Public Comments/Staff Commitments

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decommissioning.

November 8, 1999 Commission Meeting

1.2p. 15, Diane Jackson presentation) NRC will reassess the potential for criticality. 2. (p. 16, Diane Jackson presentation) Other stakeholder concerns such as concrete aging and Safeguards are being addressed by the TWG. 3, 40, 60, Ray Shadis) Concern about resin filter fires and resultant exposure to workers and public and about primary system chemical decon and the potential for contaminated solution to go overboard into public waters or be flushed back into the spent fuel pool. SRXB/ 4. (p. 64, Paul Blanch) SECY-99-168 doesn't cover all decommissioning issues: either NRC or EPA release criteria are acceptable what design basis accidents do we need to consider how to apply Part 50 to decommissioning reactors when the rules in Part 72 for storage of high-level waste are more clearly outlined; Part 50 is not appropriate for long-term storage of high-level waste what is the applicability of Part 26 fitness-for-duty requirements Applicability of EP, QA, fire protection, codes and standards Rubblization - specify the total activity or average allowed concentration of rad material to remain on site design-basis accidents need to be risk-informed and should address potential criticality 5. (p.72, David Stewart-Smith) Consider a fire in LLW storage area, including large amounts of LLW in case disposal capacity is lost mid-stream during decommissioning 6. (P. 94, P Blanch) What is spent fuel pool design basis during decommissioning? Qualified equipment, environmental qualification, seismic backups? 7. (P. 97, R. Shadis) Wants an adjudicatory hearing and a prior NRC review/approval step (new decommissioning regulatory protocol) at the outset of the decommissioning process. 8. (p. 104, P. Blanch) There may be other accidents important to decommissioning other than the spent fuel pool draindown; perhaps criticality or resin fires. 9. (p.5, Shadis Statement) Since more radioactive materials are being handled during decommissioning than during operation, why are resident inspectors removed or at least why does NRC not use contract radiation protection personnel? 10. (p. 6, Shadis' Statement) NRC should hire a contractor to determine why and how 10 CFR Part 50 was contorted to fit decommissioning reactors with the duct tape of 10 CFR 50.82 to avoid adjudicatory processes with potential regulatory "handles". 11. (p. 6, Shadis' Statement) Little of what operators or reactor inspectors have learned is applicable to decommissioning. NRC needs personnel specifically trained in and dedicated to

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12 (p. 8, Shadis' Statement and elsewhere) Untrained NRC public representatives frequently misinform the public, particularly about the opportunities for a hearing on reactor decommissioning.

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13. (pp 8 - 13, Shadis' Statement) Several specific examples of interactions with NRC staff that he feels demonstrate improper or inaccurate information provided by staff members.

14 p. 13, Shadis' Statement) Seismic vulnerabilities of spent fuel pool transfer tubes must be assessed to properly determine the risk of draining spent fuel pools.

(p. 14, Shadis' Statement) During primary system decontamination at decommissioning reactors, is it possible to misalign valves and send corrosive chemicals into the spent fuel pool? Could these chemicals precipitate boron from the spent fuel pool water? Is there a potential for criticality? Is there a potential for fuel damage?

(16 (p. 14, Shadis' Statement) Could foreign materials with lower ignition temperatures enter a drained spent fuel pool and catch fire, thus raising the temperature of spent fuel to the point of rapid zirconium oxidation?

17 (p. 14 Shadis' Statement) Since the National Severe Storm Center is predicting more frequent and more intense severe weather phenomena, shouldn't the size and velocity of wind-driven missiles and maximum height of storm surges be reassessed?

(p. 14, Shadis' Statement) The risk of spent fuel pools to aircraft crashes should take into consideration changes in local air traffic as represented by filght control logs of local airports and military bases.

19 (p. 14, Shadis' Statement) How can there be no spent fuel pool degradation issues if type 304 stainless steel employed in <u>fuel racks and assemblies</u> is known to exhibit stress-corrosion cracking in oxygenated or stagnant borated water?

20, (p. 15, Shadis' Statement) In a half-empty spent fuel pool, if a SFP liner presses racks together, or, if fuel racks or assemblies or boral plates fail, are localized heat and criticality issues to be considered?

21. (p. 15, Shadis' Statement) The time delays experienced by licensees who must submit individual heat up analyses and applications for exemption from NRC regulations could be mitigated by preparation of such documentation well in advance of decommissioning.

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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

Raymond Shadis, Representing New England Coalition on Nuclear Pollution, Inc Brattleboro, Vermont and Friends of the Coast- Opposing Nuclear Pollution Edgecomb, Maine

> November 8, 1999 Rockville, Maryland

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L. 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, <u>New England Coalition on Nuclear Pollution</u>, 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 defueled 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 riskinforming 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

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

Comments Before a Meeting of the OS macroar Acounty Raymond Shadis - November 8, 1999

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.

IL 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 <u>do</u> 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 <u>not</u> 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 October21, 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, helterskelter, 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:

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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 <u>appearance</u> 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, <u>Strategy Needed to Regulate Safety Using Information on Risk</u>⁴ 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 <u>Task Action Plan for Spent Fuel Storage Pool Safety</u> 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-<u>Strategu</u> 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 assembles 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.

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UNITED STATES OF AMERICA 1 NUCLEAR REGULATORY COMMISSION 2 OFFICE OF THE SECRETARY 3 *** 4 5 NRC STAFF BRIEFING ON 6 INTEGRATED REVIEW OF DECOMMISSIONING REQUIREMENTS 7 *** 8 PUBLIC MEETING 9 10 Nuclear Regulatory Commission 11 One White Flint North 12 Building 1, Room 1F-16 13 11555 Rockville Pike 14 Rockville, Maryland 15 Tuesday, November 8, 1999 16 The Commission met in open session, pursuant to 17 notice, at 1:32 a.m., the Honorable RICHARD A. MESERVE, 18 Chairman of the Commission, presiding. 19 20 COMMISSIONERS PRESENT: 21 RICHARD A. MESERVE, Chairman 22 23 NILS J. DIAZ, Member EDWARD McGAFFIGAN, JR., Member 24 JEFFREY S. MERRIFIELD, Member 25 2 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE: 1 KAREN D. CYR, General Counsel 2 ANNETTE L. VIETTI-COOK, Assistant Secretary 3 WILLIAM TRAVERS, Executive Director for Operations 4 SAMUEL COLLINS, Director, NRR 5 STUART RICHARDS, Director, Project Directorate IV, 6 and Decommissioning, NRR 7 WILLIAM KANE, Director, NMSS 8 WILLIAM HUFFMAN, Project Directorate IV and 9 10 Decommissioning, NRR JOHN GREEVES, Director, Division of Waste 11 Management, NMSS 12 DIANE JACKSON, Plant Systems Branch, NRR 13 RAY SAHDIS, NE Coalition on Nuclear Pollution; 14 Friends of the Coast (Maine) 15 MIKE MEISNER, Chairman, Decommissioning Working 16 Group, NEI 17 PAUL BLANCH, Energy Consultant 18 DAVID STEWART-SMITH, Administrator, Energy 19 Resources 20 Division, Office of Energy, Oregon 21 22 23 24 25 3 PROCEEDINGS 1 [1:32 p.m.] 2 CHAIRMAN MESERVE: Good afternoon, ladies and 3 gentlemen. 4 Today we will be discussing the NRC's Integrated 5 Review of Reactor Decommissioning Regulations and 6 7 Requirements. Presentations on this topic will be made by the 8 NRC Staff, as well as interested stakeholders, including 9

10 representatives of the public, including the New England

11 Coalition on Nuclear Pollution, the nuclear industry,

represented by the Nuclear Energy Institute in the State of 12 13 Oregon. One of the many challenges that faces the NRC is 14 the appropriate regulation of decommissioned reactors. 15 Decommissioned nuclear power plants pose a different risk to 16 public health and safety from operating nuclear power 17 plants, but under existing NRC regulations, they are subject 18 to substantially the same regulatory requirements. 19 Today, we will discuss this issue, focusing, in 20 particular, on the NRC's activities and proposals, and 21 comments on those actions from interested stakeholders. 22 My fellow Commissioners and I welcome you to this 23 meeting, and look forward to an open and candid discussion. 24 I understand that copies of the handouts are 25 available at the entrances, and unless my colleagues have 1 any comments they wish to make, we'll proceed with Dr. 2 3 Travers. COMMISSIONER MERRIFIELD: Mr. Chairman, I have 4 actually two comments that I'd like to make. 5 The first one is, I always like to take sufficient 6 time to prepare for these meetings, and given the nature of 7 the days the Commissioners have around here, preparing, just 8 prior to the meeting, generally not a possibility. 9 And so in order to avoid that, I and the other 10 Commissioners like to take materials home with us at night 11 or over the weekend, so that we are appropriately prepared 12 for these meetings. 13 Now, I made an admonition in the last meeting that 14 we had last week, and I'll make a similar admonition that it 15 is very unfortunate that we received slides for some 16 presenters today that were either brand new or were amended 17 from slides that we had received earlier. 18 Because of that, I have not had an opportunity to 19 review those slides, and I do not feel fully prepared for 20 the presentations -- some of the presentations that will be 21 made today, and I think that that is most unfortunate. 22 I would certainly encourage those who are 23 presenting today, in the future, get those slides to us in a 24 timely fashion so that we may prepare appropriately. 25 5 I would also suggest to the SECY--I know she works 1 very hard to get people to do that--to the extent that you 2 can continue those efforts, and explain to them that at 3 least from this Commissioner's standpoint on this kind of 4 activity, it will result in additional public lectures. 5 And I'm not naming names today, but I guess that 6 7 in the future I may have to. One additional comment I want to make: NEI, in 8 its slides, seems to spend a significant amount of time on 9 problems associated with our cask certification process. 10 I note from the Staff slides that it appears that 11 there is not an intention to address this issue in the 12 presentation today, at least from the slides, that is the 13 indication I have. 14 Before we finish the briefing, I would like to get 15 the Staff's perspective on the amendment-by-rulemaking 16 process, where you stand on the issue related to why the 17 cask certifications are limited, and any process 18 improvements you have in mind, specific to the cask 19 20 certification process. So if that might become part of your 21 presentations, and to the extent you can amend your 22 23 comments, I would appreciate that. Thank you. 24

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DR. TRAVERS: Thank you, Chairman. Good 25 6 afternoon. As you have indicated, the Staff is here to 1 discuss our ongoing integrated review of reaction 2 decommissioning regulations. 3 We will also briefly highlight our approach for 4 coordinating the elements of our decommissioning program 5 among the Office of Nuclear Reactor Regulation, the Office 6 of Nuclear Materials Safety and Safeguards, the Office of 7 Research, and the Regional Offices. 8 As reactors have permanently shut down, the staff 9 has been primarily using the existing Part 50 regulations to 10 address decommissioning issues and process. This has 11 resulted in a number of problems because Part 50 was 12 primarily written with a focus on operating reactors. 13 A common result of this situation is that 14 licensees of decommissioning reactors have had to rely on 15 seeking relief, regulatory relief, in the form of exemptions 16 and amendments to their licenses. That process has not been 17 the most efficient with respect to staff and licensee 18 19 resources. In an effort to be more efficient, the Staff, with 20 Commission direction, is developing a holistic approach to 21 decommissioning regulation that is intended to be less 22 burdensome for facilities, while continuing to provide 23 assurance that public health and safety are maintained. 24 The Staff has engaged our stakeholders on this 25 There has been a healthy exchange of information and 1 issue. views on many facets of decommissioning, and we believe we 2 are systematically developing the technical basis that will 3 support proposed changes to NRC regulations. 4 Today, we plan to provide a status report on our 5 6 continuing efforts. Joining me at the table today are Sam Collins, 7 Director of the Office of Nuclear Reactor Regulation; Bill 8 Kane, Director of the Office of Nuclear Materials Safety and 9 Safeguards, John Greeves, who is the Director of the 10 Division of Waste Management in NMSS. 11 I have Stew Richards on my left, who is the 12 Project Director for Region IV and Decommissioning. Next to 13 him is Bill Huffman, Project Manager in the Office of 14 Nuclear Reactor Regulation, and Diane Jackson, who is the 15 leader or the Technical Working Group in NRR. 16 Let me turn the presentation now over to John 17 18 Greeves. MR. GREEVES: Yes--is this microphone working? 19 Good, all right, thank you. 20 I'm really just going to address Slide 3, and I've 21 got three messages that I want to covey with this slide: 22 The first is that we do have an integrated program 23 with the Staff and the Regions on this process. 24 Second, I would point out that there are 25 8 wide-ranging issues associated with this reactor 1 decommissioning program that actually go beyond the SECY 2 paper that you have and that Commissioner Merrifield 3 mentioned; that a number of the stakeholders, in fact, will 4 5 be bringing up other issues. The third point is that the Staff can respond to 6 these other issues. We're fully prepared to do that at 7 whatever time the Commission wants to ask us to address 8 those questions, especially the spent fuel cask question 9 that Commissioner Merrifield identified in terms of what is 10 limited bout that process, and what improvements we can 11

make. We're fully prepared to address those at your 12 pleasure whenever you're ready. 13 As far as the integrated approach, we briefed the 14 Commission in the past about forming a Decommissioning Board 15 that all of the entities on the Staff attend. We meet every 16 17 two weeks. And there are some examples listed on this chart 18 of activities that come up in this environment. For reactor 19 decommissioning, NRR has the lead. They have a project 20 manager, and they have the early-one issues, a number of 21 which are covered in the subject SECY paper. 22 In the longer term, these projects get turned to 23 NMSS, and we go through a transition process. So the 24 Decommissioning Board helps in that environment. 25 a The NMSS responsibilities include the dry cask 1 storage issue that Commissioner Merrifield mentioned. There 2 are a number of topics associated with that, and the license 3 termination process, which goes towards the license 4 5 termination rule, the '97 rule that is very important in terms of setting the decommissioning criteria for the 6 reactors and really all the rest of the sites. 7 Also, it's a question of how much can you leave 8 onsite? You'll be hearing some of that from some of the 9 10 other stakeholders. The Office of Research provides technical support 11 for all the others, including NRR and NMSS, especially on 12 some of the longer-term issues, for the entombment topic, we 13 14 have a workshop that we have coming on which we sent a paper up to the Commission. So in December, there will be a 15 workshop for that. 16 There is a lot of concern about sites like 17 Barnwell, and how long are they going to stay open. 18 Another topic is dose modeling. The Commission 19 asked us to look into unnecessary conservatism that might be 20 contained in the dose models that we use, and Research is 21 working very hard on those issues, and would be available to 22 answer any questions on that particular topic. 23 And then, finally, the Regions are also part of the Decommissioning Board. They're responsible for the 24 25 10 1 actual inspection of the site. I'd also like to point out that they spend a fair 2 amount of time interacting with the site-specific advisory 3 boards that the utilities are setting up. So they go and 4 sit on the meetings with the oversight panels of citizens 5 that the utilities have, in fact, set up for these 6 7 particular sites. And all of the Staff do interact with the 8 9 stakeholders frequently. We have workshops. Recently were up at the Portland Workshop that NEI sponsored, and we have 10 website interactions, and we call for issue papers. 11 NEI and the Environmental Group recently sent us a 12 set of issues papers on so-called rubble-ization process, 13 and we packaged those together and will be forwarding that 14 to the Commission on an issue-specific type approach. 15 So that's just a bit of a summary, and as I said, 16 Staff is ready to respond to some of these wide-ranging 17 issues at the point the Commission wants to ask questions. 18 19 Thank you. MR. RICHARDS: I'm Stew Richards, and I'd like to 20 provide a little background on what's transpired prior to us 21 22 coming to this meeting today. On March 17th of this year, the Staff met with the 23 Commission to discuss decommissioning issues. At that 24

meeting, the Staff related our opinion that the regulations 25 11 1 applicable to decommissioning need to be clarified and 2 risk-informed. 3 Our intent is to streamline the transition from the operations phase to the decommissioning phase, while 4 maintaining the appropriate level of public safety. The 5 Staff outlined our efforts in this regard in SECY 99-168, 6 dated June 30th of this year. 7 SECY 99-168 describes the Staff's efforts to 8 assess the risk associated with decommissioning and proposed 9 actions to restructure decommissioning regulations, and to 10 integrate existing rulemaking efforts. 11 Next Slide, please. 12 The Staff is here today to provide an update on 13 our actions in this area. In order to go forward with 14 risk-informed rulemaking, the Staff needed a solid technical 15 basis on which to base rulemaking. 16 Therefore, the Staff established the Technical 17 Working Group to assess the risk associated with 18 decommissioning activities. The Technical Working Group, in 19 turn, has established a process and a schedule to accomplish 20 21 that task. That technical assessment is progressing, and we 22 have engaged both the industry and various public groups who 23 are involved in looking at this effort. And as stated 24 25 previously, when the Technical Working Group completes that 12 effort, we intend to incorporate their results into 1 rulemaking and move on from there. 2 With that, I will introduce Diane Jackson, the 3 head of the Technical Working Group. 4 MS. JACKSON: I will address the Technical Working 5 Group study, the work we've performed, our interactions with 6 the stakeholders, and our continuing work to finalize our 7 8 project. Our effort, which started in April, is a study of 9 spent fuel pool accidents and its associated risks at 10 decommissioning plants. Our preliminary draft, which was 11 issued in June, included two key areas: 12 One was an estimation of critical decay time that 13 was required to preclude a zirconium fire, based on a 14 thermal hydraulic coat analysis and a risk assessment to 15 look at the potential for an accident during that period. 16 The risk assessment started with a broad set of 17 initiating events as shown in the slide. This starting 18 19 point was intentional. 20 For an accurate assessment of risk, all initiating events need to be considered, and it's the product of the 21 · analyses that will show us the sequences that are 22 23 significant. Since the start of the study, we have had 24 significant interest from our stakeholders. 25 13 Next slide, please. 1 We've held several public meetings during our 2 preliminary study, and after the issuance of the draft, 3 including a two-day workshop in July. Issuing the 4 preliminary work in June was largely in response to 5 stakeholder interest, however, we felt that stakeholder 6 comments, and particularly industry input, could also assist 7 us in refining our assessment. We received many comments 8 during those meetings and in subsequent telecons, and 9 submittals we received. 10 11

A major industry concern that was brought out at

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the workshop was that the risk assessment did not give 12 sufficient credit to plant conditions and personnel actions. 13 The Technical Working Group has had many followup 14 activities to address stakeholder concerns, in particular 15 Action Items that were taken from the July workshop. 16 In the next two slides, I'd like to discuss some 17 of the examples of our followup activities from stakeholder 18 19 comments. 20 Next slide, please. In the area of human reliability, there was a 21 concern raised that there was insufficient credit in the 22 risk analysis for operator response due to adverse plant 23 24 conditions. Since there are no automatic systems in spent fuel 25 14 pools, there is a heavy reliance on human response. Staff 1 took an Action Item at the workshop to solicit comments from 2 outside experts and from stakeholders to identify conditions 3 that would support the assumption of high human reliability. 4 These conditions are things such as training\ 5 procedures or alarms. We issued a strawman for comment in 6 mid-August to two human reliability experts and to the 7 stakeholders. 8 We received no technical comments from the public, 9 however, from our expert feedback, we are reassessing our 10 human reliability assumptions for our final risk assessment, 11 and this work is currently ongoing. 12 For seismic events, the Staff was concerned that 13 the are some plant designs that would fall outside of our 14 15 assessment. NEI took an Action Item at the workshop to propose 16 a checklist that would identify potential pool 17 vulnerabilities, compared with the nominal plan. NEI 18 submitted this checklist to us in mid-August. We had a 19 telecon to discuss it, and currently the Staff and an 20 independent reviewer is looking at the checklist. We plan 21 to have more interactions with NEI on this topic area in the 22 23 future. For heavy load movements, the concern was that 24 sufficient credit was not given in the risk analysis for 25 15 protective measures for heavy load drops. NEI proposed 1 industry commitments for the prevention and mitigation of 2 heavy load drops. 3 The Staff reassessed its heavy load analysis with 4 the inclusion of NEI's proposal, and also with additional 5 technical data we had, and improved statistical analysis, б and this reassessment is currently undergoing independent 7 8 review. 9 Next slide, please. A concerned has been raised from a member of the 10 public that the draft study did not sufficiently address the 11 potential for criticality. To address this area, we are going back to reassess the issue based on an expanded scope 12 13 of scenarios, and also to took more closely at the sequence 14 of events that must occur to reach a criticality. 15 One of the deterministic analyses that was 16 performed was an adiabatic spent fuel heatup calculation for 17 which there was a concern that it was overly conservative. 18 The Staff performed this calculation as one of 19 several parallel paths during the preliminary study. For 20 21 deterministic analyses there is a benefit that we have to look at between using conservative assumptions to make a 22 simplistic calculation using more realistic assumptions that 23 may make the calculations more complex and time-consuming. 24

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We are looking for a manageable calculation that 25 16 will produce a useful solution. Our efforts have shown in 1 this area that the calculation is not a useful criterion for 2 generic application, so at this point, we currently do not 3 have any plans to use this as a part of our bases. 4 These are a few of the stakeholder concerns that 5 we are addressing. There are other concerns that have been 6 raised, such as concrete aging and safeguards that are also 7 being addressed by the Technical Working Group. 8 In addition to these followup activities, the 9 Staff is continuing with its planned work to finalize the 10 study. We are having additional technical work performed to 11 augment our original assessment, particularly in the areas 12 of thermal hydraulics and PRA. 13 There is an independent technical review in 14 progress of our draft report. We also provided the 15 independent reviewers with any stakeholders inputs as a 16 balance for their review, and we are working to apply the 17 risk-informed principles of Reg Guide 1.174. 18 The next slide lays out the principles of 19 risk-informed decisionmaking from that Reg Guide. To have a 20 risk-informed, rather than a risk-based study, we need to 21 apply all the principles of risk-informed decisionmaking. 22 One of the principles compares the risk from a 23 plant change to guidelines on increases in core damage 24 frequency or larger early release frequency. We have found 25 17 that spent fuel pool accident frequencies and consequences 1 do not fully equate to either a CDF or LERF, so we are 2 trying to define an analogous criterion for decommissioning 3 spent fuel pool accidents. 4 We are also balancing the need for 5 defense-in-depth, safety margin, and the ability to monitor 6 performance. 7 Based on all these inputs, the risk assessment, 8 the deterministic analyses, the stakeholder input, industry 9 commitments, and the risk-informed decisionmaking 10 principles, we believe we can develop a realistic 11 12 risk-informed assessment. I think one of the keys to a realistic assessment 13 are industry commitments that can be credited in our 14 assessment. 15 Next slide, please. 16 In summary, the Technical Working Group is 17 following its plan to finalize its assessment, and to 18 address stakeholder concerns. 19 We believe these activities will result in a solid 20 technical basis for the development of rulemaking and for 21 interim exemption criteria. We plan to release a 22 draft-for-comment report in early January, and the final 23 report, after a public comment period, in early April. 24 This concludes my presentation on the Technical 25 18 1 Working Group Study. Are there any questions from the Commission? 2 MR. RICHARDS: We have two more slides from Bill 3 Huffman on the integrated rulemaking. 4 CHAIRMAN MESERVE: Why don't we see those and then 5 6 we'll go to questions. MR. RICHARDS: We'll do that. 7 MR. HUFFMAN: Hello. My name is Bill Huffman, and 8 I'm the lead Project Manager in charge of the rulemaking 9 effort for decommissioning rulemaking. 10 Ultimately, the product of this Technical Working 11

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Group effort is improved, predictable, concise, efficient, 12 decommissioning regulations that are safe and will elicit 13 the confidence of the public. 14 As directed to us by the Commission on March 17th, 15 in a meeting, and subsequently in an SRM, we were directed 16 17 to look at an integrated, holistic approach. To that 18 effort, we decided that first we needed a foundation, a technical foundation, which the Technical Working Group is 19 20 in the process of providing to us. 21 Once that foundation is provided, we will carry forward in two different regulatory efforts: One is a 22 near-term integrated rulemaking effort that addresses 23 24 rulemakings that were already in progress and are amenable to the outcome of the Technical Working Group's assessment. 25 19 The second, although not specifically asked for, 1 is a longer-term effort of clarifying the entire regulatory 2 structure of decommissioning in an effort to provide a 3 4 confidence level of what exactly is required for decommissioning from the time a reactor certifies permanent 5 6 shutdown to license termination. The first effort, the integrated decommissioning 7 8 rulemaking effort, involves five rulemaking areas: 9 Emergency planning, safeguards, insurance, backfit, operator 10 staffing and training. These rulemakings were in progress prior to the 11 March 17th Commission meeting. We stepped back and looked 12 at them and agreed that all these areas would definitely or 13 could definitely be impacted by the results of the Technical 14 15 Working Group. 16 Until the Technical Working Group's effort is completed and recommendations and criteria are developed, we 17 are somewhat waiting for moving forward in this effort. 18 Although we anticipate having an integrated rulemaking plan 19 20 to the Commission by the 31st of May of the year 2000, which will lay out our long-term schedule for completing that 21 rulemaking effort, and explain to the Commission, how the 22 results of the Technical Working Group will be applied to 23 rulemakings in this area. 24 25 Next slide, please. 20 1 The Decommissioning Regulatory Improvement Initiative is a longer-term effort. It's a comprehensive 2 review of all of the reactor operating regulations 3 throughout Title 10, and how and if they are applicable to 4 5 decommissioning as well. It may be simply an effort of placing 6 decommissioning in the scope of a regulation, or may involve 7 a more detailed review or modifications of the regulations 8 because of nonspecific applicability. These modifications 9 ultimately will clarify and provide confidence to both the 10 industry and the stakeholders, public stakeholders, and the 11 12 Staff. In our initial screening of these regulations, 13 we've identified 41 potential areas for clarifications, such 14 things as technical specifications, quality assurance, 15 16 fitness for duty, and even the applicability of a control room in a decommissioned reactor site are examples where we 17 have to clarify regulations. 18 We also have employed a contractor to do a 19 thorough and comprehensive documentation of the 20 21 applicability of these regulations, and that contract is now in progress. In addition, we have recommended that instead 22 23 of leaving the regulations where they are, we consolidate the regulations into a separate part of unit so that they 24

25 will all be located together and will be easily reviewable 21 and locatable by all people involved in the regulatory 1 2 process. 3 We anticipate a rulemaking plan that will lay out long-term resources and schedules for this effort by July of 4 2000. That completes my presentation. 5 6 DR. TRAVERS: That completes the Staff's presentations. We are familiar with the issues that have 7 been raised in the NEI's slides, and at your discretion, we 8 can address Commissioner Merrifield's questions at this 9 10 time, or following the presentation by stakeholders, 11 whichever you desire. CHAIRMAN MESERVE: Since the issue has been raised 12 about particularly the casks, why don't we respond to that 13 14 now, and then proceed. DR. TRAVERS: Good. Let me turn it over to Bill 15 16 Kane. MR. KANE: WE have a presentation by Bill Brach, 17 18 who is Director of the Spent Fuel Office. Since I did have that assignment myself a year and a half ago, I would like 19 to make some remarks here to place in context, what we're 20 21 gong to tell you here. In mid-1998, we had, because of problems with what 22 I will call operating spent fuel cask designs, we diverted a 23 substantial amount of resources over to the inspection in 24 order to gain resolution of a number of issues, one related 25 22 to welds, in order to be in a position where we could 1 approve those designs for continued loading of fuel. 2 3 Some sites were coming up to a point where they could no longer--where their fuel pools were filling up and 4 5 they could not offload fuel. In about mid-1998, we set up schedules to review a 6 7 large number of dual purpose cask designs that were backlogged at that time. We set up very disciplined review 8 schedules really to look at and review all of the designs 9 that were before us by six vendors. 10 We established strict schedules for conducting 11 12 those reviews, and all were met by the Staff with no 13 exceptions. The process, though, was based on, because of the 14 intertie of all of these applications in the review process, 15 and the necessity to move our resources back and forth 16 17 amongst these various designs, that we adhere to getting 18 these reviews accomplished on time. We certified what was submitted and could be 19 accomplished in the timeframes established; that is, where 20 there were open issues that could not be resolved, we 21 conditioned the designs to certify what could be from a 22 safety standpoint, loaded in these casks. 23 In parallel with that, we recognized that there 24 were a number of open issues, generic issues, and we 25 23 established a process engaging in workshops with utilities, 1 with the vendors, to flesh out basically what these concerns 2 3 were, where additional guidance was needed. And we issued over a period of time, some 12 what 4 5 I will call interim staff guidance memoranda. These supplemented the existing standard review plans. 6 Nonetheless, we recognized that this process would 7 8 result in multiple amendments for some applications. The 9 reasons for that are, I think, twofold: One was that in many instances, the fuel that was 10 in the fuel pools was incompletely characterized, so it was 11

12 not all identified in the initial applications. Other reasons included the resolution of the 13 14 generic issues. Over time, we've given approval for taking 15 credit for burnup, called burnup credit. We also issued staff guidance that dealt with how 16 17 failed fuel was to be handled, and that process is 18 continuing. In the area of rulemaking, we're going to have Bill touch on that, and describe to you some of the 19 accomplishments that we have made in the rulemaking area, 20 and some that we are continuing to make. 21 I believe that more can be done in the amendment 22 I think further gains can be made. But I'll have 23 process. Bill now go into a discussion of what were the outcomes, 24 what have we accomplished, and, in more detail, what work is 25 24 1 yet to come. MR. BRACH: Thank you. My name is Bill Brach. 2 3 I'm Director of the Spent Fuel Project Office. In response to Commissioner Merrifield's question, 4 5 we did receive the NEI slides in advance, so I have a few comments that are prepared in having an opportunity to 6 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 identify a number of concerns which have been recognized, 11 some of which have been addressed, some of which are in 12 13 stages of being addressed right now. I want to highlight three examples to support my 14 15 observations and comments: First, one of the NEI slides states that decommissioning plants can't decommission their 16 17 pools. As Bill had mentioned, that's been a significant 18 lesson learned in the past with regard to the need on the part of the licensees and vendors to closely coordinate to 19 20 ensure the cask application clearly encompasses and 21 envelopes all the fuel in the spent fuel pool. I'll will mention as a positive example, just 22 recently, Mr. Meisner, who is representing Maine Yankee, had 23 discussions with the vendor for the Maine Yankee facility. 24 25 And they described to me how in preparing the application to 25 1 us for the casks, they sat down with the utility, with Maine Yankee, and reviewed the fuel characteristics for all the 2 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 immediate safety issue. 14 I want to stress that in the Spent Fuel Project 15 16 Office our second priority, the priority following the safety issue is the operational need of the licensee, and 17 clearly off-load capability for a reactor is an operational 18 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 their fuel. 24

25 A third area I want to mention and that Bill 26 identified as well, is the area of rulemaking, and that is 1 one, Commissioner, Merrifield, that you had highlighted as 2 3 well. Yes, I do agree with the NEI comments that it's a 4 very resource-intensive activity. I will stress, though, 5 however, that the rulemaking process really is well-defined 6 and also very predictable. There clearly are areas and room 7 for improvement in the rulemaking process. 8 In the last year, the Commission gave approval for 9 the Staff to proceed with three initiatives to improve the 10 rulemaking process, to streamline it and improve timeliness. 11 The three examples: One is that the Staff no 12 longer has to prepare a rulemaking plan for each cask 13 rulemaking, as that proceeds; secondly, authorization has 14 been delegated from the Commission to the EDO for the review 15 and approval and signature of the rulemaking for cask 16 activities under Part 72; and, the third initiative is that 17 18 we have tried and are implementing, a direct final rulemaking approach to try to expedite the rulemaking 19 activities for amendments to casks. 20 That's an activity we've just initiated and with 21 regard to experience, we are yet to be able to demonstrate 22 the resource savings, but we clearly anticipate that if we 23 are able to go through direct finals instead of a proposed 24 rulemaking process, there would be many efficiencies gained. 25 27 I do want to stress that over the last year, we 1 have established schedules for all of our major casework, 2 all of our dual purpose, spent fuel storage and 3 transportation cases, as well as all of our site-specific 4 independent spent fuel storage installation facility 5 reviews, and we've met all of those schedules over the last 6 7 year. So, in closing, I do want to note that I very much 8 agree that there is much more work to do with regard to 9 spent fuel management activities. I believe we're working 10 with the industry. We've had a number of workshops, just in 11 the last six months on a number of technical issues. 12 But I believe we have made much progress, but 13 there is much more to make. Thank you. 14 CHAIRMAN MESERVE: Commissioner Dicus could not be 15 with us today, but she did have her staff send me a few 16 questions. There are several of them, but there is one that 17 she raised that bears on the initial presentation you made 18 on the decommissioning rulemaking. 19 She expresses concern that this whole rulemaking 20 process is one that's going to extend over three or four 21 years at least. And she wonders whether there is a way to 22 23 do some of these things in parallel. And if you'll point--as an example, point to Slide 24 One of the bullets indicates that you need to have the 25 13. 28 spent fuel pool risk study in final before proceeding with 1 2 the rulemaking. And she has raised the question as to whether it 3 might not be possible to at least collapse this by several 4 months by finding a way to be moving out on the rulemaking 5 with obviously a draft in proposal form while that study is 6 being completed. And that period will assume draft to 7 8 final. MR. HUFFMAN: There may be some efficiency gained 9 by moving forward in parallel, once the Staff issues a draft 10 final report. We have to presume that most of the 11

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conclusions in there will be pretty close to an endpoint at 12 13 that point in time. The thing is that I don't want to get in front of 14 the Technical Working Group. I can't presume what their 15 answers are until I get the answers. 16 As soon as I have fairly good confidence of what 17 18 the answers are, then I believe, yes, we can move forward in parallel and perhaps gain some efficiency of several months 19 20 in that area. MR. COLLINS: Mr. Chairman, I believe there are 21 opportunities within the planning and budgeting process to 22 receive direction from the Commission on those priorities. 23 Clearly, if the Commission were to determine that 24 accelerating rulemaking is one of those priorities, then the 25 29 staff has the capability under our current budgeting methods 1 to provide those options to the Commission, and what the 2 3 impact would be. CHAIRMAN MESERVE: I think that the thrust of the 4 question was not so much whether it's a priority issue, but 5 whether it was essential to complete the Technical Working 6 Group product before you could proceed on the process of 7 developing the rules, and if there is a way to collapse 8 that, that would make some sense to do it, and not 9 significantly affect resources. 10 Mr. Diaz, do you have any questions? 11 COMMISSIONER DIAZ: Yes. 12 Let's see, 78. 13 (Laughter.) 14 COMMISSIONER DIAZ: Let's see if I can collapse 15 this for the sake of our anatomy or whatever it is. 16 Let me start at the end, on the rulemaking effort. 17 I'm concerned that if this rulemaking has progressed, that 18 there has really not been an effort to focus the rulemaking 19 into those issues that are really, really important. 20 There seems to be a certain amount of 21 proliferation of issues, and I think the Commission looks to 22 the Staff to start a rulemaking and zero in on those things 23 that are really significant. 24 And we have two tools in this Commission now to do 25 30 this: One is the old one, which is the technical basis, 1 which has been referred to and about which I'm going to ask 2 in a minute, what does it mean, a sound technical basis? 3 Because without a sound technical basis, you 4 cannot progress. And it seems to me like you have taken an 5 inordinate amount of time to come up with a sound technical 6 basis or what does sound technical basis means. 7 It is indispensable, not only in this rulemaking 8 and in others, that the Staff discriminate against issues 9 that are not safety-significant, to zero in where the issues 10 at hand are, not to keep continuing to be looking at things 11 that are on the side, and that are not significant. 12 It is not possible to continue to do that, because 13 we are a safety focused-agency. Having made that comment, I 14 would look forward to reviewing what this decommissioning 15 rulemaking plans will be. 16 But now let me turn to the two questions: There 17 are two issues in here that are playing into the 18 decommissioning plan. The first things is the development 19 of a sound technical basis. 20 And the Staff had many months to develop it, a 21 sound technical basis. It's not the argument of the 22 adiabatic, you know, calculation, or where it goes, although 23 I think that started some of this process. In essence, 24

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that's the only thing that the NRC has complete control of, 25 31 of what is the technical basis in which we make the 1 decisions. 2 And, therefore, it is imperative that that work 3 goes fast, goes accurate, zeros in on what the issues are. 4 So, my first question is, what do you mean, what does it 5 mean in rulemaking grounds to have a sound technical basis? 6 What does it entail? What are the issues that are 7 a part of that sound technical basis? 8 MR. RICHARDS: I'll take a stab at that, 9 Commissioner. What we were looking for from the Technical 10 Working Group was to take a look back in time at all the 11 previous review efforts that have been done to address the 12 decommissioning area. And there has been a lot of work done 13 to bring that all together, to update that with any 14 additional knowledge they were able to bring to bear, and 15 basically to bring together an integrated knowledge of the 16 risks associated with decommissioning. 17 I think that the industry maintains that the risk 18 is very, very low, and that for that reason we can provide 19 them relief in the regulations from things such as emergency 20 planning, financial protection, and safeguards areas. 21 We've done that on a case-by-case basis with 22 plants, and we continue to entertain those exemption 23 requests while this effort is ongoing. But rather than do 24 it on a case-by-case basis, which is resource-intensive for 25 32 both the industry and the Agency, we'd rather just enter it 1 into the regulations. 2 We felt that in order to do that, we needed to 3 have a solid understanding of the risks, because, you know, 4 the assumption here is that the risk is low, and, therefore, 5 you can provide relief on these items. 6 So, like Diane Jackson explained, the Technical 7 Working Group took a look at all the different events that 8 they could think of that could occur with a plant undergoing 9 decommissioning. They came up with a very extensive list of 10 events. We shared with that the industry and with our other 11 stakeholders, early on in the process. 12 They went through a screening process where I 13 think they whittled out the things that they felt were 14 pretty obviously not of great concern, and they zeroed in on 15 the issues they thought had the potential to cause offsite 16 17 releases. They gathered together the information they had 18 from past studies, and they have tried to apply PRA methods 19 to come up with a risk-informed feeling for where are the 20 vulnerabilities here, and what are the probabilities that 21 some of these kinds of events could happen. 22 It's boiled down to three that Diane mentioned: 23 the heavy load issue, the personnel errors, and seismic. 24 We've shared that with our stakeholders, we have gotten a 25 33 lot of good feedback, and we're trying to characterize how 1 likely those events are to cause a zirc fire. 2 I think that when you get down to the bottom line, 3 if you don't have a zirc fire, you don't have a means to 4 transport that spent fuel offsite, that can cause a problem, 5 and then the other risks associated with decommissioning 6 tend along the line of problems with liquid and gaseous rad 7 waste onsite, those kinds of things. 8 COMMISSIONER DIAZ: My concern is how long does it 9 take to achieve convergence on a sound technical basis? I 10 mean, obviously the NRC should be the world expert on spent 11

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fuel pools. It's not a new science. There is nothing that 12 you discovered last year. 13 MR. RICHARDS: No, sir. 14 COMMISSIONER DIAZ: No, you got it, right? So, 15 convergence on spent fuel technical basis should not be an 16 issue of months and a laundry list that then you can go 17 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 on those things that we have significant technical knowledge 21 of, and we can pare down quickly, so our efforts, which are 22 23 resource-limited, can go into those areas that are 24 important. MR. RICHARDS: Let me just provide one thing. Ι 25 34 don't know if Diane touched on this before, but one of the 1 things we've learned about decommissioning plants is that 2 they don't look like operating reactors. 3 Mr. Meisner and NEI will probably tell you about 4 their nuclear island concept, but when they shut down and go 5 into decommissioning, they quickly have the potential to 6 eliminate a lot of the systems that previously would have 7 been able to provide backup support to the spent fuel pool. 8 They may put in a stand-alone spent fuel pool 9 cooling system. They may eliminate the emergency diesel 10 generators and put in a smaller backup diesel. 11 And all of these things seem to be appropriate. 12 I'm not criticizing the actions taken by the industry, but 13 it's not something I think previous staff studies had 14 considered as far as assessing the risk. 15 For instance, NUREG-1353 is frequently referenced 16 as a good Staff effort to assess the risk associated with 17 spent fuel pools, but that NUREG was based on an operating 18 reactor with all the additional safety systems and multiple 19 sources of offsite power and what have you to go along with 20 21 it. 22 So, I think when we went into this after March, a lot of us felt that it would not take a lot of effort to 23 determine that the risk was small, but I think to the 24 Technical Working Group's good measure, they decided to take 25 35 a hard look at this and they decided that, no, you can't 1 usually dismiss these things. 2 I think there is some convergence, though, because 3 the industry has come back to us and provided us with a lot 4 of valuable information on how they go about doing what they 5 do, and they provided us commitments on steps they're 6 7 willing to take to ensure that the risk is small. 8 I think the Technical Working Group still has a ways to go. Our schedule calls for the draft report at the 9 end of the year for public comment, and we're still getting, 10 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. COMMISSIONER DIAZ: I'm sorry, Mr. Chairman, but 14 just to finish with this, of course there is the 15 risk-informed program that the Commission charged the Staff 16 with doing. Do we have goals? Do we have a program that 17 the Commission can look at that clearly says this is what 18 the risk-informed objective regarding decommissioning is? 19 What are we trying to achieve? In other words, I 20 get concerned that people go into risk-informed 21 probabilistic assessment with kind of an open charge, you 22 know, let me find whatever it is. But in this case, the 23 24 issue is framed, just like it doesn't have, you know, the

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redundancy capabilities of multiple sources of power, it 25 36 certainly doesn't have the complexity, it certainly doesn't 1 have the source term. It certainly doesn't have the heat 2 3 load. There is a series of issues, one after the other, 4 that would allow risk-informed to say, okay, I'm going to 5 look at these issues, I'm going to have a program that meets 6 a series of goals, and I'm going go to that program, and 7 I'll make sure that that exists, if it exists. 8 MR. RICHARDS: That's a very good question. Т 9 think Diane touched on that with the slide that talked about 10 Reg Guide 1.174. 11 Basically, when you're looking at this particular 12 event, it doesn't fit well into that Reg Guide, and the 13 Technical Working Group is challenged to determine what is 14 the acceptable criteria. We don't have an answer today for 15 16 vou. That is on their list of things to do, so to 17 We need to enter into dialogue with our stakeholders 18 speak. further on that issue. 19 The good news, like you said, is that the system 20 is very simple. It's passive. It's a big pool of water 21 sitting there. You know, kind of the bad news is that you 22 have no containment, and you have maybe multiple cores in 23 the spent fuel pool. 24 25 So it presents a different challenge from that 37 addressed by Reg Guide 1.174, and, again, we don't have the 1 answer, but we recognize the question, and the Technical 2 Working Group is working on getting that answer. 3 COMMISSIONER DIAZ: Thank you, Mr. Chairman. 4 CHAIRMAN MESERVE: Mr. McGaffigan? 5 COMMISSIONER McGAFFIGAN: I'll try to run through 6 a series of shorter questions, but I'll start off by saying 7 that my reaction to the question that you, Mr. Chairman, 8 raised for Commissioner Dicus, and that is that we probably 9 do need this study in final before we go. 10 It's been very controversial and the study that we 11 put out in January may not be the final word, depending on 12 what it says, and people, including myself, don't know what 13 14 it's going to say. This whole area--we were on multiple tracks, each 15 of which needed this technical basis. And we didn't have 16 it, and that's why all those rulemakings came to a grinding 17 18 halt. I think part of the answer to Commissioner 19 Diaz's--I'm sort of answering other Commissioners' 20 questions--I think part of the answer to Commissioner Diaz 21 as to why it's taking so long is that we have a lot of 22 precedents that aren't necessarily that aren't necessarily 23 the greatest precedents as we handled these things 24 25 one-by-one on an ad hoc basis. 38 Mr. Zwolinski is sitting behind Mr. Greeves over 1 there, and Maine Yankee exercised its rights for a backfit 2 review on certain Staff decisions, and Mr. Zwolinski's panel 3 was guite critical of the Staff, and the Staff, in turn, 4 argued with Mr. Zwolinski. But it's clear that we had some 5 significant disagreement that needs to be worked through, 6 and in public and in an open, transparent way. 7 My questions, let me just run through them --8 COMMISSIONER MERRIFIELD: Commissioner? 9 COMMISSIONER McGAFFIGAN: Yes? 10 COMMISSIONER MERRIFIELD: Just so it's a clear

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NRC STAFF BRIEFING ON INTEGRATED REVIEW OF DECOMMISSIONING REQUIREMENTE.gov/NRC/COMMISSION/TRANSCRIPTS/19991108a.ht

record, if I may state that I agree with Commissioner 12 McGaffigan that this is an area which has engendered 13 significant interest and input from the Commission, and one 14 which I think we will need to continue to closely follow, 15 given the significant nature and impact on the licensees and 16 our Staff as we move forward. 17 COMMISSIONER McGAFFIGAN: Lt me just run through 18 of series of what I think are bite-size questions: 19 Who is the independent contractor supporting your 20 21 group? MS. JACKSON: The independent technical review 22 we're having done is done by many groups. 23 COMMISSIONER McGAFFIGAN: By many groups? It's 24 not a single contract? 25 39 MS. JACKSON: It's not a single contract and 1 depends on their area of expertise. Then we went to 2 3 different groups. COMMISSIONER McGAFFIGAN: The rule itself, you lay 4 out a group of areas -- I think it is on Slide 13 -- that the 5 rule is going to cover, the comprehensive rule. And I will 6 tell you that I'm not sure you have them all yet. 7 I mean, these happen to be the rulemakings that 8 you had underway in one form or another, but things like 9 fitness for duty come up that isn't on the list, but I think 10 that it was promised at some point; that a technical error 11 we may or may not have made back in '96 might be corrected 12 13 in this rulemaking. I don't know the process for tech-spec amendments. 14 Maybe that's something that you just transpose over, but one 15 of things that Oyster Creek was going to do before it 16 decided that it's going to run and be sold, but they were 17 going to come in for what they called Mode 7 tech-specs in 18 19 advance of shutting down. It would have been the first time that had been 20 done, and it would have been an interesting experiment to 21 22 have done it. But I don't know whether the integrated 23 decommissioning rule will deal with how one comes in and 24 gets their decommissioning tech-specs ahead of time, so that 25 40 that process can be efficient. 1 Are there other things that you plan to cover in 2 this integrated decommissioning rule? 3 MR. HUFFMAN: No. 4 On page 14, the second rulemaking effort, which is 5 a longer-term effort, is where we had put in fitness for 6 duty, addressing criteria for decommissioning tech-specs and 7 other related things like quality assurance clarifications, 8 what the quality assurance should be at decommissioning 9 10 reactors. COMMISSIONER McGAFFIGAN: That's all in the 11 12 longer-term? MR. HUFFMAN: That's a longer-term effort. 13 COMMISSIONER McGAFFIGAN: It's not that much 14 longer-term, May 31st and July 2000. 15 MR. HUFFMAN: Longer term because it involves a 16 significantly larger cross section of rules, and we felt 17 that probably it would be more resource-intensive over the 18 19 long term. We wanted to get something out more quickly that 20 addressed the near-term transition from operating to 21 decommissioning reactors where there seemed to be some 22 financial incentive on the part of the licensees to correct 23 24 these five areas.

COMMISSIONER McGAFFIGAN: But the Mode 7 25 41 tech-specs will continue to be done just as a normal license 1 amendment under the current process? Is that how it's done? 2 MR. HUFFMAN: It is done as a license amendment. 3 It comes in and is actually done on a case-by-case basis. 4 5 MR. RICHARDS: Again, the reason we picked these 6 is that these are the ones that the industry typically presses for, because the most resource savings occur there. 7 And then the others, we -- you know, we tried to prioritize 8 this based on, basically, I think, the industry preferences. 9 COMMISSIONER McGAFFIGAN: On the backfit piece of 10 this, that's responsive to -- again, that wasn't one you 11 were working on, but we have given you guidance that we do 12 want to apply a backfit rule in this area. We told you to 13 apply the current one, 5109, but it doesn't totally lend 14 itself at times. 15 The plain English clearly didn't have 16 decommissioning in total mind as it was drafted. So that's 17 part of this process? 18 19 MR. RICHARDS: Yes. COMMISSIONER McGAFFIGAN: The technical analysis 20 itself is going to be required. Whatever requirements you 21 do put in in this rule, the technical analysis will have to 22 support a backfit analysis associated with this rule. 23 When does CRGR get involved in terms of -- you 24 know, whatever your technical results in, they're then going 25 42 to draft a rule and you're going to have requirements, you 1 2 know. CRGR will look at the requirements and decide 3 whether they meet, I guess, the 5109 backfit test. Will 4 5 they? MR. HUFFMAN: Yes, that's true. The rulemaking 6 process is very prescriptive, and when we propose a rule, 7 we'll have regulatory analysis, backfit analysis, additional 8 packages to support the rulemaking. 9 And as the review of that proposal goes through 10 the process defined by our procedures, administrative 11 procedures, CRGR, we'll be involved, as well as the ACRS. 12 COMMISSIONER McGAFFIGAN: That's another thing. 13 The technical analysis, as I understand it, is going to make 14 15 judgments as to what -- how safe is safe enough, what the risk is, the zirc fire. 16 In the backfit analysis, you'll do for the rule, 17 that will be another place where your analysis could be 18 19 challenged. If individuals do not agree with the analysis -- I 20 remember that the shutdown rule was a classic case where 21 there was a wide range of views as to what the benefit of a 22 shutdown rule was, and that got adjudicated later in the 23 rulemaking. Indeed, I guess that on the second proposed 24 25 rule, we finally decided we wouldn't do a shutdown rule, 43 based on analysis that we had later. 1 MR. HUFFMAN: I think that when you get into the 2 --you get down the road a ways, I think you could probably 3 4 make the argument that changing these requirements and requiring the plants to do a few things that they're not 5 doing right now, are not going to pass muster with the 6 7 backfit. But I think our view is that we're going to 8 9 repackage this and offer it up to the utilities saying, well, you know, here's a package deal that if you meet 10 certain requirements, you can get certain relief without 11

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coming in with exemption requests, or you can do business 12 with us as a Part 50 licensee as people are doing now, which 13 is resource-intensive, and those are your two options. 14 And in that way we wouldn't backfit these new 15 requirements on licensees, though they would always have the 16 17 option. COMMISSIONER McGAFFIGAN: This is a fairly 18 important point. This rule would probably be a voluntary 19 rule? Is it sort of like risk-informed regulation? 20 MR. HUFFMAN: Unless we can come up with a sound 21 basis to require them to do it -- and I'm having trouble 22 imagining that -- but I think there is a lot of incentive 23 for people to go to the straight-line rule, rather than 24 trying to provide a lot of correspondence back and forth 25 44 with us on a case-by-case basis. 1 COMMISSIONER McGAFFIGAN: On the human reliability 2 item I know that there has been some progress made. The 3 Staff today sent us this August 19th paper that had been 4 sent out for public comment, but I do want to note that I 5 think there was concern from the July discussions that we 6 were making very conservative assumptions. That one comes 7 particularly to mind and it is easier for a layman like 8 myself to try to grapple with how conservative the 9 assumptions were, but I hope that we are making some 10 progress in rationalizing because I don't think any sort of 11 risk analysis starts always with the worst or the 12 ultra-worst case and chooses all the parameters out there, 13 but I think it is clear from the August 19th paper that you 14 are soliciting views. 15 I will ask the industry later. I will warn them 16 why they have not commented on the August 19th paper, which 17 was put out for comment. I can see that lots of folks were 18 copied on it, and as I understand it you didn't receive 19 external comments from industry or other stakeholders on i 20 21 t. MS. JACKSON: Yes, no technical comments. 22 MR. RICHARDS: One other point, Commissioner, I 23 would like to mention that the Office of Research is also an 24 organization inside the NRC that is providing us some 25 45 independent review and I believe they have some comments on 1 that paper. Is that right, Diane? 2 MS. JACKSON: Yes. One of our human reliability 3 experts that I mentioned came through the Office of 4 Research. It was a consultant who said they had provided us 5 6 input. COMMISSIONER McGAFFIGAN: There is one last 7 question and it is real short and I think the answer is 8 going to be no, but I will just ask. 9 Is there any help we can get from any other 10 foreign regulator who is going through this process or are 11 we ahead of them? You know, because people are 12 decommissioning reactors in Europe and I don't know whether 13 they are as rule-focused as the American jurisprudence, 14 thanks to all these lawyers we have got here, or they just 15 do it on a case-by-case basis and ad hoc it and get it done 16 but other -- are we aware of anybody who has gone through 17 this in France, Germany, Britain, et cetera, that could give 18 19 us any help? MR. GREEVES: We have met with them on occasion 20 but I don't think they are as far along as we are and it is 21 really different country to country, so I don't have 22 anything I could feed back to you specifically. 23 I think lots of them are watching us. 24

25 COMMISSIONER McGAFFIGAN: That is the answer you 46 gave John about four months ago when I asked about West 1 Valley and what if anything the British had to teach us at 2 3 Dunbury and your answer was no --MR. GREEVES: -- sent you the same answer in 4 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 my imploration. They addressed the cask issues. 9 10 I want to start off I think it is my understanding that the reason we pursued limited certifications really 11 results from an immediate need on the part of the operating 12 fleet of reactors for certified casks and our inability for 13 resource and Staff purposes to resolve a lot of the 14 difficult technical matters in a timeframe that met the 15 industry's cask needs as it relates to these decommissioning 16 17 reactors. In effect, it seems to me we were doing triage, 18 19 that we had a variety of reasons we had to deal with cask issues and we were getting requests from industry and from 20 NEI to resolve a variety of them. 21 We took the most significant one first, and put 22 our resources there and then were going to continue to 23 resolve other issues in a timely manner. 24 Is that a wrong impression on my part? 25 47 MR. KANE: No, that's correct. I think one good 1 example of that would be perhaps the first application we 2 had in for review, which had a very broad scope. In fact, 3 it would have been, the original application would have been 4 scoped to really handle any site in the United States. 5 It turns out that there were some difficulties 6 with the seismic portion of the application, being able to 7 justify that on a safety basis. In conjunction with some of 8 the utility users of that application, it was elected after 9 discussions with us they elected to reduce the scope of the 10 application so it could be certified in a timeframe that was 11 consistent with the actual users so that they could address 12 their full core offload issues. 13 14 That is an example of how you may start off with a very broad certification and end up with a somewhat narrow 15 16 one. I will tell you that part of that was driven by 17 the schedules. We established schedules to almost in effect 18 cut the time in half for the review of one of these 19 applications, and it had very tight timeframes for responses 20 to this sort of request for additional information and when 21 we got near the end we had to make decisions on certain 22 areas. We elected to certify what was in effect certifiable 23 at that point and then move on to other designs. 24 The difficulty of spending long periods of time 25 48 with one vendor's application meant that we were in effect 1 penalizing some other vendors that were in the pipeline so 2 we did the best to make sure that we treated all the vendors 3 fairly. We addressed what we understood to be all the 4 full-core offload requirements fairly and I believe the 5 record will show that we did. 6 COMMISSIONER MERRIFIELD: In your slides NEI's 7 8 presentation emphasizes the need for the NRC to resolve generic issues associated with the cask certifications. 9 10 Is there a common and clear understanding between industry and the Staff and stakeholders as to what these 11

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issues are and our projected timeframe for resolving them? 12 MR. KANE: Well, I believe that there are two 13 In fact, we met the other day on this subject --14 things. last Thursday I believe -- and it was clear at that meeting 15 that there needed to be a real clear understanding in terms 16 of what was the top priority. I believe it is well-known 17 what the Staff is working on for the generic issues, but I 18 believe we could do a better job in terms of holding an 19 additional meeting or two to make sure that the work is 20 prioritized consistent with what the industry's needs are. 21 I believe -- I am not suggesting that I think it 22 is right now, but I think we need to make very clear that 23 that is the case. 24 Another thing that we concluded was that we need 25 49 to lay out in a public way all of the generic issues that we 1 are working on so that that is -- and the projected schedule 2 for resolution so that information will be available to all ٦ the vendors and all the utilities. 4 COMMISSIONER MERRIFIELD: NEI has also raised 5 concerns about, and I think other Commissioners have touched 6 upon it, the inappropriate conservativeness in our approach 7 as it relates to human reliability, heavy loads, the spent 8 fuel heatup rates, and what they perceive is a bias towards 9 the upper bound. 10 Do you believe our follow activities are 11 responsive to these requests? 12 MR. KANE: Well, we believe so. Of course NEI may 13 address that area as well. I think in the area of burnup 14 credit, which a year or so ago was a very conservative 15 position because it just gave no credit at all. We 16 subsequently have issued interim Staff guidance which does 17 give credit and that position is now out and before the 18 vendors. I know that -- I am told that at least -- that 19 several are now planning to take advantage of it but that 20 remains to be seen. 21 That will of course result in further amendments 22 to their cask designs. 23 MR. RICHARDS: Commissioner, you mentioned seismic 24 25 heavy loads. 50 COMMISSIONER MERRIFIELD: Right. 1 MR. RICHARDS: And human reliability. 2 COMMISSIONER MERRIFIELD: Right. 3 MR. RICHARDS: And it sounds like R-3 -- is that 4 being addressed to the cask issue --5 COMMISSIONER MERRIFIELD: No. 6 MR. RICHARDS: -- or the broader issue? 7 COMMISSIONER MERRIFIELD: No, you can address that 8 9 separately. MR. RICHARDS: I think we are making progress in 10 that we have been in communication with the industry. They 11 provided a seismic checklist that we discussed at our July 12 workshop and that has been reviewed. 13 The Human Reliability document is out. They 14 provided us their input in the form of the Aaron Report, is 15 that right, Diane? 16 MS. JACKSON: Well, the Human Reliability didn't 17 respond to our Human Reliability. The Aaron Report came in 18 19 before that. COMMISSIONER MERRIFIELD: But after the workshop 20 they provided us some information and we have I believe 21 factored that in or are factoring that in. 22 Some of the MS. JACKSON: As much as we can, yes. 23 things in the Aaron Report NEI said isn't -- are more 24

observations by Aaron than commitments by industry, so we 25 51are getting a clarification from industry any time now on 1 what their commitments will be based on the workshop and the 2 Aaron Report. 3 COMMISSIONER MERRIFIELD: And likewise in the area 4 of heavy loads, of course that was addressed by and large 5 previously under NUREG-0612. The industry has said, hey, we 6 are going to commit to do what 0612 says. Like Diane 7 mentioned, I think that the industry came to our July 8 workshop with a number of commitments. It is on a 9 transcript, but to make sure everything is clear they were 10 going to provide us their commitments in writing in a letter 11 on the docket, and I think they were preparing that and we 12 are waiting for that. 13 But we are getting information on all three issues 14 and it is being factored in. I might also note that we are 15 getting information from our other stakeholders and it has 16 caused us to do additional work such as in the area of 17 criticality so it is, you know, it is from more than just 18 19 the industry. COMMISSIONER MERRIFIELD: My last question in 20 light of getting input from other sources, in my vote in 21 99-168 I expressed the view that the Technical Working 22 Groups' report could benefit from the independent technical 23 review by ACRS. I am particularly interested in the issues 24 associated with the realism of the assumptions made by the 25 Staff in their analyses 1 Can you explain for me a little bit where you are 2 in terms of the ACRS review of the Technical Working Group 3 4 report? MR. RICHARDS: We, or I should say Diane, made a 5 presentation to the ACRS on Friday. They were provided with 6 four or five inches worth of material in preparation for 7 that meeting, so they were provided quite a bit. We 8 understand that they have a letter in draft back to the 9 Commission with their views on the Staff's effort. Did they 10 ask for additional information? I don't recollect. 11 MS. JACKSON: No, they haven't. Are you 12 interested in the ACRS's opinion of the presentation? No? 13 14 Because --COMMISSIONER MERRIFIELD: What I was looking more 15 for was just for you to explain to me sort of the plan of 16 working with ACRS, so we could get those results. I didn't 17 want to go into the detail of what they are going to be 18 19 reporting on. MR. RICHARDS: I think we are at their beck and 20 ~ They had a number of questions and things that the 21 call. Staff and Diane --22 DR. TRAVERS: We are looking forward to getting 23 their letter, Commissioner, and we understand, we have some 24 25 preliminary indication as to what it is going to contain, 53 largely supportive, we believe, of the positions that in 1 draft were presented yesterday but as was mentioned we are 2 going to continue to keep them apprised and to get the 3 benefit of their thinking. 4 5 COMMISSIONER MERRIFIELD: Good. MS. JACKSON: At the end of the ACRS meeting we 6 did have a short discussion with them to perhaps meet with 7 the subcommittees and then meet again with the full 8 9 committee at their discretion. COMMISSIONER McGAFFIGAN: Could I just ask one 10 11 question, a short one --

CHAIRMAN MESERVE: Sure. 12 COMMISSIONER McGAFFIGAN: It's really on the ACRS 13 14 process. Did you tell the ACRS more on Friday than you told 15 us today as to how you are going to resolve these technical 16 issues, you know, the human reliability, the heavy loads, 17 and whatever the third -- seismic. I mean for this January 18 thing, report, you already have draft conclusions and --19 MS. JACKSON: No. We went more into the technical 20 detail of the history of it and what we were doing. Right 21 now we don't have any results. We didn't give results to 22 the ACRS that we are not giving to you. 23 COMMISSIONER McGAFFIGAN: Okay, that's fine. 24 MS. JACKSON: We don't have any of those results 25 54 1 yet. MR. RICHARDS: Their line of questioning is 2 somewhat different though. 3 MS. JACKSON: Yes, they did dive deeper into many 4 of the technical areas. This is the first time the ACRS had 5 heard from the Technical Working Group so a lot of the 6 preliminary work we did was discussed. 7 COMMISSIONER McGAFFIGAN: I honestly think that 8 the Commission today is holding off in going into the 9 technical areas because we are waiting to see what has 10 happened. We are quite capable of raking you over the coals 11 too, if the ACRS hasn't --12 [Laughter.] 13 COMMISSIONER McGAFFIGAN: -- hasn't done it well 14 15 enough. MS. JACKSON: I think they did a pretty good job. 16 CHAIRMAN MESERVE: We have another panel but Mr. 17 Diaz has asked if he could have one final question. 18 COMMISSIONER DIAZ: It is going back to the issue 19 of the genesis of the sound technical basis. I think it is 20 obvious that everybody knows that we have spent fuel pools 21 from California to Connecticut and many of them have been 22 there. When Commissioner McGaffigan said that we need to 23 have a very good technical process, it obviously is no 24 25 doubt. 55 My question is an issue of management of technical 1 issues. This is an issue the Commission has been facing for 2 a long time -- shouldn't we have sufficient technical basis 3 so when the issues arise they can quickly address it, and 4 that was really the point of the question before. It is not 5 something that is new to us. 6 Configuration management is different. The 7 technical basis to make decisions and analysis has and 8 should be there. 9 MS. JACKSON: I think when we were doing 10 case-by-case we had sufficient technical bases for each 11 plant. They were not risk informed bases, so going back now 12 to look at risk informed and generic application of our 13 bases has given us the reason to step back and look more 14 closely at it to make sure that we are not missing a large 15 chunk of the plants and that is what has taken us the extra 16 time is we are not going purely by when does a zirconium 17 fire never happen anymore. We are looking at what is the 18 risk in that timeframe and when are we comfortable in a 19 regulatory arena to reduce those regulations and that has 20 given us cause to think more about the issue and the 21 technical bases. 22 CHAIRMAN MESERVE: I would like to thank the Staff 23 very much. It is clear that we are going to have some 24

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further discussions on this subject. I look forward to it. 25 56 We have another panel that should come to the 1 table now. 2 CHAIRMAN MESERVE: We have been joined by Ray 3 Shadis of the New England Coalition on Nuclear Pollution, 4 also Friends of the Coast, a part of the coast that I am 5 particularly fond of, namely Maine; Paul Blanch is an energy 6 consultant; David Stewart-Smith, who is the administrator 7 for the Energy Resources Division of the Office of Energy in 8 the State of Oregon; Lynette Hendricks, who is Director of 9 Plant Support for NEI; and Mike Meisner, who is Chairman of 10 NEI's Decommissioning Working Group and is President of 11 Maine Yankee. 12 We have limited time this afternoon, and so I 13 would like to give each of you an opportunity to make a 14 statement. I would ask that you try to keep them in the 15 order of five to ten minutes, absolute maximum, so that 16 there will be an opportunity for questions. 17 Ray Shadis, you are first. 18 MR. SHADIS: Thanks for the opportunity to speak 19 with you this afternoon. I need to first address an issue 20 raised by Commissioner Merrifield, and it has to do with 21 getting materials in on time. The materials that I provided 22 were not provided until this morning and I apologize for 23 that. We have my mother-in-law, who has been a mother to 24 me, on her deathbed, and we have had hearings to deal with 25 57 this week, and it just plain got ahead of us, so I mention 1 that by way of introducing the "human factor" into all this. 2 I have had conversations with nuclear utility 3 executives from Illinois, from Michigan and Connecticut and 4 Maine, and all of them have expressed surprise that the 5 public's attention seems heightened or more focused over 6 decommissioning than when they were running and operating 7 nuclear power stations and they wonder why that is, and I 8 think I might have some insights for you on that. 9 When Maine Yankee Atomic Power Company undertook 10 its site characterization and hired GTS Duratech and GTS 11 Duratech did a background paper as a preliminary to their 12 report, in it they laid out something that I hadn't 13 considered before. They said in the 23-year plus existence 14 of Maine Yankee Atomic Power Station that it had undergone 15 14 full power years of operation, capacity factor in the 68 16 percent range or something like that. 17 In that same week we were told that the most 18 optimistic date for the first spent fuel pickup from the 19 Department of Energy was the year 2023 and what I saw it as 20 was a tradeoff of, optimistically, 25 years of surveillance 21 and concern over stored spent fuel to 14 full power years of 22 reactor operation. 23 I think that in speaking to people throughout the 24 New England region I find that they are wondering what was 25 58 the value of the experience in hosting a nuclear power 1 station now that they are faced with spent fuel storage with 2 no terminus in sight. No one that I have spoken to in the 3 industry or in public advocacy groups or even in the state 4 governments believes that the Department of Energy is going 5 to come and start moving fuel in the year 2023, and even if 6 they do, their round-robin schedule stretches that fuel 7 pickup out another ten years or so by the time they get rid 8 9 of all of it. I believe they start with the oldest fuel first, 10 go to the next plant, pick up some fuel, so they stretch the 11

12 whole process out, and so even in the most conservative view, we are looking at trading off a commitment for another 13 couple of generations of our people to maintain surveillance 14 on nuclear materials which no one denies are harmful or 15 could cause harm to the public or the environment if they 16 escape from their packages. 17 So, yes, people's attention is focused on what is 18 In addition to that, we have -- and I guess I am 19 going on. in the mood for it this week -- we have a kind of final 20 state awareness. We are wondering what we are going to be 21 left with. The big questions, now that they are tearing 22 apart radioactive components, now that the spent fuel pool 23 is being isolated, the big questions are is there going to 24 be harm come to the public or the environment out of 25 59 1 decommissioning? Finally, what is the legacy in terms of 2 radioactive pollution from the plant itself? 3 And people don't necessarily express it in those 4 terms, but in broad generalities that is where their concern 5 is, and so, yes, their attention is focused. б In preparing for this, and believe it or not I 7 actually did prepare for this talk, I reviewed Mr. Huffman's 8 outline of goals, and one of those goals was to secure 9 public confidence in decommissioning regulation. If I go 10 back and try to explain to our constituency across New 11 England what you are doing with decommissioning regulation, 12 I would have to characterize it in plain Anglo-Saxon 13 everyday street terms. I wouldn't be able to put it in the 14 technical terms and niceties that I have heard discussed 15 here earlier. I would have to say that the Commission is 16 not prepared for decommissioning, that their rules don't 17 apply, that now that we have started to decommission four 18 New England reactors, the Commission is considering writing 19 some rules about it. 20 We have, on one hand, a Staff that is diligently 21 trying to pursue some of the basic information. We have a 22 nuclear industry that is very antsy about getting this 23 operation moving. We have an NRC management that is pushing 24 the Staff to accommodate the industry and at this point we 25 60 don't know some of the basics. 1 Now there are burdens. Of course there are. Т 2 noticed that Oyster Creek was mentioned earlier, that they 3 had actually tried to step in ahead of the game and provide 4 5 some of the information and analysis that would be necessary to get their exemptions before they actually started 6 decommissioning. That would be Jim Hildebrand down at 7 Oyster Creek, and I think that he learned his 8 decommissioning lessons at the Saxon plant and having spoken 9 10 to him in the past I know that he, like the rest of us, is looking for some certainty in this, and I think the nuclear 11 industry is looking for certainty to move forward. 12 I know that the public is. The public would like 13 to know with certainty what the window is for vulnerability 14 for a zirc fire or for any other phenomenon. We would like 15 very much not to have a resin filter fire at Maine Yankee. 16 We are sure that the offsite consequences would not trigger 17 Part 100, the emergency response, or any of the rest of 18 that, but we don't know that for sure, and we certainly 19 would like not to have any workers exposed and we would like 20 not to have the environment itself exposed. 21 If nuclear power stations are going to be using 22 caustic and corrosive washes to clean out their primary 23 piping, we would like to make sure that the valves in the 24

plant are not misaligned so that that caustic scrub or 25 61 corrosive scrub doesn't go overboard into public waters or 1 doesn't get flushed back into the spent fuel pool, and we 2 are looking to the Commission to pursue those interests. 3 I was appalled in listening to the conversation 4 earlier, and this may be my own prejudiced way of listening, 5 but what I heard was a lot of concern with getting the 6 process moving with the calendar, with whether or not the 7 Staff was indulging in esoteric investigations that really 8 had nothing to do with the practical matter of getting a 9 rule out so that we could get on with decommissioning, and I 10 can tell you that if I take that message back to the public, 11 their confidence in NRC regulation is going to decrease. It 12 is not going to increase. 13 One last point I would like to make, and I think 14 this is very, very important to us. Out in the public in 15 general members of the public, and when I talk about public 16 I am not talking about those that are totally unaware of 17 anything that is going on. I am talking about people who 18 live in the plant vicinity of the decommissioning plant or 19 people who are engaged in nuclear safety issues or 20 environmental issues -- that would be the public, an aware 21 public, that I am talking about. 22 They are not impressed by the tweaking of 23 regulations. I mean if you can have all of this going on 24 and you can involve stakeholders and the public is going to 25 62 be generally oblivious to it, and they are not going to 1 be speaking in terms of admiration for NRC over it. The 2 thing that impresses the public are the people that you send 3 out to the public meetings, the people that provide the face 4 of the Nuclear Regulatory Commission -- a group meeting to 5 NRC staff interface. And I would like to report to you that 6 the public is favorably impressed and that they are building 7 confidence, your staff members, in decommissioning 8 regulation; but, they're not. 9 I think some part of the resources of NRC need to 10 go into training staff people to respond to public questions 11 with total candor and with openness and without a fear that 12 when they get back to NRC headquarters, they're going to be 13 chastised for whatever they let out in public. Because what 14 on one hand, we we find, is we find two things, really: 15 find a defensiveness and an evasiveness in responding to 16 public questions from NRC staffers who are out there; and 17 the other thing they find is that we find NRC staffers, who 18 are totally not familiar with the subject matter they're 19 being asked about, putting out answers. We find them 20 essentially misinforming the public based on their own lack 21 of knowledge. I don't think there is any malcontent there, 22 but they're on the spot; they're not used to confronting a 23 hostile or inquisitive public and they present that face to 24 them. 25 63 Let me just end by telling you that we've got a size 1 14-page commentary here and an outline, so sorry you didn't 2 get it earlier last week, but we do raise some technical 3 issues. We're not technical people. We're people people. 4 But, I wish that the Commissioners, as you have the 5 opportunity to look through those, if there are questions 6 about the accuracy of our statements or the validity of our 7 viewpoints or the issues we're trying to raise, please don't 8 put them away. Please get in touch with us and we'll be 9 glad to respond; we'll be glad to provide backup 10

11 documentation, whatever it takes to communicate with you.

And if you have any questions, I'm wide open. 12 COMMISSIONER MESERVE: Thank you, very much, Mr. 13 What I suggest we do is that we go through each of 14 Shadis. the statements to give everyone an opportunity to speak and 15 then we'll return for comments. Let me indicate that I do 16 appreciate your observation about the need for training the 17 staff to deal in the public context. 18 We're going to have a Commission meeting tomorrow, 19 in which we're meeting with stakeholders, a particular 20 concern on materials issues. And the staff, in preparing 21 for that, has sort of looked through what they've learned 22 about their interactions in that area and that is one of the 23 lessons that they've learned, is that there is a need to 24 make sure that the staff is prepared for knowing how to deal 25 64 with the public and to be candid with the public and being 1 trained for that purpose. Those resonate with an 2 observation that the staff has, itself, learned from its 3 experiences in a related area. 4 Mr. Blanch? 5 Thank you, Chairman, Commissioners. MR. BLANCH: 6 For those of you who don't me, my name is Paul Blanch, 7 titled as an energy consultant, and I would just like to 8 make it clear that any comments that I offer today are those 9. comments do not reflect the opinions of -- necessarily 10 reflect the opinions of other people, either licensees or 11 members of the public. 12 Over the past two weeks, I've had the opportunity 13 to visit four decommissioning plants in New England: Main 14 Yankee, Yankee Rowe, Connecticut Yankee, and, obviously, 15 Millstone. What I've observed over the past two weeks is 16 that all licensees are doing a very good job, but each one 17 is doing it differently. Many are going beyond the 18 regulations, but they are all using good practices. 19 Over the past two years, I've worked with the NRC 20 staff at all levels on various decommissioning and other 21 issues. I'd like to start with slide two. Again, I have 11 .22 slides and 10 minutes, but I can do it. I've made the 23 presentation before the ACRS last Friday. I'm very 24 supportive of the NRC's key messages, especially that 25 65 related to enhancing public confidence. But, we, also, got 1 to keep in mind maintaining safety, improving effectiveness 2 and efficiency, and reducing unnecessary regulatory burden. 3 Earlier this year, I had an opportunity to review 4 SECY-99-168 and provided my formal comments in writing. I 5 believe it was in August or September. That is available to 6 the Commission. SECY-99-168 basically provides a five-year 7 schedule for rulemaking. However, there are additional 8 issues that need to be addressed. Additional guidance will 9 assist the decommissioning plants in estimating their total 10 decommissioning cost and schedules. 11 There are significant issues that are not 12 presently addressed in the proposed SEC-99-168. For 13 instance, the site remediation criteria: while from a 14 purely standpoint, I find it acceptable either the EPA's 15 criteria or the NRC's criteria. I believe, my personal 16 opinion, that either one of them provides reasonable 17 assurance and reasonable assurance to the public that there 18 will be no undue risk. Some of the issues that are not 19 properly, in my opinion, addressed SECY-99-168 are what 20 design basis accidents do we need to consider; also, how do 21 we apply 10 CFR Part 50, which is designed primarily for 22 operating power plants and doesn't even, within the contest 23 of Part 50, with the exception of the general design

criteria, doesn't even discuss the long-term storage of 25 66 high-level waste. The rules for the long-term storage of 1 high-level waste are clearly outlined in 10 CFR Part 72, 2 which has been given a lot of thought through the rulemaking 3 process many years ago. 4 We need for the plants that are presently 5 decommissioning consistent application of existing 6 regulations. Observing some of the plants -- and, again, 7 Commission McGaffigan mentioned before fitness for duty, and 8 there are different opinions on the applicability of fitness 9 for duty. 10 CFR Part 26 is being applied to some plants 10 and industrial safety fitness for duty programs applied at 11 other plants. And I think this needs to be considered, 12 whether we need to go to a full Part 26 fitness for duty 13 program or not for an industrial site. Quality assurance 14 requirements differ from site to site, emergency planning, 15 fire protection, codes and standards. Right now, the 16 industry -- the decommissioning industry is being regulated 17 by exemption to Part 50. There is a document out there, 18 titled NUREG 64.51, that does provide some reasonable 19 guidance on what regulation should apply during the 20 decommissioning process. 21 We have competing and conflicting regulatory 22 mandates that need to be resolved. We have, as I mentioned 23 before, the EPA versus NRC remediation requirements, needs 24 to be resolved and needs to be resolved quickly. The issue 25 67 of onsite disposal of clean waste needs clarification, 1 commonly referred to as rubblization. And, again, carrying 2 that a little bit further, the NRC and the EPA need to 3 resolve or specify the total activity and/or average allowed 4 concentration of radioactive material that can be left on 5 site. I think most of the Commissioners are aware that 6 neither the EPA nor the NRC specify anything other than the 7 dose of 25 millirem or 15 millirem per year three feet above 8 the ground. Again, you can bury high-level waste, like they 9 have out at Hanford with the disposal of the Trojan reactor 10 vessel, and if you bury it deep enough, you can still meet 11 the 25 or 15 millirem. My understanding of the regulations, 12 that is not properly addressed. Not that anyone has any 13 plans for burying a reactor vessel on site, but there are no 14 rules that I've seen that preclude it. 15 Rules for long-term storage of high-level waste, 16 which were, I mentioned before, discussed in 10 CFR Part 22, 17 there's both the general and the site specific license for 1.8 Part 72. About half of the plants have a site specific 19 license, such as Trojan, Fort St. Vrain; and the other half 20 are still applying the general license, such as Haddam Neck, 21 Main Yankee, Yankee Rowe, Point Beach in Arkansas. I think 22 it's not appropriate for a plant to continue the storage of 23 high-level waste under a Part 50 license, as Mr. Shadis 24 said, until the year 2023, where the reactor vessel could be 25 68 gone, the reactor containment could be gone, and all that's 1 left is dry cask storage under a Part 50 with a general 2 3 license. Part 50, again, does not properly address 4 high-level waste. And some licensees are applying certain 5 sections of Part 72 and Part 50, almost a pick and choose 6 type of regulation and regulation by exemption. Again, as I 7 mentioned before, in my opinion, 10 CFR Part 72, the site 8 specific license, is what decommissioning plants should 9 eventually be striving to reach. The general license, the 10 Part 72, subpart K, my understanding, was only intended for 11

operating power plants, those sites that had a complete 10 12 CFR Part 50 license and, yet, wanted to store high-level 13 waste using dry casks. That may be acceptable, if they have 14 operating plants and just want to store high-level waste 15 using dry cask on site under a Part 50 license with a Part 16 17 72 general license. All design basis accidents need to be addressed. 18 They need to be risk informed. They must consider zirconium 19 fire, as they are properly addressing. They need to address 20 other issues, such as the potential criticality. And, 21 again, after the recent event in Japan, this is becoming a 22 more visible issue. I've asked the NRC staff -- and, 23 obviously, I don't think that we properly looked at the 24 potential for criticality, either from a risk-based 25 69 approach. We don't even know what the consequences of a 1 potential criticality would be in the spent fuel pool, at 2 least not that I've seen. We need to address other 3 potential accidents or openly state that we're not going to 4 address them. Sabotage, obviously, is an accident that is 5 rarely discussed, although it interestingly enough is 6 discussed in detail in Part 72. 7 My overall recommendations for the Commission is 8 that we need to provide interim guidance for decommissioning/ 9 and, again, what's out there now is the NUREG 64.51. The 10 Commission needs to direct the staff to proceed with 11 rulemaking on an accelerate schedule. The Commission needs 12 and the staff need to apply the site specific requirements 13 of 10 CFR 72 to decommissioning plants. We need to evaluate 14 all potential accidents, establish clear site remediation 15 criteria. We need to assure consistency and predictability 16 and work closely with all stakeholders to enhance public 17 confidence. 18 That concludes my brief presentation and I would 19 be more than willing to respond to questions after the rest 20 of the panel has a chance. Thank you. 21 Thank you, very much. The COMMISSIONER MESERVE: 22 next statement is by David Stewart-Smith from Oregon. 23 MR. STEWART-SMITH: Thank you, Chairman, 24 Commissioners. Thank you for the opportunity to be here 25 70 today. My name is Dave Stewart-Smith. I serve as the 1 Executive Secretary to Oregon's Energy Facility Siting 2 Counsel, a seven-member citizen commission charged with 3 siting and regulating large energy facilities. Since 1989, 4 I've, also, served as Oregon governor's liaison to the NRC. 5 I have 25 years experience with the State of Oregon, the 6 first 11 of which were with Oregon's Agreement State 7 So, my familiarity with the NRC goes back a ways. 8 Program. Oregon's authority for the siting and regulation 9 of large thermo power plants was established in 1971, 10 expanded in 1975. My staff provides staff support for that 11 citizen commission. We maintain a resident inspector at the 12 Trojan facility. The State Resident Program was established 13 in 1980 and was driven by our conclusion after the TMI 14 accident, that in order to effectively respond to an 15 accident, the governor of the State of Oregon must not only 16 have staff expertise at his or her disposal, but staff that 17 knows the plant and has unrestricted access to all critical 18 areas. We signed the MOU with the NRC in 1980 and I believe 19 we have a history of consistently trying to work closely 20 with the NRC staff. 21 I believe the staff is on the right track with the 22 decommissioning rules. Our own experience, beginning in 23 1993 when Trojan closed, was that there was a great deal of

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effort put into licensing review and deciding one rule at a 25 71 time what regulatory requirements ought to be. That took a 1 fair amount of time, not only of the NRC, but the licensee 2 and my staff, to stay on top of it. 3 I believe that a separate part in Title 10 is an 4 appropriate way to structure those rules. I understand it 5 will take a fair amount of time. I have a lot of rulemaking 6 experience, myself, and I never look forward to large 7 rulemaking efforts; but, I think in this case, there's good 8 9 justification. In Trojan's case, it was a particularly unsettled 10 The folks on site thought they had six more years of 11 time. operation of that plant, when it was announced to be closed. 12 PG&E; immediately laid off all contract support and began to 13 lay off permanent staff, in such an unsettled time. I think 14 the argument for very clear requirements for decommissioning 15 are particularly well taken. The staff proposal would go a 16 long ways to remove some of the uncertainty. 17 Would you go to my last slide, please, 18 observations? Just a few observations, based on reading the 19 staff presentation. The emergency plan for -- the 20 permanently defueled emergency plan at Trojan is not based 21 on a spent fuel pool accident. It was based on a postulated 22 fire in low-level waste storage facility. The company 23 proposed that that was the only -- or the most significant 24 possible event that could get radioactive material off site. 25 72 My staff agreed with that. I believe that putting a 1 considerable amount of staff analytical time into spent fuel 2 accident scenarios is appropriate, but it may not be the 3 only source of post-shutdown off-site risk. In addition to 4 that, with so much uncertainty nationwide over low-level 5 waste disposal capacity, I think taking a look at a plant 6 possibly being forced to store a significant amount of 7 low-level waste on site, if they get into decommissioning 8 and lose disposal capacity in mid stream, is a realistic 9 10 scenario. The State of Oregon reviewed and approved Trojan's 11 decommissioning plan. I believe that having a state 12 regulatory presence provided the Oregon public with a local 13 opportunity and a local presence to review and comment over 14 an extended period of time. Your licensees know your review 15 process; they have to know it. But for the public, your 16 review process, my formal review process, can be a daunting 17 one to participate in. And I believe that having state 18 staff and having a state program intimately involved in the 19 review of that decommissioning plan provided a public 20 opportunity that was useful. 21 The NRC, I'd like to say, have been very helpful 22 in answering our request for consultative information and on 23 several occasions, to appear before my citizen commission. 24 That's always appreciated. I realize we're a long ways off 25 73 NRC's beaten path, but the staff have always been willing to 1 come out and talk to us and I believe that's made a big 2 3 difference. Having seven citizens review -- citizen 4 volunteers, by the way, review and approve the 5 decommissioning plan gave Oregon citizens, I believe, a more 6 effective access. And I think it's one of the reasons why 7 decommissioning at the Trojan facility has gone quite 8 smoothly, including, as has been mentioned a couple of times 9 this afternoon, the one piece removal and burial of the 10 11 Trojan reactor vessel.

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And my last point, let me segue into that reactor 12 vessel issue. Let me argue that the rules that you 13 establish retain a degree of flexibility. I think there's a 14 lot yet to be learned about decommissioning large power 15 stations. PG&E; proposed one piece reactor vessel removal, 16 after initially proposing segmentation of the reactor vessel 17 and shipping to our regional radioactive waste disposal site 18 in numerous shipments. The NRC staff's initial response, 19 frankly, was to discourage their request. 20 I was convinced, at the time, that the idea had 21 merit and deserved, at a minimum, a thorough going over, 22 particularly given Trojan's relatively unique access by 23 river barge to our disposal site in the Pacific northwest. 24 I took on an unusual and, for me, somewhat uncomfortable 25 74 role then of becoming an advocate for mine and your 1 licensee's proposal. I made an appointment to talk with NRC 2 management here. And after I did so, the proposal did get a fair hearing and, obviously, it was approved. Let me 3 4 observe, however, that I was left with the impression that 5 the initial staff response was driven by the desire to stay 6 away from a new idea that might result in criticism. I 7 think that's a natural response. It's a human response. 8 But, I think it may be a response that, if in the past, new 9 ideas have resulted in criticism for just bringing up a new 10 idea, then staff can get kind of gun shy. 11 NRC management correctly took on the 12 responsibility for authorizing a thorough review in this 13 case. The staff's initial negative response tells me that 14 perhaps that hasn't always been the case. My own experience 15 was a very positive one, but I think I was running into a 16 little bit of history. Without state and NRC management 17 efforts to work this issue loose, I fear we might have lost 18 an opportunity to save at least 50 man rem of exposure and a 19 lot of unnecessary transport risk over several hundred miles 20 of highway instead of one five mile an hour barge shipment 21 up the Columbia River that has regularly seen a great deal 22 of barge traffic. So, it's a mode of transportation we 23 understand in the Pacific northwest well. 24 And I, along with the rest of the panel, would be 25 75 happy to answer questions, when you get to that point. 1 COMMISSIONER MESERVE: Thank you, very much. Our 2 next speaker is Lynnette Hendricks, NEI. 3 MS. HENDRICKS: Good afternoon, Commissioners and 4 Mr. Chairman. Thank you for the opportunity to share 5 industry's perspectives of decommissioning. I'm going to 6 try to talk about critical issues in three main areas 7 impacting decommissioning. 8 The goal for the industry in decommissioning -- if 9 I could have -- go to the second slide, please. Our goal in 10 decommissioning is that it be safe, timely, and efficient. 11 We think this is essential for both public confidence and to 12 provide great peers and shareholders the value on the 13 considerable funds that they've set aside to deal with the 14 public confidence issue. We believe that rules -- if rules 15 and processes are not in place to provide a clear pathway to 16 decommissioning, that is, also, very transparent, provides 17 appropriate opportunities for public input, the impression 18 that could be given in lieu of a clear transparent process 19 is that, in fact, this is, in fact, much more difficult to 20 do than it really is and perhaps more unsafe. 21 In terms of rate peer and shareholder values, you 22 well know considerable funds have been set aside to take the 23 plant -- to safely decommissioning the plant and we believe 24

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we owe these largely rate peers an opportunity that these 25 funds be well spent on activities that directly benefit the 1 public. In that vain, in decommissioning, if you have a 2 clear path forward, you are less likely to encounter 3 unnecessary delays that will augment the schedule by months Δ or years and could, in the end, make it very difficult to 5 complete the decommissioning within the funds set aside for 6 decommissioning. 7 Next slide, please. The three main areas that 8 affect decommissioning: one, spent fuel casks; the second 9 is efficient license termination; and the third is risk 10 informed regulations. I'm going to address the first two; 11 but I think it might be more responsive, in putting the 12 staff's presentation closer to ours, if we go first to the 13 issue of risk-informing regulations. And I'd like to hold 14 some time, if I could, with your tolerance, and come back 15 and discuss spent fuel casks and license termination. I 16 turn it over, at this point, to Mike Meisner. 17 MR. MEISNER: Thank you, Lynnette. Mr. Chairman, 18 members of the Commission, I appreciate the time that you 19 have given me to talk here today. I'd like to go to the 20 overhead that is entitled "Risk Informed Regulations 21 22 Overview." You've heard a fair bit from the staff earlier 23 today about the background and history. I have to agree 24 that in a very short period of time, the staff put together 25 quite a good risk assessment model. Unfortunately, the 1 model inputs and the assumptions were pretty consistently 2 biased to the worse case. As a result, the industry 3 provided a great deal of information to the staff. 4 You've heard about today the July workshop, where 5 we came prepared with commitments we were willing to make to 6 backup changed assumptions in the PRA analysis. Since the 7 workshop, we've had numerous meetings and follow-up phone 8 calls with the staff on various issues. And as you heard, 9 we provided a pretty detailed industry report, reviewing the 10 staff's draft work. And that report, we provided to all the 11 Commissioners on your staff, as well as the NRC staff. 12 I'm going to be talking today about the same kind 13 of information that the staff put out in their draft report, 14 because up to this point now, we don't have any additional 15 information. I'm encouraged to hear that the staff is 16 working and feel that their converging; but, I think it's 17 important, too, to go through some examples and get a feel 18 for the disparity that exist between the staff's work and 19 the report that we provided on the same subject. 20 Next overhead, please. Significant conservatisms 21 exist in the area of human reliability. You've heard that 22 mentioned a few times. I think it's worthwhile to get some 23 feel for that. The staff has chosen to depart from IPE's 24 traditional PRAs and shutdown PRAs and their assumptions on 25 1 human error. If we can go to the next page. What I've done is 2 taken a page out of the Aaron Report and I hope you have 3 that in front of you. Is there another --okay, what this 4 report shows are examples of human error probabilities taken 5 from the NRC draft report. Now, you can see that the error 6 probabilities are on the order of 10-2 to 10-3; in other 7 words, one in a hundred to one in a thousand. The striking 8 thing about decommissioning events, though, is that these 9 error probabilities are across a period of time of 120 hours 10 or five days; or looked at another way, 15 different shifts 11

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of operators coming in and going off shift and continuing to 12 make the same errors at a very high probability. 13 If we compare those kinds of error rates with the 14 next overhead, please, the kinds of assumptions that are 15 used in add power PRAs, IPEs, as well as shutdown PRAs, you 16 can see that for events that need to be responded to on the 17 order of 15 to 30 minutes, not 120 hours, failure 18 probabilities on the order of one in a hundred or one in a 19 thousand is what's been traditionally used. When you get to 20 longer acting events and IPEs, like the 20 hour example up 21 there for initiating a residual heat removal capability, the 22 human error probabilities drop down significantly into the 23 10-6 range. And you'll look far and wide to find error 24 probabilities associated with events that go much beyond 24 25 79 hours, because it has been the practice in all PRAs done to 1 this point, that I'm aware of anyway, that once you exceed a 2 certain time period, say 24 hours in most cases or maybe 48 3 at the worst, that you assume there is sufficient time 4 available to take action to recover from the event. In 5 other words, most other PRAs truncate events at about 24 to 6 48 hours. That wasn't done in the case of the staff study. 7 So, if we can go back quickly to the example page 8 on conservatisms added. The problem with the human 9 reliability assumptions is that these now overshadow, they 10 dominate the entire analysis and tend to give a very 11 distorted view of what's important to safety for those kinds of events. Heavy loads is another example. You heard 12 13 earlier, industry has done a lot of work in heavy loads. 14 Years ago, we resolved that issue with the NRC through NUREG 15 06.12. The funny thing in the present study is, though, 16 This that that staff didn't give the industry any credit. 17 is an area where there's absolutely no difference, no 18 difference at all, in the commitments that licensees carry 19 in their license basis going from an operating facility to a 20 decommissioning facility. In fact, this is an area that has long since been resolved, that the industry feels should 21 22 never have been opened up as part of decommissioning, 23 because it's been reviewed for decommissioning plants, as 24 well as operating facilities. But, the result is that the 25 80 staff's re-review, I'll show you in a minute, added two 1 hours of magnitude of risk to the heavy loads area. And 2 there are a number of other examples all contained in the 3 Aaron Report, where the staff pretty consistently went to 4 the upper bound or worse case assumptions, such as in this 5 6 diesel pump reliability. Let me move ahead to the next overhead, entitled 7 "Fuel Uncovery Endpoint." This is another area of 8 conservatism that might not be too obvious right on its 9 face; but the final end state for the staff study is not a 10 Zirc fire, as you might expect, but it's a fuel uncovery. 11 That, itself, is not related to public risk. There is no 12 public risk associated with lowering water to the top of the 13 active fuel. And when you consider that there's additional 14 water and steam to boil away and do a realistic heat up 15 calculation, you, in fact, add about three days of recovery 16 time by adjusting your endpoint to a dry fuel, as opposed to just the point of fuel uncovery. And particularly in a 17 18

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

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They are throughout the study. Well, the industry 25 of them. 81 requantified in our report and it's not a trivial effect. 1 If you go to the next overhead, please, the bar chart. Τf. 2 you can see it up there, basically, the staff said for 3 non-seismic contributors, the risk -- the fuel uncovery risk 4 was 10-5, which actually exceeds the core damage frequency 5 of many operating facilities. When you take into account 6 the areas of conservatism and back those up and requantify, 7 you reduce that risk by nearly two orders of magnitude, down 8 to the 10-7 range. 9 And on the next two pages, and these are all, 10 again, out of the Aaron Report and available for your review 11 later, you can see that in one of these tables, we broke 12 this down into the contributing areas for frequency of fuel 13 uncovery, things like the loss of off-site power, where the 14 draft NRC report came in at 10-6 and the revised estimate is 15 really in the 10-10 range. Loss of pool cooling drops an 16 order of magnitude, down to the 10-8; loss of cooling 17 inventory of nearly two orders of magnitude. And the next 18 page, please. Heavy loads, itself, was two orders of 19 magnitude, down to the 10-8. So, you can see there's a big, 20 big disparity between what we think a realistic approach to 21 this PRA would entail. 22 Next overhead, please. Now, while this has 23 implications for decommissioning plants, we think it, also, 24 has some serious implications for operating facilities. 25 82 First of all, it's -- the kinds of approaches taken in the 1 study are inconsistent with the Commission policy statement 2 on PRA. And I'll just read you a sentence out of that. The 3 policy statement says that "PRA evaluations in support of 4 regulatory decisions should be as realistic as practicable 5 and appropriate supporting data should be publicly available 6 for review." We think, in this case, that realism is 7 lacking by quite a bit in the staff's draft study. 8 As I already indicated, it's inconsistent with 9 approaches taken in IPEs and shutdown PRAs. We did ask one 10 of our analyst to estimate what the affect on core damage 11 frequency would be, if the staff were to never truncate the 12 sequences in IPEs, like they had done in the decommissioning 13 PRA. And the answer is that it would increase core damage 14 frequencies on the order of two to ten times. Now, that's a 15 tremendous change in the public perception of what risk is 16 for operating facilities and we think there's a -- there's a 17 real need to be consistent here, so that we don't undermine 18 public confidence and that we give a realistic view of how 19 these decommissionings proceed. 20 Next overhead on recommendations, and I'll end 21 with this overhead. We think it's important that the 22 Commission consider some additional direction to the staff, 23 to revise their study, to use best estimates, and to remove 24 conservatisms, to be consistent in the treatment of human . 25 83 error by truncating sequences beyond two days, as is done in 1 other PRAs study, and we think it's very important to 2 requantify this model, so that we actually have a basis for 3 rulemaking going forward. 4 And I'm going to make one other comment and then 5 turn it back to Lynnette. I was a little concerned to hear 6 something that we hadn't heard of earlier and that was a 7 comment by Stu Richards, that -- in response to a comment 8 from Commission McGaffigan, that, in fact, the staff already 9 knows that they can't meet the back fit criteria for 1.0 rulemaking and they intend to package this as a voluntary 11

rule and by inference, include a lot of requirements in 12 there that wouldn't meet a risk test, yet a licensee would 13 have to adopt, in order to get the whole package. I would 14 ask the Commission to maybe think about that a bit and 15 whether or not that's an appropriate approach given, I 16 think, the direction I heard last March to apply the backfit 17 18 rule in this case. 19 Thank you for your attention. Lynnette? MS. HENDRICKS: I especially appreciate your 20 tolerance, given the hour, letting me cover the remaining 21 two issues. Actually, I particularly wanted to cover spent 22 fuel management, because I think I have many, many areas of 23 agreement with the staff, in spite of maybe the provocative 24 25 nature of a couple of the entries on my slides. 84 Decommissioning plants must put all their fuel 1 into dry storage, if they're going to decommissioning the 2 pool when they decommissioning the rest of the plant. And 3 it becomes, certainly, in the three to five years that 4 5 decommissioning takes place, very much a critical path item for the decommissioning. In referring to the process that 6 Bill Kane referred to, that they undertook back in 1998, I 7 agree that that was an exemplary job; that the staff did, in 8 fact, undertake revision to the certification process. That 9 was very effective and it did, in fact, reduce the time for 10 certification down from three to four years to 20 months. 11 And they did that, as he had indicated, by establishing 12 rules of engagement, a very transparent open process. It 13 entailed disciplining both the applicant and the staff and, 14 in fact, I think they were very successful in doing that. 15 However, we refer to these initial certifications is, by 16 rule of thumb, the 20-80 percent rule; in other words, the 17 certifications to date will cover maybe 80 percent of the 18 fuel that decommissioning plants need to unload. That's 19 what I refer to when I say "scope of certifications are 20 21 limited. Can I have the next slide, please? What this 22 translates into for decommissioning plants, where I say that 23 they can't decommission their pools, they cannot do so 24 without a serious amount of resources committed to work 25 85 specifically with a vendor, to get in a situation using 1 Band-Aid approaches, which I'll talk to a little bit in a 2 second, to get a cask that they can, in fact, not 3 efficiently, effectively, but they can, in fact, unload the 4 fuel and go on with their decommissioning. 5 Operating plants, also, are affected by this 80-20 6 7 percent rule. We have at least one operating plant today that has already unloaded the easy stuff, the 80 percent, 8 and they are in the position now of needing approval for 9 unloading the 20 percent of the stuff. And, also, in 10 addition, even though there may not be many where this has 11 become a crisis, it's not a good situation. It doesn't make 12 for good spent fuel pool management. It doesn't make for 13 good management of your dry cask program, to save all the 14 hard to load stuff to the end. It makes a lot more sense to 15 have casks certified up front that can take it all and then 16 you can mix and match. The alternative is you'll end up 17 with a lot of hard to load stuff and you'll end up with a 18 lot of casks that have very few bundles in them. 19 The Band-Aids that I was referring to, one example 20 is current certifications are listed -- are limited to 21 45,000 megawatt days per metric uranium ton burn up. The 22 staff has a solution for going above today, which is to pan 23 all of those hire burnup fuels. Obviously, it would be a 24

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lot better to have methodology and criteria in place, so 25 that vendors could come in and meet the NRC's criteria and 1 methodology and have a more complete certification going in. 2 It's very costly. DOE has run the numbers. DOE, 3 by the way, has been working on preparing the technical 4 basis for burn up credit for, I think, we're approach 10 5 years now. And by their estimates, the inability for casks 6 being certified today to have burn up in their design --7 burn up credit in their design is costing essentially 30 8 percent capacity, which equates to \$10 billion. I did hear 9 staff say that they have taken some steps forward on burn up 10 credit. This is true. They have an ISG out that, 11 basically, says now, we will consider it. They revised 12 their ISG and said, here's our philosophy, if you will, and 13 some of the very -- 50,000 mile road map to acquire burn-up 14 credit. What we still don't have is the detailed road map 15 with established criteria. 16 And can I have the next slide, please? This 17 scenario where I found -- oh, I'm sorry. Before I go to 18 that, I wanted to provide some visuals -- go back to the 19 other side; I'm sorry -- I wanted to provide a visual 20 perspective -- go to the next one, please. I wanted to 21 provide a visual depiction of the situation. I mean, I 22 think it is very honestly the challenge that the Spent Fuel 23 Project Office has. 24 Could I have the next slide, please? Please. Т 25 87 know I screwed up; it's not your fault. I'm looking for the 1 graph that you had on before, the -- there you go; thanks a 2 lot. What this depicts is years on the Y axis and number of 3 plants on the X axis that are going to lose full core 4 off-load. It's just a depiction of the workload that's 5 coming, if you will. 6 Next slide, please. This is a depiction of the 7 number of sites that are currently using dry cask storage, 8 and there's a delineation in color code for the ones that 9 have on-site approval versus a general approval. 10 Can I go to the next one, please. This just shows 11 that, in fact, many more are planned. And, again, just to 12 show graphically that, in fact, this office is dealing with 13 a lot of -- a large case workload and a lot of challenging 14 15 issues. Can I have my next slide, please? One of the 16 tools that I think can be very useful in assisting in this 17 area is risk insights. The reason -- because, I still 18 believe that concerted industry effort is needed --19 concerted industry-NRC effort is needed to, in fact, put 20 together some informed criteria and methodology for going 21 forward on these generic issues. A PRA or risk insight 22 would be extremely useful. The design basis on these casks 23 are extremely conservative. For example, they assume 24 maximum heat, which would imply maximum burn up and, at the 25 88 . same time, a fresh fuel assumption; and physically 1 impossible, very conservative. The design of these casks, 2 in and of themselves, are extremely robust. And in spite of 3 the challenges that you generally look at, in terms of 4 external events, tornadoes, etc., even the criteria for the 5 design basis is much less restricted than for operating 6 plants or even what we're looking at for spent fuel pools. 7 8 In fact, it's only a five rem dose at the site boundary. 9 And can I go to the next slide? The second big 10 issue in spent fuel management is the inefficient cask 11

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listing amendment process. This sort of came to be, in my 12 view, historical perspective, because the Nuclear Waste 13 Policy Act envisioned that DOE would, in fact, submit a 14 given technology, one designed, if you will, that would be a 15 universal cask and everybody could unload their fuel into 16 that cask. What's happened, in fact, is that the 17 marketplace has taken over and you have many vendors, many 18 designs to be certified. 19 The rulemaking to list, although NRC has done a 20 considerable number of things, and I'll get to those in the 21 next slide, to discipline the process and keep it within the 22 20-minute time frame, it still, because it is critical path 23 for operating -- for decommissioning plants and threatens to 24 be in the future for operating plants. The 20 month just is 25 89 not going to work with this dynamic area, where you have a 1 very active marketplace, a lot of competitors, a lot of 2 designs. And to go to the other point, amendment by 3 rulemaking is, I think, a resource nightmare and we would 4 much prefer to see a new system or a step change that could 5 provide NRC the opportunity to devote these many rulemaking 6 resources into honing policy and resolving some of these 7 generic issues. 8 I did want to comment on some of the actions that 9 NRC has taken. Bill mentioned several. They've, also, 10 completed a rulemaking to permit fabrication without the 11 30-day hold and to go into fabrication at risk. 12 The next slide, please. In summary, for the cask 13 amendment issue, we are -- would like to, I guess, reserve 14 an opportunity in the future to share our views with the 15 Commission and other stakeholders on how we may make a step 16 change to improvements to this process. One of the -- some 17 of the things we're thinking of is perhaps the initial 18 listing could include criteria and for making amendments in 19 the initial listing. Smarter certificates is one of the 20 things we've discussed with the staff. But, again, the 21 generic issues plays a role here, as well. In order to have 22 smarter certifications, where the vendors could incorporate 23 the design margin that they need to take the higher burn up 24 fuel and some other -- even site specific differences, like 25 90 the seismic, they need a clear road map going forward, so 1 that they can, in fact, process these under 72.48 and 2 demonstrate that there are no unreviewed safety questions in 3 adding different types of fuel or higher burn up fuel to 4 5 their casks. Did you want me to stop there and not talk about 6 7 the --COMMISSIONER MESERVE: We're well over time. Is8 9 that okay? MS. HENDRICKS: Yeah. 10 Why don't we go for a round COMMISSIONER MESERVE: 11 of questions among the Commissioners. I have a question and 12 this first question is directed at Mr. Meisner. It may 13 reflect my misunderstanding of the circumstances here. 14 am, as I think you know, the new boy on the block here. 15 You've described various ways, in which you think the staff 16 has been overly conservative in its analysis of the fuel 17 pools. And I'm a little puzzled, because we haven't yet 18 gotten the staff's analysis. They said they were going to 19 give it -- this is going to be in draft form in January. 20 And so, are you talking about an earlier document? Are you 21 of the view that the current work that is underway is going 22 to prove to be -- continue to have these overly conservative 23 perspectives in it? 24

MR. MEISNER: I'm talking about an earlier 25 91 document they issued, I think, in June, and was the subject 1 of the two-day workshop in July. 2 COMMISSIONER MESERVE: You made your views known 3 4 MR. MEISNER: We have no other information to base 5 6 our views on. COMMISSIONER MESERVE: So, they will be, then, 7 that the staff has considered these views in what we're 8 going to be seeing in a few months? 9 MR. MEISNER: We've had numerous interactions with 10 the staff and that's what we hope is going to happen, yes. 11 COMMISSIONER MESERVE: I have a question that 12 Commissioner Dicus had presented. It was about a matter, 13 which I'm not familiar. She -- this has to do with 14 truncating that analysis, at a certain time point. And the 15 question she asked is whether you had seen the letter from 16 the Union of Concerned Scientists about an event at a TVA 17 plant, where operators did not notice the heat up of a spent 18 fuel pool over a period of several days, which -- their 19 point, I gather, is that there is, obviously, an actual 20 observance of something that should not have been truncated 21 in the period that you had indicated. 22 MR. MEISNER: I haven't seen a letter from UCS, 23 but I am familiar with the event. I had some research done 24 on it. It was an event back in December of '98. It lasted 25 92 for 37 hours. And during that time, the pool heated up from 1 109 degrees to 121 degrees and it was unnoticed during that 2 time period, because of -- basically, of an equipment 3 failure that led to a non-representative temperature 4 5 indication. I think this is a very good event to focus on, 6 because what it does is prove the point that simplistic 7 human error probability assumptions are inadequate. What 8 happened there was over a period of time, over multiple 9 shifts, they identified and caught the issue. The staff's 10 approach would have said that there is one error of 11 probability associated with that event. 12 What really needs to be done, we think, is to 13 analyze these types of events, modeling shift changes, 14 modeling the self reviewing nature of the event. You know, 15 if the pool starts heating up and steaming, you're going to 16 have a rain forest in there and it's going to be impossible 17 to miss. It just can't proceed without somebody seeing it. 18 And to model the long reaction times involved. And the 19 design simplicity, I'll point out for that plant -- the TVA 20 plant, it was an operating facility. The operators were 21 focused on producing power. At our plants, you have two 22 operators that do nothing but watch the spent fuel pool and 23 that's all they do, in a simple control room that only has a 24 few parameters. 25 93 So, I think it proves the point. 1 COMMISSIONER MESERVE: Mr. Blanch, I have a 2 question for you. I was a little puzzled by your -- or 3 maybe misunderstood part of the point of your presentation. 4 You suggested, as I understood you correctly, that in 5 dealing with these decommissioning issues, one should rely 6 on NUREG 64.51 and on Part 72, leaving the implication, I 7 think, that this whole effort that we've been discussing, 8 mainly trying to develop sort of a different strategy on 9 decommissioning, is something that is unnecessary or 10

misguided, or did I misunderstand the point that you were

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trying to make? 12 MR. BLANCH: Chairman, I think you misunderstood 13 the point I was trying to make. I think the efforts that 14 are ongoing are very worthwhile, but they're only a small 15 piece of the puzzle. And what I'm saying is that the puzzle 16 is much, much larger than just the Zirc fire. There are 17 many, many other issues out there that the staff needs to 18 address, some of which are addressed in SECY-99-168. 19 COMMISSIONER MESERVE: Commissioner McGaffigan? 20 COMMISSIONER McGAFFIGAN: I can have 200 21 questions, like Commissioner Diaz, but I -- and I'm sorry 22 we're going to end up short changing you, to some degree, 23 but the -- let me follow on the Part 72 point with Mr. 24 Blanch first. I've got Part 72 on the general license, the 25 94 subpart K in front of me and you're right, it's meant to 1 apply to ISFCs, to dry cask storage facilities that happen 2 to be at a Part 50 facility. Is -- but, isn't anything that's in Part 72, you know, still don't apply to a Part 50 3 4 licensee or more, when they're sitting there -- you seem to 5 imply -- you say there's a hole, basically; if I'm going to 6 shut down the plant under Part 50 license, using a general 7 license under Part 72 for my ISFC and some stuff in the 8 spent fuel pool, you're saying the spent fuel pool is --9 there's a hole in our regulations there, that is not 10 adequately covered, at the moment? Or what are you saying? 11 MR. BLANCH: In my opinion, it is not adequately 12 covered, the operation of a spent fuel pool. Once the plant 13 has defueled, what regulations apply? The staff says, well, 14 10 CFR 50 applies. But, if you go to 10 CFR Part 50, 15 there's nothing in Part 50 that governs the storage of 16 high-level waste, except maybe one section -- small section under Appendix A, General Design Criteria. 17 18 So, for instance, when I went to visit these 19 plants, questions arise, what is the design criteria for the 20 cooling system of the spent fuel pool? Every plant I looked 21 at, it's seismic, it's done with some certain level of 22 quality assurance, but there is nowhere within the 23 regulations that specify whether I have to have qualified 24 equipment, environmental qualification, seismic backups. We 25 95 There's no have differences of opinion between regulators. 1 clear criteria within the regulations for the operation of 2 that spent fuel pool under Part 50. 3 COMMISSIONER McGAFFIGAN: Which is a good 4 argument, as I think you said, for doing this comprehensive 5 rulemaking. But, at the moment, the way we reach those б decisions is by looking at the shutdown tech specs and 7 saying, okay, this is all you need, or how do -- do you --8 how do we make the decision plant by plant, for Trojan or 9 10 Main Yankee or --MR. BLANCH: I believe it's done plant by plant. 11 But, I think the staff would be better qualified to answer 12 that. I think, you know, there's a lot of diversity there, 13 in the way it's being addressed. 14 COMMISSIONER McGAFFIGAN: One of the issues that 15 -- Mr. Shadis, I did read your testimony this morning, 16 although we did receive it on short notice, and one of the 17 issues raised is the -- and Ms. Hendricks had some charts on 18 it, as well -- or a chart on it, is the license termination 19 rule. And I'll just tell you one Commissioner's 20 frustration, you know, you talk about -- both of you, 21 really, about public not understanding this difference 22 between us and EPA, and the difference is more in the 23 groundwater pathway than it is in the all pathway, the 24

limit. I brought with me my usual prop, which is the 25 96 generic environmental impact statement we did, when we did 1 the 1997 license termination rule. And we looked in detail 2 at the justification for the groundwater pathway and we 3 couldn't find it. You know, in fact, we found -- and, also, 4 for the lower limits. 5 EPA, our sister agency, has -- doesn't have a 6 They had a rule in 1996, which the public never saw. 7 rule. I happened to see it, because it was in the interagency 8 clearance process. And it was withdrawn. Their own reg 9 analysis did not support their own rule. And that's the 10 frustration we have. It indicated, you know, something on 11 the order of 75 millirems might be where the cost benefit 12 cross point was. And so, we have gone through the 13 Administrative Procedure Act process. We fully considered 14 public comments. We did a voluminous environmental impact 15 statement and we came to a conclusion that was unanimous 16 among the five Commissioners sitting here at the time in May 17 18 of 1997. And EPA can trump us. Under the Energy 19 Reorganization -- under the EPA Executive Order of 1970, 20 they can do a rule, if they can justify it. But, we've 21 never seen the technical analysis that supports applying 15 22 millirems and more importantly outdated groundwater MCLs 23 that can be as low as .01 millirem to these sites. You 24 know, the '90 analysis we had in here, in getting down to 25 97 the EPA MCL, was \$23 billion for death averted. So, nobody 1 ever came in and said this analysis was wrong. I mean, it 2 was out there. It was out there for public comment during 3 the rulemaking, and we didn't get those comments. 4 So, that's the frustration we have on the License 5 Termination Rule. That's why we have gone to Congress, 6 without any effect; asked them to break the tie. But, there 7 really was an awful lot of thought done before my time -- I 8 came along in the last nine months of this rulemaking -- an 9 awful lot of thought done as to what the right license 10 termination rule would be. And I -- you know, I would be 11 happy, and, I mean, I expect other Commissioners to be 12 happy, to talk to the public in great depth, as to why we 13 made the decision that we made and why we think this is --14 these criteria are appropriate. But, that's more a 15 statement, just to make sure you knew that I had read your 16 -- at least that part. 17 The other thing I might mention is the 18 adjudicatory hearing. You know, you mentioned wanting an 19 adjudicatory hearing at the outset of the process, not just 20 the one we have, at the moment, at the end of the process. 21 And that's -- I talked with Mr. Blanch in private about this 22 a couple of times, that's a tremendously resource intensive 23 thing and we're not sure it's needed. In fact, even the 24 current rule doesn't have it and I'd be hard pressed in a 25 98 risk-informed environment with limited resources to say that 1 you need both an adjudicatory hearing at the outset of the 2 process and an adjudicatory hearing at the end of the 3 process. We probably need improved public communication, 4 but the -- I don't know what the benefits of a full-blown 5 adjudicatory hearing at the outset of the process would be, 6 other than to slow down decommissioning, which I suspect 7 people want to see proceed, once the plant has decided to 8 9 shutdown. Those are two statements that either of you can 10 respond to, or both. 11

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MR. BLANCH: I'll just quickly respond. If one 12 goes the proper route, a licensee, and goes for a site 13 specific Part 72 license, the adjudicatory hearing, I 14 believe, is allowed at that time, because it would be a 15 major change to the license. And it's my belief that's why 16 there's a reluctance on the licensees to convert to a Part 17 72, because it does open it up to adjudicatory hearings. 18 COMMISSIONER McGAFFIGAN: But, Paul, if I could --19 on that point, the adjudicatory hearing on the Part 72 20 license would be simply about the ISFC. It would not be 21 about -- what I think, Mr. Shadis, you were concerned about, 22 you know, are they going to rubblization, are they going to 23 do this, how are they going to -- how are they going to 24 dismantle the plant. As I understand it, what you're 25 99 looking for is -- you really want a hearing not on the ISFC, 1 which is pretty routine stuff; you want a hearing on their 2 plan for going from the plant as it exist the day they shut 3 it down, to green fields. 4 MR. BLANCH: I'm not the one that's advocating any 5 6 hearings; I'm just making a statement --7 COMMISSIONER McGAFFIGAN: Okay. MR. BLANCH: -- that if one did go to Part 72, it 8 would require -- or could require a hearing. 9 COMMISSIONER McGAFFIGAN: But, it wouldn't be on 10 the subject matter that Mr. Shadis seems to be worried 11 about, unless --12 MR. SHADIS: I -- a different comment to the staff 13 and Commission and management, my issues, if you will, or 14 observations have been characterized as worrying. I'm not 15 worried about anything. And the reason is because I 16 believe, in many respects, the tide is going our way. So. 17 18 I'm feeling fairly sassy about that. But, what I am proposing here is that some 19 creative thought be given to how you can have certainty at 20 the beginning of this process. I think I used in my essay 21 there, I*used the term "a launching platform," from which 22 you start decommissioning. You start with everybody has a 23 set of ground rules or everybody knows how it's going to 24 proceed. And, apparently, we don't have that. 25 100 Additionally, I was surprised to learn, in dealing 1 with the Federal Energy Regulatory Commission, that they 2 have the option to hold -- actually hold hearing in concert 3 with other agencies, including states agencies. And it's 4 not a bad idea. I think that this process needs to be 5 wrestled with and it needs to be wrestled with, because this 6 is so very important and it is final, as far as the effected 7 communities are concerned. So, I'm offering that and not --8 you know, it wouldn't take that much further. 9 In terms of the EPA-NRC issue, I'm very interested 10 to hear your characterization of it and disagree. 11 12 [Laughter.] MR. BLANCH: But -- well, you know, it is one of 13 those kinds of -- you made the offer to meet with the people 14 who are concerned about this, from the environmental 15 community, I presume, and as you know, there is an issue now 16 over the release of solid materials and that environmental 17 community is very unhappy with their experience in 18 developing that rule. So, I'm sure they would love to sit 19 down and meet with you. 20 COMMISSIONER McGAFFIGAN: But the environmental 21 community, in that case, refused to come to -- most people. 22 There are some that came to the last meeting, as I 23 understand, in Washington, but they refused to participate 24

in the meetings. They refused to participate in a meeting 25 101 in early August that Chip Cameron wanted to hold about their 1 participation in the upcoming meetings. 2 MR. BLANCH: Yes, sir. 3 COMMISSIONER McGAFFIGAN: So -- and you, I think, 4 participated in Chip's meeting, or somebody did. 5 MR. BLANCH: It was kind of a go-between position. 6 But, basically, what they're stating is that they were very 7 unhappy with the way that that process went. 8 One last thing, please, if you just bear with me 9 just a minute. I'm real pleased that the NEI got to run out 10 there concerns about the cask thing. That's fine by me. 11 But, I wished that we had known about that. I was invited 12 to a meeting about decommissioning issues and had I known, I 13 might have been able to contribute something on that cask 14 15 concern. COMMISSIONER MESERVE: I apologize for that. Mr. 16 17 Merrified? COMMISSIONER MERRIFIELD: Well, first, Mr. Shadis, 18 I want to thank you for the information. Just as a 19 20 clarification -- sorry about the unfortunate circumstances, which led to you not being able to prepare your materials 21 earlier -- my comments weren't directed just at you; there 22 were others who, also, were unable to do that and didn't 23 apparently under the same circumstances. So, I apologize. 24 It's unfortunate. I really did honestly not have the 25 102 sufficient time to review your materials and I will do that 1 2 3 MR. SHADIS: Thank you. Had 4 COMMISSIONER MERRIFIELD: -- at your request. I been able to do so, as Commissioner McGaffigan obviously 5 had a chance to, I would have been able to ask you more 6 informed questions; and, for that, I apologize. 7 I guess I did want to ask you, it's not really a 8 question, but it's perhaps for your help: I think it's very 9 important that we, as an agency, improve our ability to 10 interact with the public, in terms of being able to listen 11 better and be able to be -- and our ability to be able to 12 articulate better, hopefully I can do, as well, in our 13 ability to answer questions better. And to the extent that 14 there are specific examples in the past or as we go forward, 15 where you feel our staff have not done that in a full 16 professional manner, certainly I hope you will continue to 17 keep this Commission, if on a Commissioner by Commissioner 18 19 basis, for that matter, informed of that, so that we can provide the appropriate input to our staff. I think that's 20 important to us and I ask for you indulgence on that. 21 I have to -- I do have to tweak you, as a last 22 comment. You are representing the New England Coalition on 23 Nuclear Pollution. As a New Hampshire native and as one of, 24 25 I think, probably three new -- sitting around this table 103 right now, including three on this side of the table, I have 1 to express my dismay that you have decided to include New 2 York as a state within New England. 3 4 [Laughter.] 5 COMMISSIONER MERRIFIELD: This is a matter, as you know, is of significant concern, and I do need to tweak you 6 7 on that one. So --8 MR. SHADIS: I'm sorry, that was a tough call. 9 [Laughter.] MR. SHADIS: But, that is upper New York State. 10 We're talking the Lakes region or something. 11

COMMISSIONER MERRIFIELD: Well, we do like some of 12 them from New England; but, nonetheless, they still are not 13 one of our New England states. 14 Mr. Blanch, I just want to start out with saying, 15 I do agree with you, regulation by exemption is no way to do 16 business, and I think that's certainly something we need to 17 think about as an agency. You mentioned several times that 18 the NRC needs to address other potential accidents. I'm not 19 sure -- what I'm not sure of is whether, in your opinion, 20 the staff recognizes this need and is pursuing it 21 appropriately, or whether they disagree with you that this 22 need exists. I'm wondering if you might be able to 23 elaborate a little bit. 24 MR. BLANCH: A few weeks ago, I brought this issue 25 104 up with the staff and I think we're in synch right now that, 1 yes, there may be other issues, and I do say "may be other 2 . issues" that need to be addressed. It seems like we've 3 zeroed in on only one accident and that's been the drain 4 down to the spent fuel pool, when there are, in fact, other 5 6 accidents. We don't want to get ourselves into where we were 7 in the 1970s, when we analyzed the doubled ended guillotine 8 break LOCA, thinking once we've encompassed that accident 9 and can handle that accident, we can handle any accident. Т 10 just don't want the viewpoint to be, okay, we only looked at 11 the worst accident, we can handle; therefore, we're okay. 12 There are other accidents. And I took for example, 13 criticality. I don't know what the impact of that is. It 14 needs to be looked at. It may be a never mind. But, every 15 potential accident needs to be looked at, to see whether it 16 will impact the public. Mr. Shadis mentioned to me on the 17 way in today, resin fires, has that been looked at. There 18 are other potential accidents. That was my point. 19 COMMISSIONER MERRIFIELD: Well, I'm sure that the 20 staff will have appropriate responses to those, as we move 21 22 forward. Mr. Meisner, I want to -- you know, being a 23 lawyer, I guess by nature you have to play devil's advocate. 24 Just for the sake of -- I'm putting issues in the record, we 25 105 don't have Mr. Lochbaum here with UCS and Commissioner 1 McGaffigan -- well, he's not sitting at the table right now. 2 But, perhaps, you gave the issue of Brown's Ferry and you 3 recognize that as an example where it was successful; you 4 know, it was found and it shows that things work in an 5 operating reactor. I think some, including Mr. Lochbaum, 6 perhaps, may argue that the fact that it took 37 hours at an 7 operating facility, with, at any one time, dozens, if not 8 hundreds of people walking around, isn't necessarily a 9 success story; and that if we're looking at spent fuel pool 10 temperatures for facilities, which are being decommissioned, 11 which have far fewer people who are going to be walking 12 around, that may not be quite the success that perhaps 13 you're portraying and something we certainly need to keep in 14 mind, as we move forward. 15 MR. MEISNER: Okay, well, first of all, I didn't 16 portray it as a success. What I intended to say was that it 17 proves the point that simplistic human error probability 18 assumptions are inadequate. What happened in that event was 19 there were multiple opportunities to identify the situation 20 and eventually one of them did identify it. Taking the 21 point of view that there's one failure probability 22 associated with that isn't appropriate. That was my point. 23 So, the staff needs to be able to put together a human 24

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reliability analysis that takes into account things like 25 106 shift changes, as an example, a new set of eyes. 1 The other thing I point out is that 37 hours is 2 not long, given the small amount of heatup that took place 3 in that event. It was about a 12 degree delta, if I read 4 that -- read the reports right and we did get reports direct 5 from Brown's Ferry. That didn't challenge any 6 administrative limits or tech specs limits. They were far 7 away from anything associated with having to take action, 8 either by procedure or by technical requirement. 9 Now, had this event progressed, though, to the 10 point where you could actually see steaming or whatever, my 11 other point was these events become self-revealing. And 12 that, as well, needs to be taken into account in the human 13 error review of these kinds of events. I'm not calling this 14 a success by any means; but, I'm saying it's an event that 15 proves a point, that you need to model these things and 16 model them correctly. 17 COMMISSIONER MERRIFIELD: Well, I think clearly, 18 the Brown's Ferry example provides a whole variety of 19 lessons to be learned and ones that we should certainly keep 20 cognizant of. 21 In my previous set of questions to the staff, I 22 talked a little bit about the balance, the triage that we've 23 had to go through relative to cask issues. Given the fact 24 that we do have limited resources -- our staff is down 600 25 107 from 1993, we have the lowest budget available to us on an 1 inflation adjusted basis for many, many, years -- do you 2 agree with the staff's approach to giving higher priority to 3 meeting the cask certification issues for operating 4 reactors, or do you give a higher priority to resolving the 5 technical issues associated with a limited number of 6 7 certification issues? MR. MEISNER: I guess I -- I'll give you my 8 personal opinion. I think either approach is wrong and 9 doesn't get at the root cause of what the problem is here, 10 and that's this cumbersome process. It seems to me that we 11 can put in new fuel designs in operating facilities and deal 12 with those changes either under 50.59 or license amendment 13 process. We surely should be able to deal with the -- use 14 those same kind of well understood processes in dealing with 15 cask. I, personally, don't see that there's a need for this 16 rulemaking process, that using a 50.59 and 50.90 process 17 provides all the input for the public. It follows well 18 known licensing change processes that we all grew up in with 19 operating facilities. I think the approach is fundamentally 20 wrong. If we invested some resources today, those scarce 21 resources into changing the process, and making it scrutable 22 and easy to deal with, then I think most of the other 23 resources problems would go away. 24 COMMISSIONER MERRIFIELD: Fair comment. My last 25 108 question, very briefly, Ms. Hendricks, you talked very 1 quickly through your bandaids issue and the \$10 billion 2 figure and, frankly, you went a little too fast for my 3 What did you mean by all of that? 4 blood. MS. HENDRICKS: The bandaids I was referring to 5 was not resolving the generic issues up front; in other 6 words, not establishing -- by not establishing criteria and 7 methodology for going to high burnup, you are, in essence, 8 saying, well, we can't deal with high burnup. The bandaid 9 is can it; put it in a -- can the bundle and assume that 10 it's going to fail, instead of having criteria and 11

methodology, by which you can demonstrate, given the 12 characteristics of your fuel cladding, the material, the 13 thickness, etc., that it won't, in fact, fail. 14 The \$10 billion comes from a different issue, 15 although it would certainly add to that sum, and that's the 16 burnup credit issue. Without burnup credit, you are 17 essentially assuming a fresh fuel assumption design of these 18 casks. Obviously, that's a very inefficient assumption, 19 because, in fact, there's significant burnup. That's why, 20 you know, you put the fuel in the reactor, to get the heat 21 potential by burning it up. And there's an incredible 22 penalty there, in terms of cost. 23 COMMISSIONER MERRIFIELD: Who did that cost 24 analysis? 25 109 1 MS. HENDRICKS: DOE. COMMISSIONER MERRIFIELD: DOE. And they made a 2 cost analysis that our current rational would result in an 3 extra expense of \$10 billion for the cost of the cask, over 4 and above what it should be, if we took full credit for fuel 5 6 burnup? MS. HENDRICKS: Exactly. 7 COMMISSIONER MERRIFIELD: That's the point? 8 MS. HENDRICKS: Exactly. 9 MR. MEISNER: Can I add just real quickly to that? 10 That with burnup credit -- now, we can load about 24 11 assemblies into a cask. With burnup credit, we can put 36 12 in there; so, a 50 percent increase, or look at it another 13 way, a significant decrease in the number of casks that need 14 to be purchased to encapsulate that fuel. It's, also, 15 worthwhile to point out that that's, also, a significant 16 decrease in the number of casks that have to be transported 17 and that in the current environment, the probability of 18 criticality in those casks is now overshadowed by the 19 probability of transportation accidents -- not nuclear 20 accidents, just the road accidents. So that the -- it 21 appears that the staff is in the uncomfortable position of 22 fostering a more risky approach by not giving burnup and by 23 having more trucks out on the road. 24 MR. BLANCH: Sounds like you agree with my 25 110 criticality issue, then, Mike. 1 MR. MEISNER: I do. 2 COMMISSIONER MERRIFIELD: Thank you. 3 COMMISSIONER McGAFFIGAN: Can I just do one --4 COMMISSIONER MESERVE: Very quick one; one short 5 6 question. COMMISSIONER McGAFFIGAN: One short question. 7 Now, which one will it be. Why didn't you comment on the 8 August staff study? Is the Aaron Report your comment? I 9 mean, that's sort of two ships crossing in the night. This 10 is on the human reliability issue. I said I was going to 11 ask it and I forgot. 12 MR. MEISNER: Well, the Aaron is pretty much --13 the Aaron Report is pretty much our comment. We saw the 14 staff study as kind of instructions to their contractors 15 and, frankly, I -- it wasn't apparent to me that it was out 16 17 for public comment. COMMISSIONER McGAFFIGAN: I have read it and it's 18 pretty clear, you get to the second page, that it is. And 19 so if there are comments, it probably isn't too late, given 20 that we're still working on this process. 21 MS. HENDRICKS: The difficulty with human 22 reliability analysis is it's very subjective -- somewhat 23 subjective and qualitative. So the approach that they laid 24

out to look at it is fine, but it very much comes down to 25 111 the inputs and there was really nothing to comment on. 1 mean, it was --2 COMMISSIONER McGAFFIGAN: The other thing, Mr. 3 Chairman, I'd say is we may want a separate briefing someday 4 on spent fuel pool issues, because, we're mixing -- they are 5 related -- they're very much related to decommissioning, but 6 they're, also, related to a lot of other things, and we just 7 8 touched on them today. COMMISSIONER MESERVE: I'd like to thank everyone, 9 both staff and the panel that's here. This has been very 10 helpful and informative. Commissioner Diaz did ask me to 11 apologize to everyone. He had another commitment that 12 required him to leave at 3:30 and he apologize for his 13 14 departure. 15 With that, we are adjourned. [Whereupon, at 4:15 p.m, the briefing was 16 17 concluded.] 18 19 20 21 22 23 24 25 December 2, 19 0: Chairman Meserve Commissioner Dicus Commissioner Diaz Commissioner McGaffigan Commissioner Merrifield Original signed by William D. Travers Executive Director for Operations

SUBJECT: CLARIFICATION OF COMMENTS MADE AT THE NOVEMBER 8, 1999, COMMIS. REACTOR DECOMMISSIONING RULEMAKING

This memorandum provides additional information regarding Commissioner McGaffigan's qui implications of new decommissioning regulations. In response to his question, the sta possible outcome of the new integrated decommissioning rulemaking effort may afford a implement revised regulations with some additional regulatory requirements not current Part 50 or to follow the existing rules and seek plant-specific relief through license exemptions. We wish to clarify that the staff's position on backfit for new decommiss has not yet been determined. As the staff proceeds with the decommissioning regulator effort, we believe it would be premature to state that any additional requirements wil licensees during the decommissioning process. After the technical basis for regulator decommissioning is completed, the staff will develop proposed rules and will endeavor unnecessary regulatory burden as long as adequate protection to the public is maintain scope of risks associated with decommissioning spent fuel pool accidents is well under a better position to evaluate what regulatory relief may be appropriate.

Thus, at this time our regulatory options remain open. We will continue to engage sta deliberations and keep them informed of any regulatory implications resulting from our We will make our recommendations to you on the regulatory options in our integrated derulemaking plan to be submitted in May 2000.

CC: SECY OGC OCA OPA CFO CIO

FROM:

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