

TESTIMONY SUBMITTED BY
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TO THE
SUBCOMMITTEE ON CLEAN AIR AND NUCLEAR SAFETY
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

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Mr. Chairman and members of the subcommittee I thank you for holding this hearing and giving me this opportunity to present my views on the Nuclear Regulatory Commission's reactor relicensing process. The paper below presents my testimony, starting with an outline of the current problems and our recommendations for improvements. The relicensing process is deficient and there are severe weaknesses in the oversight of reactor safety. If not addressed, these issues will further undermine confidence in the NRC and raise the risk of an accident that could severely harm the public and the nuclear industry.

Problem Outline

Through participation in the relicensing process for the Oyster Creek Nuclear Power Plant ("Oyster Creek") and observing other proceedings, I have learned that the NRC's systems for ensuring safety at old nuclear plants are opaque, legally and scientifically flawed, burdened with unjustified assumptions, and counter-productively exclude much useful public participation. In addition, the relicensing process is excessively narrow in scope, uses procedures that unreasonably limit the ability of the public to intervene on issues, and fails to fully examine how safety standards at old plants could be improved. These problems are leading to a loss of confidence in the effectiveness of NRC's oversight among the public, States, legislators, and even some judges that work for NRC. The rest of this testimony provides greater details on these issues and provides some suggestions for addressing them, primarily by enhancing public participation.

Suggestions For Solutions

Those that live close to existing nuclear plants deserve to be better served by the NRC. In addition, improving the NRC would be actually be good for the nuclear industry, because it would make the system more robust and would reduce public resistance to the siting of new

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[1] I am the legal director of the Eastern Environmental Law Center and represent a coalition of six Citizens' groups opposing the relicensing of the Oyster Creek Nuclear Power Plant, the oldest in the nation. In addition to a law degree from Columbia Law School, I have a degree in physics from Oxford University, a Masters degree in engineering hydrology from Imperial College of Science and Technology, and long experience as a scientific consultant for industry, governments, multilateral entities, and environmental groups. The views expressed in this testimony are my own, not those of my clients. Full citations to support the facts mentioned in this testimony are available upon request.

plants. Therefore, citizens and the nuclear industry should now come together to improve the processes for maintaining the safety of operating nuclear plants and for nuclear power plant relicensing. Safety oversight improvements should include:

i) published, clear plant-specific safety standards upon which citizens, the NRC, and investors can rely (i.e. codification of the Current Licensing Basis ("CLB") and licensee commitments);
ii) requirements that CLB safety standards be met with a specified high degree of statistical certainty;
iii) a centralized publicly accessible database of exemptions, corrective actions, violations of CLB safety standards, and violations of licensee commitments;
iv) prompt notice to interested parties when the safety requirements in the CLB or licensee commitments are changed or not met;
v) citizen access to all non-proprietary non-safeguards licensee documents containing information relevant to nuclear safety and access to redacted versions of proprietary or safeguards documents;
vi) a publicly available log of all NRC documents withheld from public release and a simple process to challenge Staff decisions to withhold documents;
vii) technical assistance grants to local citizens groups to enable them to hire expert assistance; and
viii) reform of the adjudicatory procedures used when disputes about ongoing safety arise to make the procedures as simple as possible, while preserving the essentials required to ensure fairness, such as the right to cross-examination, the prevention of NRC itself participating as a party, and the right to meaningful judicial review.

Improvements specific to the relicensing process include:

i) expand the scope beyond the aging management of long-lived passive components to include:
    a. a comprehensive review of whether safety standards in the CLB should be improved; and
    b. a *de novo* review of current compliance with all CLB safety standards and licensee commitments;
    c. plant-specific resolution of generic safety issues (tentative recommendation – needs more analysis).

ii) change the Part 2 adjudication rules to more closely mirror the federal rules of civil procedure, including:
    a. notice pleading;
    b. construe disputed facts in favor of petitioners, especially when definitive information is unavailable to the public;
    c. a liberal standard for adding or amending issues for adjudication as more information comes to light;
    d. full discovery, including depositions;

e. the right to live cross-examination; and
f. preventing NRC itself from participating as a party.

Background

There is mounting evidence that the Nuclear Regulatory Commission has forgotten its mandate to guard public safety, and, like the Atomic Energy Commission before it, has become a promoter of the nuclear industry. Flawed safety oversight at old nuclear facilities combined with very narrow scope relicensing reviews and procedures and practices that hinder public participation are leading to a loss of confidence in the NRC. This loss of confidence is hindering efforts to relicense a number of old plants and is slowing the development of any new nuclear plants. Unless the tide is turned, and the NRC addresses the concerns of the public thoroughly and openly, the industry will remain at the cross-hairs of an intense battle, which could ultimately result in an undesirable outcome for both sides: slow atrophication of old plants, construction of a few heavily subsidized new plants, and no adequate resolution of a number of safety issues including terrorism, evacuation, and nuclear waste disposal. The industry will also face the danger that there will be a repeat of the events of the late seventies, when the Three Mile Island accident stopped the industry in its tracks and caused huge losses. The solution to these problems lies in encouraging robust public participation in NRC processes that are supposed to maintain safety and in transforming the safety-culture of the agency so that it prioritizes public safety above licensee concerns.

Recent Evidence of Poor Performance on Safety Issues

A few dramatic recent events illustrate that the NRC's current approach to safety has serious flaws. In 2002, severe corrosion on the top of the reactor pressure vessel caused the Davis-Besse reactor near Cleveland to come within months of a melt down. The NRC Office of the Inspector General ("OIG") concluded that by allowing the plant to operate beyond a deadline for fixing the problem, the agency had placed the economic interests of the plant owner above the safety of the public. In addition, the OIG found that NRC had "informally established an unreasonably high burden of requiring absolute proof of a safety problem" instead of acting when the licensee can no longer affirmatively show that safety is reasonably assured. A 2002 survey showed that 47% of the NRC's employees are afraid to speak out about safety issues because they fear doing so would jeopardize their jobs, and that employees were concerned that pressure from industry is greatly undermining the agency's ability to oversee safety. In 2003, the Witt report regarding the evacuation plan at Indian Point highlighted many flaws in that plan.

In 2005, a National Academy of Sciences Report for Congress showed that the NRC had failed to adequately assess the huge risk of storing spent fuel in elevated pools that are vulnerable to terrorist attack. The consequences of a spent fuel pool fire would be enormous. For example, estimates show that one fuel pool fire could cause 24,000 lung cancers and economic damage that would be three times that caused by hurricane Katrina. Even though it is privy to safeguards information that the NRC claims has resolved this issue, the State of New Jersey has stated that the spent fuel pool at the Oyster Creek plant is a "major security concern." In August of last

year, a cooling tower cell at the Vermont Yankee plant completely collapsed. In October, a video showing sleeping guards at the Peach Bottom nuclear plant aired on national television. Most recently, a GAO study showed that the NRC has failed to resolve fire safety issues for over fifteen years. Because the NRC has failed to take decisive action, one NRC Commissioner believes the current regulations fail to deal with fire safety in an appropriate manner.

Two of the three relicensing proceedings that have commenced to date have also revealed major flaws in the current oversight process. First, during the discovery process in the Oyster Creek proceeding, the intervenors discovered that the thickness measurements that the NRC and the licensee had used to show safety for ten years were systematically wrong so that the containment was thinner than those results showed. Then, in August last year, the NRC Staff concluded that the containment at the Oyster Creek did not meet the required safety standards, but instead of taking any action, they amended the testimony and attempted to waive the standard. This was later found to be completely unjustified. *AmerGen Energy Co. LLC* (License Renewal for the Oyster Creek Nuclear Generating Station), LBP-07-17, 66 NRC 327 at n. 20 (2007). Second, in April of this year, it became clear that the NRC Staff had approved license renewal at nine plants based on non-conservative calculations regarding metal fatigue. This issue only came to light because a citizens' group raised it in the Vermont Yankee relicensing proceeding. Multiple citizens' groups have also shown that the NRC's relicensing safety reviews rely excessively upon unchecked licensee summary documents, and that the NRC Staff prematurely destroyed the working documents showing in detail how the safety review at Oyster Creek was conducted.

Furthermore, in a recent audit of the relicensing process, OIG highlighted that NRC's relicensing safety reviews suffered from a lack of quality control and were inconsistent in terms of thoroughness. In addition, the safety review of the Oconee plant stated that Staff had verified adequate performance of the coating system, when problems with coating failures were well known to the NRC. In a follow up memorandum, the OIG found that because the Staff had destroyed their working papers after each review was complete, it is very difficult to verify in detail how well the safety reviews were carried out.

Recent Evidence Of Poor Staff Performance From NRC Adjudications

Few NRC regulatory decisions are scrutinized by the adjudicatory arm of the NRC, the Atomic Safety and Licensing Board ("ASLB"), but in the proceedings that have occurred, some judges within the ASLB have been critical of the how the NRC Staff has been approaching safety issues. For example, one judge recently raised questions about the safety culture of the NRC Staff stating that the approach taken to two issues "may be symptomatic of safety culture deficiencies, and thus raise a serious question about a foundation of nuclear safety – the culture of the government organization responsible for promoting it." *Shaw Areva MOX Services* (Mixed Oxide Fuel Fabrication Facility, LBP-08-10 at 44 (Concurring Opinion of Judge Farrar, June 27, 2008). Although the judge stated that an alternative explanation could be that the NRC Staff behavior in that proceeding was "aberrational," other proceedings confirm that it was not. For example in the relicensing proceeding regarding the Oyster Creek power plant in New Jersey

the Staff announced that that the safety of the containment vessel should not be judged by whether it meets the engineering code.

In another recent case, the ASLB found that the NRC Staff had exhibited a "more than casual attitude" regarding the safety of the public living close to a site where piles of radioactive wastes had been left uncovered for ten years after the plant stopped handling radioactive materials. *Shieldalloy Metallurgical Group Corp.* (Licensing Amendment Request for Decommissioning of the Newfield, New Jersey Facility), LBP-08-08 at 13-14 (June 2, 2008). The Board found that residents who might be affected by groundwater contamination were entitled to greater consideration.

In yet another proceeding, the ASLB found "many instances" in which "the technical portions of the Staff documents in the record (particularly the SER [safety evaluation report] and to some degree, the EIS [environmental impact statement]) did not support a finding that the Staff's review supported its decisions." *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), LBP-06-28, 64 NRC 460, 474-75 (2006). It also noted that the Board's "confidence in the Staff's judgment would have been materially improved had the more important of those facts [the Staff's factual findings] been checked." *Id.* at 492. The ASLB stated that it did not conduct further enquiries into these issues because it felt bound by a Commission instruction to defer to the NRC Staff. *Id.* at 492. Without that instruction from the Commission, the ASLB would have conducted "a much more probing review" into the quality of the review and reporting. *Id.* at 496.

The Scope Of The Relicensing Reviews Are Too Narrow

The current relicensing rules rely upon the assumption that ongoing NRC processes adequately maintain compliance with the safety requirements for each plant. If this is not the case, the focus on the aging management of long-lived passive components is far too narrow. At minimum, the relicensing process should verify this assumption through analysis of compliance with the CLB and licensee commitments. In addition, the review should also include a comprehensive study of whether the safety standards for each plant could be improved, including consideration of outstanding generic safety issues. The aim should be to bring old plants up to the safety standards of new plants as far as is reasonably possible and address new issues that have arisen since plant design, such as terrorism. As an example of an area that can be easily improved, old plants often have their back up generators located close together running off the same tank of fuel. Newer plants have the generators separated to make them truly redundant. This makes the plant less likely to have an accident and improves the ability to withstand a terrorist attack. At present relicensing reviews do not examine how to improve safety standards in many areas, including spent fuel storage and resistance to terrorism.

Public Participation In Relicensing Is Inadequate

In 2004, the NRC reformed the procedural rules on public participation in nuclear power plant licensing and relicensing to make it much harder for Citizens to raise concerns about safety

issues. As a consequence, until last year, no public hearings regarding relicensing of nuclear power plants had occurred, even though over 44 plants had renewed their licenses. Illustrating the positive effects of public participation, the intervention at Vermont Yankee highlighted a safety issue with metal fatigue calculations that the NRC Staff had missed at nine other reactors, but later acknowledged needed to be addressed.

One fundamental problem is that the standards which plants are supposed to meet are not clearly published for all to see and the NRC allows the standards to be changed by plant operators without NRC approval. It is very difficult to locate problems with an application when the standards are totally opaque and constantly changing. In addition, while applicants have many years to prepare an application, intervenors only have 60 days to submit their proposed issues for adjudication. *Shaw Areva MOX Services* (Mixed Oxide Fuel Fabrication Facility, LBP-08-10 at 49 (Concurring Opinion of Judge Farrar, June 27, 2008). Furthermore, because experts are an essential part of the process, intervenors must quickly find and fund experts willing to testify against the nuclear industry.

Even when a hearing is granted, intervenors face formidable hurdles in obtaining a fair hearing. One judge noted that intervenors had brought valuable issues to the Board's attention, despite these disadvantages and wondered how much more the public might contribute to nuclear safety, if the NRC's procedural rules allowed them to. *Id.* at 49. For example, raising new issues is very difficult and intervenors are forced to dissipate scarce resources on duplicative filings to try to overcome very strict timing requirements. *Id.* at 54. Unless the judges are sympathetic, the proceeding turns into a shell game "with the usual street corner outcome: whatever guess petitioners make is wrong." *See Id.* Furthermore, in nearly all proceedings intervenors must not only litigate against the applicants, they must also litigate against the NRC Staff, who opt to become a party.

In practice, rules which were supposed to generate a streamlined process generate endless procedural motions.[2] Because lawyers and experts cost money, the huge imbalance in resources between citizens and plant operators hampers citizens' ability to get a fair hearing. This became obvious at the Oyster Creek hearing when NRC and Exelon presented 21 expert witnesses to oppose the one witness the citizens could afford. In addition, two public interest lawyers for the intervenors were opposed by two lawyers for the NRC Staff and four lawyers for the applicant. The resource imbalance is made all the more important because there is no cross-examination right at the hearing. This means there is no opportunity for the intervenors to get the applicant's experts to make the intervenor's case.

Furthermore, if citizens try to find out what is going on at their local plant without resorting to litigation they face many obstacles in obtaining information. For example, prior to our intervention, my clients tried to obtain measurements of the thickness of the containment shell at Oyster Creek, but found the NRC did not possess the information and the licensee

[2] See http://www.nirs.org/reactorwatch/licensing/oyster.htm for the many pleadings filed in the Oyster Creek relicensing process to date.

refused to release it. Even during litigation, licensees may try to exclude citizens by refusing to release information. For example, even though the NRC has recognized that there may be a problem with the metal fatigue calculations at Oyster Creek, Exelon has refused to release these calculations. In addition, because the information obtained is highly technical, citizens need experts to interpret it. In the wake of the 1979 accident at Three Mile Island, all of the major accident reviews recommended that funding be made available to responsible citizens' groups so that they could act as a deterrent to regulatory agency complacency. Congress has so far failed to do this, but it is long overdue.

External Response To NRC Problems

The stirrings of a diverse effort to expose the NRC's lack of oversight are already evident. Last year, a citizens group in California won a lawsuit forcing the NRC to consider the potential impacts of terrorism on initial licensing. However, in contrast to the Department of Energy, the NRC decided to limit the effect of court's decision to facilities in the ninth circuit. The State of New Jersey and the Massachusetts Attorney General sought to have terrorism considered in the relicensing review, but both were rejected by the NRC. The State of New Jersey has a lawsuit pending on that issue. The Massachusetts Attorney General is currently petitioning for a rulemaking to require the consideration of terrorism during relicensing. The Attorney Generals of New York and Connecticut are supporting two New Jersey citizens' groups and Westchester County in their appeal to the Second Circuit of NRC's rejection of their attempt to get the rules for relicensing of old nuclear power plants changed. Citizens' groups in New Jersey and Massachusetts have now obtained hearings on relicensing, and a citizens group in Vermont is about to have a hearing. The New York Attorney General as well as a number of citizens' groups are also seeking a hearing regarding the relicensing of Indian Point nuclear power plant.

Conclusion

Unless the safety oversight processes and the relicensing rules are changed substantially to encourage meaningful public participation, public safety will continue to be impaired and public confidence in the NRC will continue to decline. This lack of confidence will hinder the opening of any new nuclear plants, as well as the extension of the life of some existing plants. If the nuclear industry and others genuinely want nuclear power to be considered as a viable option for power generation, they should welcome a debate on the proposals I have set forth with a view to meaningful reform in the near future.

I thank the sub-committee for holding this hearing and highlighting these issues.