08-3903 AG(L)

08-4833 AG(CON)
08-5771 AG(CON)

IN THE
UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

THE STATE OF NEW YORK,
RICHARD BLUMENTHAL, ATTORNEY GENERAL OF CONNECTICUT,
COMMONWEALTH OF MASSACHUSETTS,

Petitioners

v.

UNITED STATES NUCLEAR REGULATORY COMMISSION,
UNITED STATES OF AMERICA

Respondents

ON APPEAL FROM THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

BRIEF OF AMICI
STATE OF VERMONT AND VERMONT DEPARTMENT OF PUBLIC SERVICE
IN SUPPORT OF PETITIONERS AND IN SUPPORT OF REVERSAL

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CORPORATE DISCLOSURE STATEMENT

Pursuant to Federal Rule of Appellate Procedure 26.1(a), the State of Vermont certifies that, as a governmental entity, it is not required to file a corporate disclosure statement.

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INTEREST OF AMICUS CURIAE STATE OF VERMONT

Concurrent with this amicus brief, the State of Vermont is filing a motion to intervene as a party in this case. As the home state of the Vermont Yankee Nuclear Power Station, the State of Vermont has a strong interest in assuring its residents that the impact of all new and significant information is considered during the relicensing of Vermont Yankee.

The State of Vermont has authority to file this brief under Fed. R. App. P. 29(a).

ARGUMENT

I. Vermont adopts the arguments of the Petitioner States.

The State of Vermont and the Vermont Department of Public Service (collectively the "State of Vermont") adopt the jurisdictional statement, statement of issues, statement of the case, statement of facts and argument made by the State of New York, Commonwealth of Massachusetts and the Attorney General of Connecticut. As briefed by the petitioners, the denial of the two PRMs was contrary to new and significant information on the issue of high density spent fuel pools, violated the Atomic Energy Act ("AEA"), the Administrative Procedures Act ("APA"), and the National Environmental Policy Act ("NEPA"). In addition, the State of Vermont submits this amicus brief to emphasize Vermont's distinct interest in the regulation of Vermont Yankee and in the challenged actions of the Nuclear Regulatory Commission.

II. The practice of storing spent nuclear fuel in densely filled spent fuel pools needs to be closely examined through a rulemaking proceeding.

At issue is the need for the Nuclear Regulatory Commission ("NRC"), the people of Vermont, and every State of the union, to engage in a meaningful and realistic dialogue on the environmental impacts of the current practice in the

nuclear industry of storing spent nuclear fuel very densely in large pools of water known as spent fuel pools ("SFP"). Vermont does not have a preordained solution to this problem but firmly believes that the issue needs to be closely examined through a rulemaking proceeding and should not be summarily dismissed.

A. Introduction

In May 1996, the NRC issued NUREG-1437, *Generic Environmental Impact Statement for License Renewal of Nuclear Plants.* NUREG-1437 generically assesses the significance of various environmental impacts associated with the renewal of a nuclear power plant license. NUREG-1437 assigns impact levels (small, moderate, or large) to any given environmental source. It also categorizes whether an environmental impact is generic to all plants (Category 1) or needs to be assessed on a plant-specific basis (Category 2). The NRC has determined that all environmental aspects of the storage of spent nuclear fuel, including high density storage, in a license renewal term is of small significance and within Category 1.

Massachusetts and California filed petitions for rulemaking that sought review of NUREG-1437 and its associated regulations. The petitions reflect the dramatic changes that have occurred since 1996, with respect to both the probability of terrorist attacks and the significant advances in the study of the storage of spent nuclear fuel. A rulemaking proceeding to review this new and significant information to determine if environmental impacts are in fact small or

are indeed generic is crucial to Vermonters' trust in the federal regulatory scheme and the weighing of risks and benefits of nuclear power for Vermont.

The NRC, however, denied the petitions for rulemaking. Vermont and its sister states ask this Court to review and reverse the NRC's actions. The denial of the two petitions was contrary to new and significant information on the issue of high density spent fuel pools. Allowing the NRC to cut off substantive discussion without addressing the relevant scientific information or issues related terrorism in depth and in a realistic fashion, is not only an abuse of discretion but also contrary to good public policy that instills confidence in its citizenry.

B. Vermont Yankee and Vermont Yankee's Spent Fuel Pool

Vermont Yankee Nuclear Power Station is a 650–megawatt boiling water reactor that began commercial operations in March 1972. The plant provides roughly one-third of the State of Vermont's electric power needs. It sits on approximately 125 acres on the banks of the Connecticut River in Vernon, Vermont, and has a NRC license to operate until March 21, 2012. Entergy Nuclear Vermont Yankee, LLC, the current owner, has asked for a twenty-year license extension. That request is pending before the Atomic Safety and Licensing Board.[1] To

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[1] *In the Matter of Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.*, N.R.C. No. 50-271-LR, A.S.L.B. No. 06-849-03-LR. It should be noted that in this proceeding the Commonwealth of Massachusetts brought the issue of new and significant information as it relates to the spent fuel pool at VY and the ASLB found the contention could not stand in a license renewal proceeding but an option was to bring the issues to the NRC as a petition for rulemaking.

continue operating for another twenty years, Entergy must also obtain approval from the Vermont General Assembly and the Vermont Public Service Board.

When Vermont Yankee was designed and constructed, it was anticipated that the spent nuclear fuel would be reprocessed. The spent fuel pool at Vermont Yankee was designed and constructed on the basis of that assumption. However, because of fears regarding nuclear weapons proliferation, the federal government in 1976 directed the suspension of commercial reprocessing and recycling in the United States. That policy has been in place to this day although reprocessing is once again being considered as a possible long-term solution to the nuclear waste conundrum.

Since 1976 the Vermont Yankee SFP has been re-racked three times to allow storage of more spent fuel in the pool. The last re-racking of the Vermont Yankee SFP used a high-density rack design and filled all the available floor space in the pool. Only through the recent removal of older fuel that was placed in five dry fuel storage casks, has Vermont Yankee been able to retain enough space in the SFP for the discharge of the entire fuel in the reactor core into the SFP.

The current capacity of the spent fuel pool is 3355 spent fuel assemblies. By the end of the current license period, there will be over 3000 fuel assemblies generated by the station in the fuel pool. Entergy Nuclear Vermont Yankee, the current owner, has no reason to put more fuel assemblies into dry cask storage absent an NRC directive, given the expense of each dry cask containment system.

The Vermont Yankee SFP is a 26 foot by 42 foot, 39-foot deep pool of water that provides cooling and a radiation shield for Vermont Yankee's spent fuel. It is located in the reactor building at the equivalent of the fifth to seventh floors of that building. The reactor building is a warehouse structure made of metal. The SFP itself is made of thick reinforced concrete on its bottom and sides but has no protective cover. Because of the original design and the federal government's promises of a geological repository, the Vermont Yankee SFP has always been considered a temporary storage facility. However, with a lack of a long-term solution to the national problem of storing nuclear waste, the fuel will remain in the pool in its current high-density racking absent NRC action.

C. Vermont's Interest in Spent Fuel Pools

The State of Vermont is very concerned with the NRC's dismissal of new and significant information regarding (1) the increased threat of terrorist attacks on Vermont Yankee and (2) the dangers inherent in high-density packing of the Vermont Yankee spent fuel pool. Although the State of Vermont actively regulates Vermont Yankee in traditional state areas (e.g. economics, land use, need for the power), Vermonters depend entirely on the NRC for regulation of the radiological safety of this plant within Vermont's borders. *See Pacific Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n.*, 461 U.S. 190, 212 (1983) ("the federal government maintains complete control of the safety and 'nuclear' aspects of energy generation; the states exercise their traditional authority over the need for

additional generating capacity, the type of generating facilities to be licensed, land use, ratemaking, and the like"). Vermonters' concerns about terrorism and high-density spent fuel pools cannot be adequately addressed without a site-specific review of the impact of new and significant information in relation to Vermont Yankee.

1. *Vermont Yankee's vulnerability to terrorist attack should be examined on a site-specific basis.* Since the terrorist attacks of September 11, 2001, Vermont and the nation have recognized that what was once considered an impossibility has come within the realm of a probability that needs to be assessed. *See San Louis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006), *cert. denied,* 127 S. Ct. 1124 (2007). To put it bluntly, Vermont Yankee has a spent fuel pool that is 39 feet deep sitting on the fifth floor of an industrial metal building. "The potential vulnerabilities of spent fuel pools to terrorist attacks are plant-design specific. Therefore specific vulnerabilities can be understood only by examining the characteristics of spent fuel storage at each plant." National Academy of Sciences, *Safety and Security of Commercial Spent Fuel Storage* (The National Academies Press 2006) ("NAS Report") at 8. The risk of a terrorist attack at Vermont Yankee, and how to mitigate the risk of such an attack, cannot be fully addressed absent a site-specific analysis of Vermont Yankee's spent fuel pool. The NRC should therefore revise NUREG-1437 and associated regulations to allow for proper consideration of the environmental impacts of high-density spent fuel storage during license renewal proceedings.

2. *New and significant information contradicts the NRC's finding that the likelihood of zirconium fire is remote.* Although the NRC finds the likelihood of a SFP zirconium fire is remote, new and significant information has come to light that contradicts that NRC finding. As previously described, the Vermont Yankee SFP uses water both as a coolant and as radiation shielding. In the original spent fuel racks, there were open vertical and lateral channels between the fuel assemblies to promote water circulation. If water drained out of a fuel pool, these channels would have provided air circulation for cooling. However, in the high-density storage racks like those at Vermont Yankee, the channels are eliminated or reduced so more fuel can be packed in the pool. If water drains out of a high-density fuel pool, either partially or completely, there no longer is enough air circulation space to provide cooling. The increased unmitigated heat could lead to a zirconium cladding fire and the potential release of radioactive materials to the environment. *NAS Report* at 8. The NAS Report directly contradicts the NRC's finding that the likelihood of a zirconium fire is insignificant.

License renewal for a nuclear plant, including that of Vermont Yankee, is a major federal action. A federal agency taking such an action is required to take a hard look at new and significant information bearing on the environmental impacts of that action under NEPA. *Marsh v. Oregon Natural Resources Council*, 490 U.S 360, 374 (1989). By summarily denying the petitions for rulemaking, the NRC has ensured that there is no discussion of the site-specific characteristics of Vermont

Yankee or even the generic aspects using the latest scientific information and risk assessment tools at a critical time in the regulatory process.

By allowing the Petitions for Rulemaking to move forward, the NRC and the people of the State of Vermont would have the opportunity to review the NAS's scientific findings and any counterarguments that the nuclear industry might wish to put forward. The NRC's arbitrary decision to label the NAS information as neither new nor significant undermines the ability of the State of Vermont not only to review the likelihood of a zirconium fire, but also to consider what reasonable steps might be taken to reduce the chance of a zirconium cladding fire and minimize its consequences.

CONCLUSION

For the foregoing reasons and the reasons given by the States of New York, Connecticut, and Massachusetts, the State of Vermont respectfully requests that this Court review the final decision by the NRC issued on August 1, 2008, vacate that administrative determination, and remand the matter to the NRC for further consideration and proceedings.

CERTIFICATE OF COMPLIANCE

Pursuant to Federal Rule of Appellate Procedure 32(a)(7), I certify that this brief contains no more than 7,000 words.

Dated: May 5, 2009
Montpelier, Vermont

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