

October 21, 2003

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DOCKETED  
USNRC

October 24, 2003 (11:09AM)

In the Matter of

DUKE ENERGY CORPORATION

Docket No's. 50-413-OLA,  
50-414-OLA

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

(McGuire Nuclear Station, Units 1 and 2,  
Catawba Nuclear Station, Units 1 and 2)

**BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE'S  
SUPPLEMENTAL PETITION TO INTERVENE**

Pursuant to 10 C.F.R. § 2.714 and the Atomic Safety and Licensing Board's Orders dated October 1 and 3, 2003, Blue Ridge Environmental Defense League ("BREDL") hereby submits its Supplemental Petition to Intervene in the above-captioned license amendment proceeding for the proposed use of mixed oxide ("MOX") Lead Test Assemblies ("LTAs") at the Catawba nuclear power plant. Section I of this Supplemental Petition addresses a standing issue raised by Duke Energy Corporation ("Duke") and the Nuclear Regulatory Commission ("NRC" or "Commission") Staff in response to BREDL's initial hearing request.<sup>1</sup> Section II sets forth BREDL's contentions regarding the adequacy of Duke's license amendment application.

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<sup>1</sup> See Blue Ridge Environmental Defense League's Hearing Request and Petition to Intervene (August 25, 2003) (hereinafter "BREDL Hearing Request"); Answer of Duke Energy Corporation to the Petitions to Intervene and Requests for Hearing of the Nuclear Information and Resource Service and the Blue Ridge Environmental Defense League (September 9, 2003) (hereinafter "Duke Response"); NRC Staff's Answer to Nuclear Information and Resource Service and Blue Ridge Environmental Defense League's Petitions for Leave to Intervene and Request for Hearing (September 15, 2003) (hereinafter "NRC Staff Response").

## **I. STANDING**

In support of its Hearing Request, BREDL submitted the Declaration of BREDL member Gregg Jocoy. Mr. Jocoy also submitted a declaration in support of NIRS's hearing request. Both Duke and the Staff argue that Mr. Jocoy cannot be represented by two separate organizations in this proceeding. NRC Staff Response at 9. BREDL disagrees with their position. Duke and the Staff do not suggest any reason why Mr. Jocoy should not be permitted to authorize two different organizations to represent his interests, and none is apparent. Mr. Jocoy should be able to participate in the proceeding as a member of both organizations, as long as the positions taken by BREDL and NIRS are not inconsistent.

In any event, BREDL hereby amends its assertion of standing by submitting the declarations of 19 other BREDL members who have authorized BREDL to represent their interests in this proceeding. The declarations are as follows:

Declaration of Catherine Mitchell (October 13, 2003), who lives within 20 miles of the Catawba and McGuire nuclear power plants (attached as Exhibit 1);

Declaration of George L. Mitchell (October 13, 2003), who lives within 20 miles of the plants (attached as Exhibit 2);

Declaration of Katherine M. Jamieson (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 3);

Declaration of William J. Lawrence (October 19, 2003), who lives within 20 miles of the McGuire nuclear power plant (attached as Exhibit 4);

Declaration of Calvin Sanford (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 5);

Declaration of Michael R. Harrel (October 19, 2003) who lives within 20 miles of the plants (attached as Exhibit 6);

Declaration of Penny Kuhn (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 7);

Declaration of E. Ann Wicker (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 8);

Declaration of Alison Hawk (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 9);

Declaration of Nina Layton (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 10);

Declaration of Betsy Ewing (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 11);

Declaration of John H. Wicker, Jr. (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 12);

Declaration of Jan Jenson (October 19, 2003), who lives within 32 miles of the plants (attached as Exhibit 13);

Declaration of Laurel Evans (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 14);

Declaration of S. Patrick Carter (October 19, 2003), who lives within 10 miles of the plants (attached as Exhibit 15);

Declaration of Karyn A. Furr (October 13, 2003), who lives within 20 miles of the plants (attached as Exhibit 16);

Declaration of Phyllis F. Lyon St. Clair (October 14, 2003), who lives within 20 miles of the plants (attached as Exhibit 17);

Declaration of Dane Wadman (October 13, 2003), who lives within 20 miles of the plants (attached as Exhibit 18); and

Declaration of Mark Williams (October 19, 2003), who lives within 20 miles of the plants (attached as Exhibit 19).

All of these individuals live within 50 miles of the Catawba and McGuire plants, and most live within 20 miles. All of them express concerns about the adequacy of security measures under the proposed license amendment, as well as the adequacy of the license amendment to protect their health and safety. Therefore, in addition to Mr. Jocoy's

declaration, these declarations further demonstrate BREDL's representational standing to participate in this proceeding.

## **II. CONTENTIONS**

In accordance with the standards set forth in 10 C.F.R. § 2.714(b), BREDL submits the following contentions regarding Duke's application to test MOX lead test assemblies at the Catawba nuclear power plant.<sup>2</sup> The contentions are supported by the attached Declaration of Dr. Edwin S. Lyman In Support of BREDL's Contentions (October 21, 2003) (attached as Exhibit 20). The contentions fall into two categories: safety issues under the Atomic Energy Act and its implementing regulations, and environmental issues under the National Environmental Policy Act.

### **SAFETY ISSUES UNDER ATOMIC ENERGY ACT AND IMPLEMENTING REGULATIONS AND GUIDANCE**

#### **1. Failure to Provide Quantitative Information in Risk Impact Analysis.**

Duke's risk impact analysis is inadequate, because it presents the results of its analysis in qualitative terms only.

**Basis:** In Section 3.8 of the LTA license amendment application, Duke presents an analysis of the risk impact of the license amendment that is nominally based on Duke's probabilistic risk assessment ("PRA"). Duke claims that "the use of four MOX lead test assemblies ... will not significantly change the risk to public health and safety that is posed by the operation of Catawba and McGuire." License Amendment Application at 3-36. However, despite the fact that the PRA is obviously a quantitative

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<sup>2</sup> The application, which was submitted to the NRC on February 27, 2003, consists of a cover letter and six attachments. See Letter from M.S. Tuckman, Duke Power, to U.S. NRC, re: Proposed Amendments to the Facility Operating License and Technical Specifications to Allow Insertion of Mixed Oxide (MOX) Fuel Lead Assemblies and Request for Exemption from Certain Regulations in 10 CFR Part 50 (February 27, 2003).

study, Duke provides only qualitative arguments for its claim that the probability of a severe accident will not significantly increase. Duke does not attempt to calculate the changes in core damage frequency (CDF) and Large Early Release Frequency (LERF) associated with the proposed license amendment. By failing to provide its quantitative calculations, Duke's risk analysis fails to provide an adequate basis for the NRC to conclude that the increases in core damage frequency or risk are "small and consistent with the intent of the Commission's Safety Goal Policy Statement," an important criterion for risk-informed decision-making. *See* Regulatory Guide ("RG") 1.174, Rev. 1, An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis at 1.174-6 (2002).

## **2. Inappropriate use of SPDEIS for Estimate of Consequence Increase**

Duke has failed to support its claim that the increase in severe accident consequences associated with the MOX LTA loading will not be significant.

**Basis:** In asserting that the radiological consequences of a severe accident would increase by no more than 0.3%, Duke apparently relies on a result from DOE's SPDEIS that was based on a calculation for a 40% MOX core, and tries to scale the result to a 2% MOX core. There are two problems with Duke's approach. First, it scales incorrectly. If one assumes that the increase in consequences associated with a MOX core would scale linearly with the MOX core fraction, then the DOE results should be divided by a factor of 20, leading to a result from between (-) 0.2% to (+) 0.7%. Duke, for some reason, divides by a factor of 40, and gets an answer that is too low by a factor of two.

Second, Duke relies inappropriately on the calculation of consequences in DOE's SPDEIS, which is outdated. *See* SPDEIS, Volume II, Appendix K at K-78. Duke should

have used the most recent version of Duke's PRAs, not the SPDEIS. Third, Duke does not take into account published research that discusses flaws in DOE's analysis and demonstrates that the increase in consequences associated with using MOX fuel depends strongly on the assumed values of the actinide release fractions, which are parameters with large uncertainties. *See, e.g.*, E. Lyman, "Public Health Risks of Substituting Mixed-Oxide for Uranium Fuel in Pressurized Water Reactors," *Science & Global Security* 9 at 33-79 (2001)<sup>3</sup>; ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002).<sup>4</sup> The DOE calculation uses uniformly low values for actinide release fractions.

Finally, it is not possible to fully evaluate the risk impact of the proposed MOX LTA license amendment in the context of RG 1.174 guidelines, because the NRC staff has not completed final guidance on how RG 1.174 can be applied in the case of MOX fuel use. In the most recent version of RG 1.174, Rev. 1 (November 2002), the NRC notes that "current LERF guidelines are based on assumptions of . . . extent of the use of mixed oxide fuel" (i.e. the absence of mixed oxide fuel in currently operating reactors), and that "the staff is undertaking an evaluation of the impact, if any, of increases in these parameter [sic] on LERF." *Id.* at 1.174-18. The staff must reach a position on this issue before the risk impacts of the MOX LTA license amendment can be assessed.

In order to evaluate the overall impact on risk of the MOX LTA license amendment, it is necessary to know which accidents will be most affected, and how the increase in probability and consequences will change. In turn, in order to make that

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<sup>3</sup> This document is available on the website of the Nuclear Control Institute, [www.nci.org](http://www.nci.org), under the heading "Pu and Processing."

<sup>4</sup> This document is available on ADAMS, # ML023500093.

assessment, Duke must use its own up-to-date PRA, and provide the results of its calculations, including the details of the consequence assessment. Even if the increase in consequences is no more than 1%, the change in risk could be significant for CDFs on the order of 50 times higher than what Duke assumed, as may be the case if sump recirculation is not available. *See* Contention 3 below.

### **3. Failure to Evaluate Containment Sump Failure**

The discussion of risk impacts of MOX fuel lead assemblies in Section 3.8 of the LTA application is incomplete, because it does not include an evaluation of the effect of containment sump failure on risk impacts of operating the Catawba nuclear power plant with four MOX fuel assemblies.

**Basis:** The attached report by the Union of Concerned Scientists, "GSI-191 Impact on Catawba and McGuire" (August 14, 2003) (Exhibit 21), demonstrates that core damage frequency will increase as a result of a previously unrecognized design flaw: failure to protect against containment sump clogging in the event of a loss of coolant accident ("LOCA"). Containment sump clogging is a particularly severe problem for ice condenser plants such as Catawba, because ice condenser plants need to go to sump recirculation in small break LOCAs, which is seldom the case for most other pressurized-water reactors. *See* Arthur Buslik, "Risk Considerations Associated with GSI-191, "Assessment of Debris Accumulation on PWR Sump Performance," Attachment 2 to Memorandum from Michael E. Mayfield to John T. Larkins, "RES's Proposed Recommendation for Resolution of GSI-191" at 6 (August 29, 2001).<sup>5</sup> Since small-break LOCAs are the most probable class of LOCAs, this means

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<sup>5</sup> The Buslik paper is available on ADAMS on the NRC website, # ML012430063.

that the potential for sump clogging has a greater impact on the LOCA CDF for ice condensers than for other PWRs. Although Duke has stated that the consequences of an accident would not increase appreciably as a result of MOX LTA fuel use, consequences must be taken together with accident probability in order to evaluate overall risk. In this case, the baseline core damage frequency may be much higher than was assumed in the Catawba PRA, thereby driving up the total risk impact associated with the increased consequences of a severe accident involving the MOX LTA core. As discussed in the attached UCS report, a recent Los Alamos study found that the LOCA CDF for many PWRs would increase by a factor of of 50 on average if sump recirculation were not available.

In a letter to the NRC dated August 7, 2003, Duke has stated that all the Westinghouse licensees are committed to dealing with the containment sump failure issue by the end of March 2004. Until the issue is resolved satisfactorily, however, the application remains incomplete.



## ISSUES OF NONCOMPLIANCE WITH NATIONAL ENVIRONMENTAL POLICY ACT

### 4. Failure to Evaluate Future Use of MOX Fuel

The Environmental Report for the LTA application (Attachment 5) is deficient because it completely fails to address the environmental impacts of using batch quantities of MOX fuel in the Catawba and McGuire reactors. Duke's failure to address the impacts of MOX use in its Environmental Report is inconsistent with Council on Environmental Quality ("CEQ") regulations and judicial and NRC decisions interpreting NEPA, which require consideration of connected actions, as well as cumulative impacts.

**Basis:** In Section 5.3.7, Duke states that "[t]he environmental impacts of batch use of MOX fuel will be evaluated as part of any future batch license amendment requests." *Id.* at 5-4. The postponement of these considerations constitutes illegal segmentation of the decision-making process with respect to MOX fuel. The testing and use of MOX fuel are "connected" actions as defined in the Council on Environmental Quality ("CEQ") regulations implementing NEPA, and therefore should both be covered in the scope of the environmental analysis. *See* 40 C.F.R. § 1508.25.<sup>6</sup> They are "closely

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<sup>6</sup> The text of 40 C.F.R. § 1508.25 provides as follows:

... To determine the scope of environmental impact statements, agencies shall consider 3 types of actions ... They include:

(a) Actions (other than unconnected single actions) which may be:

(1) connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they:

(i) Automatically trigger other actions which may require environmental impact statements.

(ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.

(iii) Are interdependent parts of a larger action and depend on the larger action for their justification.

related” in the sense that testing of the LTAs at Catawba is a necessary precursor to batch use of MOX fuel at Catawba. 40 C.F.R. § 1508.25(a)(1)(ii).

Moreover, the testing and batch use activities are “interdependent”, because, in the course of seeking approval for LTA use, Duke is also making modifications to its operation that will govern the batch use of MOX fuel. 40 C.F.R. § 1508.25(a)(1)(iii). For instance, on September 15, 2003, Duke applied for an license amendment that would allow it to make changes to its security plans for the operation of the McGuire and Catawba nuclear plants. Letter from M.S. Tuckman, Duke Energy Corporation, to Document Control Desk, NRC, re: Revision 16 to Duke Energy Corporation Physical Security Plan and Request for Exemption from Certain Regulatory Requirements and 10 CFR 11 and 72 to Support MOX Fuel Use.<sup>7</sup> In the same letter, Duke also applied for an exemption from certain NRC security regulations that govern the storage of plutonium. Nothing in the letter limits the requested license amendment application to the period of MOX fuel testing. Rather, the letter refers generally to “MOX fuel use,” thus indicating that the proposed changes to the security plan will apply to batch MOX fuel use as well as LTA testing. Moreover, with respect to the exemption, the letter is quite explicit on this point:

Duke requests that these exemptions be granted to both McGuire and Catawba to support the use of MOX fuel lead assemblies (in either McGuire or Catawba) and the eventual use of batch quantities of MOX fuel in both facilities.”

*Id.* at 3. Although BREDL is not privy to the proposed security plan revisions or exemption request, it is very possible that these documents will propose major changes to the physical design and operation of the Catawba and McGuire nuclear power plants,

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<sup>7</sup> This document is available in ADAMS, on the NRC website, # ML032670641.

which will apply to MOX fuel use for the indefinite future. These modifications reflect an interdependence between LTA testing and the future batch use of MOX fuel.<sup>8</sup>

The proposed security plan changes and regulatory exemption also satisfy the Commission's two-part test for determining when actions are related enough to be covered in the same EIS. In *Duke Energy Corporation* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278 (2002), the Commission set forth the test as follows:

To bring NEPA [the National Environmental Policy Act] into play, a possible future action must at least constitute a 'proposal' pending before the agency (i.e., ripeness), and must be in some way interrelated with the action that the agency is actively considering (i.e., nexus).

55 NRC at 295. Here, Duke has proposed changes the Catawba and McGuire security plans and has requested a regulatory exemption, not just for LTA testing, but for batch MOX fuel use. By seeking to put important measures in place for batch MOX fuel use, Duke has demonstrated that its plans to use MOX fuel are "concrete." *Id.* Thus, Duke has, effectively, made a proposal for batch MOX fuel use.

Moreover, as discussed above, Duke's actions establish a "nexus" between LTA testing and batch MOX fuel use. Given the commitment that Duke has made to MOX fuel testing, and given its commitment to plant modifications necessary for batch MOX fuel use, it would be "unwise or irrational" not to go through with MOX fuel use after LTA testing. *Id.*, 55 NRC at 297, citing *Webb v. Gorsuch*, 699 F.2d 157 (4<sup>th</sup> Cir. 1983).

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<sup>8</sup> BREDL is concerned that the proposed changes to the security plans and the proposed regulatory exemption may warrant the preparation of an Environmental Impact Statement ("EIS"), depending on the magnitude of the proposed changes. BREDL anticipates that, if and when it is permitted access to the security plan revisions and exemption request, it may file a contention regarding the need for an EIS to address significant risks posed by Duke's proposed changes. BREDL recognizes that it may be necessary to perform such a NEPA analysis under restrictions on public disclosure of the information.

**5. Failure to Consider New Information Showing Viability of Alternatives.**

The Environmental Report is deficient because it fails to consider alternative nuclear power plants for testing and batch MOX fuel use, other than Catawba and McGuire.

**Basis :** In Sections 5.2.2 and 5.7, Duke states that no alternatives other than the proposed action or no-action alternatives are viable. Duke does not explain the reason for this assertion. In any event, it is incorrect. New information, not considered in the SPDEIS, demonstrates that McGuire and Catawba are not appropriate choices for MOX fuel batch use, because of two significant previously unidentified design flaws that make them particularly vulnerable to accidents, including containment breach. This new information compels a re-evaluation of conclusions previously reached in the SPDEIS.

*Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1023-24 (9<sup>th</sup> Cir. 1980) (federal agency “has a continuing duty to gather and evaluate new information relevant to the environmental impact of its actions”); *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989) (new EIS must be issued if there remains “major federal action” to occur, and if there is new information showing that the remaining action will affect the quality of the human environment “in a significant manner or to a significant extent not already considered.”)

First, as discussed in NUREG/CR-6427, Assessment of the DCH [Direct Containment Heating] Issue for Plants With Ice Condenser Containments (April 2000), Sandia National Laboratories has evaluated the robustness of the Catawba and McGuire containments, and concluded that in the event of an accident involving hydrogen ignition, the containments will fail with near certainty. Of the hundred-plus operating nuclear

power plants in the United States, there are only a handful for which that statement can be made. Moreover, measures to increase protection against hydrogen ignition, proposed by the NRC Staff in GSI-189, have not been implemented. Under the circumstances, it would be foolhardy to use fuel that will increase the radiological harm in a containment breach accident in plants that have such vulnerable containments. Yet this issue has not been addressed in any EIS: while the Department of Energy did evaluate severe accident risks at Catawba and McGuire in the SPDEIS, it did not consider the results of NUREG/CR-6427. *See* SPDEIS, Section 4.28.2.5.2.

Second, plants with ice condenser containments, such as Catawba and McGuire, are particularly vulnerable to reactor sump clogging accidents. *See* discussion in Contention 2, above. Because this vulnerability was identified only recently by the NRC, its impact on accident risk for Catawba and McGuire is not addressed in the SPDEIS.

The new information described above, regarding the heightened vulnerability of the Catawba and McGuire containments to breach or rupture, and the heightened vulnerability of plant cooling systems to clogging, could significantly increase the overall risk of an accident over other nuclear power plants if MOX fuel were used. Therefore, before LTA testing is allowed, the new information should be considered in a supplemental EIS.

**6. Failure to Provide Quantitative Information in Support of Assertions re Environmental Impacts.**

Duke fails to provide quantitative support for its assertion that the consequences of a severe accident involving use of LTA MOX fuel assemblies will increase 0.3% at most.

**Basis:** In Section 5.6.3.2 of the Environmental Report, Duke asserts that use of MOX LTAs will have no significant impacts. As in Section 3.8, while Duke's assertions are obviously based on probabilistic risk calculations, Duke provides only qualitative arguments in support of this claim. Duke does not attempt to calculate the changes in core damage frequency (CDF) and Large Early Release Frequency (LERF) associated with the proposed license amendment. By describing environmental impacts in purely qualitative terms, when it also has the information in quantitative terms, Duke violates the requirement of 52.45(c) that the analysis in an Environmental Report must quantify the various factors considered "to the extent possible." In order to document the risk analysis on which Duke relies for its conclusions regarding environmental impacts, Duke must provide all the details of its consequence assessment, including a full description of core inventory, release fractions, consequence modeling, techniques used, and a full accounting of uncertainties.

**7. Inappropriate use of SPDEIS for Conclusion that Impacts are Insignificant.**

Duke has failed to support its claim that the increase in severe accident consequences associated with the MOX LTA loading will not be significant.

**Basis:** In asserting that the radiological consequences of a severe accident would increase by no more than 0.3%, Duke apparently relies on a result from DOE's SPDEIS that was based on a calculation for a 40% MOX core, and tries to scale the result to a 1% MOX core. Duke's attempt to scale the SPDEIS is incorrect, as discussed above in Contention 2. Duke thereby misrepresents the environmental impacts of the proposed license amendment.

In order to evaluate the significance of the impacts of MOX LTA testing, it is necessary to know which accidents will be most affected, and how the increase in probability and consequences will change. In turn, in order to make that assessment, Duke must use its own up-to-date PRA, and provide the results of its calculations, including the details of the consequence assessment. Even if the increase in consequences is no more than 2%, the change in risk could be significant for CDFs 100 times higher than what Duke assumed, as may be the case if sump recirculation is not available.

#### **8. Failure to address environmental impacts of plutonium shipments**

The Environmental Report is deficient because it fails to address the environmental impacts of shipping plutonium oxide to France, and the impacts of shipping the LTAs from France back to the United States.

**Basis:** In Sections 5.3.2 and 5.3.4, Duke concedes that shipment of polished PuO<sub>2</sub> powder to France, and the return shipment of MOX fuel lead assemblies to the United States, are related actions whose environmental impacts must be considered. *Id.* at 5-3. But Duke fails to provide such an analysis. Instead, it states that the analysis will be prepared by the U.S. Department of Energy (“DOE”). *Id.* at 5-3. The DOE has not issued any such analysis, however. Until the DOE prepares a supplemental EIS that adequately addresses the environmental impacts of shipping the plutonium to and from Europe, the requested license amendment may not be issued. *Robertson v. Methow*, 490 U.S. 332, 349 (1989) (the environmental consequences of a proposed federal action must be considered *before* it goes forward, not afterwards).

#### **9. Failure to identify the quantity of plutonium to be shipped to France.**

The LTA license amendment application fails to identify the quantity of plutonium that will be shipped to France for processing. This is a significant omission, in light of the significant discrepancy (40 kg) between the amount of plutonium oxide that the DOE seeks to ship to France and the amount of plutonium needed to make four lead test assemblies. This discrepancy and its environmental impacts should be addressed before the LTA use permit is issued.

**Basis:** According to the SPDEIS, it takes about 100 kg of plutonium to make four MOX lead test assemblies. *Id.* at 2-63. Yet, the Department of Energy's export application to the NRC asks for permission to export up to 140 kg of weapon grade plutonium oxide powder to France. Letter from Edward J. Siskin, Assistant Deputy Administrator, Office of Fissile Materials Disposition, DOE, to Deputy Director, Office of International Programs, NRC (October 1, 2003) (hereinafter "DOE export license application"). Thus, it appears that DOE is seeking to ship 40 extra kilograms of plutonium to France, without explaining what will happen to it. The potential environmental impacts of 40 stray kilograms of plutonium falling into the wrong hands are enormous. The DOE should be required to explain this discrepancy before any permit is issued for LTA use.

Respectfully submitted,



Diane Curran  
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October 21, 2003



**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**BEFORE THE SECRETARY**

**In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)**

**Docket No's. 50-369, 50-370, 50-413, and 50-414**

**DECLARATION OF Catherine Mitchell**

Under penalty of perjury, I, Catherine Mitchell, declare as follows:

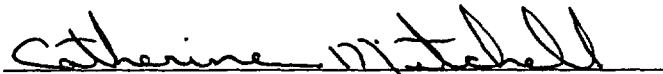
1. My name is Catherine Mitchell. I live at 5101 Markay St., Matthews, NC. 28105  
My home lies within 20 miles of the Catawba and McGuire nuclear power  
plants.
2. I own my home and have lived at this stated address for over five years. My husband and I will be  
living in this home through retirement. I am very concerned that our home (and hometown) is situated  
approximately equally between Catawba and McGuire nuclear power plants.
3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").
4. I am concerned about the effects of using plutonium-uranium mixed-oxide  
(MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear  
plants on my health and safety, and on the value of my property. In  
particular, I am concerned that use of MOX LTAs in those reactors could  
increase both the risk and the harmful consequences of an offsite release  
from the plant.
5. For instance, I am concerned that security at the plant will be  
inadequate. Plutonium is an attractive target for terrorists. In my view, it  
is reasonable to expect that Duke will upgrade its security plans to provide  
adequate security measures for reactor fuel that contains plutonium.  
Therefore, it concerns me greatly that Duke Power Company states in Section  
3.6.5 of its February 27, 2003, license amendment application that it has

not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." *Id.* at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." *Id.* at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

A handwritten signature in cursive script, reading "Catherine Mitchell", written over a horizontal line.

Signature: Catherine Mitchell

Dated October 13, 2003

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**BEFORE THE SECRETARY**

**In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)**

**Docket No's. 50-369, 50-370, 50-413, and 50-414**

**DECLARATION OF George L. Mitchell**

Under penalty of perjury, I, George L. Mitchell, declare as follows:

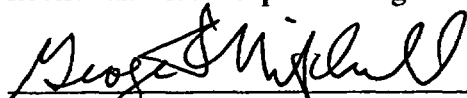
1. My name is Catherine Mitchell. I live at 5101 Markay St., Matthews, NC. , 28105  
My home lies within 20 miles of the Catawba and McGuire nuclear power plants.
2. I own my home and have lived at this stated address for over five years. My wife and I will be living in this home through retirement. I am very concerned that our home (and hometown) is situated approximately equally between Catawba and McGuire nuclear power plants.
3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").
4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on the value of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an offsite release from the plant.
5. For instance, I am concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has

not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.



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Signature: George L. Mitchell

Dated October 13, 2003

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, KATHERINE M. JAMIESON, declare as follows:

1. My name is KATHERINE M. JAMIESON. I live at 9449 Robinson Ch. Rd  
Harrisburg, NC 28075.

My home lies within 20 miles of the MCGUIRE nuclear power  
plants.

2. I have lived here for 5 YRS. and I am very concerned that our home (and hometown) is  
situated approximately equally between Catawba and McGuire nuclear power plants and that the use of  
plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide  
(MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear  
plants on my health and safety, and on the value of my property. In  
particular, I am concerned that use of MOX LTAs in those reactors could  
increase both the risk and the harmful consequences of an offsite release  
from the plant.

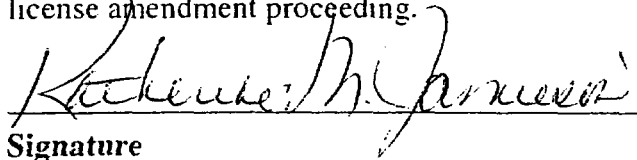
5. For instance, I am concerned that security at the plant will be  
inadequate. Plutonium is an attractive target for terrorists. In my view, it  
is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." *Id.* at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." *Id.* at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
Signature

10-19-03  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, WILLIAM J. LAWRENCE, declare as follows:

1. My name is WILLIAM J. LAWRENCE. I live at 9449 ROBINSON CH. RD.  
HARRISBURG, NC 28075.

My home lies within 20 miles of the McGUIRE nuclear power  
plants.

2. I have lived here for 5 YRS. and I am very concerned that our home (and hometown) is  
situated approximately equally between Catawba and McGuire nuclear power plants and that the use of  
plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide  
(MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear  
plants on my health and safety, and on the value of my property. In  
particular, I am concerned that use of MOX LTAs in those reactors could  
increase both the risk and the harmful consequences of an offsite release  
from the plant.


5. For instance, I am concerned that security at the plant will be  
inadequate. Plutonium is an attractive target for terrorists. In my view, it  
is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
Signature

10-19-03  
Date



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, C. S. Sanford declare as follows:

1. My name is C. S. Sanford I live at 6605 Allen Block Rd  
Charlotte N.C. 28277

My home lies within 20 miles of the Catawba and McGuire nuclear power plants.

2. I have lived here for 48 yrs and I am very concerned that our home (and hometown) is situated approximately equally between Catawba and McGuire nuclear power plants and that the use of plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on the value of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an offsite release from the plant.

5. For instance, I am concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium.

Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

Cathy Sanford  
Signature

10-19-03  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, MICHAEL R. HARRELL, declare as follows:

1. My name is MICHAEL R. HARRELL. I live at 3008 SOMERSET DRIVE  
CHARLOTTE, NC 28209

My home lies within 20 miles of the Catawba and McGuire nuclear power  
plants.

2. I have lived here for 13 YRS and I am very concerned that our home (and hometown) is  
situated approximately equally between Catawba and McGuire nuclear power plants and that the use of  
plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide  
(MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear  
plants on my health and safety, and on the value of my property. In  
particular, I am concerned that use of MOX LTAs in those reactors could  
increase both the risk and the harmful consequences of an offsite release  
from the plant.

5. For instance, I am concerned that security at the plant will be  
inadequate. Plutonium is an attractive target for terrorists. In my view, it  
is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium.

Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
Signature

  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, Penny Kuhn, declare as follows:

1. My name is Penny Kuhn. I live at 6315 Rosecrest Dr  
Charlotte NC.

My home lies within 20 miles of the Catawba and McGuire nuclear power plants.

2. I have lived here for 15 1/2 yrs and I am very concerned that our home (and hometown) is situated approximately equally between Catawba and McGuire nuclear power plants and that the use of plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on the value of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an offsite release from the plant.

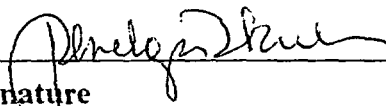
5. For instance, I am concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
\_\_\_\_\_  
Signature

10-19-03  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, E. Ann Wicker, declare as follows:

1. My name is Elizabeth A. Wicker. I live at 1027 Park West Dr.  
Charlotte NC 28209. Also own property Templeton Rd.  
 Mooresville, NC  
28117

My home lies within 20 miles of the Catawba and McGuire nuclear power  
plants.

2. I have lived here for 5 years and I am very concerned that our home (and hometown) is  
situated approximately equally between Catawba and McGuire nuclear power plants and that the use of  
plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide  
(MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear  
plants on my health and safety, and on the value of my property. In  
particular, I am concerned that use of MOX LTAs in those reactors could  
increase both the risk and the harmful consequences of an offsite release  
from the plant.

5. For instance, I am concerned that security at the plant will be  
inadequate. Plutonium is an attractive target for terrorists. In my view, it  
is reasonable to expect that Duke will upgrade its security plans to provide

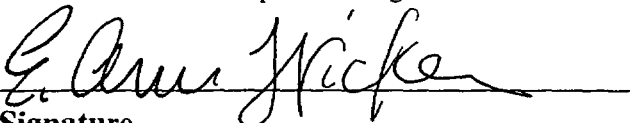
adequate security measures for reactor fuel that contains plutonium.

Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
Signature

19 Oct 2003  
Date



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, ALISON L HAWK, declare as follows:

1. My name is ALISON L HAWK. I live at 5909 MOOSE LAKE  
CHARLOTTE, NC 28269

My home lies within 20 miles of the Catawba and McGuire nuclear power plants.

2. I have lived here for 10 and I am very concerned that our home (and hometown) is situated approximately equally between Catawba and McGuire nuclear power plants and that the use of plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on the value of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an offsite release from the plant.

5. For instance, I am concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium.

Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
\_\_\_\_\_  
Signature

10/19/03  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, NINA LAYTON, declare as follows:

1. My name is Nina Layton. I live at 5328 FARMBROOK DRIVE  
CHARLOTTE N.C. 28210.

My home lies within 20 miles of the Catawba and McGuire nuclear power plants.

2. I have lived here for 50 YRS. and I am very concerned that our home (and hometown) is situated approximately equally between Catawba and McGuire nuclear power plants and that the use of plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on the value of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an offsite release from the plant.

5. For instance, I am concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium.

Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." *Id.* at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." *Id.* at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
Signature

OCT, 19, 2003  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, Betsy Ewing, declare as follows:

1. My name is Betsy Ewing. I live at 412 B Wakefield Dr  
Charlotte NC 28209

My home lies within 20 miles of the Catawba and McGuire nuclear power plants.

2. I have lived here for 3 mos. and I am very concerned that our home (and hometown) is situated approximately equally between Catawba and McGuire nuclear power plants and that the use of plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTAs") at the Catawba and McGuire nuclear plants on my health and safety, and on the value of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an offsite release from the plant.

5. For instance, I am concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide

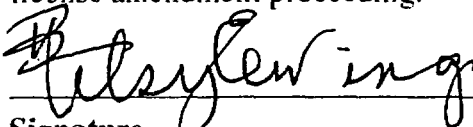
adequate security measures for reactor fuel that contains plutonium.

Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
Signature

10/19/03  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, JOHN H. WICKER JR, declare as follows:

1. My name is JOHN H WICKER JR. I live at 1924 Park Road  
Charlotte NC 28203.

My home lies within 20 miles of the Catawba and McGuire nuclear power plants.

2. I have lived here for 11 yrs and I am very concerned that our home (and hometown) is situated approximately equally between Catawba and McGuire nuclear power plants and that the use of plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on the value of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an offsite release from the plant.

5. For instance, I am concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium.

Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

Signature

Date

10.19.03



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, Jan Jensen, declare as follows:

1. My name is Jan Jensen. I live at PO Box 5187

Statesville NC 28687

My home lies within 32 miles of the McGuire nuclear power  
plants.

2. I have lived here for 9 years and I am very concerned that our home (and hometown) is  
situated approximately equally between Catawba and McGuire nuclear power plants and that the use of  
plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide  
(MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear  
plants on my health and safety, and on the value of my property. In  
particular, I am concerned that use of MOX LTAs in those reactors could  
increase both the risk and the harmful consequences of an offsite release  
from the plant.

5. For instance, I am concerned that security at the plant will be  
inadequate. Plutonium is an attractive target for terrorists. In my view, it  
is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

Jan Jenson  
Signature

10-19-03  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, Laurel Evans, declare as follows:

1. My name is Laurel Evans. I live at 717 Manning Dr  
Charlotte NC 28209.

My home lies within 20 miles of the Catawba and McGuire nuclear power plants.

2. I have lived here for 23 yrs. and I am very concerned that our home (and hometown) is situated approximately equally between Catawba and McGuire nuclear power plants and that the use of plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on the value of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an offsite release from the plant.

5. For instance, I am concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium.

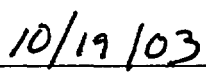
Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
\_\_\_\_\_  
Signature

  
\_\_\_\_\_  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, S. Patrick Carter, declare as follows:

1. My name is Pat Carter. I live at 133 CARDWOODS DR.,  
MOORESVILLE, N.C. 28115.

My home lies within 8-10 miles of the McGuire nuclear power  
plants.

2. I have lived here for 11 YEARS and I am very concerned that <sup>my</sup> ~~our~~ home (and hometown) is  
situated approximately equally between Catawba and McGuire nuclear power plants and that the use of  
plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide  
(MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear  
plants on my health and safety, and on the value of my property. In  
particular, I am concerned that use of MOX LTAs in those reactors could  
increase both the risk and the harmful consequences of an offsite release  
from the plant.

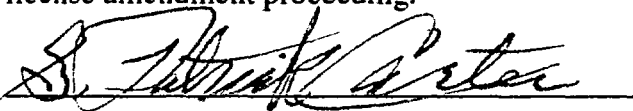
5. For instance, I am concerned that security at the plant will be  
inadequate. Plutonium is an attractive target for terrorists. In my view, it  
is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
Signature

10-19-03  
Date

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1 and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF Karyn A. Furr

Under penalty of perjury, I, Karyn A. Furr, declare as follows:

1. My name is Karyn A. Furr. I live at 9737 Fairway Ridge Rd., Charlotte, NC 29277. My home lies within 20 miles of both the Catawba and McGuire nuclear power plants.
2. I am a native Charlottean with family and friends in this area. I have a one-year-old son, and I want him to grow up without the threat of an unnecessary nuclear accident hanging over our heads. I also own a home that I can't afford to see condemned or the property value decrease —especially when putting us and our property in harm's way could be avoided.
3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").
4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on that of my family. I am also concerned this use will adversely affect the value and usage of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an off site release from the plant.
5. For instance, I am very concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could very well mean that the new security measures will not be reviewed in connection with this license application, or implemented in a timely way. Under these

circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be at all adequate to protect against theft of the MOX LTAs. I also believe MOX Fuel that is illegally transported off site could be accidentally (or intentionally) released to the environment, thus posing a health risk to me and my family as well as a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

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Karyn A. Furr

Dated: Karyn A. Furr  
Oct 13, 2003



UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1 and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF Phyllis F. Lyon St. Clair

Under penalty of perjury, I, Phyllis F. Lyon St. Clair, declare as follows:

1. My name is Phyllis Lyon St. Clair. I live at 3817 Smokerise Hill, Charlotte, NC 29277. My home lies within 20 miles of both the Catawba and McGuire nuclear power plants.

2. I am a native Charlottean with many, many friends and loved ones in this area. My husband and I have five grandchildren, one of whom just celebrated his first birthday. I would like to know that he will be able to grow up to be a citizen of the world without being afraid of an unnecessary nuclear accident preventing his doing so. We have owned this home since 1995, and I don't care to see it condemned or the property value decrease for that same reason.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on that of my family. I am also concerned this use will adversely affect the value and usage of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an off site release from the plant.

5. For instance, I am very concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding.

That could very well mean that the new security measures will not be reviewed in connection with this license application, or implemented in a timely way. Under these circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be at all adequate to protect against theft of the MOX LTAs. I also believe MOX Fuel that is illegally transported off site could be accidentally (or intentionally) released to the environment, thus posing a health risk to me and my family as well as a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

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Phyllis F. St. Clair

Dated: Phyllis F. St. Clair

October 14, 2003

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1 and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF Dane Wadman.

Under penalty of perjury, I, Dane Wadman, declare as follows:

1. My name is Dane Wadman. I live at 9737 Fairway Ridge Rd., Charlotte, NC 29277. My home lies within 20 miles of both the Catawba and McGuire nuclear power plants.
2. I have lived at this address for over two years, and in Charlotte for approximately seven years. I have a one-year-old son, and many friends and loved ones in this area. I don't want to see my home or the people I care about put in danger unnecessarily when there are better alternatives.
3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").
4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on that of my family. I am also concerned this use will adversely affect the value and usage of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an off site release from the plant.
5. For instance, I am very concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could very well mean that the new security measures will not be reviewed in connection with this license application, or implemented in a timely way. Under these circumstances, I don't have confidence that the security of plutonium stored at the

Catawba and McGuire nuclear power plant will be at all adequate to protect against theft of the MOX LTAs. I also believe MOX Fuel that is illegally transported off site could be accidentally (or intentionally) released to the environment, thus posing a health risk to me and my family as well as a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

---

Dane Wadman

Dated: 

10-13-03

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of DUKE ENERGY CORPORATION (McGuire Nuclear Station, Units 1  
and 2, Catawba Nuclear Station, Units 1 and 2)

Docket No's. 50-369, 50-370, 50-413, and 50-414

DECLARATION OF

Under penalty of perjury, I, Maex Williams declare as follows:

1. My name is Maex Williams. I live at 1027 Park West Dr.  
Charlotte, N.C. 28209.

My home lies within 20 miles of the Catawba and McGuire nuclear power plants.

2. I have lived here for 5 yrs and I am very concerned that our home (and hometown) is situated approximately equally between Catawba and McGuire nuclear power plants and that the use of plutonium fuel will pose additional and unnecessary risk to the region.

3. I am a member of the Blue Ridge Environmental Defense League ("BREDL").

4. I am concerned about the effects of using plutonium-uranium mixed-oxide (MOX) fuel Lead Test Assemblies ("LTA's") at the Catawba and McGuire nuclear plants on my health and safety, and on the value of my property. In particular, I am concerned that use of MOX LTAs in those reactors could increase both the risk and the harmful consequences of an offsite release from the plant.

5. For instance, I am concerned that security at the plant will be inadequate. Plutonium is an attractive target for terrorists. In my view, it is reasonable to expect that Duke will upgrade its security plans to provide

adequate security measures for reactor fuel that contains plutonium. Therefore, it concerns me greatly that Duke Power Company states in Section 3.6.5 of its February 27, 2003, license amendment application that it has not submitted proposed revisions to the Catawba and McGuire security plans as part of this license amendment proceeding. Duke says that it intends to submit these revisions "separately," i.e. outside this license amendment proceeding. That could mean that the new security measures are not reviewed in connection with this license application, or implemented in a timely way.

Under the circumstances, I don't have confidence that the security of plutonium stored at the Catawba and McGuire nuclear power plant will be adequate to protect against theft of the MOX LTAs. MOX Fuel that is illegally transported offsite could be accidentally or intentionally released to the environment, thus posing a health risk to me and a contamination risk to my property.

6. I am also concerned that if an accident occurs at the Catawba or McGuire nuclear plants while MOX LTAs are being tested, the adverse consequences to my health and property could be exacerbated by the use of MOX LTAs. Recently, a panel of experts compared characteristics of low enriched uranium fuel with MOX fuel, and reported the results in ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" (November 2002). According to the report, "some of the panel members were of the opinion that higher in-vessel releases (and faster rate of releases) are expected from MOX fuels as compared with LEU fuels." Id. at 54. In addition, the report noted a "general opinion" that "there will be a higher concentration of the reactive forms of tellurium in the release, causing a significant fraction of the release to be deposited on reactor coolant system structures, with a higher propensity for late revaporization (late in-vessel phase)." Id. at 55. I am concerned that, if the containment is breached or bypassed during such an accident, the effects of these increased releases could be harmful to me and to my property.

7. For these reasons, I authorize BREDL to represent my interests in this license amendment proceeding.

  
Signature

19 OCT '03  
Date

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of

DUKE ENERGY CORPORATION

Docket No's. 50-413-OLA,  
50-414-OLA

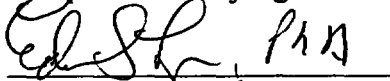
(McGuire Nuclear Station, Units 1 and 2,  
Catawba Nuclear Station, Units 1 and 2)

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**DECLARATION OF DR. EDWIN S. LYMAN  
IN SUPPORT OF BREDL'S CONTENTIONS**

Under penalty of perjury, Edwin S. Lyman declares as follows:

1. My name is Edwin S. Lyman. I am a Senior Staff Scientist at the Union of Concerned Scientists.
2. I am a qualified expert on nuclear safety and safeguards issues. I hold a PhD, a master of science and a bachelor's degree in physics. For over eleven years, I have conducted research on security and environmental issues associated with the management of nuclear materials and the operation of nuclear power plants. I have published articles in journals and magazines, including *The Bulletin of the Atomic Scientist* and *Science and Global Security*. A copy of my resume, including a partial list of publications and invited speeches, is attached.
3. I am familiar with the licensing-related filings and correspondence that have been submitted by Duke Energy Corporation in support of its application for a license amendment to use lead test assemblies of mixed oxide fuel at the Catawba nuclear power plant. I am also familiar with regulations and guidance of the U.S. Nuclear Regulatory Commission ("NRC") and the U.S. Department of Energy ("DOE") governing plutonium processing facilities. In addition, I am familiar with the requirements of the National Environmental Policy Act.
4. I assisted BREDL with the preparation of contentions regarding deficiencies in those licensing documents. The factual assertions in these contentions are true and correct to the best of my knowledge and belief, and the opinions expressed therein are based on my best professional judgment.

  
Edwin S. Lyman, Ph.D.

October 21, 2003

Edwin Stuart Lyman  
Curriculum Vitæ

**Education**

Ph.D, Cornell University, Theoretical Physics, August 1992.

M.S., Cornell University, Physics, January 1990.

A.B., *summa cum laude*, New York University, Physics, June 1986; Phi Beta Kappa.

**Professional Experience**

May 1, 2003 - Present Senior Staff Scientists, Union of Concerned Scientists

June 2002- April 2003: President, Nuclear Control Institute, Washington, D.C.

July 1995-May 2002: Scientific Director, Nuclear Control Institute, Washington, D.C.

August 1992—June 1995: Postdoctoral research associate, Center for Energy and Environmental Studies, Princeton University, Princeton, NJ.

Spring 1995: Preceptor for Environmental Studies 302, "Perspectives on Environmental Issues: Values and Policies."

Spring 1994: Lecturer, Woodrow Wilson School. Preceptor for WWS 304, "Science, Technology and Public Policy."

July 1988—June 1992: Graduate research assistant, Newman Laboratory of Nuclear Studies, Cornell University, Ithaca, NY. Conducted thesis research on high-energy physics under the supervision of Prof. S.H.-H. Tye.

August 1986- June 1988: Andrew D. White Graduate Fellow, Physics, Cornell University.

**Publications**

E. Lyman, "Revisiting Nuclear Power Plant Safety" (letter), *Science* **299** (2003), 202.

E. Lyman, "The Limits of Technical Fixes," in *Nuclear Power and The Spread of Nuclear Weapons: Can We Have One Without the Other?* (P. Leventhal, S. Tanzer and S. Dolley, eds.), Brassey's, Washington, DC, 2002, 167-182.

E. Lyman, "The Pebble-Bed Modular Reactor: Safety Issues," *Physics and Society*, American Physical Society, October 2001.

E. Lyman, "Public Health Risks of Substituting Mixed-Oxide for Uranium Fuel in Pressurized Water Reactors," *Science and Global Security* **9** (2001), 1.



E. Lyman and S. Dolley, "Accident Prone," *Bulletin of the Atomic Scientists*, March/April 2000, 42.

E. Lyman and H. Feiveson, "The Proliferation Risks of Plutonium Mines," *Science and Global Security* 7 (1998), 119.

E. Lyman and P. Leventhal, "Bury the Stuff [Weapons Plutonium]," *Bulletin of the Atomic Scientists*, March/April 1997, 45.

E. Lyman, "Weapons Plutonium: Just Can It," *Bulletin of the Atomic Scientists*, November/December 1996, 48.

F. von Hippel and E. Lyman, "Appendix: Probabilities of Different Yields," addendum to J. Mark, "Explosive Properties of Reactor-Grade Plutonium," *Science and Global Security* 4 (1993), 125.

F. Berkhout, A. Diakov, H. Feiveson, H. Hunt, E. Lyman, M. Miller, and F. von Hippel, "Disposition of Separated Plutonium," *Science and Global Security* 3 (1993), 161.

E. Lyman, F. Berkhout and H. Feiveson, "Disposing of Weapons-Grade Plutonium," *Science* 261 (1993) 813.

P. Argyres, E. Lyman and S.H.-H. Tye, "Low-Lying States of the Six-Dimensional Fractional Superstring," *Phys. Rev. D* 46 (1992) 4533.

S.-w. Chung, E. Lyman and S.H.-H. Tye, "Fractional Supersymmetry and Minimal Coset Models in Conformal Field Theory," *Int. J. Mod. Phys A* 7 (1992) 3337.

R. Alvarez, J. Beyea, K. Janberg, J. Kang, E. Lyman, A. Macfarlane, G. Thompson and F. von Hippel, "Reducing the Hazards from Stored Spent Power-Reactor Fuel in the United States," *Science and Global Security* 11 # 1 (2003) pp. 1-60.

D. Hirsch, D. Lochbaum and E. Lyman, *Bulletin of the Atomic Scientists* (May/June 2003).

#### **Articles to be Published, Submitted for Publication or In Preparation**

G. Bunn, C. Braun, A. Glaser, E. Lyman and F. Steinhausler, "Research Reactor Vulnerability to Terrorists," December 2002, submitted to *Science and Global Security*.

T. Taylor, E. Lyman, S. Erickson and J. Regester, "Criticality Weapons: A Fifth Class of WMD," in preparation.

### **Selected Reports**

E. Lyman, "Safety Issues in the Sea Shipment of Vitrified High-Level Radioactive Wastes to Japan," report sponsored by the Nuclear Control Institute, Greenpeace International and Citizens' Nuclear Information Center Tokyo, December 1994.

E. Lyman, "Interim Storage Matrices for Excess Plutonium: Approaching the 'Spent Fuel Standard' Without the Use of Reactors," PU/CEES Report No. 286, Center for Energy and Environmental Studies, Princeton University, August 1994.

E. Lyman, "The Solubility of Plutonium in Glass," PU/CEES Report No. 275, Center for Energy and Environmental Studies, Princeton University, April 1993.

### **Selected Invited Talks**

"U.S. Nonproliferation Policy, Plutonium Disposition and the Threat of Nuclear Terrorism," seminar on "Recycling Plutonium: Risks and Alternatives," sponsored by the Green Group, European Parliament, Brussels, Belgium, January 9, 2003.

"Current Status of the U.S. Plutonium Disposition Program," seminar, Princeton University Program on Science and Global Security, Princeton University, Princeton, NJ, June 12, 2002.

"Controlling Fissile and Radioactive Material," Public Health Summit on Weapons of Mass Destruction, sponsored by Physicians for Social Responsibility and the UCLA School of Public Health, Ackerman Hall, UCLA, Los Angeles, June 2, 2002.

"Assessing the U.S. Government Response to the Nuclear Terrorism Threat After 9/11," presentation to the Joint Atomic Energy Intelligence Committee, McLean, VA, May 9, 2002.

"Upgrading Physical Protection at Nuclear Facilities to Address New Threats," MIT Security Studies Seminar, MIT, Boston, MA, April 18, 2002.

"Perspectives on New Plant Licensing," presentation at the U.S. Nuclear Regulatory Commission Briefing on Readiness for New Plant Applications and Construction, Washington, DC, July 19, 2001.

"Regulatory Challenges for Future Nuclear Plant Licensing: A Public Interest Perspective," U.S. NRC Advisory Committee on Reactor Safeguards (ACRS) Workshop on New Nuclear Plant Licensing, Washington, DC, June 5, 2001.

"The Future of Nuclear Power: A Public Interest Perspective," 2001 Symposium of the Northeast Chapter of Public Utility Commissioners, Mystic, CT, May 21, 2001.

Statement at the U.S. Nuclear Regulatory Commission Briefing on Office of Nuclear Regulatory Research Programs and Performance, May 11, 2001.

"Barriers to Deployment of Micro-Nuclear Technology," presentation at the workshop on "New Energy Technologies: A Policy for Micro-Nuclear Technologies," James A. Baker III Institute for Public Policy, Rice University, Houston, TX, March 19-20, 2001.

"Aging Research and Public Confidence," presentation at the U.S. Nuclear Regulatory Commission 2001 Regulatory Information Conference (RIC), Washington, DC, March 14, 2001.

NRC Reactor Safeguards Activities," presentation at the U.S. Nuclear Regulatory Commission 2001 Regulatory Information Conference (RIC), Washington, DC, March 14, 2001.

"DOE's Nuclear Material Stabilization Approach: The Failure of Transparency," Embedded Topical Meeting on DOE Spent Nuclear Fuel and Fissile Material Management, American Nuclear Society Annual Meeting, San Diego, CA, June 2000.

"The Status of Reactor Safeguards Initiatives," presentation at the U.S. NRC 2000 Regulatory Information Conference, Washington, DC, March 29, 2000.

"Safety Questions Concerning MOX Fuel Use in Proposed U.S. Reactors," Sixth International Policy Forum on the Management and Disposition of Nuclear Weapons Materials, sponsored by Exchange/Monitor Publications, Washington, DC, June 1999.

"Transparency and Plutonium Disposition," ISIS Workshop on Comprehensive Controls on Plutonium and Highly Enriched Uranium: Long-Term Problems and Prospects for Solutions, sponsored by the Institute for Science and International Security, Washington, DC, June 1997.

"Ship Transportation of Radioactive Materials," presentation to the Marine Board of the National Research Council, U.S. National Academy of Sciences, Woods Hole, MA, June 20, 1996.

"The Importation and Storage of High-Level Radioactive Wastes at Rokkasho-Mura: Safety Concerns," presentation at the Public Forum on High-Level Nuclear Waste and Reprocessing," Aomori, Japan, April 16, 1996.

"Perspectives on U.S. Options for Disposition of Excess Plutonium," Third International Policy Forum on the Management and Disposition of Nuclear Weapons Materials, sponsored by Exchange/Monitor Publications, Landsdowne, VA, March 21, 1996.

"Addressing Safety Issues in the Sea Transport of Radioactive Materials," presentation to the Special Consultative Meeting of Entities Involved in the Marine Transport of Nuclear Materials Covered by the INF Code," International Maritime Organization, London, March 4-6, 1996.

"Prospects and Unsolved Issues for Plutonium Immobilization," INESAP/IANUS/UNIDIR Fissile Cutoff Workshop, Palais des Nations, Geneva, June 1995.

"An Intermediate Solution for Plutonium from Dismantled Nuclear Warheads," Annual Meeting of the German Physical Society, Berlin, Germany, March 1995.

"The Sea Transport of High-Level Radioactive Waste: Environmental and Health Concerns," Channel Islands International Conference on Nuclear Waste, St. Helier, Jersey, United Kingdom, January 1995.

### **Conference Papers**

E. Lyman and A. Kuperman, "A Reevaluation of Physical Protection Standards for Irradiated HEU Fuel," 24<sup>th</sup> International Meeting on Reduced Enrichment for Research and Test Reactors, RERTR-2002, Bariloche, Argentina, November 2002.

E. Lyman, "Material Protection, Control and Accounting at the U.S. MOX Fuel Fabrication Plant: Merely and Afterthought?" 43<sup>rd</sup> Annual Meeting of the Institute of Nuclear Materials Management (INMM), Orlando, FL, June 2002.

E. Lyman, "Terrorism Threat and Nuclear Power: Recent Developments and Lessons to be Learned," Symposium on Rethinking Nuclear Energy and Democracy after 9/11, sponsored by PSR/IPPNW Switzerland, Basel, Switzerland, April 2002.

E. Lyman, remarks for Expert Panel on Advanced Reactors, Nuclear Safety Research Conference, U.S. Nuclear Regulatory Commission, Washington, DC, October 2001.

E. Lyman, "The Future of Immobilization Under the U.S.-Russian Plutonium Disposition Agreement," 42<sup>nd</sup> Annual Meeting of the Institute of Nuclear Materials Management (INMM), Indian Wells, CA, July 18, 2001.

E. Lyman, comments in *the Report of the Expert Panel on the Role and Direction of Nuclear Regulatory Research*, U.S. Nuclear Regulatory Commission, May 2001.

E. Lyman, "Can the Proliferation Risks of Nuclear Power be Made Acceptable?" Nuclear Control Institute 20<sup>th</sup> Anniversary Conference, Washington, DC, April 9, 2001.

E. Lyman and P. Leventhal, "Radiological Sabotage at Nuclear Power Plants: A Moving Target Set," 41<sup>st</sup> Annual Meeting of the INMM, New Orleans, LA, July 2000.

E. Lyman, "Comments on the Storage Criteria for the Storage and Disposal of Immobilized Plutonium," Proceedings of the Institute for Science and International Security Conference on "Civil Separated Plutonium Stocks --- Planning for the Future," March 14-15, 2000, Washington, DC, Isis Press, 135.

E. Lyman, "The Sea Shipment of Radioactive Materials: Safety and Environmental Concerns," Conference on Ultrahazardous Radioactive Cargo by Sea: Implications and Responses, sponsored by the Maritime Institute of Malaysia, Kuala Lumpur, Malaysia, October 1999.

E. Lyman, "A Critique of Physical Protection Standards for Irradiated Materials," 40<sup>th</sup> Annual Meeting of the INMM, Phoenix, AZ, July 1999.

E. Lyman, "DOE Reprocessing Policy and the Irreversibility of Plutonium Disposition," Proceedings of the 3<sup>rd</sup> Topical Meeting on DOE Spent Nuclear Fuel and Fissile Materials Management, American Nuclear Society, Charleston, SC, September 8-11, 1998, 149.

E. Lyman, "Japan's Plutonium Fuel Production Facility (PFPP): A Case Study of the Challenges of Nuclear Materials Management," 39<sup>th</sup> Annual Meeting of the INMM, Naples, FL, July 1998.

E. Lyman, "Safety Aspects of Unirradiated MOX Fuel Transport," Annex 2b of the *Comprehensive Social Impact Assessment of MOX Use in Light Water Reactors*, Citizens' Nuclear Information Center, Tokyo, November 1997.

E. Lyman, "Unresolved Safety Issues in the Storage and Transport of Vitrified High-Level Nuclear Waste," 38<sup>th</sup> Annual Meeting of the INMM, Phoenix, AZ, July 1997.

E. Lyman, "A Perspective on the Proliferation Risks of Plutonium Mines," proceedings of the Plutonium Stabilization and Immobilization Workshop, U.S. Department of Energy, Washington, DC, December 12-14, 1995, CONF-951259, p, 445.

E. Lyman, "Assessing the Proliferation and Environmental Risks of Partitioning-Transmutation," Fifth International Summer Symposium on Science and World Affairs, Cambridge, MA, USA, July 1993.

#### **Op-Eds and Letters to the Editor**

E. Lyman, "Troubles at Indian Point," New York Times, January 25, 2003.

E. Lyman and P. Leventhal, "Nonessential Nukes" (op-ed), Washington Post, November 26, 2002.

P. Leventhal and E. Lyman, "Shipping Plutonium," New York Times, July 12, 2002.

E. Lyman, "Indian Point Reactor," New York Times, January 27, 2002.

E. Lyman, "Spent Nuclear Fuel," New York Times, June 3, 2001.

E. Lyman and P. Leventhal, "Better Plutonium Plan," New York Times, February 5, 1998.

E. Lyman, "A Safer Plutonium Plan," Washington Post, August 24, 1997.

P. Leventhal and E. Lyman, "Who Says Iraq Isn't Making a Bomb?" International Herald Tribune, November 2, 1995.

H. Feiveson and E. Lyman, "No Solution to the Plutonium Problem," Washington Post, July 29, 1994.

E. Lyman, "Getting Rid of Weapon Plutonium," *Bulletin of the Atomic Scientists*, July/August 1994.

# GSI-191 Impact on Catawba and McGuire

The Nuclear Regulatory Commission (NRC) initiated Generic Safety Issue 191 (GSI-191), "Assessment of Debris Accumulation on PWR Sump Performance," in September 1996.<sup>1</sup> Five years later, the NRC concluded that 53 of the nation's 69 operating pressurized water reactors (PWRs) were "very likely" to experience failure of the containment sump and the recirculation phase of reactor core cooling in the event of a large-break loss of coolant accident.<sup>2</sup> The NRC then evaluated the impact of containment sump failure on the likelihood of reactor core damage and concluded:

*The results suggest that the conditional probability of recirculation sump failure (given a demand for recirculation cooling) is sufficiently high at many U.S. plants to cause an increase in the total CDF [core damage frequency] of an order of magnitude or more. As illustrated in Figure ES.1, the factor by which the total core damage would increase if debris-induced recirculation sump failure were included in PWR PRA models spans the range of 1.0 (i.e., no change) to 90, with an average of approximately 45.<sup>3</sup>*

The NRC explained how containment sump failure affects core damage risk in the following manner:

*In the event of a HELB [high energy line break] within the containment of a PWR, energetic pressure waves and fluid jets would impinge upon materials in the vicinity of the break, such as thermal insulation, coatings, and concrete, causing damage and generating debris. Debris could also be generated through secondary mechanisms, such as severe post-accident temperature and humidity conditions, flooding of the lower containment, and the impact of containment spray droplets. Through transport methods such as entrainment in the steam/water flows issuing from the break and in containment spray washdown, a fraction of the generated debris and foreign material in the containment would be transported to the pool of water formed on the containment floor. If the ECCS or CSS pumps subsequently took suction from the recirculation sump, the debris suspended in the containment pool would begin to accumulate on the sump screen. The accumulation of this suspended debris on the sump screen could create a roughly uniform mat over the entire screen surface, referred to as a debris bed, which would tend to increase the head loss across the screen through a filtering action. If a sufficient amount of debris accumulated, the debris would reach a critical thickness at which the head loss across it would exceed the net positive suction head (NPSH) margin required to ensure the successful operation of the ECCS and CSS pumps in the recirculation mode. A loss of NPSH margin for the ECCS or CSS pumps as a result of the accumulation of debris on the recirculation sump screen, referred to as sump clogging, could result in degraded pump performance and eventual pump failure.<sup>4</sup>*

<sup>1</sup> Nuclear Regulatory Commission, "Generic Issue Management Control System Report," April 30, 2003. (Available in ADAMS under accession no. ML031260537).

<sup>2</sup> D. V. Rao, B. Letellier, C. Shaffer, S. Ashbaugh, and L. Bartlein, Los Alamos National Laboratory, "GSI-191: Parametric Evaluations for Pressurized Water Reactor Recirculation Sump Performance," August 2001.

<sup>3</sup> J. L. Darby, W. Thomas, D. V. Rao, B. C. Letellier, S. G. Ashbaugh, and M. T. Leonard, Los Alamos National Laboratory, NUREG/CR-6771, "GSI-191: The Impact of Debris Induced Loss of ECCS Recirculation on PWR Core Damage Frequency," August 2002.

<sup>4</sup> Nuclear Regulatory Commission, Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors," June 9, 2003.

The NRC plans to resolve GSI-191 in the year 2007.<sup>5</sup>

Nuclear plants with ice condenser containment designs, such as Catawba and McGuire, are more vulnerable to containment sump failure. Among several reasons for this increased vulnerability are the shorter times to switchover the emergency core cooling system (ECCS) pumps to take suction from the containment sumps. As shown in the following table of data culled from an NRC report,<sup>6</sup> the timing of the switchover of the ECCS pumps to suction from the containment sumps is significantly lower for the reactors with ice condenser containments.

Event	Time to Switchover, minutes		
	Dry Atmospheric Containment	Sub-atmospheric Containment	Ice Condenser Containment
Medium LOCA: both trains ECCS injection and both trains containment spray	19	21	13
Medium LOCA: one train ECCS injection and one train containment spray	38	42	25
Medium LOCA: both trains ECCS injection with no containment spray	113	125	75
Small LOCA: both trains ECCS injection and both trains containment spray	20	23	14
Small LOCA: one train ECCS injection and one train containment spray	41	45	27
Small LOCA: both trains ECCS injection with no containment spray	225	250	150

The shorter times mean there is less time for plant workers to detect signs of debris accumulation on the containment sump screens and to take actions to mitigate and/or compensate for it.

The NRC's studies masked the nation's 69 PWRs by referring to the reactors by number (1-69) instead of by name. By comparing the plant parameters<sup>7</sup> to the NRC's plant sourcebook,<sup>8</sup> UCS determined that the Catawba and McGuire reactors were plants 4 & 8 and 6 & 53. Having unmasked the reactors, we were able to discern the following information:

- The NRC estimated that less than 1 ft<sup>3</sup> of fibrous debris would cause containment sump failure at the Catawba and McGuire reactors.<sup>9</sup> How likely is the containment sump to be clogged by fibrous debris? The NRC estimated that less than 13 percent of the fibrous debris generated by a small-break loss of coolant accident would have to be transported to the containment sump to cause its failure at the Catawba and McGuire reactors.<sup>10</sup>

<sup>5</sup> Nuclear Regulatory Commission, "Generic Issue Management Control System Report," April 30, 2003. (Available in ADAMS under accession no. ML031260537).

<sup>6</sup> J. L. Darby, W. Thomas, D. V. Rao, B. C. Letellier, S. G. Ashbaugh, and M. T. Leonard, Los Alamos National Laboratory, NUREG/CR-6771, "GSI-191: The Impact of Debris Induced Loss of ECCS Recirculation on PWR Core Damage Frequency," Tables B-6 and B-10, August 2002.

<sup>7</sup> D. V. Rao, B. Letellier, C. Shaffer, S. Ashbaugh, and L. Bartlein, Los Alamos National Laboratory, "GSI-191: Parametric Evaluations for Pressurized Water Reactor Recirculation Sump Performance," Table A-1(a) and A-1(b), August 2001.

<sup>8</sup> P. Lobner, C. Donahoe, and C. Cavallin, Science Applications International Corporation, NUREG/CR-5640, "Overview and Comparison of U.S. Commercial Nuclear Power Plants," September 1990.

<sup>9</sup> D. V. Rao, B. Letellier, C. Shaffer, S. Ashbaugh, and L. Bartlein, Los Alamos National Laboratory, "GSI-191: Parametric Evaluations for Pressurized Water Reactor Recirculation Sump Performance," Figure 5-6, August 2001.

<sup>10</sup> D. V. Rao, B. Letellier, C. Shaffer, S. Ashbaugh, and L. Bartlein, Los Alamos National Laboratory, "GSI-191: Parametric Evaluations for Pressurized Water Reactor Recirculation Sump Performance," Figure 5-10, August 2001.



- The NRC estimated that less than 10 pounds of particulate debris would cause containment sump failure at the Catawba and McGuire.<sup>11</sup> How likely is the containment sump to be clogged by particulate debris? The NRC estimated that less than 2 percent of the particulate debris generated by a small break loss of coolant accident would have to be transported to the containment sump to cause its failure at the Catawba and McGuire reactors.<sup>12</sup> For a large break loss of coolant accident, the NRC estimated that less than 0.1 percent of the particulate debris generated would have to be transported to the containment sump to cause its failure at the Catawba and McGuire reactors.<sup>13</sup>
- The NRC estimated that it is “very likely” that the containment sump will fail at the Catawba and McGuire reactors in event of a medium or large loss of coolant accident. The NRC estimated that it was “very likely” that two of the reactors and “likely” that the other two reactors would experience containment sump failure in event of a small loss of coolant accident.<sup>14</sup>
- The core damage frequency, adjusted to account for containment sump failure probabilities, increases to 2.320E-03 and 2.169E-03 for the Catawba and McGuire reactors.<sup>15</sup>

The proposal to place lead test assemblies (LTAs) of mixed-oxide (MOX) in the Catawba and McGuire reactors may not increase the probability for a loss of coolant accident. But it has been supported, thus far, by probabilistic risk assessment (PRA) results that grossly underestimate the reactor risk, as evidenced by their omission of the containment sump failure. In addition, the higher core damage frequency resulting from the unresolved containment sump vulnerability (i.e., GSI-191) means that the risk from having MOX LTAs in the reactor core at Catawba and/or McGuire goes up if the source term from MOX assemblies is even incrementally higher than the source term from non-MOX fuel.

Prepared by: David Lochbaum  
Nuclear Safety Engineer

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<sup>11</sup> D. V. Rao, B. Letellier, C. Shaffer, S. Ashbaugh, and L. Bartlein, Los Alamos National Laboratory, “GSI-191: Parametric Evaluations for Pressurized Water Reactor Recirculation Sump Performance,” Figure 5-7, August 2001.

<sup>12</sup> D. V. Rao, B. Letellier, C. Shaffer, S. Ashbaugh, and L. Bartlein, Los Alamos National Laboratory, “GSI-191: Parametric Evaluations for Pressurized Water Reactor Recirculation Sump Performance,” Figure 5-11, August 2001.

<sup>13</sup> D. V. Rao, B. Letellier, C. Shaffer, S. Ashbaugh, and L. Bartlein, Los Alamos National Laboratory, “GSI-191: Parametric Evaluations for Pressurized Water Reactor Recirculation Sump Performance,” Figure 5-12, August 2001.

<sup>14</sup> D. V. Rao, B. Letellier, C. Shaffer, S. Ashbaugh, and L. Bartlein, Los Alamos National Laboratory, “GSI-191: Parametric Evaluations for Pressurized Water Reactor Recirculation Sump Performance,” Table 5-7, August 2001.

<sup>15</sup> J. L. Darby, W. Thomas, D. V. Rao, B. C. Letellier, S. G. Ashbaugh, and M. T. Leonard, Los Alamos National Laboratory, NUREG/CR-6771, “GSI-191: The Impact of Debris Induced Loss of ECCS Recirculation on PWR Core Damage Frequency,” page D-6, August 2002.

## CERTIFICATE OF SERVICE

I hereby certify that on October 21, 2003, copies of Blue Ridge Environmental Defense League's Supplemental Petition to Intervene were served on the following by e-mail and/or first-class mail, as indicated below. In addition, copies of Exhibits 1-19 were served on the following by fax:

Ann Marshall Young, Chair  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Mail Stop: T-3F23  
Washington, D.C. 20555  
E-mail: [AMY@nrc.gov](mailto:AMY@nrc.gov)  
301/415-5599

Anthony J. Baratta  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Mail Stop: T-3F23  
Washington, D.C. 20555  
E-mail: [AJB5@nrc.gov](mailto:AJB5@nrc.gov)

Office of Commission Appellate Adjudication  
U.S. Nuclear Regulatory Commission  
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