install the orifice, the licensee decided to proceed with the orifice installation after taking what they considered to be reasonable and prudent precautions (e.g., having Westinghouse perform a cavitation analysis and interacting with the manufacturer of the expansion joint). Available engineering data indicated that this modification would have functioned acceptably at its design condition. Nonetheless, during acceptance flow testing the licensee discovered that the bellows liners became detached from the bellows assembly and in some instances pieces were broken off the liners and swept downstream some distance. The licensee successfully recovered all of the liner pieces with the possible exception of nine small fragments. An engineering evaluation performed to determine the effect of the fragments on system operation concluded that the fragments would not degrade system functionality.

As a result of the staff's concerns about the failure of the RSS bellows, the staff requested Sargent & Lundy (S&L), as part of the scope of the Independent Corrective Action Verification Program (ICAVP), to review the modification that removed the expansion bellows and installed a rigid spool piece in its place. S&L's review included an assessment of the analyses that determined the ability of the RSS pump to handle the increased nozzle loads imposed by the connected piping due to the installation of the rigid spool piece. The S&L review also included and an assessment of the licensee's analyses that concluded that any slivers of the failed expansion bellows liner that might remain in the RSS will not inhibit or degrade the functionality of the RSS. In addition, the NRC staff, reviewed, as part of the ICAVP corrective action inspection, the licensee's evaluation of the effect of any remaining liner slivers on RSS functionality.

On the basis of its inspection of the licensee's analyses, the staff concluded that the liner slivers, if any exist, would not affect the operability of the RSS, including pumps and motor-operated valves. Further, prior to the licensee's entry into Mode 4, an operating mode defined by the plant's TS for which the RSS is required to be operable, a staff consultant performed a review of the results of the increased nozzle loads on the operability of the RSS pump and confirmed that the nozzle loads were acceptable. The NRC staff also met with the licensee's staff, including members of Nuclear Materials Engineering (NME) group (involved with the bellows structural analysis and development of the vibrational acceptance criteria), Condition Based Maintenance (CBM) group (responsible for obtaining the expansion bellows measurements during the flow testing), and Nuclear Oversight, to better understand the role of these organizations in this modification, and the sequence of events that resulted in the failure of the expansion bellows.

Nuclear Oversight appropriately identified the potential for the failure, documenting that concern in a condition report, and placed an administrative hold on the plant proceeding to Mode 4 until all of its concerns were addressed to its satisfaction. Nuclear Oversight did not object to the continued testing of the original modification as a means to address its concerns regarding the expansion bellows since it recognized that given the complexities of the analysis, testing was the most conclusive way to verify the performance of the expansion bellows.

The fact that the failure of the expansion bellows was only discovered following the testing of the last of the four RSS pumps was a concern to the NRC, as it initially appeared that the discovery of the failure could have been by chance. Our assessment ultimately determined that this was not the case. The staff of the CBM group performing the vibration measurement had been concerned with the vibrations observed during the testing of the previous three pumps. Their concern was that although the testing indicated the expansion bellows was well within the vendor's specified vibrational acceptance criteria, the vendor's acceptance criteria only addressed axial vibrations (along the flow path of the expansion bellows) and did not include the transverse vibrations (at right angles to the flow path) that the CBM group had observed during the testing. The CBM group raised this concern with the NME group. The vendor was contacted and additional acceptance criteria were developed that addressed the three-dimensional vibration that had been observed. This criteria was not available until the testing of the fourth pump which had been instrumented to measure the tri-axial vibration. The fourth pump failed to meet the acceptance criteria. As a result, a decision was made to relocate the flow restricting orifice to a position downstream of the expansion joint.

The licensee discovered the failure of the expansion bellows liner during disassembly of the piping to relocate the flow restricting orifice. Again, the reason the failure was detected on the last pump tested was that the acceptance criteria had been refined as a result of concerns raised by the test engineers and the vibrational measurement instrumentation had been augmented to measure the vibration in three directions. At no time was this modification declared to be acceptable for plant operation. Successfully completion of the testing program was required before the system could be declared operable.

Based on damaging the bellows liner, the licensee determined that a rigid spool piece would be installed in place of the expansion bellows. The expansion bellows was originally installed to minimize the loads on the pump nozzles due to thermal expansion of piping during operation. The licensee discussed the increased loading on the pump nozzle with the pump vendor and the pump vendor indicated that the loads on the pump nozzles with the rigid spool piece would still be acceptable. As a resulted, the licensee revised its modification to the RSS system to install the rigid spool piece with the flow restricting orifice downstream of the spool piece.

As a result of the failed RSS expansion bellows, the licensee conducted a review of the approximately 195 plant modifications made during the current outage to verify that the root causes attributed to the failure of the RSS bellows did not adversely affect any of these modifications. The licensee also conducted a detailed review of the RSS modifications made during this outage. The NRC inspected these licensee-initiated reviews during the ICAVP corrective action inspection.

A concern to the NRC was why this potential failure was not identified by S&L during its review. S&L stated in the meeting on April 8, 1998, that it relied on the results of the Westinghouse analysis that predicted only incipient cavitation at the RSS post-accident design conditions. The

results of the analyses performed by Westinghouse are not in question. S&L also was aware of the testing to be conducted to verify the design configuration. Because of the test configuration and system alignments necessary to perform the flow testing, the test flows were on the order of 2700 gpm, substantially above the 2200-gpm condition analyzed by Westinghouse. The licensee did not anticipate that cavitation would occur at the test conditions because the water temperature during the test was less than 125 °F, which is significantly lower than the analyzed post-accident condition of 260 °F. The licensee's expectation that cavitation would not occur at the test conditions was based on engineering judgement which ultimately proved incorrect.

Testing is usually confirmatory in nature, therefore the expectation is that the test results will confirm the analyses, however failures occasionally occur. The licensee was aware that the installation of the orifice immediately upstream of the expansion bellows was not a standard configuration. As a result of other design considerations such as RSS pump NPSH, minimization of waterhammer, and a short run of piping in which to install the orifice, the licensee decided to proceed with the orifice installation after taking what they considered to be reasonable and prudent precautions (e.g., having Westinghouse perform the cavitation analysis and interacting with the manufacturer of the expansion joint). Engineering analyses and data available to the licensee prior to the testing indicated that this modification would have functioned acceptably at its design condition. As stated above the test conditions were more than twenty percent above the design flow conditions. After a review of this event, the staff concluded that licensee's engineering and support organizations had an appropriate questioning attitude and that the interaction between groups resulted in discovering the failure of the bellows liner, a problem that may have otherwise gone undetected.

Pending the results of the S&L review, the staff's preliminary assessment is that the replacement of the expansion bellows with the rigid spool piece is acceptable. Since the RSS piping and the spool piece are stainless steel, erosion in the RSS piping, including the portion immediately downstream of the flow-restricting orifice, is not a concern. As a result of the information obtained at the public meeting with the licensee, and the additional information obtained in subsequent meetings with the groups previously indicated, the staff is of the opinion that (1) the licensee's design control processes functioned in a reasonable manner; (2) the line engineering organization did not ignore the concerns raised by Nuclear Oversight, in that testing was being performed as part of the ongoing modification process, and the RSS had not been declared operable; and (3) Nuclear Oversight functioned in an effective manner.

ATTACHMENT 2

Corrective Action Program

Corrective Action Program

Introduction

The NRC places importance on licensees having an effective corrective action program. A major aspect of the NRC's regulatory philosophy is that a licensee be able to effectively identify, evaluate, and resolve problems. This ability to address and resolve problems effectively is particularly important because it can directly affect a broad range of licensee programs and activities. To achieve an effective corrective action program requires a questioning attitude within the organization that encourages critical self-identification, quality and timely root-cause evaluations, and effective and comprehensive corrective actions that prevent recurrence of the problems. Licensees that have programs that do not embody these elements are frequently the subject of increased NRC scrutiny and enforcement because of the incidences of problems, many of which are self-revealing and recurring. As described below, the corrective action program at Millstone has been a chronic issue that contributed greatly to the extended shutdown of all three units. A significant element of the NRC staff's Restart Assessment Plan (RAP) has been a broad-based assessment of the licensee's new program and process for corrective actions. A particular emphasis has been placed on evaluating the effectiveness of its implementation.

Background

Previous licensee self-assessments and NRC inspections had identified that Northeast Nuclear Energy Company's (NNECOs) corrective action program had been historicaly weak in the identification of problems and ineffective in ensuring comprehensive and effective corrective actions. There have been many instances of narrowly focused corrective actions that failed to encompass all aspects of the underlying problem. Additionally, in many instances, the licensee failed to follow up on corrective actions to ensure they were effective. A correlation also existed between the ineffectiveness of the corrective action program and the issues related to the handling of employee safety concerns and the SCWE at Millstone. An important element of an effective corrective action program is that workers are encouraged to raise issues willingly without fear of retribution or retaliation. Consequently, the RAP determined that the licensee's corrective action program was a restart issue.

Licensee's Corrective Action

NNECO initiated efforts to improve the corrective action program by adopting industry standards and processes and formalizing them in its procedure Report (RP) 4, "Corrective Action Program." This document describes a site-wide program which has been in effect since February 1997. The fundamental changes to the process that occurred as a result of the introduction of this procedure and the philosophy it represented included the lowering of the threshold level for reportable problems, management emphasizing the need for employees to identify problems, greater management involvement in the process, timely processing of operability determinations, development of performance indicators, training in root-cause analysis, and enhancement of the applicable tracking and trending programs. The licensee has

continually improved the process as evidenced by the number of revisions made to the governing procedure, RP 4. In addition, in order to improve corrective action resolution on a broad basis, NNECO has established tracking systems for corrective actions that are not typically identified by a condition report (CR), e.g., operating experience, training, preventive maintenance, employee concerns, and engineering.

Management established a corrective action assessment program and developed performance indicators to monitor the corrective action program effectiveness. In addition, the Nuclear Oversight Organization developed its own program for assessing the quality of the corrective action program and has provided NNECO management with independent evaluations of several attributes of the corrective action process.

Overall, through substantial management involvement, the licensee has applied a significant amount of effort to establish a structural framework for the corrective action program. NNECO management has also clearly established its expectations that there should be a very low threshold for problem identification. The licensee has focused much of its efforts during the current shutdown on identifying issues, properly classifying their safety significance, performing quality root-cause evaluations, and implementing effective short- and long-term corrective actions.

NRC Activities

In determining how to assess the licensee's performance in this area, the NRC RAP identified licensee activities that would be evaluated to obtain an integrated assessment of the licensee's corrective action program. Since the corrective action program touches upon many different licensee programs and activities, it was determined that inspection efforts had to encompass a wide variety of licensee activities. For example, inspection activities were focused on areas such as corrective actions for enforcement items, the Significant Items List (SIL), the deferred items list, issues identified from employee concerns, Independent Corrective Action Verification Program (ICAVP) findings, licensee self-assessments, commitments, LERs and degraded and nonconforming conditions. Examination of the corrective action program also included the review of the action requests (ARs) from the Action Item Tracking and Trending System (AITTS) program, which is the licensee's program that translates issues identified by CRs into specific corrective actions.

In order to judge whether the licensee achieved needed improvements in the corrective action process, the staff assessed the completeness of the licensee's corrective actions for each of the areas it inspected within the corrective action program. The inspection process examined the identification and processing of problems, the assessment and root-cause evaluation of the problems, the corrective actions that were implemented, and the process used to close the issues. The NRC also inspected the licensee's efforts to improve its self-assessment capabilities.

A significant input to the staff's assessment of the licensee's corrective action program was derived from the normal inspection program where valuable insights regarding the effectiveness of corrective actions are routinely collected from the technical safety inspections. Major

contributions to measuring the effectiveness of the NNECO corrective action program for Unit 3 were also provided by (1) the NRC team inspection performed using inspection procedure (IP) 40500, "Effectiveness of Licensee Controls in Identifying, Resolving and Preventing Problems"; (2) the NRC ICAVP Oversight Branch assessments of the licensee's corrective actions for degraded and nonconforming conditions; and (3) an Operational Safety Team Inspection, which audited portions of the corrective action process during the course of its activities. In addition to the direct inspections of the NNECO corrective action program, the NRC performed an Inspection Report No. 50-245/336/423/97-212, of the employees concern program and safety-conscious work environment at the Millstone station.

This inspection, along with other staff activities assessing NNECO's SCWE, evaluated aspects of the licensee's corrective action programs regarding willingness of employees to identify safety issues and existence of a questioning attitude at Millstone station.

1. Routine Inspection Findings

   Because of the low threshold for problem identification established by NNECO management, a large number of CRs were generated by the licensee's staff during the recovery process. To assess how well the licensee addressed these issues, the Special Projects Office (SPO) inspection staff concentrated on reviewing specific issues identified by the CR process and audited the licensee's corrective actions for completeness. The staff periodically selected additional CRs for review, based on the licensee's assigned level of importance, or the risk significance as determined by the resident staff. Additionally, other less significant CRs were examined to ensure that a spectrum of safety significant and risk issues were reviewed to gain a perspective of the overall application of the program. The intent of this approach was to primarily assess the corrective action program while appropriately focusing on the safety significant technical issues.

   The NRC inspection staff selected issues that were being processed within the NNECO corrective action program and these were tracked as part of the RAP within Item 37 of the SIL. These items represented technical issues related to safety that were, in most cases, identified by NRC inspections that required closure by the licensee. Additionally, assessments were made of the licensee's corrective action program as part of the routine resident inspection process. Through its observations of the licensee's resolution of the technical issues, the NRC staff evaluated the technical adequacy of the corrective actions while assessing the effectiveness of the licensee's corrective action program. The staff found that, as time progressed from the initiation of the licensee's new corrective action program in early 1997, the quality of the closure packages, which were what the licensee submitted to the NRC to document its efforts to resolve the issues, improved. This improvement was noted in NRC Inspection Reports 50/423-97-02; 97-202; 97-203; and 97-207. Over the past 12 months, the staff's review of the corrective actions addressed by these packages determined that the licensee comprehensively addressed and resolved the identified issues.

Additionally, the observations and findings generated through the more routine inspection efforts of the resident inspectors noted the same improvement over time in the licensee's ability to address and resolve issues. In coming to this conclusion, the resident inspectors reviewed a number of licensee activities such as corrective actions for enforcement items, the deferred items list, licensee self-assessments, commitments, LERs, and degraded and nonconforming conditions.

2. 40500 Inspection Findings

The NRC team inspection performed from February 9 through 20, 1998, using IP 40500 inspection, "Effectiveness of Licensee Controls in Identifying, Resolving and Preventing Problems" was one of the primary means of doing an integrated examination of the NNECO corrective action program.

In conducting its assessment of management processes, the team noted that the licensee's reorganization of the company resulted in almost all of the director level positions being replaced with new personnel, some from outside of the company. This was done to correct the root-cause concern that had been identified by the licensee that NNECO management's operational standards were not commensurate with accepted industry practices. The replacement of the managers and directors was intended to infuse new thinking into the organization. A major area of emphasis of the new management was to emphasize a questioning attitude and to encourage employees to identify and bring forward problems. The impact of promoting these expectations resulted in a lowering of the threshold for problem identification and the subsequent resolution of these issues within the formally established corrective action program. Team interviews and observations indicated that the new management was also successful in opening the lines of communication between departments and between management and the workers. This opening of communications and establishment of a new trust between the workers and management is viewed by those interviewed as allowing the workers to freely identify problems with the expectation of it being corrected. The team's observations and interviews with individuals indicated that the work environment was improved, management was receptive to problem identification, and there was no reluctance or reservation expressed by individuals to identify problems. As an example of the effect of the lower threshold for problem identification, the previous program captured an average of only 300 items per year for Unit 3. Currently, CRs are being identified at a rate of approximately 4,000 items per year. The team determined that the threshold for identification of issues, reportability reviews, the assignment of severity level and corrective actions were generally timely and appropriate.

The revisions made to the corrective action program resulted in a multi-disciplined management review process, as well as imposing the requirement that the shift manager review discovered conditions for operability and reportability. The overall CR program was considered to be acceptable, though further improvements can still be made. The licensee's root cause analyses and implementation of corrective actions was determined to be effective and thorough, though some problems were noted. Also, the program lacked controls in situations where multiple CRs addressing concerns in similar areas were combined into one CR. The team noted an effective self-assessment and trending

program, but due to the relative newness of the program, was unable to assess the licensee's efforts in performing an effectiveness review. In order to conduct such an assessment, as well as in recognition of the substantial management involvement needed to get the program to the point where it is functioning adequately, the historical problems with ineffective corrective actions that have existed at Millstone, and the need to assess how well the licensee is managing its deferred items list, the staff will perform another IP 40500 inspection within the next year. This inspection will be conducted to assess whether the program has continued to mature and effectively function following a period of routine plant operations.

As noted earlier, the team did find some problems with the licensee's handling of several CRs. The most significant team finding was for the inadequate root-cause determination and corrective actions for recurrent Boric Acid Transfer Pump problems. The reportability evaluations were incomplete, operating experience was not considered and a potential Unreviewed Safety Question resulting from a nonconservative Boric Acid Tank level TS was not identified.

The overall assessment by the staff is that the corrective action program is functioning and adequate to support restart. However, the identified weaknesses indicate that management attention will be required to continue making improvements to the program and to sustain the current adequate level of performance. As noted above, the staff will conduct another IP 40500 inspection within approximately 1 year to ascertain how well the program is functioning.

3. ICAVP Inspection

Over the period of April 13 - May 15, 1998, the NRC conducted the last of its ICAVP inspections on Unit 3. This team assessed the effectiveness and the appropriateness of the licensee's corrective actions associated with design issues raised by the NRC in its ICAVP-related inspections, the licensee in its configuration management plan, and Sargent & Lundy (S&L) in its ICAVP. Although this inspection report is not issued, the preliminary results were incorporated into the staff's overall evaluation of the corrective action program and are summarized below.

The scope of the NRC's ICAVP corrective action inspection includes reviewing (1) a sample of licensee corrective actions in response to issues self-identified during its Configuration Management Plan (CMP) (including items that were reviewed within the 15-system ICAVP review scope and items that were not in the scope of the ICAVP); (2) corrective action for all Confirmed Level 3 discrepancy reports (DRs) identified by S&L; (3) corrective actions implemented in response to findings identified during the NRC inspections associated with the NRC oversight of the ICAVP; (4) corrective actions for design-related LERs associated with the recirculation spray system (RSS); (5) the licensee's corrective actions taken in response to the RSS expansion bellows failure; (6) the corrective actions taken in response to the NRC-identified issues with Chapter 6.0

of the Unit 3 TS; and (7) the Integrated Functional Systems Review performed by the licensee in response to the NRC-identified potential for air binding of the charging and safety injection pumps.

At this time the ICAVP Corrective Action inspection is substantially complete. NRC IR 50-423/98-205 documents the results of the first 2 weeks of onsite inspection. The remaining onsite inspection will be documented in IR 50-423/98-211, following completion of the inspection. The SPO Inspection team will review the corrective actions for the remaining six ICAVP Significance Level 3 DRs currently identified and several other potential Level 3 DRs that are currently under discussion between the licensee and S&L that may be determined to be Confirmed DRs. In addition, the team will complete its inspection of corrective actions for several recently issued violations. NRC's verification that NNECO has completed implementation of corrective actions necessary to restore compliance with its design and licensing bases will be completed before restart of Unit 3. Nonetheless, a sufficient a number of issues have been reviewed to allow preliminary conclusions to be drawn based on what has been inspected to date. The team's conclusions at this time indicate that the licensee's corrective action program has been effective in resolving the issues identified by both the NRC and S&L as well as those that were self-identified by the licensee during its CMP and restoring compliance to the unit's licensing and design bases.

4. OSTI Inspection

From April 13 through May 5, 1998, an OSTI was performed at Millstone Unit 3. The NRC staff reviewed the Corrective Actions Program and subordinate procedures, Audit Reports, the Independent Review Team Report on the Effectiveness of Corrective Actions, the NRC IP 40500 Inpsection Team Report, and outstanding corrective action items. Interviews were conducted with members of the plant staff to ascertain the adequacy of training and understanding of the corrective actions program. The licensee's Management Review Team (MRT) and Management Review Council (MRC) proceedings were observed to assess the quality and effectiveness of the corrective actions program's Event Review Team (ERT) and root-cause investigations. The NRC staff evaluated completed root-cause investigation packages to assess the quality of root-cause determinations and the licensee's use of a structured methodology.

The NRC inspection found that the corrective action program has a low threshold for condition report (CR) identification, and initiation, and the plant staff has been adequately trained in implementing the corrective action program. The evidence for this lies in the total numbers of CR's submitted to the corrective actions program. The corrective actions program has demonstrated that it can successfully evaluate and prepare appropriate corrective action plans.

The NRC staff reviewed a sample of both ongoing root-cause investigations and completed investigation reports. As noted in the IP 40500 inspection, the NRC staff found the level of detail and analysis varied with the composition of the investigation teams.

Previously, the Corrective Actions Department conducted the root cause analyses, but is now in the process of supporting and mentoring other departments in performing

departmental root-cause analyses. Although, the staff found some weaknesses in the licensee's application of methodologies for root-cause analyses, the root-cause determinations themselves appeared to be adequate.

The backlog of open CR and Action Item Trending and Tracking System (AITTS) items were reviewed for issues that should be addressed prior to plant restart. The NRC staff reviewed a sample of open CR's using AITTS to determine the appropriate level assigned to the CR's. All CR's reviewed were assigned at the appropriate level.

The NRC staff determined that safety significant issues were tracked to completion. The process used to establish deferrals for the backlog of open Unresolved Item Reports, Nonconformance Reports, and Engineering Work Requests was commensurate with the safety significance of the issue, and that no items were deferred that should be completed prior to plant restart.

Overall, the aspects of the corrective actions program reviewed during the OSTI support the observation that the corrective actions program has been greatly improved and is functioning adequately to support restart of Unit 3.

5. Safety-Conscious Work Environment (SCWE) Evaluation

During the period from December 8 to December 12, 1997, and January 5 to January 9, 1998, the NRC staff performed an evaluation of the Employee Concerns Program and SCWE activities at Millstone station. Staff also assessed licensee implementation of these program areas through onsite monitoring, assessment of performance indicators, and participation in NRC inspections. Integral to staff evaluation of Millstone station SCWE activities was its assessment of the licensee's programs for resolving safety issues raised in the line organization. Emphasis of staff assessments in this area was directed toward the attitudes of Millstone station staff on use of the corrective action program and timeliness of resolution of issues that were identified. Staff observations and interviews showed that managers and supervisors encouraged employees to identify problems. The staff found that plant workers considered management to be receptive to problems brought forward and individuals generally characterized the environment as improved and receptive to problem identification. Further, the staff found that NNECO had made progress in timeliness of completion of condition reports.

Staff observations and findings were consistent with the results of assessments of the NNECO corrective actions program made by the third-party organization specified by the NRC Order to oversee licensee implementation of SCWE program implementation. Little Harbor Consultants Inc. (LHC), the third-party organization overseeing NNECO SCWE activities, conducted structured interviews of NNECO and contractor personnel at Millstone regarding the safety environment. The results of the last survey, conducted in February 1998, showed improved awareness of expectations related to SCWE, improved willingness of the workforce to raise concerns, and improved confidence in the site's Corrective Action Program. LHC also performed an assessment of NNECO's corrective actions program and found the program and its implementation performing acceptably and supporting a SCWE.

Conclusions

The NRC staff examined the NNECO corrective action program for the identification and processing of adverse conditions to quality, the assessment and root-cause evaluation of those conditions, and the identification and implementation of the corrective actions. The staff also observed NNECO management's involvement in the process to ascertain its role in establishing and communicating appropriate expectations, standards and overall support to the program.

It is evident from the inspection record and the licensee's performance indicators that an appropriately low threshold exists at Millstone Unit 3 for the identification of adverse conditions to quality. There has been an order of magnitude increase in the number of CRs written since the implementation of the new corrective action program and the raising of management expectations and standards. NNECO management has effectively communicated these new standards to the working staff such that problems are being identified and placed in the corrective action program for resolution. Additionally, the overall process has proven capable of producing adequate results, albeit with substantial management involvement and oversight.

While the NRC has determined that the assessment and root-cause evaluation process is functioning adequately to support restart of Unit 3, it is still maturing and warrants continued management oversight. The staff found that the licensee was, in general, effectively assessing root causes and assigning the proper corrective actions. In a few instances, the NRC staff found that the licensee did not identify associated proximal causes and, in one case, the licensee missed the actual root-cause and failed to take effective corrective actions to prevent air binding of the boric acid transfer pumps. Overall, the NRC staff believes the assessment and root-cause evaluation portion of the licensee's corrective action program is effective.

The NRC staff noted problems with corrective actions not being thorough in the early stages of recovery, during 1996 and early 1997, and discussed this in the Inspecton Report 96-04 cover letter. As the effects of the recovery process and increased management attention and oversight positively impacted the work practices of the licensee's staff, the NRC found that assigned corrective actions were, with some exceptions, complete and appropriately addressed the problem. Currently, examples of completely missed root causes are few, and thus, the staff believes the corrective action process will support safe operations.

Though its observations to date indicate that the licensee's corrective action program is adequate to support restart of Unit 3, the effectiveness of the corrective action program can be more completely assessed by evaluating long-term performance, including the degree to which recurring problems manifest themselves over time. In view of this and the licensee's historical problems in maintaining an effective corrective action program, the need to assess the program after the plant has been in a more normal mode of operation for a period of time, and to examine its efforts in addressing the deferred items list, the effectiveness of the corrective action program will be assessed in about one year by doing another team inspection using IP 40500 inspection.

ATTACHMENT 3

Operational Safety Team Inspection

Operational Safety Team Inspection

Introduction

As a final check included in the staff's restart evaluation of a plant that has been shutdown for an extended period of time to address substantial programmatic, technical, and/or safety issues, the staff conducts an inspection to verify that plant operations are being conducted safely and in conformance with regulatory requirements. Selected portions of NRC Inspection Procedure 93802, "Operational Safety Team Inspection," provide the framework for a team inspection of the pertinent issues. Elements of the inspection include operations, maintenance, surveillance, management oversight, technical support, safety review, quality assurance, and corrective actions. Additionally, the inspection is intended to verify that the licensee has properly prepared its staff and the plant for resumption of power operations.

Background

The objective of the OSTI was to provide current information to the Restart Assessment Panel by evaluating the readiness of plant hardware, staff, and management programs to support a safe restart and continued operation of Millstone Unit 3. The OSTI was an intensive 2 week inspection activity conduct at Millstone Unit 3 during April 13-24, 1998. In addition, selected plant evolutions and activities were observed by various OSTI team members in the two months prior to the inspection. 14 inspectors were selected from all 4 NRC Regional Offices, NRR, AEOD, and SPO. The team monitored licensee activities during plant transition between Modes, both during normal and off-normal work hours. This inspection represents over 1 person-year of direct inspection effort. The OSTI performed an independent, broad scope assessment in four areas: management programs and oversight, operations, engineering and technical support, and maintenance and surveillance. The team's observations and assessment of each of these areas is contained below.

NRC Inspection Activities

1. Management Programs and Oversight

   (A) Management Processes

   Appropriate standards and expectations for safety were established by senior management and were understood by subordinate managers and staff. Management's planning and direction for the restart and recovery of Unit 3 were effective, but planning and direction for post-restart activities were incomplete. Effective leadership was provided and management involvement in routine activities and emerging issues was adequate. Staffing was adequate for recovery and restart. The application of probabilistic risk assessment (PRA) insights to design and operation of the plant were adequate with one exception being the lack of risk assessments for removal of equipment from service during transitional modes of operation. This deficiency was adequately addressed by the licensee during the OSTI. Responsiveness to employee concerns, observed during the OSTI, was appropriate. Integration of quality assurance into the line organization was effective.

Management's expectations for safe plant operations were understood and followed. Senior plant management used a variety of effective means to reinforce expectations. Where expectations for communication or teamwork were not being met, plant management took appropriate and timely actions to correct the weaknesses and reinforce expectations.

(B) Corrective Action Program

The overall corrective action program was adequate to support plant restart. The threshold for including identified plant deficiencies in the corrective action program was low and a timely resolution of safety significant issues were generally being met. The team concluded that the root-cause evaluations reviewed identified appropriate causes. Issues that should be addressed prior to restart were identified and being tracked for completion.

(C) Self-Assessment Programs

The team concluded that the self-assessment programs are functioning well and are identifying and dispositioning issues which affect plant and personnel performance. The self-assessments were timely and self-critical. Management oversight ensured corrective actions initiated by the self-assessments were taken in a timely manner.

Self-assessment performance indicators prepared by the line organization were generally consistent with those prepared independently by the Nuclear Oversight organization and were consistent with NRC inspection findings.

(D) Independent Oversight

The Nuclear Oversight Restart Verification Plan provides effective independent assessment and performance measures for resolution of the Key Issues. The Nuclear Oversight Organization's involvement in operations, maintenance/surveillance and engineering has been satisfactory.

The Nuclear Oversight Organization's reporting mechanisms provide an effective means of capturing conditions adverse to quality and ensuring that those conditions were corrected. The reports reviewed by the team appeared to be adequately critical assessments and provided senior management with a useful "snapshot" of plant performance and areas requiring additional attention.

The startup support organization did not provide effective plant safety oversight during two events that occurred during plant heatups. The licensee independently reached a similar conclusion and took corrective actions to improve the Startup and Power Ascension Plan.

(E) Quality Review Committees

The conduct of the Plant Operations Review Committee (PORC), Site Operations Review Committee (SORC), Nuclear Safety Assessment Board (NSAB) were found to satisfy requirements. There are no outstanding PORC or SORC items that would adversely affect plant restart. The NSAB was providing effective independent oversight of plant operations.

(F) Training Programs

The overall implementation of the systematic approach to training for the technical training programs has improved and is adequate to ensure continued qualification of technical and non-licensed personnel.

2. Operations

(A) Operational Events

Two operational events occurred during the initial plant heatup. The events were an inadvertent opening of a pressurizer power operator relief valve and an automatic initiation of the auxiliary feedwater system caused by a low-low steam generator level. There were also three failures to meet Technical Specification requirements including: (1) not having the required number of operable reactor coolant system loops while in Mode 4; (2) the failure to record pressurizer temperature data during a plant heatup; and (3) the failure to complete a conditional surveillance requiring a dilution path valve alignment check with one shutdown monitoring channel out-of-service. While there were no safety consequences as a result of these events, the performance by plant operators during the initial plant heatup evolutions was weak.

The team conducted an independent evaluation of these events. The team determined that these events indicated weaknesses in several areas. These areas include operator knowledge, attention to detail, procedural adherence and control board awareness. The licensee initiated an Event Review Team (ERT) to evaluate these events. Based on the ERT findings, several corrective actions were taken including additional classroom and simulator training, re-enforcement of management expectations regarding the safe plant operation, a mentor for one Unit Shift Supervisor, and more clearly defined oversight responsibilities for the Startup Duty Manager. The licensee identified several causes for these events and implemented effective corrective actions. The team observed the effective implementation of many of the short-term corrective actions during the inspection. The OSTI did not observe similar weaknesses in operator performance during the subsequent plant evolutions observed. The staff will review the licensee's remaining corrective actions, including those required for restart.

(B) Conduct of Operations

During the periods of direct team observation, the licensee safely operated the plant. Operation's staffing levels were adequate. Operator log keeping was adequate;

however, in two instances, incomplete logging contributed to operational events. Operator threshold for identifying deficiencies was generally good with a few exceptions noted.

(C) Procedures and Procedure Adherence

The quality of plant operating procedures was determined to be good. With a few exceptions, the procedures reviewed by the team were technically accurate and provided an appropriate level of detail. Risk significant operator actions were adequately proceduralized. However, the team identified two instances where the administrative control of procedures was not in accordance with TS. In one case, a procedural deficiency was a contributing cause to missing the TS requirement to have two operable reactor coolant system loops in Mode 4. The licensee took effective corrective action to address these issues prior to the conclusion of the OSTI.

While operators were found to generally adhere to procedures, the team identified a few exceptions where procedures were not followed. In one case, the failure to follow the procedure resulted in the inadvertent opening of the pressurizer power operated relief valve (PORV). During the OSTI, plant management reinforced their expectations for procedural adherence with plant operators.

(D) Operator Training

Requalification training was determined to be adequate to support plant restart. Each licensed operator was current in completion of requalification training and had passed required exams and evaluations. Operations management was effectively involved in training. A weaknesses in operator knowledge was noted as a cause for the failure that resulted in opening the PORVs. The licensee conducted focused training for all licensed operators to address this knowledge deficiency. Fire Brigade staffing and training were adequate.

(E) System Alignments

The team identified several problems with the administration and control of plant equipment configuration program. These problems included components not properly aligned, problems in the valve and breaker lineup process, and deficiencies in the locked valve program. It was concluded that certain corrective actions to address these deficiencies should be completed prior to plant restart. The staff will review the applicable corrective actions prior to restart.

The team determined that the safety tagging process was adequate and functioned as designed to improve personnel and equipment safety. The relatively few existing operator work-arounds and control room deficiencies did not impact safe operation of the facility.

(F) Command and Control

The quality of command and control was found to be generally good. Shift turnovers were typically comprehensive. The quality of pre-briefs varied with most being comprehensive. Operators were generally cognizant of plant conditions and control room annunciators. Operators appropriately controlled access to the control room. Operations management was actively involved in operation activities. Plant support to operations was generally good.

3. Engineering and Technical Support

(A) Plant Modification Program

The plant modification program was appropriately controlled and implemented. The team found the design control process provided a detailed and comprehensive method for implementing plant design change activities. Modification package content, including the screening and safety reviews, were generally appropriate. Post-modification testing appeared to encompass verification of important design change attributes. The licensee had adequate commercial grade dedications and item equivalency evaluation (like-for-like equipment replacements) programs in place to support plant restart.

The number of installed temporary modifications (TMs) was low and plans existed to further reduce the number of TMs. The TM process provided adequate controls to ensure that TM installation would not adversely impact plant operation.

(B) Plant Technical Support

The Engineering and Technical Support Departments were providing timely and effective support to the line organizations. The engineering department appeared to manage the day-to-day work activities well. Daily prioritization at morning meetings and by the management review team (MRT) appeared to set appropriate priorities for system and design engineering resources. The technical support organization was observed to provide good support for emergent plant hardware failures by leading Event Review Teams (ERTs).

The use of the condition reports (CRs) to document issues needing engineering evaluation appeared to be appropriate. A review of the CRs which remained opened determined that the CRs had been properly screened and no additional items were identified as needing resolution prior to restart. The System Readiness Reviews completed by Technical Support Department were comprehensive and did an effective job in identifying issues requiring resolution prior to restart.

The team conducted several safety-related system walkdowns and discussed the system status with the appropriate system engineers. The team found the system engineers were knowledgeable and the material condition of plant equipment was generally good.

The team also reviewed all open operability determinations finding them generally well developed and providing adequate justification for operability of the degraded condition.

(C) Engineering Programs

The team noted that the licensee was making improvements in several engineering administered programs such as setpoint control, operational experience reviews and vendor manuals. The setpoint control process appears to be adequate and meets industry standards. The operating experience program was functioning adequately to support restart. The licensee has initiated efforts to maintain the accuracy of vendor manuals and is taking appropriate actions to upgrade the key safety-related manuals and review affected procedures prior to restart.

Nuclear oversight and engineering self-assessment activities including engineering assurance provided good observations to improve performance.

4. Maintenance and Surveillance

(A) Plant Material Condition

Generally, overall plant material condition was good. The housekeeping practices and equipment storage were observed to be good. The team determined that processes were in place to maintain a satisfactory level of plant material condition. The backlog of open maintenance work activities is trending down, has been prioritized, and the overall impact on operations was assessed and found to be acceptable.

(B) Preventive Maintenance

The Preventive Maintenance (PM) Program was determined to be acceptable. However, the team noted a few minor deficiencies in the PM program that the licensee addressed during the inspection.

(C) Conduct of Maintenance Activities

The team concluded that procedure adherence by the maintenance staff was excellent. Several instances where work was stopped to clarify or revise maintenance procedures. The maintenance workers were knowledgeable of assigned maintenance tasks and had received appropriate training. Maintenance supervisory oversight in the field was strong. The Fix-It-Now (FIN) team had a positive impact on handling emergent work and automatic work order (AWO) backlog.

(D) Planning and Scheduling

The adherence to plant schedules has been poor. On average, 60 percent of work orders on the 3-day look ahead schedule were started and 54 percent were completed on schedule. The scheduled dates for achieving major milestones, such as mode

changes, were rarely met. The difficulty in meeting schedules was attributed to several factors including emergent issues, inability to identify work scope, and lack of accountability to meet schedules. The use of the 12-week rolling schedule should help improve planning and scheduling performance.

The team did not find examples where inefficiency in planning and scheduling resulted in degradation of safety system performance. In fact, the team concluded that the material condition of safety-related systems was generally good. The corrective maintenance automatic work order backlog has been reduced to manageable levels and is nearing the licensee's restart goal of 500 open work orders. The team also did not observe non-conservative decisions by plant management for the purpose of meeting plant schedules.

(E) Surveillance Testing

The surveillance testing program was adequate to support plant restart. The team concluded that the surveillance test procedure quality was adequate. Tests required for restart have been defined and satisfactory progress is being made to complete these tests.

Overall OSTI Conclusion

The OSTI findings are one input of many to be used by the RAP in making a restart recommendation to the Commission. The OSTI has determined that plant hardware, staff and management programs at Millstone Unit 3, are ready to support a safe plant restart and continued power operation. This conclusion recognizes that prior to restart, the licensee must complete, and the NRC will assess corrective actions resulting from the OSTI findings regarding operator performance and system valve alignments.