

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: **NRC STAFF BRIEFING ON INTEGRATED
REVIEW OF DECOMMISSIONING
REQUIREMENTS
PUBLIC MEETING**

Location: **Rockville, Maryland**

Date: **Tuesday, November 8, 1999**

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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
3 OFFICE OF THE SECRETARY

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5 NRC STAFF BRIEFING ON
6 INTEGRATED REVIEW OF
7 DECOMMISSIONING REQUIREMENTS

8 ***

9 PUBLIC MEETING

10
11 Nuclear Regulatory Commission
12 One White Flint North
13 Building 1, Room 1F-16
14 11555 Rockville Pike
15 Rockville, Maryland
16 Tuesday, November 8, 1999

17 The Commission met in open session, pursuant to
18 notice, at 1:32 a.m., the Honorable RICHARD A. MESERVE,
19 Chairman of the Commission, presiding.

20
21 COMMISSIONERS PRESENT:

22 RICHARD A. MESERVE, Chairman
23 NILS J. DIAZ, Member
24 EDWARD MCGAFFIGAN, JR., Member
25 JEFFREY S. MERRIFIELD, Member

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STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

KAREN D. CYR, General Counsel

ANNETTE L. VIETTI-COOK, Assistant Secretary

WILLIAM TRAVERS, Executive Director for Operations

SAMUEL COLLINS, Director, NRR

STUART RICHARDS, Director, Project Directorate IV,
and Decommissioning, NRR

WILLIAM KANE, Director, NMSS

WILLIAM HUFFMAN, Project Directorate IV and
Decommissioning, NRR

JOHN GREEVES, Director, Division of Waste
Management, NMSS

DIANE JACKSON, Plant Systems Branch, NRR

RAY SAHDIS, NE Coalition on Nuclear Pollution;
Friends of the Coast (Maine)

MIKE MEISNER, Chairman, Decommissioning Working
Group, NEI

PAUL BLANCH, Energy Consultant

DAVID STEWART-SMITH, Administrator, Energy
Resources

Division, Office of Energy, Oregon

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P R O C E E D I N G S

[1:32 p.m.]

CHAIRMAN MESERVE: Good afternoon, ladies and gentlemen.

Today we will be discussing the NRC's Integrated Review of Reactor Decommissioning Regulations and Requirements.

Presentations on this topic will be made by the NRC Staff, as well as interested stakeholders, including representatives of the public, including the New England Coalition on Nuclear Pollution, the nuclear industry, represented by the Nuclear Energy Institute in the State of Oregon.

One of the many challenges that faces the NRC is the appropriate regulation of decommissioned reactors. Decommissioned nuclear power plants pose a different risk to public health and safety from operating nuclear power plants, but under existing NRC regulations, they are subject to substantially the same regulatory requirements.

Today, we will discuss this issue, focusing, in particular, on the NRC's activities and proposals, and comments on those actions from interested stakeholders.

My fellow Commissioners and I welcome you to this meeting, and look forward to an open and candid discussion.

I understand that copies of the handouts are

1 available at the entrances, and unless my colleagues have
2 any comments they wish to make, we'll proceed with Dr.
3 Travers.

4 COMMISSIONER MERRIFIELD: Mr. Chairman, I have
5 actually two comments that I'd like to make.

6 The first one is, I always like to take sufficient
7 time to prepare for these meetings, and given the nature of
8 the days the Commissioners have around here, preparing, just
9 prior to the meeting, generally not a possibility.

10 And so in order to avoid that, I and the other
11 Commissioners like to take materials home with us at night
12 or over the weekend, so that we are appropriately prepared
13 for these meetings.

14 Now, I made an admonition in the last meeting that
15 we had last week, and I'll make a similar admonition that it
16 is very unfortunate that we received slides for some
17 presenters today that were either brand new or were amended
18 from slides that we had received earlier.

19 Because of that, I have not had an opportunity to
20 review those slides, and I do not feel fully prepared for
21 the presentations--some of the presentations that will be
22 made today, and I think that that is most unfortunate.

23 I would certainly encourage those who are
24 presenting today, in the future, get those slides to us in a
25 timely fashion so that we may prepare appropriately.

1 I would also suggest to the SECY--I know she works
2 very hard to get people to do that--to the extent that you
3 can continue those efforts, and explain to them that at
4 least from this Commissioner's standpoint on this kind of
5 activity, it will result in additional public lectures.

6 And I'm not naming names today, but I guess that
7 in the future I may have to.

8 One additional comment I want to make: NEI, in
9 its slides, seems to spend a significant amount of time on
10 problems associated with our cask certification process.

11 I note from the Staff slides that it appears that
12 there is not an intention to address this issue in the
13 presentation today, at least from the slides, that is the
14 indication I have.

15 Before we finish the briefing, I would like to get
16 the Staff's perspective on the amendment-by-rulemaking
17 process, where you stand on the issue related to why the
18 cask certifications are limited, and any process
19 improvements you have in mind, specific to the cask
20 certification process.

21 So if that might become part of your
22 presentations, and to the extent you can amend your
23 comments, I would appreciate that.

24 Thank you.

25 DR. TRAVERS: Thank you, Chairman. Good

1 afternoon. As you have indicated, the Staff is here to
2 discuss our ongoing integrated review of reaction
3 decommissioning regulations.

4 We will also briefly highlight our approach for
5 coordinating the elements of our decommissioning program
6 among the Office of Nuclear Reactor Regulation, the Office
7 of Nuclear Materials Safety and Safeguards, the Office of
8 Research, and the Regional Offices.

9 As reactors have permanently shut down, the staff
10 has been primarily using the existing Part 50 regulations to
11 address decommissioning issues and process. This has
12 resulted in a number of problems because Part 50 was
13 primarily written with a focus on operating reactors.

14 A common result of this situation is that
15 licensees of decommissioning reactors have had to rely on
16 seeking relief, regulatory relief, in the form of exemptions
17 and amendments to their licenses. That process has not been
18 the most efficient with respect to staff and licensee
19 resources.

20 In an effort to be more efficient, the Staff, with
21 Commission direction, is developing a holistic approach to
22 decommissioning regulation that is intended to be less
23 burdensome for facilities, while continuing to provide
24 assurance that public health and safety are maintained.

25 The Staff has engaged our stakeholders on this

1 issue. There has been a healthy exchange of information and
2 views on many facets of decommissioning, and we believe we
3 are systematically developing the technical basis that will
4 support proposed changes to NRC regulations.

5 Today, we plan to provide a status report on our
6 continuing efforts.

7 Joining me at the table today are Sam Collins,
8 Director of the Office of Nuclear Reactor Regulation; Bill
9 Kane, Director of the Office of Nuclear Materials Safety and
10 Safeguards, John Greeves, who is the Director of the
11 Division of Waste Management in NMSS.

12 I have Stew Richards on my left, who is the
13 Project Director for Region IV and Decommissioning. Next to
14 him is Bill Huffman, Project Manager in the Office of
15 Nuclear Reactor Regulation, and Diane Jackson, who is the
16 leader of the Technical Working Group in NRR.

17 Let me turn the presentation now over to John
18 Greeves.

19 MR. GREEVES: Yes--is this microphone working?
20 Good, all right, thank you.

21 I'm really just going to address Slide 3, and I've
22 got three messages that I want to convey with this slide:

23 The first is that we do have an integrated program
24 with the Staff and the Regions on this process.

25 Second, I would point out that there are

1 wide-ranging issues associated with this reactor
2 decommissioning program that actually go beyond the SECY
3 paper that you have and that Commissioner Merrifield
4 mentioned; that a number of the stakeholders, in fact, will
5 be bringing up other issues.

6 The third point is that the Staff can respond to
7 these other issues. We're fully prepared to do that at
8 whatever time the Commission wants to ask us to address
9 those questions, especially the spent fuel cask question
10 that Commissioner Merrifield identified in terms of what is
11 limited bout that process, and what improvements we can
12 make. We're fully prepared to address those at your
13 pleasure whenever you're ready.

14 As far as the integrated approach, we briefed the
15 Commission in the past about forming a Decommissioning Board
16 that all of the entities on the Staff attend. We meet every
17 two weeks.

18 And there are some examples listed on this chart
19 of activities that come up in this environment. For reactor
20 decommissioning, NRR has the lead. They have a project
21 manager, and they have the early-one issues, a number of
22 which are covered in the subject SECY paper.

23 In the longer term, these projects get turned to
24 NMSS, and we go through a transition process. So the
25 Decommissioning Board helps in that environment.

1 The NMSS responsibilities include the dry cask
2 storage issue that Commissioner Merrifield mentioned. There
3 are a number of topics associated with that, and the license
4 termination process, which goes towards the license
5 termination rule, the '97 rule that is very important in
6 terms of setting the decommissioning criteria for the
7 reactors and really all the rest of the sites.

8 Also, it's a question of how much can you leave
9 onsite? You'll be hearing some of that from some of the
10 other stakeholders.

11 The Office of Research provides technical support
12 for all the others, including NRR and NMSS, especially on
13 some of the longer-term issues, for the entombment topic, we
14 have a workshop that we have coming on which we sent a paper
15 up to the Commission. So in December, there will be a
16 workshop for that.

17 There is a lot of concern about sites like
18 Barnwell, and how long are they going to stay open.

19 Another topic is dose modeling. The Commission
20 asked us to look into unnecessary conservatism that might be
21 contained in the dose models that we use, and Research is
22 working very hard on those issues, and would be available to
23 answer any questions on that particular topic.

24 And then, finally, the Regions are also part of
25 the Decommissioning Board. They're responsible for the

1 actual inspection of the site.

2 I'd also like to point out that they spend a fair
3 amount of time interacting with the site-specific advisory
4 boards that the utilities are setting up. So they go and
5 sit on the meetings with the oversight panels of citizens
6 that the utilities have, in fact, set up for these
7 particular sites.

8 And all of the Staff do interact with the
9 stakeholders frequently. We have workshops. Recently were
10 up at the Portland Workshop that NEI sponsored, and we have
11 website interactions, and we call for issue papers.

12 NEI and the Environmental Group recently sent us a
13 set of issues papers on so-called rubble-ization process,
14 and we packaged those together and will be forwarding that
15 to the Commission on an issue-specific type approach.

16 So that's just a bit of a summary, and as I said,
17 Staff is ready to respond to some of these wide-ranging
18 issues at the point the Commission wants to ask questions.
19 Thank you.

20 MR. RICHARDS: I'm Stew Richards, and I'd like to
21 provide a little background on what's transpired prior to us
22 coming to this meeting today.

23 On March 17th of this year, the Staff met with the
24 Commission to discuss decommissioning issues. At that
25 meeting, the Staff related our opinion that the regulations

1 applicable to decommissioning need to be clarified and
2 risk-informed.

3 Our intent is to streamline the transition from
4 the operations phase to the decommissioning phase, while
5 maintaining the appropriate level of public safety. The
6 Staff outlined our efforts in this regard in SECY 99-168,
7 dated June 30th of this year.

8 SECY 99-168 describes the Staff's efforts to
9 assess the risk associated with decommissioning and proposed
10 actions to restructure decommissioning regulations, and to
11 integrate existing rulemaking efforts.

12 Next Slide, please.

13 The Staff is here today to provide an update on
14 our actions in this area. In order to go forward with
15 risk-informed rulemaking, the Staff needed a solid technical
16 basis on which to base rulemaking.

17 Therefore, the Staff established the Technical
18 Working Group to assess the risk associated with
19 decommissioning activities. The Technical Working Group, in
20 turn, has established a process and a schedule to accomplish
21 that task.

22 That technical assessment is progressing, and we
23 have engaged both the industry and various public groups who
24 are involved in looking at this effort. And as stated
25 previously, when the Technical Working Group completes that

1 effort, we intend to incorporate their results into
2 rulemaking and move on from there.

3 With that, I will introduce Diane Jackson, the
4 head of the Technical Working Group.

5 MS. JACKSON: I will address the Technical Working
6 Group study, the work we've performed, our interactions with
7 the stakeholders, and our continuing work to finalize our
8 project.

9 Our effort, which started in April, is a study of
10 spent fuel pool accidents and its associated risks at
11 decommissioning plants. Our preliminary draft, which was
12 issued in June, included two key areas:

13 One was an estimation of critical decay time that
14 was required to preclude a zirconium fire, based on a
15 thermal hydraulic coat analysis and a risk assessment to
16 look at the potential for an accident during that period.

17 The risk assessment started with a broad set of
18 initiating events as shown in the slide. This starting
19 point was intentional.

20 For an accurate assessment of risk, all initiating
21 events need to be considered, and it's the product of the
22 analyses that will show us the sequences that are
23 significant.

24 Since the start of the study, we have had
25 significant interest from our stakeholders.

1 Next slide, please.

2 We've held several public meetings during our
3 preliminary study, and after the issuance of the draft,
4 including a two-day workshop in July. Issuing the
5 preliminary work in June was largely in response to
6 stakeholder interest, however, we felt that stakeholder
7 comments, and particularly industry input, could also assist
8 us in refining our assessment. We received many comments
9 during those meetings and in subsequent telecons, and
10 submittals we received.

11 A major industry concern that was brought out at
12 the workshop was that the risk assessment did not give
13 sufficient credit to plant conditions and personnel actions.

14 The Technical Working Group has had many followup
15 activities to address stakeholder concerns, in particular
16 Action Items that were taken from the July workshop.

17 In the next two slides, I'd like to discuss some
18 of the examples of our followup activities from stakeholder
19 comments.

20 Next slide, please.

21 In the area of human reliability, there was a
22 concern raised that there was insufficient credit in the
23 risk analysis for operator response due to adverse plant
24 conditions.

25 Since there are no automatic systems in spent fuel

1 pools, there is a heavy reliance on human response. Staff
2 took an Action Item at the workshop to solicit comments from
3 outside experts and from stakeholders to identify conditions
4 that would support the assumption of high human reliability.

5 These conditions are things such as training\
6 procedures or alarms. We issued a strawman for comment in
7 mid-August to two human reliability experts and to the
8 stakeholders.

9 We received no technical comments from the public,
10 however, from our expert feedback, we are reassessing our
11 human reliability assumptions for our final risk assessment,
12 and this work is currently ongoing.

13 For seismic events, the Staff was concerned that
14 there are some plant designs that would fall outside of our
15 assessment.

16 NEI took an Action Item at the workshop to propose
17 a checklist that would identify potential pool
18 vulnerabilities, compared with the nominal plan. NEI
19 submitted this checklist to us in mid-August. We had a
20 telecon to discuss it, and currently the Staff and an
21 independent reviewer is looking at the checklist. We plan
22 to have more interactions with NEI on this topic area in the
23 future.

24 For heavy load movements, the concern was that
25 sufficient credit was not given in the risk analysis for

1 protective measures for heavy load drops. NEI proposed
2 industry commitments for the prevention and mitigation of
3 heavy load drops.

4 The Staff reassessed its heavy load analysis with
5 the inclusion of NEI's proposal, and also with additional
6 technical data we had, and improved statistical analysis,
7 and this reassessment is currently undergoing independent
8 review.

9 Next slide, please.

10 A concern has been raised from a member of the
11 public that the draft study did not sufficiently address the
12 potential for criticality. To address this area, we are
13 going back to reassess the issue based on an expanded scope
14 of scenarios, and also to look more closely at the sequence
15 of events that must occur to reach a criticality.

16 One of the deterministic analyses that was
17 performed was an adiabatic spent fuel heatup calculation for
18 which there was a concern that it was overly conservative.

19 The Staff performed this calculation as one of
20 several parallel paths during the preliminary study. For
21 deterministic analyses there is a benefit that we have to
22 look at between using conservative assumptions to make a
23 simplistic calculation using more realistic assumptions that
24 may make the calculations more complex and time-consuming.

25 We are looking for a manageable calculation that

1 will produce a useful solution. Our efforts have shown in
2 this area that the calculation is not a useful criterion for
3 generic application, so at this point, we currently do not
4 have any plans to use this as a part of our bases.

5 These are a few of the stakeholder concerns that
6 we are addressing. There are other concerns that have been
7 raised, such as concrete aging and safeguards that are also
8 being addressed by the Technical Working Group.

9 In addition to these followup activities, the
10 Staff is continuing with its planned work to finalize the
11 study. We are having additional technical work performed to
12 augment our original assessment, particularly in the areas
13 of thermal hydraulics and PRA.

14 There is an independent technical review in
15 progress of our draft report. We also provided the
16 independent reviewers with any stakeholders inputs as a
17 balance for their review, and we are working to apply the
18 risk-informed principles of Reg Guide 1.174.

19 The next slide lays out the principles of
20 risk-informed decisionmaking from that Reg Guide. To have a
21 risk-informed, rather than a risk-based study, we need to
22 apply all the principles of risk-informed decisionmaking.

23 One of the principles compares the risk from a
24 plant change to guidelines on increases in core damage
25 frequency or larger early release frequency. We have found

1 that spent fuel pool accident frequencies and consequences
2 do not fully equate to either a CDF or LERF, so we are
3 trying to define an analogous criterion for decommissioning
4 spent fuel pool accidents.

5 We are also balancing the need for
6 defense-in-depth, safety margin, and the ability to monitor
7 performance.

8 Based on all these inputs, the risk assessment,
9 the deterministic analyses, the stakeholder input, industry
10 commitments, and the risk-informed decisionmaking
11 principles, we believe we can develop a realistic
12 risk-informed assessment.

13 I think one of the keys to a realistic assessment
14 are industry commitments that can be credited in our
15 assessment.

16 Next slide, please.

17 In summary, the Technical Working Group is
18 following its plan to finalize its assessment, and to
19 address stakeholder concerns.

20 We believe these activities will result in a solid
21 technical basis for the development of rulemaking and for
22 interim exemption criteria. We plan to release a
23 draft-for-comment report in early January, and the final
24 report, after a public comment period, in early April.

25 This concludes my presentation on the Technical

1 Working Group Study.

2 Are there any questions from the Commission?

3 MR. RICHARDS: We have two more slides from Bill
4 Huffman on the integrated rulemaking.

5 CHAIRMAN MESERVE: Why don't we see those and then
6 we'll go to questions.

7 MR. RICHARDS: We'll do that.

8 MR. HUFFMAN: Hello. My name is Bill Huffman, and
9 I'm the lead Project Manager in charge of the rulemaking
10 effort for decommissioning rulemaking.

11 Ultimately, the product of this Technical Working
12 Group effort is improved, predictable, concise, efficient,
13 decommissioning regulations that are safe and will elicit
14 the confidence of the public.

15 As directed to us by the Commission on March 17th,
16 in a meeting, and subsequently in an SRM, we were directed
17 to look at an integrated, holistic approach. To that
18 effort, we decided that first we needed a foundation, a
19 technical foundation, which the Technical Working Group is
20 in the process of providing to us.

21 Once that foundation is provided, we will carry
22 forward in two different regulatory efforts: One is a
23 near-term integrated rulemaking effort that addresses
24 rulemakings that were already in progress and are amenable
25 to the outcome of the Technical Working Group's assessment.

1 The second, although not specifically asked for,
2 is a longer-term effort of clarifying the entire regulatory
3 structure of decommissioning in an effort to provide a
4 confidence level of what exactly is required for
5 decommissioning from the time a reactor certifies permanent
6 shutdown to license termination.

7 The first effort, the integrated decommissioning
8 rulemaking effort, involves five rulemaking areas:
9 Emergency planning, safeguards, insurance, backfit, operator
10 staffing and training.

11 These rulemakings were in progress prior to the
12 March 17th Commission meeting. We stepped back and looked
13 at them and agreed that all these areas would definitely or
14 could definitely be impacted by the results of the Technical
15 Working Group.

16 Until the Technical Working Group's effort is
17 completed and recommendations and criteria are developed, we
18 are somewhat waiting for moving forward in this effort.
19 Although we anticipate having an integrated rulemaking plan
20 to the Commission by the 31st of May of the year 2000, which
21 will lay out our long-term schedule for completing that
22 rulemaking effort, and explain to the Commission, how the
23 results of the Technical Working Group will be applied to
24 rulemakings in this area.

25 Next slide, please.

1 The Decommissioning Regulatory Improvement
2 Initiative is a longer-term effort. It's a comprehensive
3 review of all of the reactor operating regulations
4 throughout Title 10, and how and if they are applicable to
5 decommissioning as well.

6 It may be simply an effort of placing
7 decommissioning in the scope of a regulation, or may involve
8 a more detailed review or modifications of the regulations
9 because of nonspecific applicability. These modifications
10 ultimately will clarify and provide confidence to both the
11 industry and the stakeholders, public stakeholders, and the
12 Staff.

13 In our initial screening of these regulations,
14 we've identified 41 potential areas for clarifications, such
15 things as technical specifications, quality assurance,
16 fitness for duty, and even the applicability of a control
17 room in a decommissioned reactor site are examples where we
18 have to clarify regulations.

19 We also have employed a contractor to do a
20 thorough and comprehensive documentation of the
21 applicability of these regulations, and that contract is now
22 in progress. In addition, we have recommended that instead
23 of leaving the regulations where they are, we consolidate
24 the regulations into a separate part of unit so that they
25 will all be located together and will be easily reviewable

1 and locatable by all people involved in the regulatory
2 process.

3 We anticipate a rulemaking plan that will lay out
4 long-term resources and schedules for this effort by July of
5 2000. That completes my presentation.

6 DR. TRAVERS: That completes the Staff's
7 presentations. We are familiar with the issues that have
8 been raised in the NEI's slides, and at your discretion, we
9 can address Commissioner Merrifield's questions at this
10 time, or following the presentation by stakeholders,
11 whichever you desire.

12 CHAIRMAN MESERVE: Since the issue has been raised
13 about particularly the casks, why don't we respond to that
14 now, and then proceed.

15 DR. TRAVERS: Good. Let me turn it over to Bill
16 Kane.

17 MR. KANE: WE have a presentation by Bill Brach,
18 who is Director of the Spent Fuel Office. Since I did have
19 that assignment myself a year and a half ago, I would like
20 to make some remarks here to place in context, what we're
21 gong to tell you here.

22 In mid-1998, we had, because of problems with what
23 I will call operating spent fuel cask designs, we diverted a
24 substantial amount of resources over to the inspection in
25 order to gain resolution of a number of issues, one related

1 to welds, in order to be in a position where we could
2 approve those designs for continued loading of fuel.

3 Some sites were coming up to a point where they
4 could no longer--where their fuel pools were filling up and
5 they could not offload fuel.

6 In about mid-1998, we set up schedules to review a
7 large number of dual purpose cask designs that were
8 backlogged at that time. We set up very disciplined review
9 schedules really to look at and review all of the designs
10 that were before us by six vendors.

11 We established strict schedules for conducting
12 those reviews, and all were met by the Staff with no
13 exceptions.

14 The process, though, was based on, because of the
15 intertie of all of these applications in the review process,
16 and the necessity to move our resources back and forth
17 amongst these various designs, that we adhere to getting
18 these reviews accomplished on time.

19 We certified what was submitted and could be
20 accomplished in the timeframes established; that is, where
21 there were open issues that could not be resolved, we
22 conditioned the designs to certify what could be from a
23 safety standpoint, loaded in these casks.

24 In parallel with that, we recognized that there
25 were a number of open issues, generic issues, and we

1 established a process engaging in workshops with utilities,
2 with the vendors, to flesh out basically what these concerns
3 were, where additional guidance was needed.

4 And we issued over a period of time, some 12 what
5 I will call interim staff guidance memoranda. These
6 supplemented the existing standard review plans.

7 Nonetheless, we recognized that this process would
8 result in multiple amendments for some applications. The
9 reasons for that are, I think, twofold:

10 One was that in many instances, the fuel that was
11 in the fuel pools was incompletely characterized, so it was
12 not all identified in the initial applications.

13 Other reasons included the resolution of the
14 generic issues. Over time, we've given approval for taking
15 credit for burnup, called burnup credit.

16 We also issued staff guidance that dealt with how
17 failed fuel was to be handled, and that process is
18 continuing. In the area of rulemaking, we're going to have
19 Bill touch on that, and describe to you some of the
20 accomplishments that we have made in the rulemaking area,
21 and some that we are continuing to make.

22 I believe that more can be done in the amendment
23 process. I think further gains can be made. But I'll have
24 Bill now go into a discussion of what were the outcomes,
25 what have we accomplished, and, in more detail, what work is

1 yet to come.

2 MR. BRACH: Thank you. My name is Bill Brach.
3 I'm Director of the Spent Fuel Project Office.

4 In response to Commissioner Merrifield's question,
5 we did receive the NEI slides in advance, so I have a few
6 comments that are prepared in having an opportunity to
7 review those before the meeting.

8 What I'd stress is that I believe it's very
9 important to keep in context, the NEI slides with regard to
10 current spent fuel management activities. The slides do
11 identify a number of concerns which have been recognized,
12 some of which have been addressed, some of which are in
13 stages of being addressed right now.

14 I want to highlight three examples to support my
15 observations and comments: First, one of the NEI slides
16 states that decommissioning plants can't decommission their
17 pools. As Bill had mentioned, that's been a significant
18 lesson learned in the past with regard to the need on the
19 part of the licensees and vendors to closely coordinate to
20 ensure the cask application clearly encompasses and
21 envelopes all the fuel in the spent fuel pool.

22 I'll will mention as a positive example, just
23 recently, Mr. Meisner, who is representing Maine Yankee, had
24 discussions with the vendor for the Maine Yankee facility.
25 And they described to me how in preparing the application to

1 us for the casks, they sat down with the utility, with Maine
2 Yankee, and reviewed the fuel characteristics for all the
3 spent fuel in the pool so that the application to us would
4 envelop all the fuel in the pool so that we would have
5 hopefully just a one-time-through in a cask review with
6 subsequent amendments, as Bill had mentioned.

7 Another, second point and example I wanted to
8 raise: One of the NEI slides as well points out that
9 operating plants cannot unload their fuel. I want to stress
10 that clearly within the Spent Fuel Project Office, as well
11 as the Agency, that safety is always our top priority.

12 When a safety issue arises, we reschedule and
13 re-lay out our work plans with regards to addressing that
14 immediate safety issue.

15 I want to stress that in the Spent Fuel Project
16 Office our second priority, the priority following the
17 safety issue is the operational need of the licensee, and
18 clearly off-load capability for a reactor is an operational
19 need.

20 That second priority is clearly very high on our
21 list, and I believe we're adequately addressing those needs.
22 Personally, I'm not aware of a reactor whose operations
23 today are currently limited by the inability to off-load
24 their fuel.

25 A third area I want to mention and that Bill

1 identified as well, is the area of rulemaking, and that is
2 one, Commissioner, Merrifield, that you had highlighted as
3 well.

4 Yes, I do agree with the NEI comments that it's a
5 very resource-intensive activity. I will stress, though,
6 however, that the rulemaking process really is well-defined
7 and also very predictable. There clearly are areas and room
8 for improvement in the rulemaking process.

9 In the last year, the Commission gave approval for
10 the Staff to proceed with three initiatives to improve the
11 rulemaking process, to streamline it and improve timeliness.

12 The three examples: One is that the Staff no
13 longer has to prepare a rulemaking plan for each cask
14 rulemaking, as that proceeds; secondly, authorization has
15 been delegated from the Commission to the EDO for the review
16 and approval and signature of the rulemaking for cask
17 activities under Part 72; and, the third initiative is that
18 we have tried and are implementing, a direct final
19 rulemaking approach to try to expedite the rulemaking
20 activities for amendments to casks.

21 That's an activity we've just initiated and with
22 regard to experience, we are yet to be able to demonstrate
23 the resource savings, but we clearly anticipate that if we
24 are able to go through direct finals instead of a proposed
25 rulemaking process, there would be many efficiencies gained.

1 I do want to stress that over the last year, we
2 have established schedules for all of our major casework,
3 all of our dual purpose, spent fuel storage and
4 transportation cases, as well as all of our site-specific
5 independent spent fuel storage installation facility
6 reviews, and we've met all of those schedules over the last
7 year.

8 So, in closing, I do want to note that I very much
9 agree that there is much more work to do with regard to
10 spent fuel management activities. I believe we're working
11 with the industry. We've had a number of workshops, just in
12 the last six months on a number of technical issues.

13 But I believe we have made much progress, but
14 there is much more to make. Thank you.

15 CHAIRMAN MESERVE: Commissioner Dicus could not be
16 with us today, but she did have her staff send me a few
17 questions. There are several of them, but there is one that
18 she raised that bears on the initial presentation you made
19 on the decommissioning rulemaking.

20 She expresses concern that this whole rulemaking
21 process is one that's going to extend over three or four
22 years at least. And she wonders whether there is a way to
23 do some of these things in parallel.

24 And if you'll point--as an example, point to Slide
25 13. One of the bullets indicates that you need to have the

1 spent fuel pool risk study in final before proceeding with
2 the rulemaking.

3 And she has raised the question as to whether it
4 might not be possible to at least collapse this by several
5 months by finding a way to be moving out on the rulemaking
6 with obviously a draft in proposal form while that study is
7 being completed. And that period will assume draft to
8 final.

9 MR. HUFFMAN: There may be some efficiency gained
10 by moving forward in parallel, once the Staff issues a draft
11 final report. We have to presume that most of the
12 conclusions in there will be pretty close to an endpoint at
13 that point in time.

14 The thing is that I don't want to get in front of
15 the Technical Working Group. I can't presume what their
16 answers are until I get the answers.

17 As soon as I have fairly good confidence of what
18 the answers are, then I believe, yes, we can move forward in
19 parallel and perhaps gain some efficiency of several months
20 in that area.

21 MR. COLLINS: Mr. Chairman, I believe there are
22 opportunities within the planning and budgeting process to
23 receive direction from the Commission on those priorities.
24 Clearly, if the Commission were to determine that
25 accelerating rulemaking is one of those priorities, then the

1 staff has the capability under our current budgeting methods
2 to provide those options to the Commission, and what the
3 impact would be.

4 CHAIRMAN MESERVE: I think that the thrust of the
5 question was not so much whether it's a priority issue, but
6 whether it was essential to complete the Technical Working
7 Group product before you could proceed on the process of
8 developing the rules, and if there is a way to collapse
9 that, that would make some sense to do it, and not
10 significantly affect resources.

11 Mr. Diaz, do you have any questions?

12 COMMISSIONER DIAZ: Yes.

13 Let's see, 78.

14 (Laughter.)

15 COMMISSIONER DIAZ: Let's see if I can collapse
16 this for the sake of our anatomy or whatever it is.

17 Let me start at the end, on the rulemaking effort.
18 I'm concerned that if this rulemaking has progressed, that
19 there has really not been an effort to focus the rulemaking
20 into those issues that are really, really important.

21 There seems to be a certain amount of
22 proliferation of issues, and I think the Commission looks to
23 the Staff to start a rulemaking and zero in on those things
24 that are really significant.

25 And we have two tools in this Commission now to do

1 this: One is the old one, which is the technical basis,
2 which has been referred to and about which I'm going to ask
3 in a minute, what does it mean, a sound technical basis?

4 Because without a sound technical basis, you
5 cannot progress. And it seems to me like you have taken an
6 inordinate amount of time to come up with a sound technical
7 basis or what does sound technical basis means.

8 It is indispensable, not only in this rulemaking
9 and in others, that the Staff discriminate against issues
10 that are not safety-significant, to zero in where the issues
11 at hand are, not to keep continuing to be looking at things
12 that are on the side, and that are not significant.

13 It is not possible to continue to do that, because
14 we are a safety focused-agency. Having made that comment, I
15 would look forward to reviewing what this decommissioning
16 rulemaking plans will be.

17 But now let me turn to the two questions: There
18 are two issues in here that are playing into the
19 decommissioning plan. The first things is the development
20 of a sound technical basis.

21 And the Staff had many months to develop it, a
22 sound technical basis. It's not the argument of the
23 adiabatic, you know, calculation, or where it goes, although
24 I think that started some of this process. In essence,
25 that's the only thing that the NRC has complete control of,

1 of what is the technical basis in which we make the
2 decisions.

3 And, therefore, it is imperative that that work
4 goes fast, goes accurate, zeros in on what the issues are.
5 So, my first question is, what do you mean, what does it
6 mean in rulemaking grounds to have a sound technical basis?

7 What does it entail? What are the issues that are
8 a part of that sound technical basis?

9 MR. RICHARDS: I'll take a stab at that,
10 Commissioner. What we were looking for from the Technical
11 Working Group was to take a look back in time at all the
12 previous review efforts that have been done to address the
13 decommissioning area. And there has been a lot of work done
14 to bring that all together, to update that with any
15 additional knowledge they were able to bring to bear, and
16 basically to bring together an integrated knowledge of the
17 risks associated with decommissioning.

18 I think that the industry maintains that the risk
19 is very, very low, and that for that reason we can provide
20 them relief in the regulations from things such as emergency
21 planning, financial protection, and safeguards areas.

22 We've done that on a case-by-case basis with
23 plants, and we continue to entertain those exemption
24 requests while this effort is ongoing. But rather than do
25 it on a case-by-case basis, which is resource-intensive for

1 both the industry and the Agency, we'd rather just enter it
2 into the regulations.

3 We felt that in order to do that, we needed to
4 have a solid understanding of the risks, because, you know,
5 the assumption here is that the risk is low, and, therefore,
6 you can provide relief on these items.

7 So, like Diane Jackson explained, the Technical
8 Working Group took a look at all the different events that
9 they could think of that could occur with a plant undergoing
10 decommissioning. They came up with a very extensive list of
11 events. We shared with that the industry and with our other
12 stakeholders, early on in the process.

13 They went through a screening process where I
14 think they whittled out the things that they felt were
15 pretty obviously not of great concern, and they zeroed in on
16 the issues they thought had the potential to cause offsite
17 releases.

18 They gathered together the information they had
19 from past studies, and they have tried to apply PRA methods
20 to come up with a risk-informed feeling for where are the
21 vulnerabilities here, and what are the probabilities that
22 some of these kinds of events could happen.

23 It's boiled down to three that Diane mentioned:
24 the heavy load issue, the personnel errors, and seismic.
25 We've shared that with our stakeholders, we have gotten a

1 lot of good feedback, and we're trying to characterize how
2 likely those events are to cause a zirc fire.

3 I think that when you get down to the bottom line,
4 if you don't have a zirc fire, you don't have a means to
5 transport that spent fuel offsite, that can cause a problem,
6 and then the other risks associated with decommissioning
7 tend along the line of problems with liquid and gaseous rad
8 waste onsite, those kinds of things.

9 COMMISSIONER DIAZ: My concern is how long does it
10 take to achieve convergence on a sound technical basis? I
11 mean, obviously the NRC should be the world expert on spent
12 fuel pools. It's not a new science. There is nothing that
13 you discovered last year.

14 MR. RICHARDS: No, sir.

15 COMMISSIONER DIAZ: No, you got it, right? So,
16 convergence on spent fuel technical basis should not be an
17 issue of months and a laundry list that then you can go
18 down; it's something that you could zero in on it.

19 This is my concern with this. I have not seen
20 that process quickly acting, making sure that we are focused
21 on those things that we have significant technical knowledge
22 of, and we can pare down quickly, so our efforts, which are
23 resource-limited, can go into those areas that are
24 important.

25 MR. RICHARDS: Let me just provide one thing. I

1 don't know if Diane touched on this before, but one of the
2 things we've learned about decommissioning plants is that
3 they don't look like operating reactors.

4 Mr. Meisner and NEI will probably tell you about
5 their nuclear island concept, but when they shut down and go
6 into decommissioning, they quickly have the potential to
7 eliminate a lot of the systems that previously would have
8 been able to provide backup support to the spent fuel pool.

9 They may put in a stand-alone spent fuel pool
10 cooling system. They may eliminate the emergency diesel
11 generators and put in a smaller backup diesel.

12 And all of these things seem to be appropriate.
13 I'm not criticizing the actions taken by the industry, but
14 it's not something I think previous staff studies had
15 considered as far as assessing the risk.

16 For instance, NUREG-1353 is frequently referenced
17 as a good Staff effort to assess the risk associated with
18 spent fuel pools, but that NUREG was based on an operating
19 reactor with all the additional safety systems and multiple
20 sources of offsite power and what have you to go along with
21 it.

22 So, I think when we went into this after March, a
23 lot of us felt that it would not take a lot of effort to
24 determine that the risk was small, but I think to the
25 Technical Working Group's good measure, they decided to take

1 a hard look at this and they decided that, no, you can't
2 usually dismiss these things.

3 I think there is some convergence, though, because
4 the industry has come back to us and provided us with a lot
5 of valuable information on how they go about doing what they
6 do, and they provided us commitments on steps they're
7 willing to take to ensure that the risk is small.

8 I think the Technical Working Group still has a
9 ways to go. Our schedule calls for the draft report at the
10 end of the year for public comment, and we're still getting,
11 I think, valuable input from our public stakeholders, but
12 we're miles past where we were in March and a long ways
13 since July when we had our workshop.

14 COMMISSIONER DIAZ: I'm sorry, Mr. Chairman, but
15 just to finish with this, of course there is the
16 risk-informed program that the Commission charged the Staff
17 with doing. Do we have goals? Do we have a program that
18 the Commission can look at that clearly says this is what
19 the risk-informed objective regarding decommissioning is?

20 What are we trying to achieve? In other words, I
21 get concerned that people go into risk-informed
22 probabilistic assessment with kind of an open charge, you
23 know, let me find whatever it is. But in this case, the
24 issue is framed, just like it doesn't have, you know, the
25 redundancy capabilities of multiple sources of power, it

1 certainly doesn't have the complexity, it certainly doesn't
2 have the source term. It certainly doesn't have the heat
3 load.

4 There is a series of issues, one after the other,
5 that would allow risk-informed to say, okay, I'm going to
6 look at these issues, I'm going to have a program that meets
7 a series of goals, and I'm going go to that program, and
8 I'll make sure that that exists, if it exists.

9 MR. RICHARDS: That's a very good question. I
10 think Diane touched on that with the slide that talked about
11 Reg Guide 1.174.

12 Basically, when you're looking at this particular
13 event, it doesn't fit well into that Reg Guide, and the
14 Technical Working Group is challenged to determine what is
15 the acceptable criteria. We don't have an answer today for
16 you.

17 That is on their list of things to do, so to
18 speak. We need to enter into dialogue with our stakeholders
19 further on that issue.

20 The good news, like you said, is that the system
21 is very simple. It's passive. It's a big pool of water
22 sitting there. You know, kind of the bad news is that you
23 have no containment, and you have maybe multiple cores in
24 the spent fuel pool.

25 So it presents a different challenge from that

1 addressed by Reg Guide 1.174, and, again, we don't have the
2 answer, but we recognize the question, and the Technical
3 Working Group is working on getting that answer.

4 COMMISSIONER DIAZ: Thank you, Mr. Chairman.

5 CHAIRMAN MESERVE: Mr. McGaffigan?

6 COMMISSIONER MCGAFFIGAN: I'll try to run through
7 a series of shorter questions, but I'll start off by saying
8 that my reaction to the question that you, Mr. Chairman,
9 raised for Commissioner Dicus, and that is that we probably
10 do need this study in final before we go.

11 It's been very controversial and the study that we
12 put out in January may not be the final word, depending on
13 what it says, and people, including myself, don't know what
14 it's going to say.

15 This whole area--we were on multiple tracks, each
16 of which needed this technical basis. And we didn't have
17 it, and that's why all those rulemakings came to a grinding
18 halt.

19 I think part of the answer to Commissioner
20 Diaz's--I'm sort of answering other Commissioners'
21 questions--I think part of the answer to Commissioner Diaz
22 as to why it's taking so long is that we have a lot of
23 precedents that aren't necessarily that aren't necessarily
24 the greatest precedents as we handled these things
25 one-by-one on an ad hoc basis.

1 Mr. Zwolinski is sitting behind Mr. Greeves over
2 there, and Maine Yankee exercised its rights for a backfit
3 review on certain Staff decisions, and Mr. Zwolinski's panel
4 was quite critical of the Staff, and the Staff, in turn,
5 argued with Mr. Zwolinski. But it's clear that we had some
6 significant disagreement that needs to be worked through,
7 and in public and in an open, transparent way.

8 My questions, let me just run through them--

9 COMMISSIONER MERRIFIELD: Commissioner?

10 COMMISSIONER MCGAFFIGAN: Yes?

11 COMMISSIONER MERRIFIELD: Just so it's a clear
12 record, if I may state that I agree with Commissioner
13 McGaffigan that this is an area which has engendered
14 significant interest and input from the Commission, and one
15 which I think we will need to continue to closely follow,
16 given the significant nature and impact on the licensees and
17 our Staff as we move forward.

18 COMMISSIONER MCGAFFIGAN: Let me just run through
19 of series of what I think are bite-size questions:

20 Who is the independent contractor supporting your
21 group?

22 MS. JACKSON: The independent technical review
23 we're having done is done by many groups.

24 COMMISSIONER MCGAFFIGAN: By many groups? It's
25 not a single contract?

1 MS. JACKSON: It's not a single contract and
2 depends on their area of expertise. Then we went to
3 different groups.

4 COMMISSIONER MCGAFFIGAN: The rule itself, you lay
5 out a group of areas -- I think it is on Slide 13 --that the
6 rule is going to cover, the comprehensive rule. And I will
7 tell you that I'm not sure you have them all yet.

8 I mean, these happen to be the rulemakings that
9 you had underway in one form or another, but things like
10 fitness for duty come up that isn't on the list, but I think
11 that it was promised at some point; that a technical error
12 we may or may not have made back in '96 might be corrected
13 in this rulemaking.

14 I don't know the process for tech-spec amendments.
15 Maybe that's something that you just transpose over, but one
16 of things that Oyster Creek was going to do before it
17 decided that it's going to run and be sold, but they were
18 going to come in for what they called Mode 7 tech-specs in
19 advance of shutting down.

20 It would have been the first time that had been
21 done, and it would have been an interesting experiment to
22 have done it.

23 But I don't know whether the integrated
24 decommissioning rule will deal with how one comes in and
25 gets their decommissioning tech-specs ahead of time, so that

1 that process can be efficient.

2 Are there other things that you plan to cover in
3 this integrated decommissioning rule?

4 MR. HUFFMAN: No.

5 On page 14, the second rulemaking effort, which is
6 a longer-term effort, is where we had put in fitness for
7 duty, addressing criteria for decommissioning tech-specs and
8 other related things like quality assurance clarifications,
9 what the quality assurance should be at decommissioning
10 reactors.

11 COMMISSIONER MCGAFFIGAN: That's all in the
12 longer-term?

13 MR. HUFFMAN: That's a longer-term effort.

14 COMMISSIONER MCGAFFIGAN: It's not that much
15 longer-term, May 31st and July 2000.

16 MR. HUFFMAN: Longer term because it involves a
17 significantly larger cross section of rules, and we felt
18 that probably it would be more resource-intensive over the
19 long term.

20 We wanted to get something out more quickly that
21 addressed the near-term transition from operating to
22 decommissioning reactors where there seemed to be some
23 financial incentive on the part of the licensees to correct
24 these five areas.

25 COMMISSIONER MCGAFFIGAN: But the Mode 7

1 tech-specs will continue to be done just as a normal license
2 amendment under the current process? Is that how it's done?

3 MR. HUFFMAN: It is done as a license amendment.
4 It comes in and is actually done on a case-by-case basis.

5 MR. RICHARDS: Again, the reason we picked these
6 is that these are the ones that the industry typically
7 presses for, because the most resource savings occur there.
8 And then the others, we -- you know, we tried to prioritize
9 this based on, basically, I think, the industry preferences.

10 COMMISSIONER MCGAFFIGAN: On the backfit piece of
11 this, that's responsive to -- again, that wasn't one you
12 were working on, but we have given you guidance that we do
13 want to apply a backfit rule in this area. We told you to
14 apply the current one, 5109, but it doesn't totally lend
15 itself at times.

16 The plain English clearly didn't have
17 decommissioning in total mind as it was drafted. So that's
18 part of this process?

19 MR. RICHARDS: Yes.

20 COMMISSIONER MCGAFFIGAN: The technical analysis
21 itself is going to be required. Whatever requirements you
22 do put in in this rule, the technical analysis will have to
23 support a backfit analysis associated with this rule.

24 When does CRGR get involved in terms of -- you
25 know, whatever your technical results in, they're then going

1 to draft a rule and you're going to have requirements, you
2 know.

3 CRGR will look at the requirements and decide
4 whether they meet, I guess, the 5109 backfit test. Will
5 they?

6 MR. HUFFMAN: Yes, that's true. The rulemaking
7 process is very prescriptive, and when we propose a rule,
8 we'll have regulatory analysis, backfit analysis, additional
9 packages to support the rulemaking.

10 And as the review of that proposal goes through
11 the process defined by our procedures, administrative
12 procedures, CRGR, we'll be involved, as well as the ACRS.

13 COMMISSIONER MCGAFFIGAN: That's another thing.
14 The technical analysis, as I understand it, is going to make
15 judgments as to what -- how safe is safe enough, what the
16 risk is, the zirc fire.

17 In the backfit analysis, you'll do for the rule,
18 that will be another place where your analysis could be
19 challenged.

20 If individuals do not agree with the analysis -- I
21 remember that the shutdown rule was a classic case where
22 there was a wide range of views as to what the benefit of a
23 shutdown rule was, and that got adjudicated later in the
24 rulemaking. Indeed, I guess that on the second proposed
25 rule, we finally decided we wouldn't do a shutdown rule,

1 based on analysis that we had later.

2 MR. HUFFMAN: I think that when you get into the
3 --you get down the road a ways, I think you could probably
4 make the argument that changing these requirements and
5 requiring the plants to do a few things that they're not
6 doing right now, are not going to pass muster with the
7 backfit.

8 But I think our view is that we're going to
9 repackage this and offer it up to the utilities saying,
10 well, you know, here's a package deal that if you meet
11 certain requirements, you can get certain relief without
12 coming in with exemption requests, or you can do business
13 with us as a Part 50 licensee as people are doing now, which
14 is resource-intensive, and those are your two options.

15 And in that way we wouldn't backfit these new
16 requirements on licensees, though they would always have the
17 option.

18 COMMISSIONER MCGAFFIGAN: This is a fairly
19 important point. This rule would probably be a voluntary
20 rule? Is it sort of like risk-informed regulation?

21 MR. HUFFMAN: Unless we can come up with a sound
22 basis to require them to do it -- and I'm having trouble
23 imagining that -- but I think there is a lot of incentive
24 for people to go to the straight-line rule, rather than
25 trying to provide a lot of correspondence back and forth

1 with us on a case-by-case basis.

2 COMMISSIONER MCGAFFIGAN: On the human reliability
3 item I know that there has been some progress made. The
4 Staff today sent us this August 19th paper that had been
5 sent out for public comment, but I do want to note that I
6 think there was concern from the July discussions that we
7 were making very conservative assumptions. That one comes
8 particularly to mind and it is easier for a layman like
9 myself to try to grapple with how conservative the
10 assumptions were, but I hope that we are making some
11 progress in rationalizing because I don't think any sort of
12 risk analysis starts always with the worst or the
13 ultra-worst case and chooses all the parameters out there,
14 but I think it is clear from the August 19th paper that you
15 are soliciting views.

16 I will ask the industry later. I will warn them
17 why they have not commented on the August 19th paper, which
18 was put out for comment. I can see that lots of folks were
19 copied on it, and as I understand it you didn't receive
20 external comments from industry or other stakeholders on i
21 t.

22 MS. JACKSON: Yes, no technical comments.

23 MR. RICHARDS: One other point, Commissioner, I
24 would like to mention that the Office of Research is also an
25 organization inside the NRC that is providing us some

1 independent review and I believe they have some comments on
2 that paper. Is that right, Diane?

3 MS. JACKSON: Yes. One of our human reliability
4 experts that I mentioned came through the Office of
5 Research. It was a consultant who said they had provided us
6 input.

7 COMMISSIONER MCGAFFIGAN: There is one last
8 question and it is real short and I think the answer is
9 going to be no, but I will just ask.

10 Is there any help we can get from any other
11 foreign regulator who is going through this process or are
12 we ahead of them? You know, because people are
13 decommissioning reactors in Europe and I don't know whether
14 they are as rule-focused as the American jurisprudence,
15 thanks to all these lawyers we have got here, or they just
16 do it on a case-by-case basis and ad hoc it and get it done
17 but other -- are we aware of anybody who has gone through
18 this in France, Germany, Britain, et cetera, that could give
19 us any help?

20 MR. GREEVES: We have met with them on occasion
21 but I don't think they are as far along as we are and it is
22 really different country to country, so I don't have
23 anything I could feed back to you specifically.

24 I think lots of them are watching us.

25 COMMISSIONER MCGAFFIGAN: That is the answer you

1 gave John about four months ago when I asked about West
2 Valley and what if anything the British had to teach us at
3 Dunbury and your answer was no --

4 MR. GREEVES: -- sent you the same answer in
5 writing.

6 CHAIRMAN MESERVE: Commissioner Merrifield.

7 COMMISSIONER MERRIFIELD: First of all, I would
8 like to thank the Staff for responding relatively quickly to
9 my imploration. They addressed the cask issues.

10 I want to start off I think it is my understanding
11 that the reason we pursued limited certifications really
12 results from an immediate need on the part of the operating
13 fleet of reactors for certified casks and our inability for
14 resource and Staff purposes to resolve a lot of the
15 difficult technical matters in a timeframe that met the
16 industry's cask needs as it relates to these decommissioning
17 reactors.

18 In effect, it seems to me we were doing triage,
19 that we had a variety of reasons we had to deal with cask
20 issues and we were getting requests from industry and from
21 NEI to resolve a variety of them.

22 We took the most significant one first, and put
23 our resources there and then were going to continue to
24 resolve other issues in a timely manner.

25 Is that a wrong impression on my part?

1 MR. KANE: No, that's correct. I think one good
2 example of that would be perhaps the first application we
3 had in for review, which had a very broad scope. In fact,
4 it would have been, the original application would have been
5 scoped to really handle any site in the United States.

6 It turns out that there were some difficulties
7 with the seismic portion of the application, being able to
8 justify that on a safety basis. In conjunction with some of
9 the utility users of that application, it was elected after
10 discussions with us they elected to reduce the scope of the
11 application so it could be certified in a timeframe that was
12 consistent with the actual users so that they could address
13 their full core offload issues.

14 That is an example of how you may start off with a
15 very broad certification and end up with a somewhat narrow
16 one.

17 I will tell you that part of that was driven by
18 the schedules. We established schedules to almost in effect
19 cut the time in half for the review of one of these
20 applications, and it had very tight timeframes for responses
21 to this sort of request for additional information and when
22 we got near the end we had to make decisions on certain
23 areas. We elected to certify what was in effect certifiable
24 at that point and then move on to other designs.

25 The difficulty of spending long periods of time

1 with one vendor's application meant that we were in effect
2 penalizing some other vendors that were in the pipeline so
3 we did the best to make sure that we treated all the vendors
4 fairly. We addressed what we understood to be all the
5 full-core offload requirements fairly and I believe the
6 record will show that we did.

7 COMMISSIONER MERRIFIELD: In your slides NEI's
8 presentation emphasizes the need for the NRC to resolve
9 generic issues associated with the cask certifications.

10 Is there a common and clear understanding between
11 industry and the Staff and stakeholders as to what these
12 issues are and our projected timeframe for resolving them?

13 MR. KANE: Well, I believe that there are two
14 things. In fact, we met the other day on this subject --
15 last Thursday I believe -- and it was clear at that meeting
16 that there needed to be a real clear understanding in terms
17 of what was the top priority. I believe it is well-known
18 what the Staff is working on for the generic issues, but I
19 believe we could do a better job in terms of holding an
20 additional meeting or two to make sure that the work is
21 prioritized consistent with what the industry's needs are.

22 I believe -- I am not suggesting that I think it
23 is right now, but I think we need to make very clear that
24 that is the case.

25 Another thing that we concluded was that we need

1 to lay out in a public way all of the generic issues that we
2 are working on so that that is -- and the projected schedule
3 for resolution so that information will be available to all
4 the vendors and all the utilities.

5 COMMISSIONER MERRIFIELD: NEI has also raised
6 concerns about, and I think other Commissioners have touched
7 upon it, the inappropriate conservativeness in our approach
8 as it relates to human reliability, heavy loads, the spent
9 fuel heatup rates, and what they perceive is a bias towards
10 the upper bound.

11 Do you believe our follow activities are
12 responsive to these requests?

13 MR. KANE: Well, we believe so. Of course NEI may
14 address that area as well. I think in the area of burnup
15 credit, which a year or so ago was a very conservative
16 position because it just gave no credit at all. We
17 subsequently have issued interim Staff guidance which does
18 give credit and that position is now out and before the
19 vendors. I know that -- I am told that at least -- that
20 several are now planning to take advantage of it but that
21 remains to be seen.

22 That will of course result in further amendments
23 to their cask designs.

24 MR. RICHARDS: Commissioner, you mentioned seismic
25 heavy loads.

1 COMMISSIONER MERRIFIELD: Right.

2 MR. RICHARDS: And human reliability.

3 COMMISSIONER MERRIFIELD: Right.

4 MR. RICHARDS: And it sounds like R-3 -- is that
5 being addressed to the cask issue --

6 COMMISSIONER MERRIFIELD: No.

7 MR. RICHARDS: -- or the broader issue?

8 COMMISSIONER MERRIFIELD: No, you can address that
9 separately.

10 MR. RICHARDS: I think we are making progress in
11 that we have been in communication with the industry. They
12 provided a seismic checklist that we discussed at our July
13 workshop and that has been reviewed.

14 The Human Reliability document is out. They
15 provided us their input in the form of the Aaron Report, is
16 that right, Diane?

17 MS. JACKSON: Well, the Human Reliability didn't
18 respond to our Human Reliability. The Aaron Report came in
19 before that.

20 COMMISSIONER MERRIFIELD: But after the workshop
21 they provided us some information and we have I believe
22 factored that in or are factoring that in.

23 MS. JACKSON: As much as we can, yes. Some of the
24 things in the Aaron Report NEI said isn't -- are more
25 observations by Aaron than commitments by industry, so we

1 are getting a clarification from industry any time now on
2 what their commitments will be based on the workshop and the
3 Aaron Report.

4 COMMISSIONER MERRIFIELD: And likewise in the area
5 of heavy loads, of course that was addressed by and large
6 previously under NUREG-0612. The industry has said, hey, we
7 are going to commit to do what 0612 says. Like Diane
8 mentioned, I think that the industry came to our July
9 workshop with a number of commitments. It is on a
10 transcript, but to make sure everything is clear they were
11 going to provide us their commitments in writing in a letter
12 on the docket, and I think they were preparing that and we
13 are waiting for that.

14 But we are getting information on all three issues
15 and it is being factored in. I might also note that we are
16 getting information from our other stakeholders and it has
17 caused us to do additional work such as in the area of
18 criticality so it is, you know, it is from more than just
19 the industry.

20 COMMISSIONER MERRIFIELD: My last question in
21 light of getting input from other sources, in my vote in
22 99-168 I expressed the view that the Technical Working
23 Groups' report could benefit from the independent technical
24 review by ACRS. I am particularly interested in the issues
25 associated with the realism of the assumptions made by the

1 Staff in their analyses

2 Can you explain for me a little bit where you are
3 in terms of the ACRS review of the Technical Working Group
4 report?

5 MR. RICHARDS: We, or I should say Diane, made a
6 presentation to the ACRS on Friday. They were provided with
7 four or five inches worth of material in preparation for
8 that meeting, so they were provided quite a bit. We
9 understand that they have a letter in draft back to the
10 Commission with their views on the Staff's effort. Did they
11 ask for additional information? I don't recollect.

12 MS. JACKSON: No, they haven't. Are you
13 interested in the ACRS's opinion of the presentation? No?
14 Because --

15 COMMISSIONER MERRIFIELD: What I was looking more
16 for was just for you to explain to me sort of the plan of
17 working with ACRS, so we could get those results. I didn't
18 want to go into the detail of what they are going to be
19 reporting on.

20 MR. RICHARDS: I think we are at their beck and
21 call. They had a number of questions and things that the
22 Staff and Diane --

23 DR. TRAVERS: We are looking forward to getting
24 their letter, Commissioner, and we understand, we have some
25 preliminary indication as to what it is going to contain,

1 largely supportive, we believe, of the positions that in
2 draft were presented yesterday but as was mentioned we are
3 going to continue to keep them apprised and to get the
4 benefit of their thinking.

5 COMMISSIONER MERRIFIELD: Good.

6 MS. JACKSON: At the end of the ACRS meeting we
7 did have a short discussion with them to perhaps meet with
8 the subcommittees and then meet again with the full
9 committee at their discretion.

10 COMMISSIONER MCGAFFIGAN: Could I just ask one
11 question, a short one --

12 CHAIRMAN MESERVE: Sure.

13 COMMISSIONER MCGAFFIGAN: It's really on the ACRS
14 process.

15 Did you tell the ACRS more on Friday than you told
16 us today as to how you are going to resolve these technical
17 issues, you know, the human reliability, the heavy loads,
18 and whatever the third -- seismic. I mean for this January
19 thing, report, you already have draft conclusions and --

20 MS. JACKSON: No. We went more into the technical
21 detail of the history of it and what we were doing. Right
22 now we don't have any results. We didn't give results to
23 the ACRS that we are not giving to you.

24 COMMISSIONER MCGAFFIGAN: Okay, that's fine.

25 MS. JACKSON: We don't have any of those results

1 yet.

2 MR. RICHARDS: Their line of questioning is
3 somewhat different though.

4 MS. JACKSON: Yes, they did dive deeper into many
5 of the technical areas. This is the first time the ACRS had
6 heard from the Technical Working Group so a lot of the
7 preliminary work we did was discussed.

8 COMMISSIONER MCGAFFIGAN: I honestly think that
9 the Commission today is holding off in going into the
10 technical areas because we are waiting to see what has
11 happened. We are quite capable of raking you over the coals
12 too, if the ACRS hasn't --

13 [Laughter.]

14 COMMISSIONER MCGAFFIGAN: -- hasn't done it well
15 enough.

16 MS. JACKSON: I think they did a pretty good job.

17 CHAIRMAN MESERVE: We have another panel but Mr.
18 Diaz has asked if he could have one final question.

19 COMMISSIONER DIAZ: It is going back to the issue
20 of the genesis of the sound technical basis. I think it is
21 obvious that everybody knows that we have spent fuel pools
22 from California to Connecticut and many of them have been
23 there. When Commissioner McGaffigan said that we need to
24 have a very good technical process, it obviously is no
25 doubt.

1 My question is an issue of management of technical
2 issues. This is an issue the Commission has been facing for
3 a long time -- shouldn't we have sufficient technical basis
4 so when the issues arise they can quickly address it, and
5 that was really the point of the question before. It is not
6 something that is new to us.

7 Configuration management is different. The
8 technical basis to make decisions and analysis has and
9 should be there.

10 MS. JACKSON: I think when we were doing
11 case-by-case we had sufficient technical bases for each
12 plant. They were not risk informed bases, so going back now
13 to look at risk informed and generic application of our
14 bases has given us the reason to step back and look more
15 closely at it to make sure that we are not missing a large
16 chunk of the plants and that is what has taken us the extra
17 time is we are not going purely by when does a zirconium
18 fire never happen anymore. We are looking at what is the
19 risk in that timeframe and when are we comfortable in a
20 regulatory arena to reduce those regulations and that has
21 given us cause to think more about the issue and the
22 technical bases.

23 CHAIRMAN MESERVE: I would like to thank the Staff
24 very much. It is clear that we are going to have some
25 further discussions on this subject. I look forward to it.

1 We have another panel that should come to the
2 table now.

3 CHAIRMAN MESERVE: We have been joined by Ray
4 Shadis of the New England Coalition on Nuclear Pollution,
5 also Friends of the Coast, a part of the coast that I am
6 particularly fond of, namely Maine; Paul Blanch is an energy
7 consultant; David Stewart-Smith, who is the administrator
8 for the Energy Resources Division of the Office of Energy in
9 the State of Oregon; Lynette Hendricks, who is Director of
10 Plant Support for NEI; and Mike Meisner, who is Chairman of
11 NEI's Decommissioning Working Group and is President of
12 Maine Yankee.

13 We have limited time this afternoon, and so I
14 would like to give each of you an opportunity to make a
15 statement. I would ask that you try to keep them in the
16 order of five to ten minutes, absolute maximum, so that
17 there will be an opportunity for questions.

18 Ray Shadis, you are first.

19 MR. SHADIS: Thanks for the opportunity to speak
20 with you this afternoon. I need to first address an issue
21 raised by Commissioner Merrifield, and it has to do with
22 getting materials in on time. The materials that I provided
23 were not provided until this morning and I apologize for
24 that. We have my mother-in-law, who has been a mother to
25 me, on her deathbed, and we have had hearings to deal with

1 this week, and it just plain got ahead of us, so I mention
2 that by way of introducing the "human factor" into all this.

3 I have had conversations with nuclear utility
4 executives from Illinois, from Michigan and Connecticut and
5 Maine, and all of them have expressed surprise that the
6 public's attention seems heightened or more focused over
7 decommissioning than when they were running and operating
8 nuclear power stations and they wonder why that is, and I
9 think I might have some insights for you on that.

10 When Maine Yankee Atomic Power Company undertook
11 its site characterization and hired GTS Duratech and GTS
12 Duratech did a background paper as a preliminary to their
13 report, in it they laid out something that I hadn't
14 considered before. They said in the 23-year plus existence
15 of Maine Yankee Atomic Power Station that it had undergone
16 14 full power years of operation, capacity factor in the 68
17 percent range or something like that.

18 In that same week we were told that the most
19 optimistic date for the first spent fuel pickup from the
20 Department of Energy was the year 2023 and what I saw it as
21 was a tradeoff of, optimistically, 25 years of surveillance
22 and concern over stored spent fuel to 14 full power years of
23 reactor operation.

24 I think that in speaking to people throughout the
25 New England region I find that they are wondering what was

1 the value of the experience in hosting a nuclear power
2 station now that they are faced with spent fuel storage with
3 no terminus in sight. No one that I have spoken to in the
4 industry or in public advocacy groups or even in the state
5 governments believes that the Department of Energy is going
6 to come and start moving fuel in the year 2023, and even if
7 they do, their round-robin schedule stretches that fuel
8 pickup out another ten years or so by the time they get rid
9 of all of it.

10 I believe they start with the oldest fuel first,
11 go to the next plant, pick up some fuel, so they stretch the
12 whole process out, and so even in the most conservative
13 view, we are looking at trading off a commitment for another
14 couple of generations of our people to maintain surveillance
15 on nuclear materials which no one denies are harmful or
16 could cause harm to the public or the environment if they
17 escape from their packages.

18 So, yes, people's attention is focused on what is
19 going on. In addition to that, we have -- and I guess I am
20 in the mood for it this week -- we have a kind of final
21 state awareness. We are wondering what we are going to be
22 left with. The big questions, now that they are tearing
23 apart radioactive components, now that the spent fuel pool
24 is being isolated, the big questions are is there going to
25 be harm come to the public or the environment out of

1 decommissioning?

2 Finally, what is the legacy in terms of
3 radioactive pollution from the plant itself?

4 And people don't necessarily express it in those
5 terms, but in broad generalities that is where their concern
6 is, and so, yes, their attention is focused.

7 In preparing for this, and believe it or not I
8 actually did prepare for this talk, I reviewed Mr. Huffman's
9 outline of goals, and one of those goals was to secure
10 public confidence in decommissioning regulation. If I go
11 back and try to explain to our constituency across New
12 England what you are doing with decommissioning regulation,
13 I would have to characterize it in plain Anglo-Saxon
14 everyday street terms. I wouldn't be able to put it in the
15 technical terms and niceties that I have heard discussed
16 here earlier. I would have to say that the Commission is
17 not prepared for decommissioning, that their rules don't
18 apply, that now that we have started to decommission four
19 New England reactors, the Commission is considering writing
20 some rules about it.

21 We have, on one hand, a Staff that is diligently
22 trying to pursue some of the basic information. We have a
23 nuclear industry that is very antsy about getting this
24 operation moving. We have an NRC management that is pushing
25 the Staff to accommodate the industry and at this point we

1 don't know some of the basics.

2 Now there are burdens. Of course there are. I
3 noticed that Oyster Creek was mentioned earlier, that they
4 had actually tried to step in ahead of the game and provide
5 some of the information and analysis that would be necessary
6 to get their exemptions before they actually started
7 decommissioning. That would be Jim Hildebrand down at
8 Oyster Creek, and I think that he learned his
9 decommissioning lessons at the Saxon plant and having spoken
10 to him in the past I know that he, like the rest of us, is
11 looking for some certainty in this, and I think the nuclear
12 industry is looking for certainty to move forward.

13 I know that the public is. The public would like
14 to know with certainty what the window is for vulnerability
15 for a zirc fire or for any other phenomenon. We would like
16 very much not to have a resin filter fire at Maine Yankee.
17 We are sure that the offsite consequences would not trigger
18 Part 100, the emergency response, or any of the rest of
19 that, but we don't know that for sure, and we certainly
20 would like not to have any workers exposed and we would like
21 not to have the environment itself exposed.

22 If nuclear power stations are going to be using
23 caustic and corrosive washes to clean out their primary
24 piping, we would like to make sure that the valves in the
25 plant are not misaligned so that that caustic scrub or

1 corrosive scrub doesn't go overboard into public waters or
2 doesn't get flushed back into the spent fuel pool, and we
3 are looking to the Commission to pursue those interests.

4 I was appalled in listening to the conversation
5 earlier, and this may be my own prejudiced way of listening,
6 but what I heard was a lot of concern with getting the
7 process moving with the calendar, with whether or not the
8 Staff was indulging in esoteric investigations that really
9 had nothing to do with the practical matter of getting a
10 rule out so that we could get on with decommissioning, and I
11 can tell you that if I take that message back to the public,
12 their confidence in NRC regulation is going to decrease. It
13 is not going to increase.

14 One last point I would like to make, and I think
15 this is very, very important to us. Out in the public in
16 general members of the public, and when I talk about public
17 I am not talking about those that are totally unaware of
18 anything that is going on. I am talking about people who
19 live in the plant vicinity of the decommissioning plant or
20 people who are engaged in nuclear safety issues or
21 environmental issues -- that would be the public, an aware
22 public, that I am talking about.

23 They are not impressed by the tweaking of
24 regulations. I mean if you can have all of this going on
25 and you can involve stakeholders and the public is going to

1 be generally oblivious to it, and they are not going to
2 be speaking in terms of admiration for NRC over it. The
3 thing that impresses the public are the people that you send
4 out to the public meetings, the people that provide the face
5 of the Nuclear Regulatory Commission -- a group meeting to
6 NRC staff interface. And I would like to report to you that
7 the public is favorably impressed and that they are building
8 confidence, your staff members, in decommissioning
9 regulation; but, they're not.

10 I think some part of the resources of NRC need to
11 go into training staff people to respond to public questions
12 with total candor and with openness and without a fear that
13 when they get back to NRC headquarters, they're going to be
14 chastised for whatever they let out in public. Because what
15 we find, is we find two things, really: on one hand, we
16 find a defensiveness and an evasiveness in responding to
17 public questions from NRC staffers who are out there; and
18 the other thing they find is that we find NRC staffers, who
19 are totally not familiar with the subject matter they're
20 being asked about, putting out answers. We find them
21 essentially misinforming the public based on their own lack
22 of knowledge. I don't think there is any malcontent there,
23 but they're on the spot; they're not used to confronting a
24 hostile or inquisitive public and they present that face to
25 them.

1 Let me just end by telling you that we've got a
2 14-page commentary here and an outline, so sorry you didn't
3 get it earlier last week, but we do raise some technical
4 issues. We're not technical people. We're people people.
5 But, I wish that the Commissioners, as you have the
6 opportunity to look through those, if there are questions
7 about the accuracy of our statements or the validity of our
8 viewpoints or the issues we're trying to raise, please don't
9 put them away. Please get in touch with us and we'll be
10 glad to respond; we'll be glad to provide backup
11 documentation, whatever it takes to communicate with you.
12 And if you have any questions, I'm wide open.

13 COMMISSIONER MESERVE: Thank you, very much, Mr.
14 Shadis. What I suggest we do is that we go through each of
15 the statements to give everyone an opportunity to speak and
16 then we'll return for comments. Let me indicate that I do
17 appreciate your observation about the need for training the
18 staff to deal in the public context.

19 We're going to have a Commission meeting tomorrow,
20 in which we're meeting with stakeholders, a particular
21 concern on materials issues. And the staff, in preparing
22 for that, has sort of looked through what they've learned
23 about their interactions in that area and that is one of the
24 lessons that they've learned, is that there is a need to
25 make sure that the staff is prepared for knowing how to deal

1 with the public and to be candid with the public and being
2 trained for that purpose. Those resonate with an
3 observation that the staff has, itself, learned from its
4 experiences in a related area.

5 Mr. Blanch?

6 MR. BLANCH: Thank you, Chairman, Commissioners.
7 For those of you who don't me, my name is Paul Blanch,
8 titled as an energy consultant, and I would just like to
9 make it clear that any comments that I offer today are those
10 comments do not reflect the opinions of -- necessarily
11 reflect the opinions of other people, either licensees or
12 members of the public.

13 Over the past two weeks, I've had the opportunity
14 to visit four decommissioning plants in New England: Main
15 Yankee, Yankee Rowe, Connecticut Yankee, and, obviously,
16 Millstone. What I've observed over the past two weeks is
17 that all licensees are doing a very good job, but each one
18 is doing it differently. Many are going beyond the
19 regulations, but they are all using good practices.

20 Over the past two years, I've worked with the NRC
21 staff at all levels on various decommissioning and other
22 issues. I'd like to start with slide two. Again, I have 11
23 slides and 10 minutes, but I can do it. I've made the
24 presentation before the ACRS last Friday. I'm very
25 supportive of the NRC's key messages, especially that

1 related to enhancing public confidence. But, we, also, got
2 to keep in mind maintaining safety, improving effectiveness
3 and efficiency, and reducing unnecessary regulatory burden.

4 Earlier this year, I had an opportunity to review
5 SECY-99-168 and provided my formal comments in writing. I
6 believe it was in August or September. That is available to
7 the Commission. SECY-99-168 basically provides a five-year
8 schedule for rulemaking. However, there are additional
9 issues that need to be addressed. Additional guidance will
10 assist the decommissioning plants in estimating their total
11 decommissioning cost and schedules.

12 There are significant issues that are not
13 presently addressed in the proposed SEC-99-168. For
14 instance, the site remediation criteria: while from a
15 purely standpoint, I find it acceptable either the EPA's
16 criteria or the NRC's criteria. I believe, my personal
17 opinion, that either one of them provides reasonable
18 assurance and reasonable assurance to the public that there
19 will be no undue risk. Some of the issues that are not
20 properly, in my opinion, addressed SECY-99-168 are what
21 design basis accidents do we need to consider; also, how do
22 we apply 10 CFR Part 50, which is designed primarily for
23 operating power plants and doesn't even, within the contest
24 of Part 50, with the exception of the general design
25 criteria, doesn't even discuss the long-term storage of

1 high-level waste. The rules for the long-term storage of
2 high-level waste are clearly outlined in 10 CFR Part 72,
3 which has been given a lot of thought through the rulemaking
4 process many years ago.

5 We need for the plants that are presently
6 decommissioning consistent application of existing
7 regulations. Observing some of the plants -- and, again,
8 Commission McGaffigan mentioned before fitness for duty, and
9 there are different opinions on the applicability of fitness
10 for duty. 10 CFR Part 26 is being applied to some plants
11 and industrial safety fitness for duty programs applied at
12 other plants. And I think this needs to be considered,
13 whether we need to go to a full Part 26 fitness for duty
14 program or not for an industrial site. Quality assurance
15 requirements differ from site to site, emergency planning,
16 fire protection, codes and standards. Right now, the
17 industry -- the decommissioning industry is being regulated
18 by exemption to Part 50. There is a document out there,
19 titled NUREG 64.51, that does provide some reasonable
20 guidance on what regulation should apply during the
21 decommissioning process.

22 We have competing and conflicting regulatory
23 mandates that need to be resolved. We have, as I mentioned
24 before, the EPA versus NRC remediation requirements, needs
25 to be resolved and needs to be resolved quickly. The issue

1 of onsite disposal of clean waste needs clarification,
2 commonly referred to as rubblization. And, again, carrying
3 that a little bit further, the NRC and the EPA need to
4 resolve or specify the total activity and/or average allowed
5 concentration of radioactive material that can be left on
6 site. I think most of the Commissioners are aware that
7 neither the EPA nor the NRC specify anything other than the
8 dose of 25 millirem or 15 millirem per year three feet above
9 the ground. Again, you can bury high-level waste, like they
10 have out at Hanford with the disposal of the Trojan reactor
11 vessel, and if you bury it deep enough, you can still meet
12 the 25 or 15 millirem. My understanding of the regulations,
13 that is not properly addressed. Not that anyone has any
14 plans for burying a reactor vessel on site, but there are no
15 rules that I've seen that preclude it.

16 Rules for long-term storage of high-level waste,
17 which were, I mentioned before, discussed in 10 CFR Part 22,
18 there's both the general and the site specific license for
19 Part 72. About half of the plants have a site specific
20 license, such as Trojan, Fort St. Vrain; and the other half
21 are still applying the general license, such as Haddam Neck,
22 Main Yankee, Yankee Rowe, Point Beach in Arkansas. I think
23 it's not appropriate for a plant to continue the storage of
24 high-level waste under a Part 50 license, as Mr. Shadis
25 said, until the year 2023, where the reactor vessel could be

1 gone, the reactor containment could be gone, and all that's
2 left is dry cask storage under a Part 50 with a general
3 license.

4 Part 50, again, does not properly address
5 high-level waste. And some licensees are applying certain
6 sections of Part 72 and Part 50, almost a pick and choose
7 type of regulation and regulation by exemption. Again, as I
8 mentioned before, in my opinion, 10 CFR Part 72, the site
9 specific license, is what decommissioning plants should
10 eventually be striving to reach. The general license, the
11 Part 72, subpart K, my understanding, was only intended for
12 operating power plants, those sites that had a complete 10
13 CFR Part 50 license and, yet, wanted to store high-level
14 waste using dry casks. That may be acceptable, if they have
15 operating plants and just want to store high-level waste
16 using dry cask on site under a Part 50 license with a Part
17 72 general license.

18 All design basis accidents need to be addressed.
19 They need to be risk informed. They must consider zirconium
20 fire, as they are properly addressing. They need to address
21 other issues, such as the potential criticality. And,
22 again, after the recent event in Japan, this is becoming a
23 more visible issue. I've asked the NRC staff -- and,
24 obviously, I don't think that we properly looked at the
25 potential for criticality, either from a risk-based

1 approach. We don't even know what the consequences of a
2 potential criticality would be in the spent fuel pool, at
3 least not that I've seen. We need to address other
4 potential accidents or openly state that we're not going to
5 address them. Sabotage, obviously, is an accident that is
6 rarely discussed, although it interestingly enough is
7 discussed in detail in Part 72.

8 My overall recommendations for the Commission is
9 that we need to provide interim guidance for decommissioning
10 and, again, what's out there now is the NUREG 64.51. The
11 Commission needs to direct the staff to proceed with
12 rulemaking on an accelerate schedule. The Commission needs
13 and the staff need to apply the site specific requirements
14 of 10 CFR 72 to decommissioning plants. We need to evaluate
15 all potential accidents, establish clear site remediation
16 criteria. We need to assure consistency and predictability
17 and work closely with all stakeholders to enhance public
18 confidence.

19 That concludes my brief presentation and I would
20 be more than willing to respond to questions after the rest
21 of the panel has a chance. Thank you.

22 COMMISSIONER MESERVE: Thank you, very much. The
23 next statement is by David Stewart-Smith from Oregon.

24 MR. STEWART-SMITH: Thank you, Chairman,
25 Commissioners. Thank you for the opportunity to be here

1 today. My name is Dave Stewart-Smith. I serve as the
2 Executive Secretary to Oregon's Energy Facility Siting
3 Counsel, a seven-member citizen commission charged with
4 siting and regulating large energy facilities. Since 1989,
5 I've, also, served as Oregon governor's liaison to the NRC.
6 I have 25 years experience with the State of Oregon, the
7 first 11 of which were with Oregon's Agreement State
8 Program. So, my familiarity with the NRC goes back a ways.

9 Oregon's authority for the siting and regulation
10 of large thermo power plants was established in 1971,
11 expanded in 1975. My staff provides staff support for that
12 citizen commission. We maintain a resident inspector at the
13 Trojan facility. The State Resident Program was established
14 in 1980 and was driven by our conclusion after the TMI
15 accident, that in order to effectively respond to an
16 accident, the governor of the State of Oregon must not only
17 have staff expertise at his or her disposal, but staff that
18 knows the plant and has unrestricted access to all critical
19 areas. We signed the MOU with the NRC in 1980 and I believe
20 we have a history of consistently trying to work closely
21 with the NRC staff.

22 I believe the staff is on the right track with the
23 decommissioning rules. Our own experience, beginning in
24 1993 when Trojan closed, was that there was a great deal of
25 effort put into licensing review and deciding one rule at a

1 time what regulatory requirements ought to be. That took a
2 fair amount of time, not only of the NRC, but the licensee
3 and my staff, to stay on top of it.

4 I believe that a separate part in Title 10 is an
5 appropriate way to structure those rules. I understand it
6 will take a fair amount of time. I have a lot of rulemaking
7 experience, myself, and I never look forward to large
8 rulemaking efforts; but, I think in this case, there's good
9 justification.

10 In Trojan's case, it was a particularly unsettled
11 time. The folks on site thought they had six more years of
12 operation of that plant, when it was announced to be closed.
13 PG&E immediately laid off all contract support and began to
14 lay off permanent staff, in such an unsettled time. I think
15 the argument for very clear requirements for decommissioning
16 are particularly well taken. The staff proposal would go a
17 long ways to remove some of the uncertainty.

18 Would you go to my last slide, please,
19 observations? Just a few observations, based on reading the
20 staff presentation. The emergency plan for -- the
21 permanently defueled emergency plan at Trojan is not based
22 on a spent fuel pool accident. It was based on a postulated
23 fire in low-level waste storage facility. The company
24 proposed that that was the only -- or the most significant
25 possible event that could get radioactive material off site.

1 My staff agreed with that. I believe that putting a
2 considerable amount of staff analytical time into spent fuel
3 accident scenarios is appropriate, but it may not be the
4 only source of post-shutdown off-site risk. In addition to
5 that, with so much uncertainty nationwide over low-level
6 waste disposal capacity, I think taking a look at a plant
7 possibly being forced to store a significant amount of
8 low-level waste on site, if they get into decommissioning
9 and lose disposal capacity in mid stream, is a realistic
10 scenario.

11 The State of Oregon reviewed and approved Trojan's
12 decommissioning plan. I believe that having a state
13 regulatory presence provided the Oregon public with a local
14 opportunity and a local presence to review and comment over
15 an extended period of time. Your licensees know your review
16 process; they have to know it. But for the public, your
17 review process, my formal review process, can be a daunting
18 one to participate in. And I believe that having state
19 staff and having a state program intimately involved in the
20 review of that decommissioning plan provided a public
21 opportunity that was useful.

22 The NRC, I'd like to say, have been very helpful
23 in answering our request for consultative information and on
24 several occasions, to appear before my citizen commission.
25 That's always appreciated. I realize we're a long ways off

1 NRC's beaten path, but the staff have always been willing to
2 come out and talk to us and I believe that's made a big
3 difference.

4 Having seven citizens review -- citizen
5 volunteers, by the way, review and approve the
6 decommissioning plan gave Oregon citizens, I believe, a more
7 effective access. And I think it's one of the reasons why
8 decommissioning at the Trojan facility has gone quite
9 smoothly, including, as has been mentioned a couple of times
10 this afternoon, the one piece removal and burial of the
11 Trojan reactor vessel.

12 And my last point, let me segue into that reactor
13 vessel issue. Let me argue that the rules that you
14 establish retain a degree of flexibility. I think there's a
15 lot yet to be learned about decommissioning large power
16 stations. PG&E proposed one piece reactor vessel removal,
17 after initially proposing segmentation of the reactor vessel
18 and shipping to our regional radioactive waste disposal site
19 in numerous shipments. The NRC staff's initial response,
20 frankly, was to discourage their request.

21 I was convinced, at the time, that the idea had
22 merit and deserved, at a minimum, a thorough going over,
23 particularly given Trojan's relatively unique access by
24 river barge to our disposal site in the Pacific northwest.
25 I took on an unusual and, for me, somewhat uncomfortable

1 role then of becoming an advocate for mine and your
2 licensee's proposal. I made an appointment to talk with NRC
3 management here. And after I did so, the proposal did get a
4 fair hearing and, obviously, it was approved. Let me
5 observe, however, that I was left with the impression that
6 the initial staff response was driven by the desire to stay
7 away from a new idea that might result in criticism. I
8 think that's a natural response. It's a human response.
9 But, I think it may be a response that, if in the past, new
10 ideas have resulted in criticism for just bringing up a new
11 idea, then staff can get kind of gun shy.

12 NRC management correctly took on the
13 responsibility for authorizing a thorough review in this
14 case. The staff's initial negative response tells me that
15 perhaps that hasn't always been the case. My own experience
16 was a very positive one, but I think I was running into a
17 little bit of history. Without state and NRC management
18 efforts to work this issue loose, I fear we might have lost
19 an opportunity to save at least 50 man rem of exposure and a
20 lot of unnecessary transport risk over several hundred miles
21 of highway instead of one five mile an hour barge shipment
22 up the Columbia River that has regularly seen a great deal
23 of barge traffic. So, it's a mode of transportation we
24 understand in the Pacific northwest well.

25 And I, along with the rest of the panel, would be

1 happy to answer questions, when you get to that point.

2 COMMISSIONER MESERVE: Thank you, very much. Our
3 next speaker is Lynnette Hendricks, NEI.

4 MS. HENDRICKS: Good afternoon, Commissioners and
5 Mr. Chairman. Thank you for the opportunity to share
6 industry's perspectives of decommissioning. I'm going to
7 try to talk about critical issues in three main areas
8 impacting decommissioning.

9 The goal for the industry in decommissioning -- if
10 I could have -- go to the second slide, please. Our goal in
11 decommissioning is that it be safe, timely, and efficient.
12 We think this is essential for both public confidence and to
13 provide great peers and shareholders the value on the
14 considerable funds that they've set aside to deal with the
15 public confidence issue. We believe that rules -- if rules
16 and processes are not in place to provide a clear pathway to
17 decommissioning, that is, also, very transparent, provides
18 appropriate opportunities for public input, the impression
19 that could be given in lieu of a clear transparent process
20 is that, in fact, this is, in fact, much more difficult to
21 do than it really is and perhaps more unsafe.

22 In terms of rate peer and shareholder values, you
23 well know considerable funds have been set aside to take the
24 plant -- to safely decommissioning the plant and we believe
25 we owe these largely rate peers an opportunity that these

1 funds be well spent on activities that directly benefit the
2 public. In that vain, in decommissioning, if you have a
3 clear path forward, you are less likely to encounter
4 unnecessary delays that will augment the schedule by months
5 or years and could, in the end, make it very difficult to
6 complete the decommissioning within the funds set aside for
7 decommissioning.

8 Next slide, please. The three main areas that
9 affect decommissioning: one, spent fuel casks; the second
10 is efficient license termination; and the third is risk
11 informed regulations. I'm going to address the first two;
12 but I think it might be more responsive, in putting the
13 staff's presentation closer to ours, if we go first to the
14 issue of risk-informing regulations. And I'd like to hold
15 some time, if I could, with your tolerance, and come back
16 and discuss spent fuel casks and license termination. I
17 turn it over, at this point, to Mike Meisner.

18 MR. MEISNER: Thank you, Lynnette. Mr. Chairman,
19 members of the Commission, I appreciate the time that you
20 have given me to talk here today. I'd like to go to the
21 overhead that is entitled "Risk Informed Regulations
22 Overview."

23 You've heard a fair bit from the staff earlier
24 today about the background and history. I have to agree
25 that in a very short period of time, the staff put together

1 quite a good risk assessment model. Unfortunately, the
2 model inputs and the assumptions were pretty consistently
3 biased to the worse case. As a result, the industry
4 provided a great deal of information to the staff.

5 You've heard about today the July workshop, where
6 we came prepared with commitments we were willing to make to
7 backup changed assumptions in the PRA analysis. Since the
8 workshop, we've had numerous meetings and follow-up phone
9 calls with the staff on various issues. And as you heard,
10 we provided a pretty detailed industry report, reviewing the
11 staff's draft work. And that report, we provided to all the
12 Commissioners on your staff, as well as the NRC staff.

13 I'm going to be talking today about the same kind
14 of information that the staff put out in their draft report,
15 because up to this point now, we don't have any additional
16 information. I'm encouraged to hear that the staff is
17 working and feel that their converging; but, I think it's
18 important, too, to go through some examples and get a feel
19 for the disparity that exist between the staff's work and
20 the report that we provided on the same subject.

21 Next overhead, please. Significant conservatisms
22 exist in the area of human reliability. You've heard that
23 mentioned a few times. I think it's worthwhile to get some
24 feel for that. The staff has chosen to depart from IPE's
25 traditional PRAs and shutdown PRAs and their assumptions on

1 human error.

2 If we can go to the next page. What I've done is
3 taken a page out of the Aaron Report and I hope you have
4 that in front of you. Is there another --okay, what this
5 report shows are examples of human error probabilities taken
6 from the NRC draft report. Now, you can see that the error
7 probabilities are on the order of 10^{-2} to 10^{-3} ; in other
8 words, one in a hundred to one in a thousand. The striking
9 thing about decommissioning events, though, is that these
10 error probabilities are across a period of time of 120 hours
11 or five days; or looked at another way, 15 different shifts
12 of operators coming in and going off shift and continuing to
13 make the same errors at a very high probability.

14 If we compare those kinds of error rates with the
15 next overhead, please, the kinds of assumptions that are
16 used in add power PRAs, IPES, as well as shutdown PRAs, you
17 can see that for events that need to be responded to on the
18 order of 15 to 30 minutes, not 120 hours, failure
19 probabilities on the order of one in a hundred or one in a
20 thousand is what's been traditionally used. When you get to
21 longer acting events and IPES, like the 20 hour example up
22 there for initiating a residual heat removal capability, the
23 human error probabilities drop down significantly into the
24 10^{-6} range. And you'll look far and wide to find error
25 probabilities associated with events that go much beyond 24

1 hours, because it has been the practice in all PRAs done to
2 this point, that I'm aware of anyway, that once you exceed a
3 certain time period, say 24 hours in most cases or maybe 48
4 at the worst, that you assume there is sufficient time
5 available to take action to recover from the event. In
6 other words, most other PRAs truncate events at about 24 to
7 48 hours. That wasn't done in the case of the staff study.

8 So, if we can go back quickly to the example page
9 on conservatisms added. The problem with the human
10 reliability assumptions is that these now overshadow, they
11 dominate the entire analysis and tend to give a very
12 distorted view of what's important to safety for those kinds
13 of events. Heavy loads is another example. You heard
14 earlier, industry has done a lot of work in heavy loads.
15 Years ago, we resolved that issue with the NRC through NUREG
16 06.12. The funny thing in the present study is, though,
17 that that staff didn't give the industry any credit. This
18 is an area where there's absolutely no difference, no
19 difference at all, in the commitments that licensees carry
20 in their license basis going from an operating facility to a
21 decommissioning facility. In fact, this is an area that has
22 long since been resolved, that the industry feels should
23 never have been opened up as part of decommissioning,
24 because it's been reviewed for decommissioning plants, as
25 well as operating facilities. But, the result is that the

1 staff's re-review, I'll show you in a minute, added two
2 hours of magnitude of risk to the heavy loads area. And
3 there are a number of other examples all contained in the
4 Aaron Report, where the staff pretty consistently went to
5 the upper bound or worse case assumptions, such as in this
6 diesel pump reliability.

7 Let me move ahead to the next overhead, entitled
8 "Fuel Uncovery Endpoint." This is another area of
9 conservatism that might not be too obvious right on its
10 face; but the final end state for the staff study is not a
11 Zirc fire, as you might expect, but it's a fuel uncovery.
12 That, itself, is not related to public risk. There is no
13 public risk associated with lowering water to the top of the
14 active fuel. And when you consider that there's additional
15 water and steam to boil away and do a realistic heat up
16 calculation, you, in fact, add about three days of recovery
17 time by adjusting your endpoint to a dry fuel, as opposed to
18 just the point of fuel uncovery. And particularly in a
19 situation where the staff is not giving much credit for
20 recovery action and has high penalties for human error, this
21 additional recovery time should really be considered and
22 important.

23 So, what's the effect of all of these multiple
24 conservatisms? And by the way, I've only touched on a few
25 of them. They are throughout the study. Well, the industry

1 requantified in our report and it's not a trivial effect.
2 If you go to the next overhead, please, the bar chart. If
3 you can see it up there, basically, the staff said for
4 non-seismic contributors, the risk -- the fuel uncover risk
5 was 10^{-5} , which actually exceeds the core damage frequency
6 of many operating facilities. When you take into account
7 the areas of conservatism and back those up and requantify,
8 you reduce that risk by nearly two orders of magnitude, down
9 to the 10^{-7} range.

10 And on the next two pages, and these are all,
11 again, out of the Aaron Report and available for your review
12 later, you can see that in one of these tables, we broke
13 this down into the contributing areas for frequency of fuel
14 uncover, things like the loss of off-site power, where the
15 draft NRC report came in at 10^{-6} and the revised estimate is
16 really in the 10^{-10} range. Loss of pool cooling drops an
17 order of magnitude, down to the 10^{-8} ; loss of cooling
18 inventory of nearly two orders of magnitude. And the next
19 page, please. Heavy loads, itself, was two orders of
20 magnitude, down to the 10^{-8} . So, you can see there's a big,
21 big disparity between what we think a realistic approach to
22 this PRA would entail.

23 Next overhead, please. Now, while this has
24 implications for decommissioning plants, we think it, also,
25 has some serious implications for operating facilities.

1 First of all, it's -- the kinds of approaches taken in the
2 study are inconsistent with the Commission policy statement
3 on PRA. And I'll just read you a sentence out of that. The
4 policy statement says that "PRA evaluations in support of
5 regulatory decisions should be as realistic as practicable
6 and appropriate supporting data should be publicly available
7 for review." We think, in this case, that realism is
8 lacking by quite a bit in the staff's draft study.

9 As I already indicated, it's inconsistent with
10 approaches taken in IPEs and shutdown PRAs. We did ask one
11 of our analyst to estimate what the affect on core damage
12 frequency would be, if the staff were to never truncate the
13 sequences in IPEs, like they had done in the decommissioning
14 PRA. And the answer is that it would increase core damage
15 frequencies on the order of two to ten times. Now, that's a
16 tremendous change in the public perception of what risk is
17 for operating facilities and we think there's a -- there's a
18 real need to be consistent here, so that we don't undermine
19 public confidence and that we give a realistic view of how
20 these decommissionings proceed.

21 Next overhead on recommendations, and I'll end
22 with this overhead. We think it's important that the
23 Commission consider some additional direction to the staff,
24 to revise their study, to use best estimates, and to remove
25 conservatisms, to be consistent in the treatment of human

1 error by truncating sequences beyond two days, as is done in
2 other PRAs study, and we think it's very important to
3 requantify this model, so that we actually have a basis for
4 rulemaking going forward.

5 And I'm going to make one other comment and then
6 turn it back to Lynnette. I was a little concerned to hear
7 something that we hadn't heard of earlier and that was a
8 comment by Stu Richards, that -- in response to a comment
9 from Commission McGaffigan, that, in fact, the staff already
10 knows that they can't meet the back fit criteria for
11 rulemaking and they intend to package this as a voluntary
12 rule and by inference, include a lot of requirements in
13 there that wouldn't meet a risk test, yet a licensee would
14 have to adopt, in order to get the whole package. I would
15 ask the Commission to maybe think about that a bit and
16 whether or not that's an appropriate approach given, I
17 think, the direction I heard last March to apply the backfit
18 rule in this case.

19 Thank you for your attention. Lynnette?

20 MS. HENDRICKS: I especially appreciate your
21 tolerance, given the hour, letting me cover the remaining
22 two issues. Actually, I particularly wanted to cover spent
23 fuel management, because I think I have many, many areas of
24 agreement with the staff, in spite of maybe the provocative
25 nature of a couple of the entries on my slides.

1 Decommissioning plants must put all their fuel
2 into dry storage, if they're going to decommissioning the
3 pool when they decommissioning the rest of the plant. And
4 it becomes, certainly, in the three to five years that
5 decommissioning takes place, very much a critical path item
6 for the decommissioning. In referring to the process that
7 Bill Kane referred to, that they undertook back in 1998, I
8 agree that that was an exemplary job; that the staff did, in
9 fact, undertake revision to the certification process. That
10 was very effective and it did, in fact, reduce the time for
11 certification down from three to four years to 20 months.
12 And they did that, as he had indicated, by establishing
13 rules of engagement, a very transparent open process. It
14 entailed disciplining both the applicant and the staff and,
15 in fact, I think they were very successful in doing that.
16 However, we refer to these initial certifications is, by
17 rule of thumb, the 20-80 percent rule; in other words, the
18 certifications to date will cover maybe 80 percent of the
19 fuel that decommissioning plants need to unload. That's
20 what I refer to when I say "scope of certifications are
21 limited."

22 Can I have the next slide, please? What this
23 translates into for decommissioning plants, where I say that
24 they can't decommission their pools, they cannot do so
25 without a serious amount of resources committed to work

1 specifically with a vendor, to get in a situation using
2 Band-Aid approaches, which I'll talk to a little bit in a
3 second, to get a cask that they can, in fact, not
4 efficiently, effectively, but they can, in fact, unload the
5 fuel and go on with their decommissioning.

6 Operating plants, also, are affected by this 80-20
7 percent rule. We have at least one operating plant today
8 that has already unloaded the easy stuff, the 80 percent,
9 and they are in the position now of needing approval for
10 unloading the 20 percent of the stuff. And, also, in
11 addition, even though there may not be many where this has
12 become a crisis, it's not a good situation. It doesn't make
13 for good spent fuel pool management. It doesn't make for
14 good management of your dry cask program, to save all the
15 hard to load stuff to the end. It makes a lot more sense to
16 have casks certified up front that can take it all and then
17 you can mix and match. The alternative is you'll end up
18 with a lot of hard to load stuff and you'll end up with a
19 lot of casks that have very few bundles in them.

20 The Band-Aids that I was referring to, one example
21 is current certifications are listed -- are limited to
22 45,000 megawatt days per metric uranium ton burn up. The
23 staff has a solution for going above today, which is to pan
24 all of those hire burnup fuels. Obviously, it would be a
25 lot better to have methodology and criteria in place, so

1 that vendors could come in and meet the NRC's criteria and
2 methodology and have a more complete certification going in.

3 It's very costly. DOE has run the numbers. DOE,
4 by the way, has been working on preparing the technical
5 basis for burn up credit for, I think, we're approach 10
6 years now. And by their estimates, the inability for casks
7 being certified today to have burn up in their design --
8 burn up credit in their design is costing essentially 30
9 percent capacity, which equates to \$10 billion. I did hear
10 staff say that they have taken some steps forward on burn up
11 credit. This is true. They have an ISG out that,
12 basically, says now, we will consider it. They revised
13 their ISG and said, here's our philosophy, if you will, and
14 some of the very -- 50,000 mile road map to acquire burn-up
15 credit. What we still don't have is the detailed road map
16 with established criteria.

17 And can I have the next slide, please? This
18 scenario where I found -- oh, I'm sorry. Before I go to
19 that, I wanted to provide some visuals -- go back to the
20 other side; I'm sorry -- I wanted to provide a visual
21 perspective -- go to the next one, please. I wanted to
22 provide a visual depiction of the situation. I mean, I
23 think it is very honestly the challenge that the Spent Fuel
24 Project Office has.

25 Could I have the next slide, please? Please. I

1 know I screwed up; it's not your fault. I'm looking for the
2 graph that you had on before, the -- there you go; thanks a
3 lot. What this depicts is years on the Y axis and number of
4 plants on the X axis that are going to lose full core
5 off-load. It's just a depiction of the workload that's
6 coming, if you will.

7 Next slide, please. This is a depiction of the
8 number of sites that are currently using dry cask storage,
9 and there's a delineation in color code for the ones that
10 have on-site approval versus a general approval.

11 Can I go to the next one, please. This just shows
12 that, in fact, many more are planned. And, again, just to
13 show graphically that, in fact, this office is dealing with
14 a lot of -- a large case workload and a lot of challenging
15 issues.

16 Can I have my next slide, please? One of the
17 tools that I think can be very useful in assisting in this
18 area is risk insights. The reason -- because, I still
19 believe that concerted industry effort is needed --
20 concerted industry-NRC effort is needed to, in fact, put
21 together some informed criteria and methodology for going
22 forward on these generic issues. A PRA or risk insight
23 would be extremely useful. The design basis on these casks
24 are extremely conservative. For example, they assume
25 maximum heat, which would imply maximum burn up and, at the

1 same time, a fresh fuel assumption; and physically
2 impossible, very conservative. The design of these casks,
3 in and of themselves, are extremely robust. And in spite of
4 the challenges that you generally look at, in terms of
5 external events, tornadoes, etc., even the criteria for the
6 design basis is much less restricted than for operating
7 plants or even what we're looking at for spent fuel pools.
8 In fact, it's
9 only a five rem dose at the site boundary.

10 And can I go to the next slide? The second big
11 issue in spent fuel management is the inefficient cask
12 listing amendment process. This sort of came to be, in my
13 view, historical perspective, because the Nuclear Waste
14 Policy Act envisioned that DOE would, in fact, submit a
15 given technology, one designed, if you will, that would be a
16 universal cask and everybody could unload their fuel into
17 that cask. What's happened, in fact, is that the
18 marketplace has taken over and you have many vendors, many
19 designs to be certified.

20 The rulemaking to list, although NRC has done a
21 considerable number of things, and I'll get to those in the
22 next slide, to discipline the process and keep it within the
23 20-minute time frame, it still, because it is critical path
24 for operating -- for decommissioning plants and threatens to
25 be in the future for operating plants. The 20 month just is

1 not going to work with this dynamic area, where you have a
2 very active marketplace, a lot of competitors, a lot of
3 designs. And to go to the other point, amendment by
4 rulemaking is, I think, a resource nightmare and we would
5 much prefer to see a new system or a step change that could
6 provide NRC the opportunity to devote these many rulemaking
7 resources into honing policy and resolving some of these
8 generic issues.

9 I did want to comment on some of the actions that
10 NRC has taken. Bill mentioned several. They've, also,
11 completed a rulemaking to permit fabrication without the
12 30-day hold and to go into fabrication at risk.

13 The next slide, please. In summary, for the cask
14 amendment issue, we are -- would like to, I guess, reserve
15 an opportunity in the future to share our views with the
16 Commission and other stakeholders on how we may make a step
17 change to improvements to this process. One of the -- some
18 of the things we're thinking of is perhaps the initial
19 listing could include criteria and for making amendments in
20 the initial listing. Smarter certificates is one of the
21 things we've discussed with the staff. But, again, the
22 generic issues plays a role here, as well. In order to have
23 smarter certifications, where the vendors could incorporate
24 the design margin that they need to take the higher burn up
25 fuel and some other -- even site specific differences, like

1 the seismic, they need a clear road map going forward, so
2 that they can, in fact, process these under 72.48 and
3 demonstrate that there are no unreviewed safety questions in
4 adding different types of fuel or higher burn up fuel to
5 their casks.

6 Did you want me to stop there and not talk about
7 the --

8 COMMISSIONER MESERVE: We're well over time. Is
9 that okay?

10 MS. HENDRICKS: Yeah.

11 COMMISSIONER MESERVE: Why don't we go for a round
12 of questions among the Commissioners. I have a question and
13 this first question is directed at Mr. Meisner. It may
14 reflect my misunderstanding of the circumstances here. I
15 am, as I think you know, the new boy on the block here.
16 You've described various ways, in which you think the staff
17 has been overly conservative in its analysis of the fuel
18 pools. And I'm a little puzzled, because we haven't yet
19 gotten the staff's analysis. They said they were going to
20 give it -- this is going to be in draft form in January.
21 And so, are you talking about an earlier document? Are you
22 of the view that the current work that is underway is going
23 to prove to be -- continue to have these overly conservative
24 perspectives in it?

25 MR. MEISNER: I'm talking about an earlier

1 document they issued, I think, in June, and was the subject
2 of the two-day workshop in July.

3 COMMISSIONER MESERVE: You made your views known
4 --

5 MR. MEISNER: We have no other information to base
6 our views on.

7 COMMISSIONER MESERVE: So, they will be, then,
8 that the staff has considered these views in what we're
9 going to be seeing in a few months?

10 MR. MEISNER: We've had numerous interactions with
11 the staff and that's what we hope is going to happen, yes.

12 COMMISSIONER MESERVE: I have a question that
13 Commissioner Dicus had presented. It was about a matter,
14 which I'm not familiar. She -- this has to do with
15 truncating that analysis, at a certain time point. And the
16 question she asked is whether you had seen the letter from
17 the Union of Concerned Scientists about an event at a TVA
18 plant, where operators did not notice the heat up of a spent
19 fuel pool over a period of several days, which -- their
20 point, I gather, is that there is, obviously, an actual
21 observance of something that should not have been truncated
22 in the period that you had indicated.

23 MR. MEISNER: I haven't seen a letter from UCS,
24 but I am familiar with the event. I had some research done
25 on it. It was an event back in December of '98. It lasted

1 for 37 hours. And during that time, the pool heated up from
2 109 degrees to 121 degrees and it was unnoticed during that
3 time period, because of -- basically, of an equipment
4 failure that led to a non-representative temperature
5 indication.

6 I think this is a very good event to focus on,
7 because what it does is prove the point that simplistic
8 human error probability assumptions are inadequate. What
9 happened there was over a period of time, over multiple
10 shifts, they identified and caught the issue. The staff's
11 approach would have said that there is one error of
12 probability associated with that event.

13 What really needs to be done, we think, is to
14 analyze these types of events, modeling shift changes,
15 modeling the self reviewing nature of the event. You know,
16 if the pool starts heating up and steaming, you're going to
17 have a rain forest in there and it's going to be impossible
18 to miss. It just can't proceed without somebody seeing it.
19 And to model the long reaction times involved. And the
20 design simplicity, I'll point out for that plant -- the TVA
21 plant, it was an operating facility. The operators were
22 focused on producing power. At our plants, you have two
23 operators that do nothing but watch the spent fuel pool and
24 that's all they do, in a simple control room that only has a
25 few parameters.

1 So, I think it proves the point.

2 COMMISSIONER MESERVE: Mr. Blanch, I have a
3 question for you. I was a little puzzled by your -- or
4 maybe misunderstood part of the point of your presentation.
5 You suggested, as I understood you correctly, that in
6 dealing with these decommissioning issues, one should rely
7 on NUREG 64.51 and on Part 72, leaving the implication, I
8 think, that this whole effort that we've been discussing,
9 mainly trying to develop sort of a different strategy on
10 decommissioning, is something that is unnecessary or
11 misguided, or did I misunderstand the point that you were
12 trying to make?

13 MR. BLANCH: Chairman, I think you misunderstood
14 the point I was trying to make. I think the efforts that
15 are ongoing are very worthwhile, but they're only a small
16 piece of the puzzle. And what I'm saying is that the puzzle
17 is much, much larger than just the Zirc fire. There are
18 many, many other issues out there that the staff needs to
19 address, some of which are addressed in SECY-99-168.

20 COMMISSIONER MESERVE: Commissioner McGaffigan?

21 COMMISSIONER MCGAFFIGAN: I can have 200
22 questions, like Commissioner Diaz, but I -- and I'm sorry
23 we're going to end up short changing you, to some degree,
24 but the -- let me follow on the Part 72 point with Mr.
25 Blanch first. I've got Part 72 on the general license, the

1 subpart K in front of me and you're right, it's meant to
2 apply to ISFCs, to dry cask storage facilities that happen
3 to be at a Part 50 facility. Is -- but, isn't anything
4 that's in Part 72, you know, still don't apply to a Part 50
5 licensee or more, when they're sitting there -- you seem to
6 imply -- you say there's a hole, basically; if I'm going to
7 shut down the plant under Part 50 license, using a general
8 license under Part 72 for my ISFC and some stuff in the
9 spent fuel pool, you're saying the spent fuel pool is --
10 there's a hole in our regulations there, that is not
11 adequately covered, at the moment? Or what are you saying?

12 MR. BLANCH: In my opinion, it is not adequately
13 covered, the operation of a spent fuel pool. Once the plant
14 has defueled, what regulations apply? The staff says, well,
15 10 CFR 50 applies. But, if you go to 10 CFR Part 50,
16 there's nothing in Part 50 that governs the storage of
17 high-level waste, except maybe one section -- small section
18 under Appendix A, General Design Criteria.

19 So, for instance, when I went to visit these
20 plants, questions arise, what is the design criteria for the
21 cooling system of the spent fuel pool? Every plant I looked
22 at, it's seismic, it's done with some certain level of
23 quality assurance, but there is nowhere within the
24 regulations that specify whether I have to have qualified
25 equipment, environmental qualification, seismic backups. We

1 have differences of opinion between regulators. There's no
2 clear criteria within the regulations for the operation of
3 that spent fuel pool under Part 50.

4 COMMISSIONER MCGAFFIGAN: Which is a good
5 argument, as I think you said, for doing this comprehensive
6 rulemaking. But, at the moment, the way we reach those
7 decisions is by looking at the shutdown tech specs and
8 saying, okay, this is all you need, or how do -- do you --
9 how do we make the decision plant by plant, for Trojan or
10 Main Yankee or --

11 MR. BLANCH: I believe it's done plant by plant.
12 But, I think the staff would be better qualified to answer
13 that. I think, you know, there's a lot of diversity there,
14 in the way it's being addressed.

15 COMMISSIONER MCGAFFIGAN: One of the issues that
16 -- Mr. Shadis, I did read your testimony this morning,
17 although we did receive it on short notice, and one of the
18 issues raised is the -- and Ms. Hendricks had some charts on
19 it, as well -- or a chart on it, is the license termination
20 rule. And I'll just tell you one Commissioner's
21 frustration, you know, you talk about -- both of you,
22 really, about public not understanding this difference
23 between us and EPA, and the difference is more in the
24 groundwater pathway than it is in the all pathway, the
25 limit. I brought with me my usual prop, which is the

1 generic environmental impact statement we did, when we did
2 the 1997 license termination rule. And we looked in detail
3 at the justification for the groundwater pathway and we
4 couldn't find it. You know, in fact, we found -- and, also,
5 for the lower limits.

6 EPA, our sister agency, has -- doesn't have a
7 rule. They had a rule in 1996, which the public never saw.
8 I happened to see it, because it was in the interagency
9 clearance process. And it was withdrawn. Their own reg
10 analysis did not support their own rule. And that's the
11 frustration we have. It indicated, you know, something on
12 the order of 75 millirems might be where the cost benefit
13 cross point was. And so, we have gone through the
14 Administrative Procedure Act process. We fully considered
15 public comments. We did a voluminous environmental impact
16 statement and we came to a conclusion that was unanimous
17 among the five Commissioners sitting here at the time in May
18 of 1997.

19 And EPA can trump us. Under the Energy
20 Reorganization -- under the EPA Executive Order of 1970,
21 they can do a rule, if they can justify it. But, we've
22 never seen the technical analysis that supports applying 15
23 millirems and more importantly outdated groundwater MCLs
24 that can be as low as .01 millirem to these sites. You
25 know, the '90 analysis we had in here, in getting down to

1 the EPA MCL, was \$23 billion for death averted. So, nobody
2 ever came in and said this analysis was wrong. I mean, it
3 was out there. It was out there for public comment during
4 the rulemaking, and we didn't get those comments.

5 So, that's the frustration we have on the License
6 Termination Rule. That's why we have gone to Congress,
7 without any effect; asked them to break the tie. But, there
8 really was an awful lot of thought done before my time -- I
9 came along in the last nine months of this rulemaking -- an
10 awful lot of thought done as to what the right license
11 termination rule would be. And I -- you know, I would be
12 happy, and, I mean, I expect other Commissioners to be
13 happy, to talk to the public in great depth, as to why we
14 made the decision that we made and why we think this is --
15 these criteria are appropriate. But, that's more a
16 statement, just to make sure you knew that I had read your
17 -- at least that part.

18 The other thing I might mention is the
19 adjudicatory hearing. You know, you mentioned wanting an
20 adjudicatory hearing at the outset of the process, not just
21 the one we have, at the moment, at the end of the process.
22 And that's -- I talked with Mr. Blanch in private about this
23 a couple of times, that's a tremendously resource intensive
24 thing and we're not sure it's needed. In fact, even the
25 current rule doesn't have it and I'd be hard pressed in a

1 risk-informed environment with limited resources to say that
2 you need both an adjudicatory hearing at the outset of the
3 process and an adjudicatory hearing at the end of the
4 process. We probably need improved public communication,
5 but the -- I don't know what the benefits of a full-blown
6 adjudicatory hearing at the outset of the process would be,
7 other than to slow down decommissioning, which I suspect
8 people want to see proceed, once the plant has decided to
9 shutdown.

10 Those are two statements that either of you can
11 respond to, or both.

12 MR. BLANCH: I'll just quickly respond. If one
13 goes the proper route, a licensee, and goes for a site
14 specific Part 72 license, the adjudicatory hearing, I
15 believe, is allowed at that time, because it would be a
16 major change to the license. And it's my belief that's why
17 there's a reluctance on the licensees to convert to a Part
18 72, because it does open it up to adjudicatory hearings.

19 COMMISSIONER MCGAFFIGAN: But, Paul, if I could --
20 on that point, the adjudicatory hearing on the Part 72
21 license would be simply about the ISFC. It would not be
22 about -- what I think, Mr. Shadis, you were concerned about,
23 you know, are they going to rubblization, are they going to
24 do this, how are they going to -- how are they going to
25 dismantle the plant. As I understand it, what you're

1 looking for is -- you really want a hearing not on the ISFC,
2 which is pretty routine stuff; you want a hearing on their
3 plan for going from the plant as it exist the day they shut
4 it down, to green fields.

5 MR. BLANCH: I'm not the one that's advocating any
6 hearings; I'm just making a statement --

7 COMMISSIONER MCGAFFIGAN: Okay.

8 MR. BLANCH: -- that if one did go to Part 72, it
9 would require -- or could require a hearing.

10 COMMISSIONER MCGAFFIGAN: But, it wouldn't be on
11 the subject matter that Mr. Shadis seems to be worried
12 about, unless --

13 MR. SHADIS: I -- a different comment to the staff
14 and Commission and management, my issues, if you will, or
15 observations have been characterized as worrying. I'm not
16 worried about anything. And the reason is because I
17 believe, in many respects, the tide is going our way. So,
18 I'm feeling fairly sassy about that.

19 But, what I am proposing here is that some
20 creative thought be given to how you can have certainty at
21 the beginning of this process. I think I used in my essay
22 there, I used the term "a launching platform," from which
23 you start decommissioning. You start with everybody has a
24 set of ground rules or everybody knows how it's going to
25 proceed. And, apparently, we don't have that.

1 Additionally, I was surprised to learn, in dealing
2 with the Federal Energy Regulatory Commission, that they
3 have the option to hold -- actually hold hearing in concert
4 with other agencies, including states agencies. And it's
5 not a bad idea. I think that this process needs to be
6 wrestled with and it needs to be wrestled with, because this
7 is so very important and it is final, as far as the effected
8 communities are concerned. So, I'm offering that and not --
9 you know, it wouldn't take that much further.

10 In terms of the EPA-NRC issue, I'm very interested
11 to hear your characterization of it and disagree.

12 [Laughter.]

13 MR. BLANCH: But -- well, you know, it is one of
14 those kinds of -- you made the offer to meet with the people
15 who are concerned about this, from the environmental
16 community, I presume, and as you know, there is an issue now
17 over the release of solid materials and that environmental
18 community is very unhappy with their experience in
19 developing that rule. So, I'm sure they would love to sit
20 down and meet with you.

21 COMMISSIONER MCGAFFIGAN: But the environmental
22 community, in that case, refused to come to -- most people.
23 There are some that came to the last meeting, as I
24 understand, in Washington, but they refused to participate
25 in the meetings. They refused to participate in a meeting

1 in early August that Chip Cameron wanted to hold about their
2 participation in the upcoming meetings.

3 MR. BLANCH: Yes, sir.

4 COMMISSIONER McGAFFIGAN: So -- and you, I think,
5 participated in Chip's meeting, or somebody did.

6 MR. BLANCH: It was kind of a go-between position.
7 But, basically, what they're stating is that they were very
8 unhappy with the way that that process went.

9 One last thing, please, if you just bear with me
10 just a minute. I'm real pleased that the NEI got to run out
11 there concerns about the cask thing. That's fine by me.
12 But, I wished that we had known about that. I was invited
13 to a meeting about decommissioning issues and had I known, I
14 might have been able to contribute something on that cask
15 concern.

16 COMMISSIONER MESERVE: I apologize for that. Mr.
17 Merrified?

18 COMMISSIONER MERRIFIELD: Well, first, Mr. Shadis,
19 I want to thank you for the information. Just as a
20 clarification -- sorry about the unfortunate circumstances,
21 which led to you not being able to prepare your materials
22 earlier -- my comments weren't directed just at you; there
23 were others who, also, were unable to do that and didn't
24 apparently under the same circumstances. So, I apologize.
25 It's unfortunate. I really did honestly not have the

1 sufficient time to review your materials and I will do that
2 --

3 MR. SHADIS: Thank you.

4 COMMISSIONER MERRIFIELD: -- at your request. Had
5 I been able to do so, as Commissioner McGaffigan obviously
6 had a chance to, I would have been able to ask you more
7 informed questions; and, for that, I apologize.

8 I guess I did want to ask you, it's not really a
9 question, but it's perhaps for your help: I think it's very
10 important that we, as an agency, improve our ability to
11 interact with the public, in terms of being able to listen
12 better and be able to be -- and our ability to be able to
13 articulate better, hopefully I can do, as well, in our
14 ability to answer questions better. And to the extent that
15 there are specific examples in the past or as we go forward,
16 where you feel our staff have not done that in a full
17 professional manner, certainly I hope you will continue to
18 keep this Commission, if on a Commissioner by Commissioner
19 basis, for that matter, informed of that, so that we can
20 provide the appropriate input to our staff. I think that's
21 important to us and I ask for you indulgence on that.

22 I have to -- I do have to tweak you, as a last
23 comment. You are representing the New England Coalition on
24 Nuclear Pollution. As a New Hampshire native and as one of,
25 I think, probably three new -- sitting around this table

1 right now, including three on this side of the table, I have
2 to express my dismay that you have decided to include New
3 York as a state within New England.

4 [Laughter.]

5 COMMISSIONER MERRIFIELD: This is a matter, as you
6 know, is of significant concern, and I do need to tweak you
7 on that one. So --

8 MR. SHADIS: I'm sorry, that was a tough call.

9 [Laughter.]

10 MR. SHADIS: But, that is upper New York State.
11 We're talking the Lakes region or something.

12 COMMISSIONER MERRIFIELD: Well, we do like some of
13 them from New England; but, nonetheless, they still are not
14 one of our New England states.

15 Mr. Blanch, I just want to start out with saying,
16 I do agree with you, regulation by exemption is no way to do
17 business, and I think that's certainly something we need to
18 think about as an agency. You mentioned several times that
19 the NRC needs to address other potential accidents. I'm not
20 sure -- what I'm not sure of is whether, in your opinion,
21 the staff recognizes this need and is pursuing it
22 appropriately, or whether they disagree with you that this
23 need exists. I'm wondering if you might be able to
24 elaborate a little bit.

25 MR. BLANCH: A few weeks ago, I brought this issue

1 up with the staff and I think we're in synch right now that,
2 yes, there may be other issues, and I do say "may be other
3 issues" that need to be addressed. It seems like we've
4 zeroed in on only one accident and that's been the drain
5 down to the spent fuel pool, when there are, in fact, other
6 accidents.

7 We don't want to get ourselves into where we were
8 in the 1970s, when we analyzed the doubled ended guillotine
9 break LOCA, thinking once we've encompassed that accident
10 and can handle that accident, we can handle any accident. I
11 just don't want the viewpoint to be, okay, we only looked at
12 the worst accident, we can handle; therefore, we're okay.
13 There are other accidents. And I took for example,
14 criticality. I don't know what the impact of that is. It
15 needs to be looked at. It may be a never mind. But, every
16 potential accident needs to be looked at, to see whether it
17 will impact the public. Mr. Shadis mentioned to me on the
18 way in today, resin fires, has that been looked at. There
19 are other potential accidents. That was my point.

20 COMMISSIONER MERRIFIELD: Well, I'm sure that the
21 staff will have appropriate responses to those, as we move
22 forward.

23 Mr. Meisner, I want to -- you know, being a
24 lawyer, I guess by nature you have to play devil's advocate.
25 Just for the sake of -- I'm putting issues in the record, we

1 don't have Mr. Lochbaum here with UCS and Commissioner
2 McGaffigan -- well, he's not sitting at the table right now.
3 But, perhaps, you gave the issue of Brown's Ferry and you
4 recognize that as an example where it was successful; you
5 know, it was found and it shows that things work in an
6 operating reactor. I think some, including Mr. Lochbaum,
7 perhaps, may argue that the fact that it took 37 hours at an
8 operating facility, with, at any one time, dozens, if not
9 hundreds of people walking around, isn't necessarily a
10 success story; and that if we're looking at spent fuel pool
11 temperatures for facilities, which are being decommissioned,
12 which have far fewer people who are going to be walking
13 around, that may not be quite the success that perhaps
14 you're portraying and something we certainly need to keep in
15 mind, as we move forward.

16 MR. MEISNER: Okay, well, first of all, I didn't
17 portray it as a success. What I intended to say was that it
18 proves the point that simplistic human error probability
19 assumptions are inadequate. What happened in that event was
20 there were multiple opportunities to identify the situation
21 and eventually one of them did identify it. Taking the
22 point of view that there's one failure probability
23 associated with that isn't appropriate. That was my point.
24 So, the staff needs to be able to put together a human
25 reliability analysis that takes into account things like

1 shift changes, as an example, a new set of eyes.

2 The other thing I point out is that 37 hours is
3 not long, given the small amount of heatup that took place
4 in that event. It was about a 12 degree delta, if I read
5 that -- read the reports right and we did get reports direct
6 from Brown's Ferry. That didn't challenge any
7 administrative limits or tech specs limits. They were far
8 away from anything associated with having to take action,
9 either by procedure or by technical requirement.

10 Now, had this event progressed, though, to the
11 point where you could actually see steaming or whatever, my
12 other point was these events become self-revealing. And
13 that, as well, needs to be taken into account in the human
14 error review of these kinds of events. I'm not calling this
15 a success by any means; but, I'm saying it's an event that
16 proves a point, that you need to model these things and
17 model them correctly.

18 COMMISSIONER MERRIFIELD: Well, I think clearly,
19 the Brown's Ferry example provides a whole variety of
20 lessons to be learned and ones that we should certainly keep
21 cognizant of.

22 In my previous set of questions to the staff, I
23 talked a little bit about the balance, the triage that we've
24 had to go through relative to cask issues. Given the fact
25 that we do have limited resources -- our staff is down 600

1 from 1993, we have the lowest budget available to us on an
2 inflation adjusted basis for many, many, years -- do you
3 agree with the staff's approach to giving higher priority to
4 meeting the cask certification issues for operating
5 reactors, or do you give a higher priority to resolving the
6 technical issues associated with a limited number of
7 certification issues?

8 MR. MEISNER: I guess I -- I'll give you my
9 personal opinion. I think either approach is wrong and
10 doesn't get at the root cause of what the problem is here,
11 and that's this cumbersome process. It seems to me that we
12 can put in new fuel designs in operating facilities and deal
13 with those changes either under 50.59 or license amendment
14 process. We surely should be able to deal with the -- use
15 those same kind of well understood processes in dealing with
16 cask. I, personally, don't see that there's a need for this
17 rulemaking process, that using a 50.59 and 50.90 process
18 provides all the input for the public. It follows well
19 known licensing change processes that we all grew up in with
20 operating facilities. I think the approach is fundamentally
21 wrong. If we invested some resources today, those scarce
22 resources into changing the process, and making it scrutable
23 and easy to deal with, then I think most of the other
24 resources problems would go away.

25 COMMISSIONER MERRIFIELD: Fair comment. My last

1 question, very briefly, Ms. Hendricks, you talked very
2 quickly through your bandaids issue and the \$10 billion
3 figure and, frankly, you went a little too fast for my
4 blood. What did you mean by all of that?

5 MS. HENDRICKS: The bandaids I was referring to
6 was not resolving the generic issues up front; in other
7 words, not establishing -- by not establishing criteria and
8 methodology for going to high burnup, you are, in essence,
9 saying, well, we can't deal with high burnup. The bandaid
10 is can it; put it in a -- can the bundle and assume that
11 it's going to fail, instead of having criteria and
12 methodology, by which you can demonstrate, given the
13 characteristics of your fuel cladding, the material, the
14 thickness, etc., that it won't, in fact, fail.

15 The \$10 billion comes from a different issue,
16 although it would certainly add to that sum, and that's the
17 burnup credit issue. Without burnup credit, you are
18 essentially assuming a fresh fuel assumption design of these
19 casks. Obviously, that's a very inefficient assumption,
20 because, in fact, there's significant burnup. That's why,
21 you know, you put the fuel in the reactor, to get the heat
22 potential by burning it up. And there's an incredible
23 penalty there, in terms of cost.

24 COMMISSIONER MERRIFIELD: Who did that cost
25 analysis?

1 MS. HENDRICKS: DOE.

2 COMMISSIONER MERRIFIELD: DOE. And they made a
3 cost analysis that our current rational would result in an
4 extra expense of \$10 billion for the cost of the cask, over
5 and above what it should be, if we took full credit for fuel
6 burnup?

7 MS. HENDRICKS: Exactly.

8 COMMISSIONER MERRIFIELD: That's the point?

9 MS. HENDRICKS: Exactly.

10 MR. MEISNER: Can I add just real quickly to that?
11 That with burnup credit -- now, we can load about 24
12 assemblies into a cask. With burnup credit, we can put 36
13 in there; so, a 50 percent increase, or look at it another
14 way, a significant decrease in the number of casks that need
15 to be purchased to encapsulate that fuel. It's, also,
16 worthwhile to point out that that's, also, a significant
17 decrease in the number of casks that have to be transported
18 and that in the current environment, the probability of
19 criticality in those casks is now overshadowed by the
20 probability of transportation accidents -- not nuclear
21 accidents, just the road accidents. So that the -- it
22 appears that the staff is in the uncomfortable position of
23 fostering a more risky approach by not giving burnup and by
24 having more trucks out on the road.

25 MR. BLANCH: Sounds like you agree with my

1 criticality issue, then, Mike.

2 MR. MEISNER: I do.

3 COMMISSIONER MERRIFIELD: Thank you.

4 COMMISSIONER McGAFFIGAN: Can I just do one --

5 COMMISSIONER MESERVE: Very quick one; one short
6 question.

7 COMMISSIONER McGAFFIGAN: One short question.

8 Now, which one will it be. Why didn't you comment on the
9 August staff study? Is the Aaron Report your comment? I
10 mean, that's sort of two ships crossing in the night. This
11 is on the human reliability issue. I said I was going to
12 ask it and I forgot.

13 MR. MEISNER: Well, the Aaron is pretty much --
14 the Aaron Report is pretty much our comment. We saw the
15 staff study as kind of instructions to their contractors
16 and, frankly, I -- it wasn't apparent to me that it was out
17 for public comment.

18 COMMISSIONER McGAFFIGAN: I have read it and it's
19 pretty clear, you get to the second page, that it is. And
20 so if there are comments, it probably isn't too late, given
21 that we're still working on this process.

22 MS. HENDRICKS: The difficulty with human
23 reliability analysis is it's very subjective -- somewhat
24 subjective and qualitative. So the approach that they laid
25 out to look at it is fine, but it very much comes down to

1 the inputs and there was really nothing to comment on. I
2 mean, it was --

3 COMMISSIONER MCGAFFIGAN: The other thing, Mr.
4 Chairman, I'd say is we may want a separate briefing someday
5 on spent fuel pool issues, because, we're mixing -- they are
6 related -- they're very much related to decommissioning, but
7 they're, also, related to a lot of other things, and we just
8 touched on them today.

9 COMMISSIONER MESERVE: I'd like to thank everyone,
10 both staff and the panel that's here. This has been very
11 helpful and informative. Commissioner Diaz did ask me to
12 apologize to everyone. He had another commitment that
13 required him to leave at 3:30 and he apologize for his
14 departure.

15 With that, we are adjourned.

16 [Whereupon, at 4:15 p.m, the briefing was
17 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: NRC STAFF BRIEFING ON INTEGRATED
REVIEW OF DECOMMISSIONING REQUIREMENTS
PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Tuesday, November 8, 1999

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: Rose Gershon

Reporter: Jon Hundley

Integrated Approach to Reactor Decommissioning Requirements



November 8, 1999

**John Greeves, NMSS
Stuart Richards, PDIV&D, DPLM
Diane Jackson, SPLB, DSSA
William Huffman, PDIV&D, DLPM**

Overview

- ◆ **Decommissioning Program**
 - **John Greeves, Division Director, NMSS**
- ◆ **Background and Purpose**
 - **Stuart Richards, Project Director, NRR**
- ◆ **Technical Working Group (TWG) Study**
 - **Diane Jackson, Lead Engineer, NRR**
- ◆ **Decommissioning Rulemaking**
 - **Bill Huffman, Project Manager, NRR**

Decommissioning Program

Decommissioning Board Coordination (Examples)

- ◆ **NRR** - **Project Management, EP, Spent Fuel Pool Accident Risk**
- ◆ **NMSS** - **Spent Fuel Dry Storage, License Termination**
- ◆ **RES** - **Entombment, Dose Modeling Support, Burnup Credit**
- ◆ **Regions** - **Inspection, Oversight, Enforcement**

Background

- ◆ **Problems applying operating reactor regulations to decommissioning reactors**
 - **Unnecessary regulatory burdens**
 - **Exemption processing**
 - **Lack of clarity**
- ◆ **Decommissioning regulatory decision-making should be risk-informed**
- ◆ **SECY-99-168 addresses process and schedule**
 - **Spent fuel pool accident risk study**
 - **Rulemaking activities**

Presentation Purpose

Update on reactor decommissioning regulatory improvement activities

- ◆ **Broad scope effort**
- ◆ **Following process and schedule**
- ◆ **Technical assessment progressing**
- ◆ **Addressing stakeholder concerns**
- ◆ **Results will be incorporated into rulemaking and interim exemption criteria**

Technical Working Group (TWG) Study

- ◆ **Study of spent fuel pool accidents and associated risk for decommissioning plants**
- ◆ **Key areas of draft report issued in June:**
 - **Decay time estimation based on thermal hydraulic code analysis**
 - **Risk assessment**
- ◆ **Risk assessment used a broad set of initiating events:**

**Loss of SFP cooling, Tornado missiles,
Seismic, Heavy load handling, Internal fire,
Aircraft, Loss of SFP inventory**

Stakeholder Interactions

- ◆ **Staff held several public meetings - April, May, June, and July (2-day workshop)**
- ◆ **Comments and additional information received from stakeholders (e.g., NEI, UCS, individuals) via meetings, telecons, and correspondence**
- ◆ **Major industry concern was that the risk analysis did not give sufficient credit for plant conditions and personnel actions**
- ◆ **TWG is performing follow-up activities, based on stakeholder concerns**

Follow-up Activities

- ◆ **Human reliability: Issued for comment an approach to identify conditions to support an assumption of high human reliability (e.g., procedures, training)**
- ◆ **Seismic: Reviewing NEI-proposed checklist to identify potential pool vulnerabilities compared with a nominal plant**
- ◆ **Heavy load movement: Reassessing using NEI's proposal to implement Phase I & II from NUREG-0612 (Control of Heavy Loads)**

Other Followup Activities And Concerns

- ◆ **Potential for criticality: Reassessing based on expanded scope of scenarios**
- ◆ **Adiabatic spent fuel heatup calculation:**
 - **Conservative, simple calculation**
 - **No current plans to use as a generic criterion**
- ◆ **Other stakeholder concerns also being addressed (e.g., concrete aging, safeguards)**

Other Activities

- ◆ **Continuing work to finalize study**
 - **Additional technical work by NRC contractors**
 - **Independent, technical, quality review (ITQR)**
 - **Application of risk-informed principles**

Risk-informed Decision Making

- ◆ **Conclusions from the technical study will be formulated using the risk-informed regulatory principles in RG 1.174:**
 - **Core damage frequency (CDF) & large early release frequency (LERF) goals**
 - **Defense in depth**
 - **Safety margins**
 - **Performance monitoring**
- ◆ **Based on all inputs, a realistic, risk-informed assessment will be developed**

TWG Product And Schedule

TWG is following its plan to finalize its assessment and address stakeholder concerns that will result in a solid technical basis for the development of rulemaking and interim exemption criteria

- ◆ Release draft report for public comment in early January 2000**
- ◆ Release final report in early April 2000**

Decommissioning Rulemaking

- ◆ **Two rulemaking efforts**
 - **Integrated decommissioning rulemaking**
 - **Decommissioning regulatory improvement initiative**
- ◆ **Integrated decommissioning rulemaking:**
 - **EP - Safeguards - Insurance - Backfit**
 - **Operator Staffing & Training**
- ◆ **Need SFP risk study results before proceeding with rulemaking**
- ◆ **Integrated rulemaking plan by May 31, 2000**

Decommissioning Rulemaking

(continued)

- ◆ **Decommissioning regulatory improvement initiative:**
 - **Comprehensive regulatory review**
 - **Modification of regulations to clarify applicability to decommissioning**
- ◆ **41 potential areas identified for clarification**
- ◆ **Consolidation of reactor decommissioning regulations to a dedicated Part recommended**
- ◆ **Rulemaking plan by July, 2000**

***SUMMARY of COMMENTS BEFORE A MEETING OF THE
UNITED STATES NUCLEAR REGULATORY COMMISSION***
November 9, 1999

**Regarding An Integrated Review of Decommissioning Requirements
Improving Decommissioning Regulation For Nuclear Power Plants**

A CITIZEN PERSPECTIVE by Raymond Shadis, New England Coalition on Nuclear Pollution, Inc, Friends of the Coast- Opposing Nuclear Pollution

I. Introduction

I believe the most productive role of non-industry stakeholders, in particular informed laypersons, may be bounded by the following:

- Help focus policy with regard to the public's need to have confidence in nuclear regulation.
- Help industry and regulators think through developing regulation from the perspective of affected parties (e.g., residents in the vicinity of nuclear facilities, or environmental advocates).
- Question assumptions and process, especially from a practical or layman's point of view.
- Help both industry and regulators to "think outside the box", that is, to consider those externalities which may be obscured by concentration on more narrowly focused disciplines.
- Share the perspective of experience and local knowledge

I. Enhancing Clarity, efficiency, and effectiveness

If adapting regulations originally drafted for operating nuclear power stations has proved to be problematic for both regulators and the licensees, the disorienting effect on a public stakeholder's sense of place in the process is even more pronounced.

Public confidence cannot be maintained if there is uncertainty from or within the agency on basic issues.

For example:

- Citizens, who were for years assured that nuclear power reactors were nonpolluting, now find there are significant issues with radiological site remediation. They find that, in terms of risk, residual radioactive pollutants are not required by NRC to meet the same derived risk-standards as non-radioactive toxins in the environment. A Commission which seeks to relieve the industry's regulatory burden (if possible) by

embracing risk-information at the front of the decommissioning process, fights tooth and nail to avoid risk-basis at the end of the process.

The public has a right to be confused and therefore withhold its confidence. The agency should avoid the appearance of clinging to prescriptive regulation when it benefits the industry and risk-informing it away when it does not.

I believe a distinct regulatory decommissioning protocol is required. It should be one that is front-loaded with objective checks and balances providing the industry, the regulators, and the public with a secure platform from which to enter the decommissioning process.

The new protocol should, I believe, have as its centerpiece a plant specific comprehensive charter or permit for decommissioning which would take the site from present state to end state. Plants that had shutdown with an accumulation of safety-related defects should be subject to a thorough inspection with a checklist for any conditions that might effect safety during decommissioning.

An adjudicatory process, with simple access for stakeholders should be afforded. As far as I know, there is no legal stumbling block to NRC holding joint hearings with other agencies or governmental entities. Perhaps there could be fewer regulatory stops but more inclusive stops and stops with built-in accountability to satisfy both an industry and a public advocacy hunger for certainty

By contrast the present scheme appears to completely satisfy no one. All but the most obtuse of public and media have been 'put off' by the trivial nature of the PSDAR and the attendant informal meetings.

Changes are needed not only in the regulations, but also in the manner in which the organization conducts itself.

II. Public Confidence in Decommissioning Regulation

NRC personnel interacting with the public are the best expression of NRC regulation. If improving public confidence in the regulatory process is of high priority, then it is essential that NRC personnel maintain openness and absolute candor in communicating with the public. This is sadly, in my experience, not always the case. Please keep in mind, that it when it comes to credibility, as in the case of bad checks, exceptions do make the rule.

Timely action and response speaks volumes. For example, in June of 1998, MYAPC made a unilateral determination that security would not be compromised by reconfiguring its defenses against radiological sabotage and proceeded to make extensive changes. An NRC team of security specialists did not physically examine the changes until nine months later.

Comments and Questions on Spent Fuel Pool Hazards and other Risks in Decommissioning

Although the staff should be planning for reviewing and risk-informing the entire decommissioning process, I believe the present priority of examining spent fuel pool accident risks to be correct.

The staff is correct in undertaking an in-depth review rather than simply relying on the conclusions of the few existing studies of accident risks. The staff should have accurate plant specific design information.

I am concerned that the move to a risk-informed decommissioning rule not become so weighted toward risk-base that analysis for prescriptive based contributions to the rule are slighted. I believe it is important to the protection of the environment, and to the public health and safety, to continually ask, "What if? It is important to examine any tenable question that is raised before dismissing it based on a casually assigned probability.

The following scenarios are offered as examples:

- Accidental Backflush During Piping Decontamination
- Kindling a Zirconium Cladding Fire

I do not believe an accurate risk analysis can be accomplished without a careful, updated review, both site-specific and generic, of external factors that are apt to affect assumptions about risks and consequences.

I am concerned about what we think we know. For example, the staff has identified no materials aging or degradation issues in examining SFP vulnerabilities. However materials used in spent fuel pools, in racks, and in fuel assemblies have been known to degrade in similar environments.

While focus on accidents that would trigger offsite emergency response is understandable, more likely accidents involving gross consequences to workers and accidents involving long-term damage to the environment must be given competing emphasis.

While the impatience of industry with what appears to a slow process is understandable from a time is money perspective, the effect on a license being required to submit individual analysis and applications for exemptions can be mitigated through preparation for the process. In other words, the industry has a readily available in-house remedy available. Individual SFP heat up and vulnerability analysis can and should be done as soon as possible and can be done well in advance of decommissioning.

A failure to adequately provide for the public safety, however, should an accident occur, is without remedy.

COMMENTS BEFORE A MEETING OF THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

REGARDING AN INTEGRATED REVIEW
of
DECOMMISSIONING REQUIREMENTS
Improving Decommissioning Regulation For Nuclear Power Plants

A CITIZEN PERSPECTIVE

By

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and
Friends of the Coast- Opposing Nuclear Pollution
Edgecomb, Maine

November 8, 1999
Rockville, Maryland

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I. Introduction

My name is Raymond Shadis. I am a resident of Edgecomb, Maine. I have served on the Maine Yankee Atomic power Company [MYAPC] Community Advisory Panel [CAP] on Decommissioning since its inception in August 1997. On that panel I represent a local environmental education and advocacy organization of which I am a founding member and spokesman, Friends of the Coast-Opposing Nuclear Pollution.

I am also employed by the Vermont-based, New England Coalition on Nuclear Pollution, serving as field representative and nuclear information coordinator.

From the unique vantagepoint of these dual roles I have reviewed the progress and documentation of decommissioning at Yankee Rowe, Haddam Neck, and Maine Yankee.

The Commission is well aware of the extraordinary regulatory, legal and public confidence obstacles encountered in the Yankee Rowe decommissioning, the radiological protection issues at Haddam Neck, the backfit controversy, as well as the radiological site release criteria and NRC public relations issues at Maine Yankee.

If the circumstances of decommissioning the New England nuclear plants have influenced the Commission's willingness to undertake decommissioning regulatory improvement, it is understandable.

I believe the most productive role of non-industry stakeholders, in particular informed laypersons, may be bounded by the following:

- **Help focus policy with regard to the public's need to have confidence in nuclear regulation.**
- **Help industry and regulators think through developing regulation from the perspective of affected parties (e.g., residents in the vicinity of nuclear facilities, or environmental advocates).**
- **Question assumptions and process, especially from a practical or layman's point of view.**
- **Help both industry and regulators to "think outside the box", that is, to consider those externalities which may be obscured by concentration on more narrowly focused disciplines.**
- **Share the perspective of experience and local knowledge**

(E.g., I have 20 years experience in dealing with Maine Yankee and NRC on safety issues. Few if any laypersons share the level of detail enclosed by my familiarity with the plant and its history.¹ My associate Peter James Atherton, who has also participated in the NRC Risk-Informing Decommissioning meetings, brings a unique perspective in that he worked for the NRC at a time when much of the current body of regulation was being formulated.)

William Huffman, Decommissioning Section of NRR, NRC, described the goals of Decommissioning Regulatory Improvement in a May 5, 1999 meeting with the Nuclear Energy Institute:

- **To enhance the clarity, efficiency in decommissioning regulations while maintaining safety**
- **To improve public confidence in the regulatory process of decommissioning nuclear power reactors**
- **Staff encourages comments and questions from the industry and public stakeholders**

The remainder of my comments will loosely follow the format suggested in Mr. Huffman's set of goals.

L. Enhancing Clarity, efficiency, and effectiveness

¹ E.g., NRC has expressed a heightened level of confidence in PWR spent fuel pool integrity because of the assumption that PWR spent fuel pools are typically bedded below grade, often in solid rock. [see, Generic Safety Issue 82 and NUREGs 1530, CR-4982, also CR-6451] At an NRC meeting on risk-forming decommissioning held on March 17, 1999, it became apparent to me during the discussion of Maine Yankee vulnerabilities that the NRC personnel present were unaware that the Maine Yankee SFP shares a wall with the basement of the Primary Auxiliary Building and is therefore solidly bedded only on three sides. I was able therefore to inform them that the Maine Yankee SFP was vulnerable to at least partial rapid drain down

If adapting regulations originally drafted for operating nuclear power stations has proved problematic for both regulators and the licensees, the disorienting effect on a public stakeholder's sense of place in the process is even more pronounced. The required labyrinth-like search for applicable regulations on almost any facet of decommissioning is frustrating, time-consuming, and burdensome. In some cases the intent or application of the regulations could not be better hidden if it were hidden intentionally.

Security requirements to protect against radiological sabotage, for example, are spelled out in vivid detail for an operating nuclear plant but are not at all clear for a plant in de-fueled condition.

One is reduced to asking the opinion of NRC staff who are themselves frequently unsure of the authority of their answers. Public confidence cannot be maintained if there is uncertainty from or within the agency on basic issues.

For example:

- What is the public's role in assuring safety and protection of the environment in decommissioning?
- What potential accident consequences exist at a de-fueled plant?
- Since more radioactive materials are being handled than in an operating plant, and under conditions more likely to lead to inadvertent exposures, why are licensees left without the supervision of resident inspectors, or at the least, NRC contract radiation protection personnel?

Citizens, who were for years assured that nuclear power reactors were nonpolluting, now find there are significant issues with radiological site remediation. They find that, in terms of risk, residual radioactive pollutants are not required by NRC to meet the same derived risk-standards as non-radioactive toxins in the environment.

A Commission which seeks to relieve the industry's regulatory burden (if possible) by embracing risk-information at the front of the decommissioning process, fights tooth and nail to avoid risk-basis at the end of the process.

The public has a right to be confused and therefore withhold its confidence. The agency wants to avoid the appearance of clinging to prescriptive regulation when it benefits the industry and risk-informing it away when it does not.

In reviewing the staff working papers presented in the several meetings held on risk-informing and/or improving decommissioning regulation, I find that one task the staff seems focused on is bringing together or bundling those regulations in Part 50 which continue to apply to de-fueled and decommissioning nuclear power plants. I believe this

to be a laudatory first step in clearing an unnecessary regulatory morass.² And I believe this to exemplify an occasional meeting of the minds of regulator, industry, and public advocate. Although it should be noted, there is no reason to rush. Exemptions seem to be increasingly justified on the basis of previous exemptions granted. This should expedite the process somewhat while preserving case by case review to address individual plant differences.

Before moving to the obvious next step of writing a separate decommissioning code, under Part 50 or otherwise, I believe it would be wise to review the thinking that got us to this untenable situation in the first place. I would recommend that a contract be let to an unbiased party for the purpose of analyzing the why and how. I may be dead wrong but based only on a sketchy overview it appears that the application Part 50 was contorted to fit decommissioning reactors with the duck tape of 10CFR 50.82 in order to avoid larger formalized processes with potential adjudicatory "handles." It is clearly an unsatisfactory solution from the perspective of public confidence and likely does not optimally serve safety either.

I believe a distinct regulatory decommissioning protocol is required. It should be one that is front-loaded with objective checks and balances providing the industry, the regulators, and the public with a secure platform from which to enter the decommissioning process.

The new protocol should, I believe, have as its centerpiece a plant specific comprehensive charter or permit for decommissioning which would take the site from present state to end state. Plants that had shutdown with an accumulation of safety-related defects should be subject to a thorough inspection with a checklist for any conditions that might effect safety during decommissioning.

An adjudicatory process, with simple access for stakeholders, including members of the public, tribal units, interest groups, host municipalities, other local units of government, other federal agencies, and the state, should be afforded. So far as I know, there is no legal stumbling block to NRC holding joint hearings with other agencies or governmental entities. Utility executives have complained to me of the many regulatory stops on the path to decommissioning. Perhaps there could be fewer but more inclusive stops and stops with built-in accountability to satisfy both an industry and a public advocacy hunger for certainty.

By contrast the present scheme appears to completely satisfy no one. All but the most obtuse of public and media have been 'put off' by the trivial nature of the PSDAR and the

² The situation is laid out in an excellent article by John D. Haseltine and Stephen J. Millioti of the Connecticut Yankee staff, Doin'the D&D: Dancing to the Regulatory Tune in the January/February Issue of *Radwaste Magazine*, a publication of the Amercian Nuclear Society.

attendant informal meetings. Public meetings are notorious for their poor handling by NRC staff, who appear to be tossed without adequate training, or in some cases it appears with no training, into dealing with a discerning, and sometimes suspicious, public.

Representations asserted by litigants to have been made during Yankee Rowe LTP public meetings by NRC staff were discounted by NRC counsel before the Atomic Safety and Licensing Board as simply personal opinions and not policy statements of NRC! It is plain that the inherent message is that the public can place no reliance on the statements of NRC staff in public meetings. From a public confidence perspective NRC's proposed move toward less formal processes, evidenced in a concurrent initiative, will go a long way toward completely wiping out the agency's remaining credibility.

If the agency finds that emphasis was somewhat misplaced in its decision to retain regulation of decommissioning activities under Part 50, then the agency ought to consider, with the input of stakeholders, figuratively connecting the bundle of applicable regulations to the foreseeable end state of the site. It should not retain the mindset that seeks ways to find similarities with regulating an operating reactor.

A decommissioning reactor represents different challenges in entirely different proportions than those presented by an operating reactor. Very little of what an operator or inspector learned in reactor school is needed here. NRC needs personnel specifically trained in and dedicated to decommissioning. New ballgame.

Licensees have told me that they are puzzled that they have more public awareness and interest in decommissioning than they had of operations. It should be no mystery. Having gotten past the acceptance or rejection of perceived operating accident and emissions risks, the public wants to know with a degree of certainty what they will be left with, what the risks of getting through decommissioning are to themselves, to workers, and to the environment. They want to know with a degree of certainty what risks to themselves and the environment remain. At this point the single candidate with the stature, expertise, and resources to provide that degree of certainty, the US Nuclear Regulatory Commission, does not appear as if it will, maintaining its present course, measure up.

Changes are needed not only in the regulations, but also in the manner in which the organization conducts itself.

II. Public Confidence in Decommissioning Regulation

NRC behavior in the public arena further undermines public confidence already dampened by the lack of clarity, certainty, and accessibility in the decommissioning regulations. NRC personnel interacting with the public are the best expression of NRC regulation. If improving public confidence in the regulatory process is of high priority, then it is essential that NRC personnel maintain openness and absolute candor in

communicating with the public. This is sadly, in my experience, not always the case. Please keep in mind, that it when it comes to credibility, as in the case of bad checks, exceptions do make the rule.

There follows a few excerpts from my experience with decommissioning regulation that in my view exemplify disingenuous and discrediting behavior.

- Shortly after Maine Yankee Atomic Power Company (MYAPC) announced that the plant would be decommissioned, an NRC team came to the plant area to hold a press conference announcing an impending NRC public meeting. With a singular lack of sensitivity, the site chosen for the press conference was MYAPC corporate headquarters. Notable quotes from that press conference included NRC counsel Anne Hodgdon responding to concern about the lack of a formal process to initiate decommissioning with a breezy assurance that, "members of the public can ask for a hearing at any time."

The message appears to have a long shelf life. On July 20, 1999, Dr. Carl J. Paperiello, director of the Office of Nuclear Materials Safety and Safeguards, echoed assurance of the ease of obtaining a public hearing. Before a public audience in Wiscasset, Maine, Dr. Paperiello, stated the following regarding final site release,

The public has hearing rights, they can demand a full adjudicatory hearing over whether or not the licensee meets the limit...If you, the public, disagree that they meet the limit, all you have to do is send a letter, " We want a hearing." You don't have to hire an attorney. You may wish to. Many people do. We provide the hearing board. There is an element of this process, which is incredibly rigorous...

Dr. Paperiello is more of a scientist than an administrator, and he is certainly no attorney, so he probably believes this twaddle. However as a staff member of an organization which had to spend upwards of \$30,000 on attorney's fees just to get standing with regard to the Yankee Rowe License Termination Plan, I could not rank NRC's representation on the ease of getting a hearing very high in truth or candor.

- On April 29, 1999, an NRC Region I Branch Chief promised to open the decommissioning inspection process by permitting me and other members of our CAP to audit weekly conference calls with NRC and the licensee. He then, responding by letter to a frustrated follow-up inquiry, reneged. The reader will notice that his letter avoided the all-important question of industry contact on the issue. The licensee later independently confirmed contact on the issue of access to the calls. On October 13, 1999 in a public meeting in Meriden, Connecticut, the Branch Chief compounded the contradiction by insisting that NRC site inspections are never

announced in advance. This assertion was roundly refuted within a few hours, contradicted by two executives of companies engaged in decommissioning. It was again contradicted by Mark Roberts, a representative of NRC Region I before the MYAPC CAP on October 21, 1999.

When I raised the issue with the CAP, several members recalled the offer to take part in the conference calls clearly. The CAP then voted to honor my request to send the Branch Chief the following excerpt from the MYAPC Community Advisory Panel on Decommissioning meeting minutes of April 29, 1999 (Adopted June 10, 1999):

NRC Quarterly Update

Ronald Bellamy, Chief of the Decommissioning and Laboratory Branch of the Division of Nuclear Materials Safety, NRC Region I, updated the panel on NRC activities related to Maine Yankee decommissioning... Dr. Bellamy indicated that additional NRC staff would be on site at Maine Yankee during the next couple of months due to upcoming decommissioning activities. The weekly NRC conference calls with the state and the licensee continue to provide an excellent source of information for the NRC and have served to confirm that information received is reliable. Mr. Shadis asked if the weekly conference calls had reduced to some extent the amount of written communication as he had not seen much in the public document room lately. Dr. Bellamy stated that inspection reports should appear with the same frequency in the public document room as they had for the last few years. Prior to that, the licensee might receive a couple of inspection reports in a quarter but about four years ago, the agency started rolling reports into a quarterly inspection report. Dr. Bellamy could not identify any correspondence that would have been replaced by the conference calls. Mr. Shadis asked if there were any way to make the content of the conference calls public; could an interested public member take part in the conference calls? Dr. Bellamy replied that yes, one could and extended an invitation to panel members to take part in a call, they generally last about 45 minutes.

After four months had elapsed, I wrote to Dr. Bellamy,

August 27, 1999

Dr. Ronald Bellamy
Chief, Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety, NRC Region I
US Nuclear Regulatory Commission
Washington, D.C. 20555 - 0001

Dear Dr. Bellamy,

At an April 29, 1999 meeting of the Maine Yankee Atomic Power Company (MYAPC) Community Advisory Panel (CAP) on Decommissioning, I asked if, given the lack of resident inspectors and limited NRC-licensee review correspondence, I could take part in weekly NRC conference calls with the licensee.

The CAP minutes for the April 29th meeting read as follows,
...Mr. Shadis asked if there were any way to make the content of conference calls public; could an interested public member take part in the conference calls? Dr. Bellamy replied that yes, one could and extended an invitation to panel members to take part in a call, they generally last about 45 minutes...

Mr. Michael Meisner of MYAPC has since relayed to me concerns expressed by his staff that my presence on a conference phone call might have a chilling effect on the free flow of discussion. Please tell me if MYAPC has been in touch with you or NRC regarding this, "problem." If so, is this why you haven't given me notice or schedules of conference calls with MYAPC?

More Than three months have elapsed since you agreed to allow me to audit the NRC conducting the public's business with the licensee. I have been told that during this time, decommissioning contractors have, helter-skelter, cut a powerline trench across a contaminated yard area. If that is so, it will certainly be an issue we will raise when we intervene in the application for approval of the License Termination Plan. Where are free release exemptions filed for contaminated materials being shipped to Tennessee, or now possibly to Connecticut? Many troublesome issues could be resolved if NRC were not playing this decommissioning close with the licensee.

Please respond promptly and detail the steps you plan to remedy the lapse of the past three plus months. Please also include a schedule of conference calls and access protocols.

Sincerely.

Raymond Shadis

Dr. Bellamy responded on September 20, 1999,

Dear Mr.Shadis:

I am responding to your letter of August 27, 1999, concerning your possible involvement in weekly telephone calls the U.S. Nuclear Regulatory Commission staff has with Maine Yankee staff. I have not been afforded the opportunity to review the minutes of the April 29, 1999 meeting of the Community Advisory Panel (CAP), but my recollection of my statements at that meeting is not consistent with the statement in your letter that I agreed to allow you to audit the calls. Nonetheless, we have considered the matter and do not believe it is an efficient use of staff resources for the NRC staff to open these calls to members of the public or CAP. We consider these calls part of our inspection planning process, allowing us to gather information on Maine Yankee's schedule of activities. This information is important to allow us to appropriately plan our onsite inspections. This, however, should not be interpreted as "playing this decommissioning close with the licensee", as you state in your letter. As you know, our inspection findings are a matter of public record, you are on distribution for our written inspection reports, and our findings are discussed at periodic CAP meetings.

I regret any confusion or misunderstanding concerning public involvement in these weekly inspection status calls.

Sincerely,

Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety

In the above example, it should be understood that my general impression of the professional competence and inspection arena integrity of Dr. Bellamy is highly favorable. In fact his initial acquiescence to my request to audit NRC/licensee conferences indicates to me a person of open and generous nature. The question then is why did a good man adopt a siege posture with an overly inquisitive member of the public? I would have to say that he took on, in the words of Harold Denton, "the coloration of the agency." When activists and other members of the public ask me for my assessment of NRC, I have to say that it appears to be a house divided. In this case, I think it is a man divided and I would have to lay the blame on something systemic in the agency.

Note: I regret the length of the above inclusions, over-documenting a minor complaint. However, in an April 13, 1999 NRC meeting on risk-informing decommissioning, I

complained about two instances of delayed and non-responsive answers from NRC regarding safety concerns I had raised in the past. In a letter from NRC which followed my complaint I was incorrectly accused of misrepresenting the matter³.

The lesson I draw is that NRC management will defend poor practice by obfuscation and insult to the integrity of members of the public who question such practice. Therefore every assertion must be thoroughly documented as above. A transcript is in preparation of the October 13, 1999 Meriden, Connecticut NRC meeting. Referenced statements by Mr. Roberts and Dr. Paperiello, I have on audiotape and I can provide them on request.

Even given the presumption of good will, these few examples of apparent contradictions in NRC's representations to the public should serve to point out an obvious weakness in NRC's stated goal of obtaining public confidence in decommissioning regulation. If these examples do not serve, I have more and will be glad to provide them if I detect a serious interest in seeking a cure. It does not matter to the public confidence if the agency keeps tweaking its regulations and inviting shareholders to sit in. Neither interested stakeholders nor the general public can be expected to give the NRC their confidence when the agency's public face, rightly perceived or not, has the appearance of either manipulative slyness, or dishonesty, or ignorance, or multiple personality disorder.

The quality of public statements and correspondence from NRC is certainly not the only pillar on which public confidence in the process rests. Public confidence in the realm of information surrounding decommissioning also rests on communication from the licensees. It must be said that they are making a remarkable effort at presenting the industry's perspective. I would not care to judge candor, but Yankee Atomic Electric,

³ Mr. John Zwolinski of NRR apologized on the spot, but then on June 11, 1999 wrote a letter critical of my accounts of events. Mr. Zwolinski wrote, "I have carefully looked into this matter and believe the circumstances are different than those you portrayed." Mr. Zwolinski then goes ahead to demonstrate that he could not have looked carefully at the content of my attempts at written communication with NRC by mis-characterizing both the communications and the responses. They were, in brief, a June 5, 1998 letter regarding SFP issues at Maine Yankee was not answered in writing until March 26, 1999. The answer was not responsive to several safety concerns raised. I also raised timeliness relative to a memorandum provided NRC on February 4, 1997. Suggestions stemming from lessons learned at Maine Yankee have never been addressed. After being strung along by a series of, "The check is in the mail," letters, I was finally informed by letter on January 20, 1999, that one of several issues had been resolved, the rest were dumped in the low-priority box as the plant had been shut down. In his letter Mr. Zwolinski asserts that my concerns were addressed in casual conversations with staff. They were not. He asserts that our February 4, 1997 memorandum presented issues raised by a concerned individual and that, over time those issues were addressed. The memorandum addressed many issues not raised by "a concerned individual". Those issues were never addressed. At least one issue still applies to operating plant in New England. The individual's issues were never properly addressed. I believe a search of the referenced correspondence by an unbiased individual will confirm my version of events.

Connecticut Yankee, and Maine Yankee have made a large advance toward openness that was not in my experience with nuclear utilities before the plants entered decommissioning. NRC has not kept pace. NRC will not have confidence in decommissioning regulation, or indeed any regulation, until it has the public's trust. It will not have the public's trust until it begins to more fully exhibit trust in the public. Opening the inspection process might be one such exhibit.

Timely action and response speaks volumes. For example, in June of 1998, MYAPC made a unilateral determination that security would not be compromised by reconfiguring its defenses against radiological sabotage and proceeded to make extensive changes. An NRC team of security specialists did not physically examine the changes until nine months later. Nine months is a long time in which malefactors can take notice that vehicle barriers and guard towers have been removed, then lay plans and take action.

Comments and Questions on Spent Fuel Pool Hazards and other Risks in Decommissioning

Although the staff should be planning for reviewing and risk-informing the entire decommissioning process, I believe the present priority of examining spent fuel pool accident risks to be correct.

The staff is correct in undertaking an in-depth review rather than simply relying on the conclusions of the few existing studies of accident risks. The staff should have accurate plant specific design information. The US General Accounting Office in its March 1999 Report, Strategy Needed to Regulate Safety Using Information on Risk⁴ has it:

Effective regulation, whether traditional or risk informed, needs to be anchored in information that adequately describes the design and safety parameters of a plant, changes to the plant's design and operations that affect safety, and assessments that define the structures, systems, or components that are safety significant. Yet NRC does not have assurance that this information is available and accurate.

The staff's Task Action Plan for Spent Fuel Storage Pool Safety of July 26, 1996 detailed some site specific vulnerabilities on ten specific issues. It was found, for example, that several plants had fuel transfer tubes that entered the SFP with openings below the level of the top of the spent fuel thus providing a drain path with the potential to expose stored fuel to air. In determining risk probabilities from human error or sabotage, this design feature has to be taken into consideration. Seismic fragility of the transfer tubes is also an issue of concern.

⁴ GAO/RCED-99-95 Report to Congressional Requesters, Nuclear Regulation- Strategy Needed to Regulate Safety Using Information on Risk

I am concerned that the move to a risk-informed decommissioning rule not become so weighted toward risk-base that analysis for prescriptive based contributions to the rule are slighted. I believe it is important to the protection of the environment, and to the public health and safety, to continually ask, "What if? It is important to examine any tenable question that is raised before dismissing it based on a casually assigned probability. The following scenarios are offered as examples:

- **Accidental Backflush During Piping Decontamination**

Many reactors share spent fuel pool cooling with reactor primary side systems. Prudence would dictate engineered physical isolation of the SFP cooling system before any corrosive scrub of the hot side piping. Should this fail to occur and a licensee rely on administrative limits, it is not possible to misalign valves to send a volume of corrosive chemicals into the spent fuel pool? Would a caustic solution flash precipitate SFP boron? Is there then a potential for criticality? Is there the potential for fuel damage?

- **Kindling a Zirconium Cladding Fire**

Once the "zirc fire" window has closed, be it at 100 days or five years, is all risk of a SFP fire resulting from a seismically initiated draindown eliminated? Maybe not. If materials with ignition temperatures lower than the maximum decay heat of the spent fuel are added to the fuel, the combined heat of foreign materials combustion and spent fuel decay heat could raise fuel cladding to rapid oxidation temperatures. As the zirconium oxidation reaction is strongly exothermic, is it possible for a local "hot spot" to propagate to involve significant quantities of fuel? I think so. How likely is it the relatively low ignition temperature material can get introduced onto, or down in among, fuel assemblies during a seismic event? What sorts of materials might they be? Power cables, wooden blocking, clothing, water-hoses, cans of paint and solvents are among the possibilities.

I do not believe an accurate risk analysis can be accomplished without a careful, updated review, both site-specific and generic, of external factors that are apt to affect assumptions about risks and consequences. For example, the National Severe Storm Center is predicting more frequent severe weather phenomena and more intense severe weather phenomena. Assumptions regarding the size and velocity of wind-driven missiles and the maximum height of storm surges are based on obsolete data and need to be reassessed.

The vulnerability and probable risk of spent fuel pools to aircraft crashes should take into consideration changes in local aircraft traffic as represented by flight control logs of local airports and military airbases.

I am concerned about what we think we know. For example, the staff has identified no materials aging or degradation issues in examining SFP issues. However type 304

stainless steel alloy employed in fuel racks and assemblies, also in other SFP components, such as the SFP liner, is subject to stress corrosion cracking in oxygenated or stagnant borated water, as evidenced in IE Information Notice No. 79-19 and elsewhere. SFP liners are quite thin for their size and, likely due to unrelieved fabrication stresses, are subject to buckling at temperatures well below boiling. Any material or system failure apt to affect assumptions about another material or component in reviewing accident sequences and effects, should be taken into consideration. In a half-empty pool, for example, if a SFP liner presses racks together, if fuel racks or assemblies, or boral plates fail, what then? Are there new localized heat and criticality issues to be considered?

While the impatience of industry with what appears to a slow process is understandable from a time is money perspective, the effect on a license being required to submit individual analysis and applications for exemptions can be mitigated through preparation for the process. Individual SFP heat up and vulnerability analysis can and should be done as soon as possible and can be done well in advance of decommissioning.

A failure to adequately provide for the public safety, however, should an accident occur, is without remedy.

Improving Decommissioning Regulations

**Paul M. Blanch
Energy Consultant**

NRC's Key Messages

- 1. Maintain safety**
- 2. Enhance public confidence**
- 3. Improve effectiveness and efficiency**
- 4. Reduce unnecessary regulatory burden**

SECY 99-168 Overview

- ♦ **Five year schedule**
- ♦ **Additional issues need to be addressed**
- ♦ **Additional guidance will assist decommissioning plants**

Significant Issues Need to be Addressed

- ♦ **Site remediation criteria**
- ♦ **Design basis accidents**
- ♦ **Application of Part 50**
- ♦ **Rules for long term storage of HLW
(10 CFR 72)**

Consistent Application of Existing Regulations

- ♦ **Some inconsistency continues to exist (Security, FFD, QA, EP, FP, Codes & Standards, etc.)**
- ♦ **Regulation by exemption**
- ♦ **NUREG 6451 provides reasonable guidance**

Competing and Conflicting Regulatory Mandates need to be Resolved

- ♦ **EPA vs NRC site remediation requirements**
- ♦ **On site disposal of "clean waste" needs clarification**
- ♦ **NRC/EPA need to resolve total activity and/or average allowed concentrations**

Rules for Long Term Storage of HLW (10 CFR 72)

- ♦ **General vs. Site Specific Part 72 license**
- ♦ **Site specific license will add burden, \$\$, and public hearings**
- ♦ **Part 50 does not properly address HLW storage**
- ♦ **Some licensees apply sections of Part 50 and Part 72**

Will Store HLW Without Clear Regulations

- ♦ **10 CFR 50 does not properly address HLW storage**
- ♦ **10 CFR 72 provides clear regulations for HLW storage**
- ♦ **General (Part 72, Subpart K) license only intended for operating reactors**

All Design Bases Accidents Need to be Addressed

- ♦ **Need to be risk based**
- ♦ **Considers zirconium fire**
- ♦ **Need to consider potential criticality**
- ♦ **Need to address other potential accidents**

Recommendations for the Commission

- ♦ **Provide interim guidance (NUREG 6451) for decommissioning**
- ♦ **Direct the staff to proceed with rulemaking on an accelerated schedule**
- ♦ **Apply site specific requirements of 10 CFR 72 to decommissioning plants**

Recommendations for the Commission

- ♦ **Evaluate all potential accidents**
- ♦ **Establish clear site remediation criteria**
- ♦ **Assure consistency and establish predictability**
- ♦ **Work closely with all stakeholders to enhance public confidence**

Oregon Office of Energy

Comments and Experience With Reactor Decommissioning

November 8, 1999

David A. Stewart-Smith

Historical Perspective

- **Trojan subject to the state oversight authority of the Energy Facility Siting Council, a seven member citizen commission**
- **Oregon Resident inspector at Trojan since 1980, first MOU with the NRC on joint regulatory presence**
- **History of successful cooperation between Oregon and the NRC**

Reactions to Staff Decommissioning Initiative

- **Specific attention to how the rules address decommissioning is a good idea**
- **Staff recommendation for a separate part in Title 10 is the best approach**
- **Our experience is that a great deal of time was spent adjusting the license to conform to a permanently shut down condition**

Observations based on Oregon's Experience

- **Post shut-down emergency plan based on a fire in the low level waste storage area as worst-case accident for off-site consequences**
- **Active state role useful in providing a connection to the local public**
- **There is much yet to be learned about large power station decommissioning – leave room for flexibility in the rules**



Decommissioning What's At Stake?

Lynnette Hendricks, NEI





Safe, Timely, Efficient Decommissioning Essential for:

- Public Confidence
- Ratepayer and Shareholder Value

Safe, Timely, Efficient Decommissioning

- What's Needed?
 - Certified Spent Fuel Casks
 - Efficient License Termination Process
 - Risk Informed Regulations

Spent Fuel Management

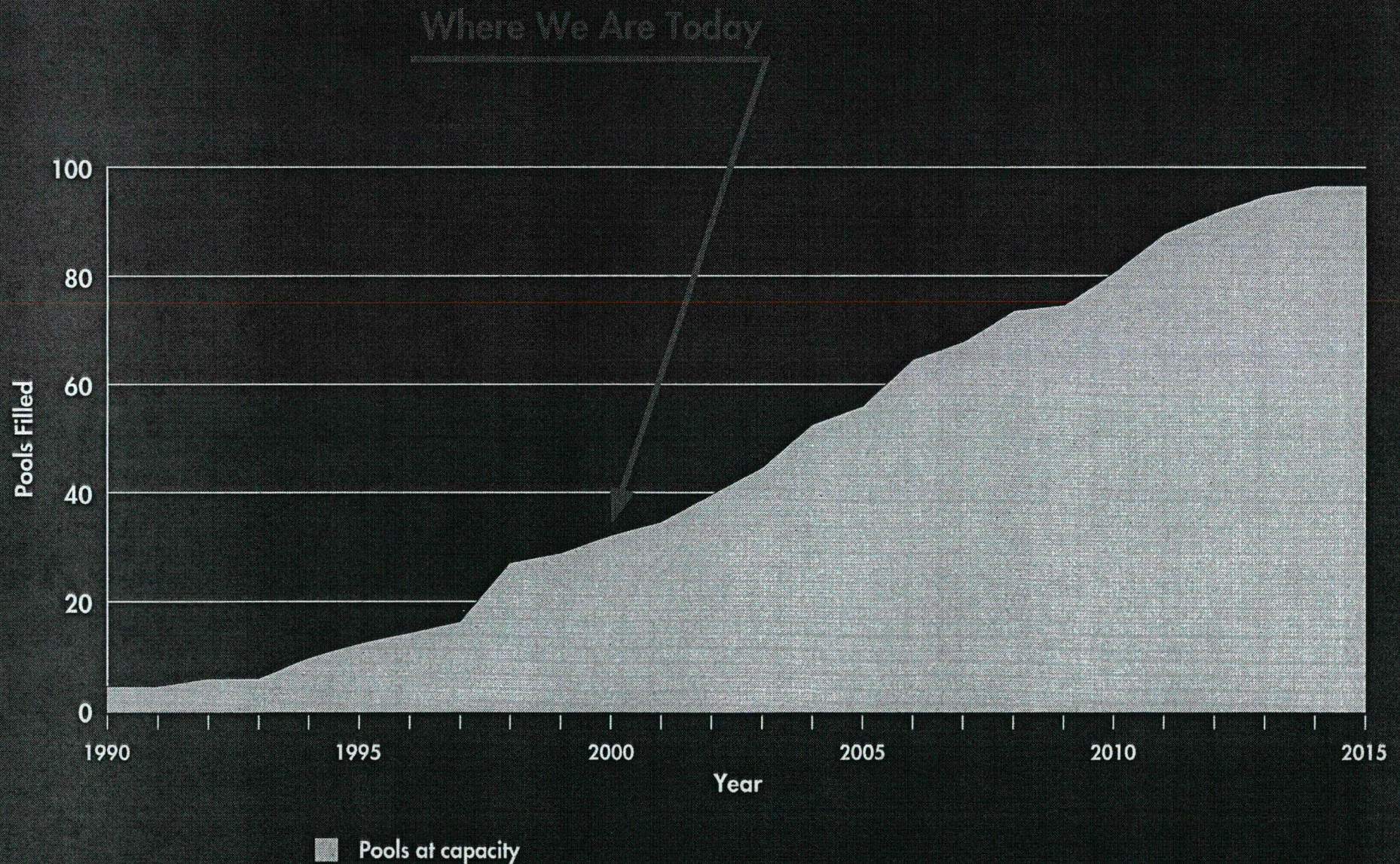
■ Historical Perspective

- NRC rules of engagement
- Cask certification time line reduced
 - ◆ 3-4 years down to about 20 months
- Scope of certifications are limited!

Spent Fuel Management

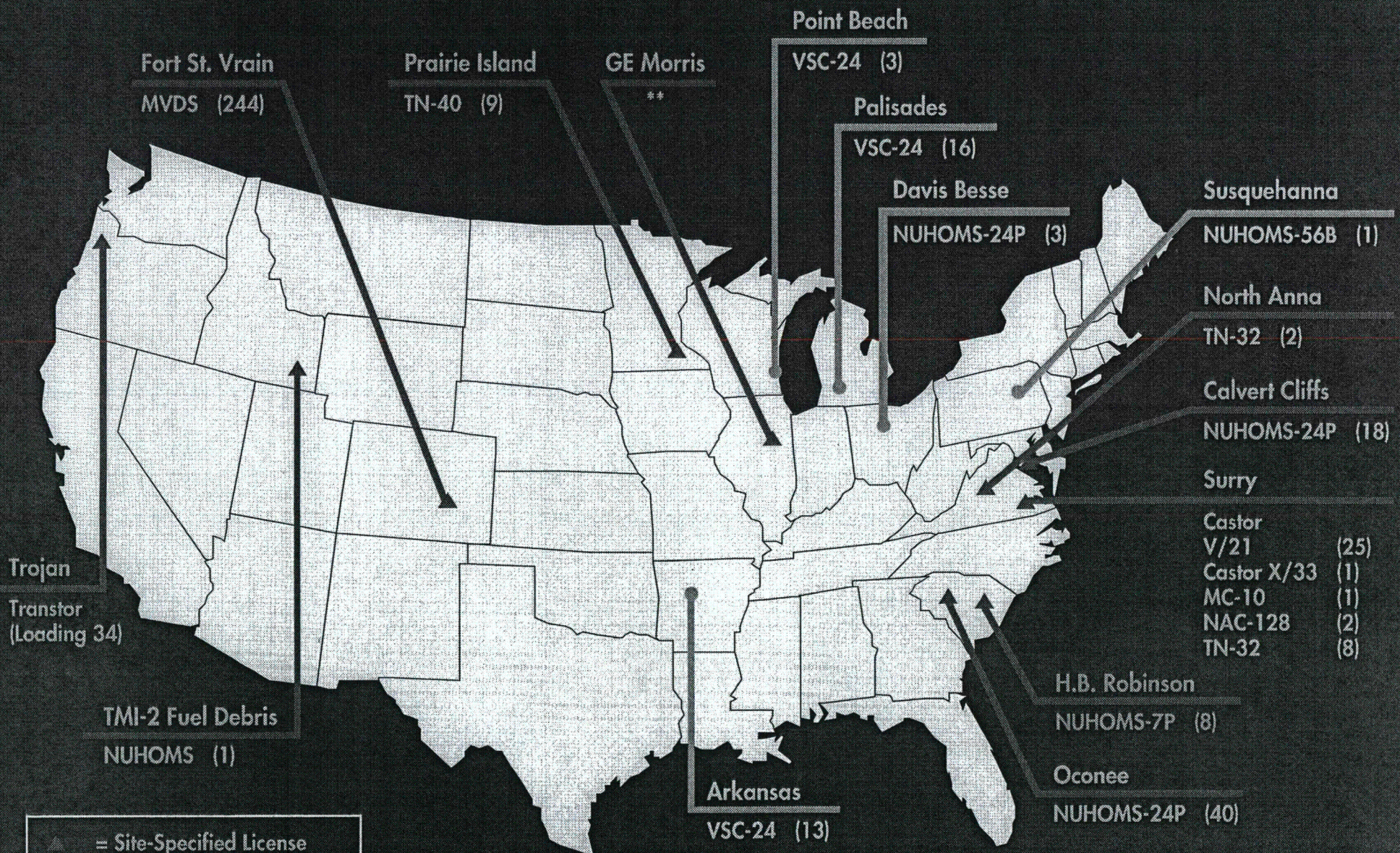
- Impact of Limited Certification
 - Decommissioning plants can't decommission their pools
 - Operating plants can't unload fuel
 - Band-Aids proposed are:
 - ◆ Impractical
 - ◆ VERY costly, i.e., in excess of \$10 Billion

Projected Loss of Full Core Reserve



Sources: Energy Resources International
& DOE/RW-0431-Rev.1

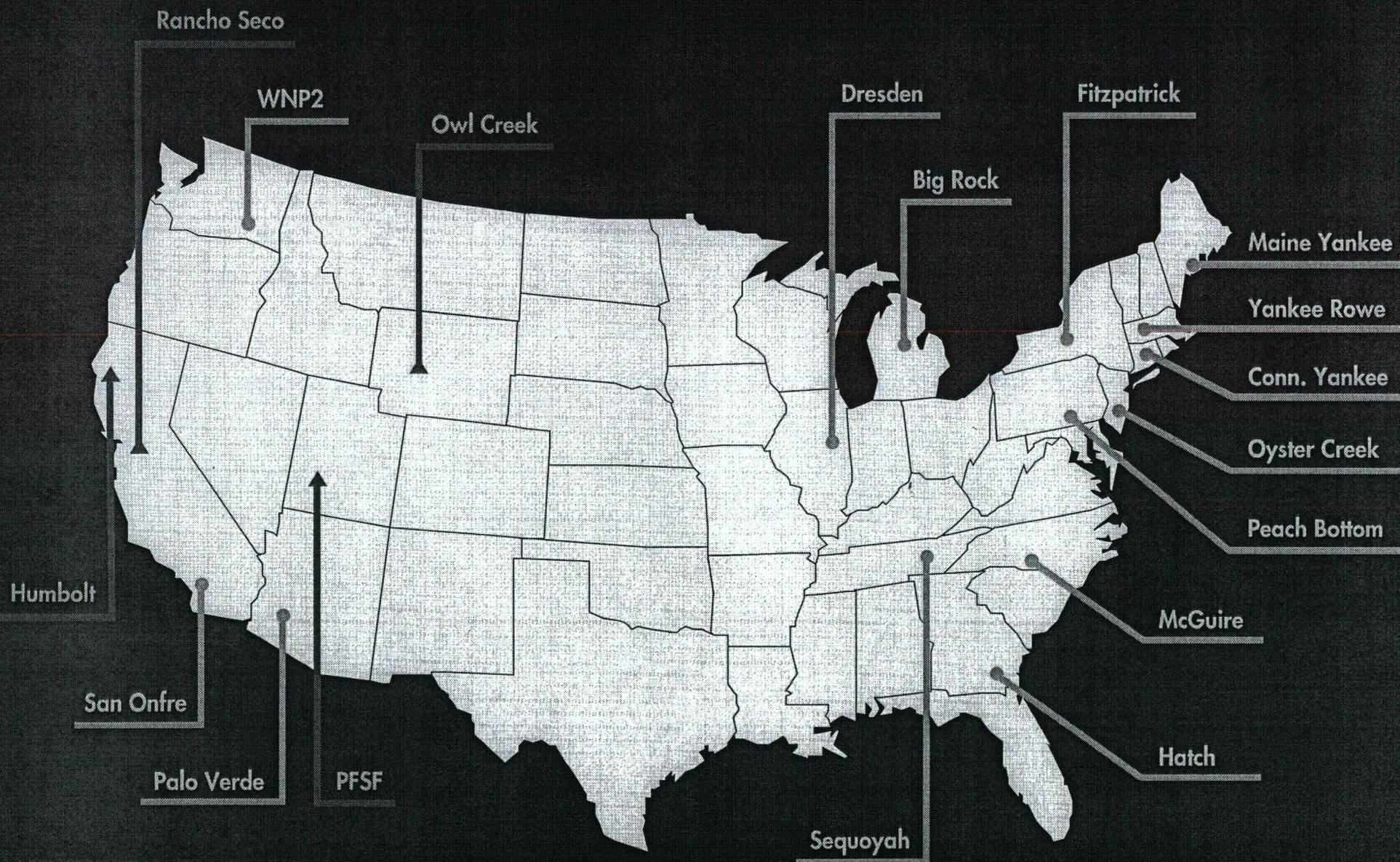
Operating Spent Fuel Storage Sites (ISFSI)



** GE Morris Uses Wet Storage

Information as of September 13, 1999

Potential Near-Term, New ISFSI Sites



Information as of September 13, 1999
(Based on NRC & Licensee Assessments)

Limited Scope of Certification

■ Recommendations

- PRA would demonstrate extremely low risk
- PRA results support more timely, realistic Internal Staff Guidance

Spent Fuel Management

- Inefficient Cask Listing/Amendment Process
 - Rulemaking to list takes too long
 - Amendment by rulemaking is a resource nightmare

Inefficient Cask Listing/Amendments

■ Recommendations

- Cut time to process internally
 - ◆ NRC review indicates several months can be eliminated from schedules
 - ◆ NRC PRs for fabrication at risk, final rule withdraw 30-day fabrication hold

Inefficient Cask Amendment Process

- Recommendations
 - Include process and criteria for amendments in initial listing rule
 - Smarter Certificates
 - Resolve generic issues!!

Efficient License Termination

■ Recommendations

- Test needed for level of detail supporting LTP
- Dual regulation needs legislative fix
- Industry supports NRC initiative on material release
- Novel issues should go to Commission



Risk Informing Decommissioning Regulations

Mike Meisner, President of
MYAPC



Risk Informed Regulations

■ Overview

- Commission directed staff to integrate and risk inform certain regulations
- Staff produced good model in short time frame
- Conservatism and worst case estimates skewed risk profile and risk insights

Risk Informing D&D Regs

- Conservatism Added:
 - Human reliability
 - Heavy loads (used upper bound from previous analysis)
 - Consistent bias toward upper bound (Diesel pump reliability used .18 vs. .044 ALWR)

Table 3.3-1

HEP EXAMPLES FROM NRC STAFF DRAFT

Operating Crew Action	HEP	Time Available	
		Hours	Shifts
Recognition of Loss of Cooling (Alarm)	3E-3	120	15
Recognition of Loss of Cooling (Walkdown)	1E-2	120	15
Restart SFP Cooling	3.5E-3	120	15
Start Diesel Fire Pump	1E-2	120	15
	2E-2	112	14
Align SFP Makeup Using Offsite Resources	1E-2	120	15

Table 3.3-2

HEP CONSISTENCY WITH AT-POWER PRA VALUES: SELECTED EXAMPLES

Action	Time Available	Time to Perform Action	HEP
ATWS Level Control	15 min	2 min	1E-2
ECCS System Initiation	30 min	1 min	1E-3
RHR Initiation	20 hrs	4 min	1E-6

Fuel Uncovery Endpoint

- Not related to public risk
- Postulated runaway oxidation correlates with risk to public
- Realistic heatup and endpoint adds 3 days to recovery time! (8 days Vs. 5)

Figure 5-1
COMPARISON OF POINT ESTIMATES

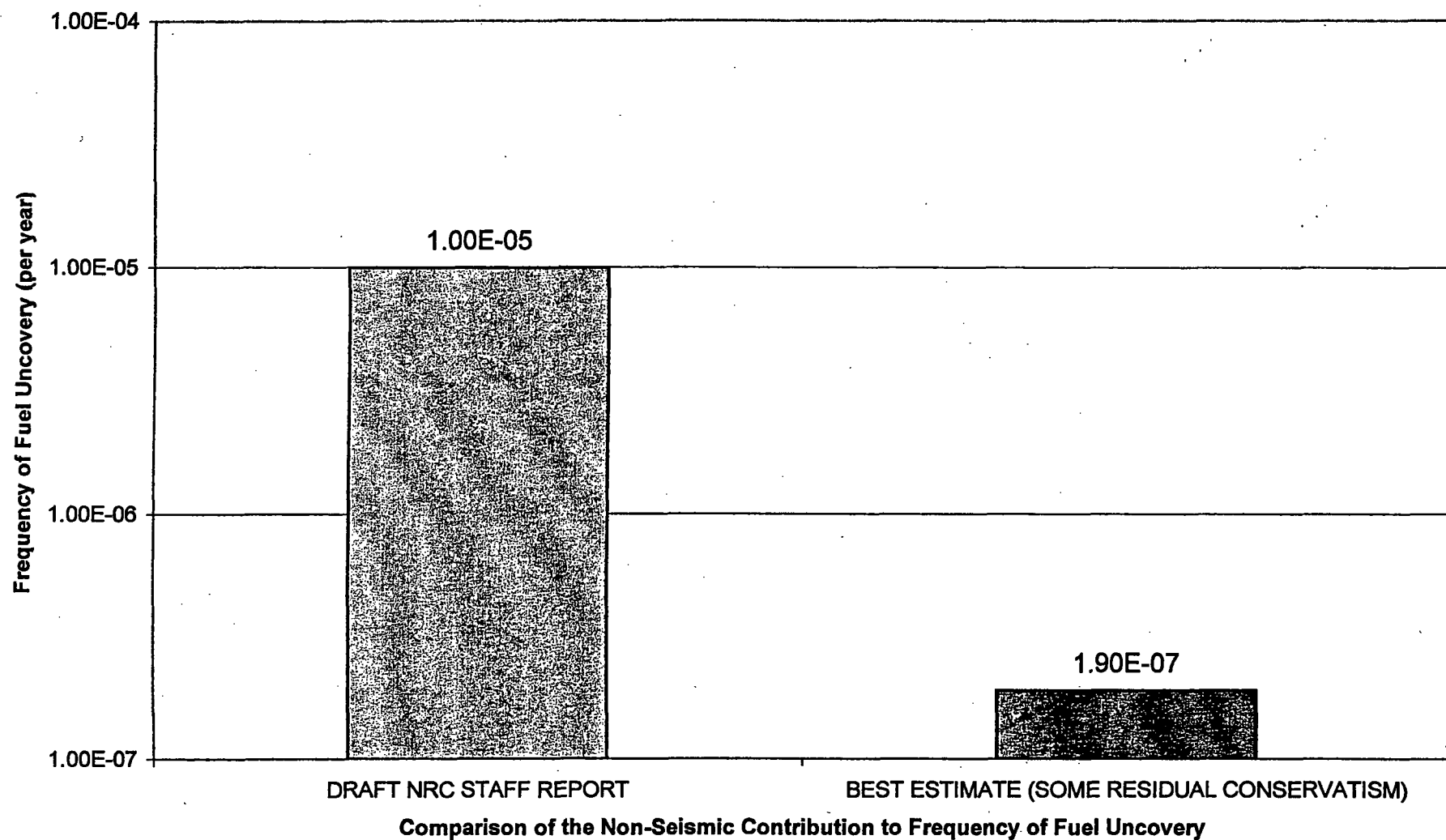


Table 5-1

RESULTS SUMMARY – FREQUENCY OF FUEL UNCOVERY (FFU)

Accident Initiator	Potential Adverse Impact on Offsite Response	Plant Response Characterization	DRAFT NRC Staff report Frequency (Per Year)	Revised Frequency Estimate (Per Year)
LOOP - Plant Centered	No	Frequencies are substantially lower and the time line extends beyond 7.	1.3E-6	3E-10
- Grid Related	No	Frequencies are substantially lower and the time line extends beyond 7 days.		
- Severe Weather	Yes	Frequencies are substantially lower and the time line extends beyond 7 days.	1.4E-6	7.4E-8
Fire	No	Frequencies are substantially lower and the time line extends beyond 7 days.	8.8E-7	1E-8
Loss of Pool Cooling	No	Frequencies are substantially lower and the time line extends beyond 7 days.	1.5E-7	1.5E-8
Loss of Coolant Inventory	No	No mechanisms have been identified for the spontaneous failure of the SFP boundary causing loss of inventory. Data from NUREG-1275 are for cases with fuel movement and gates opened which are not applicable to the static conditions being considered here. Frequencies have been adjusted appropriately.	2.9E-6	5.8E-8
Seismic Event	Yes	Reevaluation by DES using average of EPRI and LLNL.	2.0E-6	6E-7 ⁽⁴⁾

Table 5-1

RESULTS SUMMARY – FREQUENCY OF FUEL UNCOVERY (FFU)

Accident Initiator	Potential Adverse Impact on Offsite Response	Plant Response Characterization	DRAFT NRC Staff report Frequency (Per Year)	Revised Frequency Estimate (Per Year)
Heavy Loads (CASK Drop)	No	No heavy loads are being transported over the SFP during this time period. (Bundles need to decay for >5 years.) Single failure proof crane.	2.5E-6	3.1E-8
Aircraft Impact	No	Not reassessed, but likely lower contribution than cited here. Best estimate is used in the revised assessment.	4.0E-8 ⁽¹⁾	6E-9
Tornado Missile	Yes	The tornado evaluation description in the DRAFT NRC Staff report indicates that a tornado is not expected to damage the spent fuel pool itself. Therefore, the frequency cited in the DRAFT document is related to the failure of the cooling systems and makeup systems. Because cooling system failures lead to fuel heatup after 7 days, it is considered negligible frequency.	5.6E-7 ⁽²⁾	ε
TOTAL			1.2E-5	7.9E-7
TOTAL without seismic contribution			1.0E-5	1.9E-7

⁽¹⁾ Upper bound used from Appendix A.6.

⁽²⁾ Main report says 2E-7/yr, Table 3.1-3 says 5.6E-7/yr., Appendix A.4 says 8E-7/yr for events that can cause missile damage to support systems for spent fuel cooling.

⁽³⁾ Not applicable contribution to risk profile based on the ability to demonstrate complete fuel coverage in excess of 7 days (1 year after shutdown).

⁽⁴⁾ Seismic is judged to be a small risk contributor if checklist is used to disposition the seismic fragility of the plant. [To be supplied under separate cover.]



Implications for Operating Plants

- Inconsistent with Commission Policy
and IPEs

Recommendations

- Credit industry commitments
- Revise study to:
 - Use best estimates
 - Remove conservatisms
- Truncate sequences beyond 2 days
- Requantify Model

Benefits of Corrected Study

- Valuable risk insights
- Tool to focuses resources on risk
- Demonstration of margin and defense in depth
- Basis to avoid unnecessary resources for EP, insurance and security
- Avoids Carryover of erroneous risk insights to operating plants IPEs