RAS 6950

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

Ann Marshall Young, Chair
Anthony J. Baratta
Thomas S. Elleman

In the Matter of	Docket No's. 50-413-OLA, 50-414-OLA
DUKE ENERGY CORPORATION	ASLBP No. 03-815-03-OLA
(Catawba Nuclear Station, Units 1 and 2)	October 21, 2003

CONTENTIONS OF NUCLEAR INFORMATION AND RESOURCE SERVICE

Duke Power has applied to the Nuclear Regulatory Commission to amend the licenses of Catawba 1 & 2 and for exemption from specific regulations in order to test four MOX fuel assemblies, made from weapons-grade plutonium, in one of the two nuclear power ice condenser reactors on Lake Wylie in South Carolina. Nuclear Information and Resource Service (NIRS) and the members we represent oppose this plan for multiple reasons.

Our choice of offering a narrow scope of contentions at this time should in no way be seen to imply that other issues are unimportant. This document reflects overall resource issues, including the recognition that the resources of all parties will be better served with respect to some of our concerns at a future juncture, should Duke Power apply for batch use of MOX fuel.

We continue to note that this proceeding is not timely; no Congressionally mandated MOX fuel test irradiation is being reviewed in Russia. Since the two programs are required to progress "in parallel" it is not clear under what authority this license amendment to test weapons-grade MOX under the plutonium disposition program will be granted.

1. Duke's proposed plan is lacking key benchmarks

Although NIRS will argue below that the No Action Alternative is the only credible action for NRC to take, we nonetheless offer the following points in an effort to increase the credibility of the proposed plan.

Weapons-grade plutonium has not been used widely as a reactor fuel. Further, the factory on which the proposed MOX Fuel Fabrication Facility (MFFF) is based, is not now, and has not ever been licensed to handle weapons-grade plutonium. Uncertainties remain about the differences between reactor grade and weapons-grade fuel behavior and reactor control. In order to show in the future that the present tests are representative, or bounding of future large-scale use of weapons plutonium fuel, benchmarks are needed. Duke's proposal is deficient at two key junctures: documentation of the plutonium oxide process history and content, and also independent certification of the test fuel.

1.1 Plutonium Oxide

Since weapons plutonium in the US plutonium disposition program will come from multiple processes and will have to be treated to remove impurities and other materials in order to make the MOX fuel, it is important to document or benchmark the specific quantity of plutonium oxide that is used for the test fuel, including how it was previously treated. Since the majority of the US material to be converted to MOX fuel under this program comes from bomb parts known as "pits" that are an alloy of plutonium and other elements and materials, notably gallium, it is important to know whether the plutonium oxide that would be used to make the test fuel was ever in the pit form.

Additionally, independent validation of the post "polishing" product would serve the function of creating a record of this part of the test program. It is also important to preserve the information about the history of this particular plutonium and the types of treatment used in processing it in order to discern in the future whether it is representative of any prospective future fuel production.

Of key concern is the removal of gallium from plutonium from nuclear bomb parts since this element may attack the zirconium alloy metal of the fuel cladding[1]. The "NRC Staff White Paper on Mixed Oxide Fuel Use in Commercial Light Water Reactors"[2] states:

> Plutonium from nuclear weapons contains some gallium. While the normal fabrication process will reduce the amount to part-per-million level, its effects on fuel and cladding behavior have not yet been fully assessed. DOE is performing experimental studies at this time, and the effects of this impurity will have to be considered in any licensing assessment.

While gallium in fuel and gallium removal have been the subject of considerable study in recent

---

1 See Arjun Makhijani, Technical Aspects of the Use of Weapons Plutonium as Reactor Fuel web posted at http://www.ieer.org/sdafiles/vol_5/5-4/moxmain4.html and also James W. Toevs, et al, Los Alamos National Laboratory: Document LA-UR-96-4764, also web posted at: http://www.ieer.org/latest/gallium.html

2 Web posted at: http://www.nrc.gov/materials/fuel-cycle-fac/mox/pdf/ml993620025.pdf, subsequently referred to as "NRC Staff White Paper."

years, all studies that make a favorable finding assume that in fact, gallium has been reduced to a low number of parts per million, for example:

> "The Zircaloy cladding does react with the gallium to form intermetallic compounds at (greater than or equal to) 300 (degrees)C; however, this reaction is limited by the mass of the gallium and is therefore not expected to be significant with the low level (parts per million) of gallium in the MOX fuel."[3]

It is important to document the level of gallium (or lack thereof), and other contaminants remaining in the plutonium oxide in order to be able to use the data from this test fuel when considering any future loading of MOX fuel in the Duke reactors.

1.2 Certification of Test Fuel

The Duke license amendment application for the testing of 4 weapons-grade MOX fuel assemblies in the Catawba ice condenser reactor touches briefly on the issue of quality assurance[4]. The text is mainly focused on the approval of vendors and facilities. In this section Duke states that Framatome ANP has responsibility for the entire fuel fabrication process in France for the test fuel. It further states:

> As fuel assembly designer, Framatome ANP ultimately has the responsibility for certification of the finished fuel assemblies to Duke Power, through DCS.

This section of the application does not state that there will be quality certification of the test fuel pellets, nor the rods in addition to the assemblies. Since the Cadarache plant was closed by regulatory authorities in July, 2003, it is not clear that the equipment at this site will be able to meet quality control standard for Duke use. The recent report, "U.S. MOX "Lead Test Assembly" Controversy: Fabrication at Cadarache, France (If Too Dangerous for European Fuel, Why Just Right for US Weapons Plutonium?)" states:

---

3 D.F. Wilson, et al, Behavior of Zircaloy Cladding in the Presence of Gallium, Oak Ridge National Laboratory, 1999

4 See in section 3.5.4 of Attachment 3 (page 3-17 of the application)

> ATPu was built in a regulatory context when only limited nuclear safety rules were defined, a formal licensing procedure was lacking and operators could build nuclear installations on the basis of a voluntary declaration. In particular, no specific seismic rules existed at that time for the design of such facilities.
>
> In the early 1990s the safety authority reevaluated the seismic resistance of the facility and discovered that the ATPu design was not at all adapted to the seismic risk level of the geographical area (see part 4.1). In 1995, the French safety authority planned to require the shut down of ATPu around year 2000. But only in January 2003, Anne Lauvergeon, chair of COGEMA/AREVA, finally announced that ATPu would stop commercial operation as of 31 July 2003.[5]

This report goes on to detail six separate technical concerns about whether this facility will deliver quality fuel pellets using the MIMAS process. We are not here challenging that process. We are suggesting that its product should be thoroughly documented prior to irradiation in Duke reactors.

Further, Cadarache does not have the capacity to assemble fuel rods into assemblies, which opens the question as to where this assembly step will occur and under what authority. France's MELOX facility, as noted above is not cleared to handle weapons-grade plutonium6.

There have been a number of quality control related events since 1996 when the Department of Energy announced its intention to pursue the use of weapons-grade plutonium as a reactor fuel, the most prominent of which was the supply of unvalidated reactor-grade MOX fuel to Japan[7] by BNFL. There are many parameters of possible concern pointed out in the investigation of this matter, just cited including multiple avenues of fuel rod failure due to inconsistent fuel pellet

---

5 See WISE- Paris Briefing for Greenpeace International, "U.S. MOX "Lead Test Assembly" Controversy: Fabrication at Cadarache, France (If Too Dangerous for European Fuel, Why Just Right for US Weapons Plutonium?)" page 9. Posted as a frame under "Briefings" at www.wise-paris.org See also page 13 for shortcomings of the Mimas process.

6 See above, page, page 5.

7 See An Investigation into the Falsification of Pellet Diameter Data in the MOX Demonstration Facility at the BNFL Sellafield Site and the Effect of this on the Safety of MOX Fuel in Use by The Nuclear Installations Inspectorate of the HSE, web posted at: http://www.wise-paris.org/english/reports/000221HSEMOXFalsification.pdf

diameter, like the BNFL fuel supplied to Japan was found to have.

Another quality issue cited in the NRC Staff White Paper on page 3:

> Inhomogeneities (plutonium clusters) in MOX fuel may affect fuel behavior during reactivity accidents, especially at high burnups. This could necessitate modification of fuel damange criteria in Regulatory Guide 1.77 (Assumptions for Evaluating a Control Rod Ejection Accident in PWRs).

Since there is little experience with producing fuel pellets from weapons-grade plutonium, the parameters associated with these first assemblies are particularly important.

In order for LTA testing at Catawba to provide a credible basis for future batch use of MOX, fuel pellet and fuel rod characteristics, prior to irradiation, must be documented. Given difficulties in validating MOX products in the recent past, it might be in the interest of this program to seek independent certification. The current proposal as written appears to give Framatome ANP, makers of the fuel sole authority in this matter.

2. Provisions for Irradiated MOX Test Assemblies

Irradiated MOX fuel has a higher thermal power, decaying more slowly than irradiated LEU fuel, and irradiated MOX waste will also bear more fissile plutonium than LEU waste[8]. Duke's application states that the irradiated assemblies will be stored in the fuel pool. Given uncertainties about the impact of burnup on the fuel rods, the greater thermal power of this waste as well as any complications from inhomogeneities and possible residues from other nuclear bomb ingredients, the cladding of this test fuel may, or may not, be durable. A plan is

8 For example, see: Panel on Reactor-Related Options for the Disposition of Excess Weapons Plutonium, Committee on International Security and Arms Control, *Management and Disposition of Excess Weapons Plutonium: Reactor-Related Options,* National Academy Press, Washington, DC, 1995 web posted at: http://books.nap.edu/catalog/4754.html

needed for the ongoing assessment of this waste while Duke Energy waits for eventual disposition of high-level waste. Additionally, there is no mention made of the need to provide for lower density packaging for transport in the event that a repository becomes available.

3. **Duke's License Amendment Underscores Regulatory Gap Between NRC and DOE: Duke's License Amendment Precedes The Department of Energy's Fulfillment of It's Responsibility Under the National Environmental Policy Act.**

Duke Energy makes clear in the application for license amendment that some aspects of the Lead Test Assembly program, notably the transport of US weapons-grade plutonium to France for fuel fabrication is outside the scope of this proceeding. Nonetheless, the irradiation of this fabricated fuel in the Catawba ice condenser reactors depend upon the shipment of the weapons-grade plutonium to France. There is also currently an application[9] before the NRC from the Department of Energy for an export license from NRC to accomplish this plutonium transfer. There has been, to date, no supplemental environmental review or environmental impact statement (in the public record) by the Department of Energy, under which auspice Duke indicates this part of the program will be conducted. The proposed action to transport 300 pounds – enough plutonium for dozens of nuclear weapons – by land and water is not a trivial action[10]. Clearly this regulatory gap, and its potential for independent litigation should be addressed by the Nuclear Regulatory Commission as part of resolving the decision about this license amendment.

4. **Only the No Action Alternative is Consistent with the Overall Goal for Plutonium**

Duke's license amendment application includes the No Action Alternative which is stated as "...to

9 Filed by letter on October 1, 2003 this document is posted on NRC's ADAMS system as ML11005440.
10 See NIRS, Greenpeace International, et al letter to Secretary Abraham, web posted at http://www.greenpeace.org/international_en/reports/?campaign%5fid=3940 also attached.

deny the license amendment."[11] Page 2 of Mr. Tuckman' s cover letter to the license amendment application sums up the stated overall goal of this program:

> This license amendment request is being made as part of the ongoing United States – Russian Federation plutonium disposition program. The goal of this nuclear nonproliferation program is to dispose of surplus plutonium from nuclear weapons by converting the material into MOX fuel and using that fuel in nuclear reactors.

Most commentaries on the non-proliferation aspects of the program focus on Russian plutonium. It must be stated however that many observers of this program agree with Nuclear Information and Resource Service and our members that commercializing weapons-grade plutonium and inserting it into civilian commerce will not increase its security. This is particularly the case since the bomb plutonium remains relatively easy to recover for nuclear weapons use, until after irradiation. It is a cause for immediate concern that Russia intends to sell the weapons-grade MOX fuel produced in this program beyond its borders. A recent report in Arms Control Today[12] states:

> The decision to provide MOX technology to Russia is controversial, however, because of proliferation risks. Plutonium could be diverted during transport to a MOX site or during the MOX fuel cycle. It is also possible to separate MOX fuel for its components, which could be used to develop nuclear weapons, so the possibility that Russia might sell its MOX to other countries is a concern.

When Russia's nuclear power client nations are reviewed, this "concern" becomes somewhat alarming from the perspective of current United States foreign policy. Russian nuclear projects[13] are "stopped" in Libya and North Korea, while a project in Cuba is "under review" and work on a reactor in Iran continues[14]. The proposition that unirradiated weapons plutonium MOX fuel,

---

11 Duke Power Lisence Amendment Application, filed by letter from M.S. Tuckman, February 27, 2003.
12 Arms Control Today, published by the Arms Control Association
http://www.armscontrol.org/act/2003_01-02/mox_janfeb03.asp?print
13 See Russian nuclear export arm: *Atomenergoexport* website,
http://www.atomstroyexport.ru/eng/history.htm
14 See for instance: http://www.atimes.com/atimes/Central_Asia/DH08Ag01.html
Asia Times: **Russia goes its own way on Iran** By Hooman Peimani August 8, 2002

available in the nuclear market to client nations such as Iran, is more secure and less likely to be the cause of nuclear proliferation deserves careful attention from the Nuclear Regulatory Commission. The NRC shares with the Department of Energy responsibility, not only for public health and safety, but also the "common defense" under the Atomic Energy Act.

Another voice calling this alarm is from former NRC Commissioner, Victor Gilinsky who's views on the US weapons MOX plutonium fuel program are posted on the American Enterprise Institute website:[15]

> There really are not any easy answers to the questions surrounding excess weapons-grade plutonium. At the same time, however, the idea of recycling the plutonium in civilian reactors is a particularly bad answer for several reasons.
>
> First, the disposal of the weapons-grade plutonium will take a long time. Because there are few reactors in Russia that can process the material, it will take twenty to thirty years to get through all of it. In order to speed this process up, the United States would have to rely on reactors outside Russia or, alternatively, subsidize the construction of additional reactors in Russia. Furthermore, there is a significant risk of theft and the subsequent hostile use of this material as it is taken out of storage, transported, and processed.

It is not credible to support the weapons MOX program as a means of non-proliferation. Some policy analysts are going so far as to suggest that an international entity should "lease" MOX fuel made from weapons materials on the open market to nuclear utilities[16]. These suggestions make about as much sense for securing weapons usable plutonium as allowing Eron's Kenneth Lay to define US government energy policy, which is supposedly for the public's interest.

While NRC may not be in the position to reverse decisions made by other federal agencies, it does have the authority and the responsibility under the Atomic Energy Act to engage US nuclear

---

15America's Plan to Dispose of Weapons-Grade Plutonium Atoms for Peace or a Gift to Terrorists? http://www.aei.org/events/filter.,eventID.298/summary.asp

16 See: Center for Strategc and International Studies, www.csis.org/pubs/2003_protecting.htm, page 25, item # 6.

policy matters and should work to end this fatally flawed and dangerous program. The first step in that process will be to select the No Action Alternative, and deny this license amendment.

5. An Environmental Impact Statement is Needed to Inform This Decision

The current decision on this license amendment application is part and parcel of a larger action plan, detailed in the license application, that Duke and the Nuclear Regulatory commission have been involved with for some time. The overall decision to use weapons-grade plutonium fuel from nuclear weapons sources is a major federal action significantly affecting the quality of the Human environment. Under 10CFR51.20(a)(1) the NRC regulations direct NRC staff to prepare a full environmental impact statement.

Since taking the No Action Alternative of denying the license amendment will either redirect, or end the federal plutonium disposition program, this alone demonstrates that the NRC's decision on Duke's license amendment to test weapons MOX plutonium fuel is a major federal action and that it cannot be separated from the intention to use "batch" quantities of weapons-grade MOX plutonium fuel in US Light Water Reactors. Indeed, NRC has been engaged in this process for some time, and is the agency responsible for already institutionalizing plutonium fuel instead of upholding the Department of Energy's characterization of this as a limited, "one time" processing of a specific quantity of plutonium. With the revision of Part 70 to include plutonium and a Standard Review Plan for the MOX Fuel Fabrication Facility[17] that applies to any MOX factory, anywhere. It is reasonable therefore to assert that the NRC licensing actions at Duke must be viewed as the precedent that they would serve for any other future licensing proposals at other reactors. It is not credible, given NRC's generic approach and use of precedent and case law to style this license amendment as a unique event.

---

17 Standard Review Plan for the Review of an Application for a Mixed Oxide (MOX) Fuel Fabrication Facility, NUREG 1718 web posted at: http://www.nrc.gov/materials/fuel-cycle-fac/mox/licensing.html

That this decision is a major federal action is without dispute[18]. Every other federal decision step in the US MOX program has been treated as such. The step of considering the impact of the potential use of the fuel in light water power reactors and deciding whether this is an acceptable in terms of the potential impacts to the human environment and the level of risk that this program carries should be fully informed before a decision is made. It is important to underscore that according to the rules, this decision has not yet been made. The potential to impact the human environment in the event of a severe reactor accident with weapons-grade MOX plutonium fuel in the core may in fact exceed all other potential impacts associated with this program.

The question of when and how a full environmental impact statement process would be undertake by NRC on weapons MOX use were the subject of considerable discussion during the NIRS intervention on the license renewal proceeding for McGuire 1 & 2 and Catawba 1 & 2[19]. Of particular note in that discussion was the difference between an environmental assessment that is not an EIS and a full environmental impact statement. Of greatest concern to NIRS is that the assessment does not afford NIRS members or the general public to engage in a scoping process with NRC staff, and does not allow for meetings in the affected community where questions can be answered and concerns heard. The process of intervention is by its nature insular, self-referring and not geared to communicating with the greater affected public.

Duke has repeatedly argued[20] that other environmental reviews have been done; however all of these have been preparatory in nature with respect to reactor use of weapons-grade plutonium

18 For Council on Environmental Quality Definition, see: Sec. 1508.18 Major Federal action. http://ceq.eh.doe.gov/nepa/regs/ceq/1508.htm#1508.18

19 See Duke, McGuire and Catawba License Renewal proceeding, transcript of Oral Arguments, December 16, Charlotte, NC.

MOX fuel. The Department of Energy's Surplus Plutonium Disposition Environmental Impact Statement was accomplished without including the local impacted communities' direct participation[21]. Nuclear Information and Resource Service and allied organizations repeatedly asked that affected reactor communities be included in the scoping and public hearing processes conducted under the National Environmental Policy Act for the preparation of that document. While our letters were never answered, in public session a spokesman for the Department of Energy stated that the study was only preliminary on the impact of reactor use of the fuel, and that it would be 'the job of the Nuclear Regulatory Commission' to conduct a more thorough environmental impact statement on reactor use[22].

To its credit, the NRC has included Charlotte in the EIS process for the MOX Fuel Fabrication Facility[23], proposed by DCS to be built and operated on the Savannah River (Nuclear) Site, near the Savannah River and Augusta, GA. The product of this process is forth coming, but the decision by NRC staff was to focus most their analysis on the impact of the factory, not the use of its product. The reactor portions of the NRC DEIS on MFFF are generic, not specific.

NIRS comes now with this contention in part because of our early and ongoing participation in the US plutonium disposition program, precisely because of our concerns about the impact of weapons-grade plutonium on reactor safety and on our environment. The very day that the dual track plutonium disposition program was announced, Mary Olson, now Director of the Southeast Office of Nuclear Information and Resource Service, attended the Secretary of Energy's press

---

20 See for instance, 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 Dockets 50-369, 50-370, 50-413, 50-414.
21 DOE (US Department of Energy), Surplus Plutonium Disposition Final Environmental Impact Statement, DOE/EIS-0283, Office of Fissile Materials Disposition, Washington, DC, 11-1999.
22 Paraphrase of Howard Cantor of the Materials Disposition program to Mary Olson, NIRS at public scoping meeting in Washington, DC, circa 1998.

conference. The Energy Secretary took only a handful of questions. Ms. Olson asked a question about the potential impact of MOX fuel use on so-called low-level waste disposal, emphasizing the potential for a dramatic increase in plutonium and other actinide in so-called "low-level" disposal sites. Ms. O'Leary's response[24] indicated that there would be many environmental impact statements done to answer questions like mine "before the final decision to go forward is made."

None of the environmental impact statements to date cover the question of the increased levels of plutonium and other actinides in so-called low-level waste.

Duke's Environment Report (Attachment 5) similarly misses the mark. The issue is not only whether all the rules are met, but also what the impact to our environment will be from extending and expanding the use of those rules; what happens when circumstances intervene and accidents or other events cause the rules to become moot; and in the larger picture, what the long term impacts and costs are. Duke's analysis of the potential for leaking fuel rods[25] acknowledges "...there is a difference in the radioactive isotopic inventory between an irradiated MOX fuel assembly and an irradiated LEU fuel assembly..." however, the environmental impact is truncated by the rest of the sentence "this will not translate into a significant difference in plant effluents. For both fuel types, plant process systems will limit the release of radioactive isotopes through holdup, filtering, demineralization..." It is these filters and other isolated wastes that will be sent to a so-called low-level disposal site. There is a difference in the source term that will be

---

23 Details of the NRC staff's environmental review of the MFFF is web posted at: http://www.nrc.gov/materials/fuel-cycle-fac/mox/environmental.html

24 December 9, 1996, US Department of Energy press conference, DOE Headquarters, 1000 Independence Ave. PBS Leher News Hour included this question and the Sectary's reply in the broadcast that evening. A *Reuters* wire story in the Washington Post on December 10, 1996 reports the event, but not the question.

25 Duke's License Amendment Application, Attachment 5, Environment Report, page 5-7 discussion of impacts to human health, and the possibility of a leaking fuel rod. Duke acknowledges "While there is a difference in the radioactive isotopic inventory between an irradiated MOX fuel assembly and an irradiated LEU fuel assembly..." the environmental impact is truncated by the rest of the sentence "this

sent for disposal. There is a difference in the radiation exposure to all the workers along the way that will handle this material. There is a difference in source term that will go to the laundries that will wash these workers clothing. There is a difference in the decommissioning of the reactor that has used this novel fuel. There is a difference in the event of a major reactor accident.[26]

Another example of the analysis that has not been done on a site specific basis are issues of the different impact and potential risk for the host community from storing LEU generated high-level waste versus weapons MOX plutonium fuel generated high-level waste. The host community may be facing extended on-site storage of this material, even if a repository is made available, since it is not yet part of the existing waste queue of material waiting to be sent to a repository (assuming that one becomes available). If transferred to dry storage it is likely that this irradiated fuel will require more containers due to the issues of thermal loading and criticality discussed above. These are simply examples of the types of issues that the local host community, under the National Environmental Policy act should be able to exercise its rights in informing a major federal action. To date, the Duke host communities have not had these opportunities.

It is important to emphasize that this analysis under the National Environmental Policy Act must focus not only on the use of plutonium fuel, but on the use of weapons-grade plutonium fuel. Throughout Duke's application there are stipulations about the fact that many parameters of plutonium fuel are different than LEU fuel (for instance: source term, neutronics, fuel rod behavior, thermal conductivity, decay heat generation, contact dose...). There are few references to the fact that there are differences between weapons-grade plutonium and reactor-grade plutonium, however already in this proceeding we have encountered a very real one pertaining to

---

will not translate into a significant difference in plant effluents. For both fuel types, plant process systems will limit the release of radioactive isotopes through holdup, filtering, demineralization...

26 See DOE SPDEIS and Dr. Edwin Lyman, AP story "Plutonium Program May Be Dangerous" posted at http://www.vanderbilt.edu/radsafe/9901/msg00514.html

the level of information access that is available and which individuals are or are not qualified to access it. This must be considered as well. The Catawba ice condenser reactor sites may, if NRC decides to proceed with this major federal action by approving Dukes license amendment, be effectively converted from commercial power generation sites into a national security zone. The people of this community deserve to know this, and give comment on it. There are additional concerns about the differences between weapons-grade MOX and reactor-grade MOX that could be beneficially explored in a full EIS process, and now is not too soon. It would, in fact serve the overall program schedule to embark on this process now, rather than later.

Additionally, there is the work of Dr. Edwin Lyman[27] on the significantly elevated consequences to local populations from a severe reactor accident, and his assessment that the use of MOX, particularly in ice condenser reactors may contribute to some of these accident scenarios. The ice condenser design has been noted by a number of authorities to have a containment that is less robust that other pressurized water reactors, thus placing the populations in this region at even greater risk in the event of a severe accident.[28] This alone should be the reason that the NRC decides to reject the use of weapons plutonium MOX fuel in LWRs. This major federal decision should, of course, be informed and supported by a full environmental impact statement process, which includes the North and South Carolinian people of the Charlotte region who will be impacted by this decision, not simply their "dose receptor" status in computer codes and written reports.

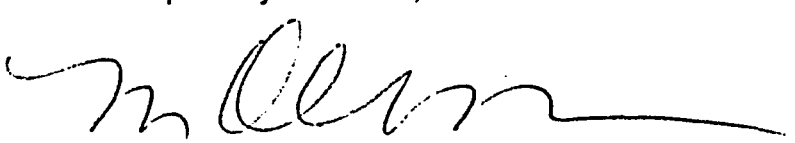
---

27 See Plutonium Fuel and ice Condenser Reactors: A Dangerous Combination, by Edwin S. Lyman, PhD, posted at http://www.nci.org//e/el-ice-condensers.htm and also other reports by Dr. Lyman on that site. Dr. Lyman is now at Union of Concerned Scientists.

28 In addition to Dr. Lyman's paper, see: NUREG/CR-6427 Assessment of the DCH [Direct Containment Heating] Issue for Plants with Ice Condenser Containments, which finds that "no ice condenser plant is inherently robust to all credible hydrogen combustion events in a SBO accident." It also concludes that "ice condenser plants are at least two orders of magnitude [one hundred times] more vulnerable to early containment failure than other U.S. PWRs" as a result of hydrogen explosions during core melt accidents.

Nuclear Information and Resource Service respectfully urges the NRC staff and Duke to specifically consider children. When a "dose receptor" is modeled, why not use a child? While the Standard Man[29] is used in most calculations of potential accident consequences, we would like to remind all parties that Real Men are not capable of self-reproduction. Protecting the children of the Carolinas should be the number one priority of all parties in this proceeding, and all calculations and decisions, based on those calculations, should therefore be based on our children.

Respectfully Submitted,



Mary Olson
Director of the Southeast Office
Nuclear Information and Resource Service
P.O. Box 7586
Asheville, North Carolina 28802

29 See NIRS fact Sheet, The Myth of the Millirem, appended to this filing.

NIRS Attachment-1

September 15, 2003

Secretary of Energy Spencer Abraham
United States Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585

Supplemental EIS Required on Plutonium Fuel (MOX) "Lead Test Assembly" Program

Dear Secretary Abraham:

We, the undersigned organizations, request that the Department of Energy promptly comply with National Environmental Policy Act regulations and prepare a Supplemental Environmental Impact Statement (SEIS) on the fabrication of mixed uranium-plutonium oxide (MOX) "lead test assemblies" (LTAs) in Europe. As an integral part of the surplus plutonium disposition program, the potential impacts associated with long-distance overland and trans-oceanic shipment of weapons-grade plutonium must be analyzed in an SEIS.

DOE's National Environmental Policy Act (NEPA) regulations (10 CFR 1021.314) state that "DOE shall prepare a supplemental EIS if there are substantial changes to the proposal or significant new circumstances or information relevant to environmental concerns." Given that DOE did not analyze European fabrication of the LTAs in the *Supplement to the Storage and Disposition of Weapons-Usable Fissile Materials Final Programmatic Environmental Impact Statement* (SPD EIS), is it quite clear that this new approach to the LTA fabrication constitutes a significant change to the program, mandating preparation of an SEIS. In early 2002, DOE itself circulated a Draft "Notice of Intent" (NOI) to prepare this SEIS, indicating that relevant officials within DOE have also agreed that the substantial changes to the LTA fabrication proposal necessitate preparation of this document to assure compliance with NEPA. A final NOI on the SEIS must be completed and printed in the *Federal Register.*

The only LTA option that DOE has yet publicly presented or analyzed was the proposal to fabricate the LTAs at the Los Alamos National Laboratory (LANL), a decision which was embodied in the January 2000 Record of Decision (ROD) on the SPD EIS and which was subsequently canceled. While the LANL option is no longer considered viable, analysis of it in the SPD EIS has unquestionably established the precedent that any proposed LTA alternative must likewise be analyzed in an SEIS.

Given that Duke Energy has formally begun the licensing process to irradiate MOX LTAs in one of its reactors by 2005, it is clear that the preferred alternative is to fabricate the LTAs in Europe. The fabrication of the LTAs in Europe, the so-called "Eurofab" option, would maximize transport and handling risks due to the distances and transport methods involved. As it is illegal to fly plutonium designated for commercial use over U.S. territory, the proposal would require land transport of approximately 150 kilograms of weapons-grade plutonium oxide across the U.S. from LANL to an east coast port and then via sea to Europe. The fabricated MOX LTAs would then be shipped via sea back to the U.S. and overland to a Duke reactor in North or South Carolina for irradiation testing. As is the case for separated plutonium, unirradiated MOX fuel is defined as a Category I material needing the highest level of security protection. Sea transport of such material unavoidably requires an armed escort at all points -- which would meet the physical security standard applied to shipment of U.S.-origin plutonium from Europe to Japan. The environmental and proliferation risks that such a military-type shipment presents to the global commons must be thoroughly analyzed in a Supplemental EIS.

As the MOX LTA fabrication and irradiation is a key part of the surplus plutonium disposition program, and given that this may well be the first-ever transport into the U.S. of unirradiated weapons-grade MOX

fuel, we believe that the participation of the public in an SEIS is essential. Preparation of a Supplement Analysis (SA) on the LTA issue is inadequate as DOE's NEPA regulations do not require that an SA be subject to either public participation or review, thus allowing its preparation in total and unacceptable secrecy. The established standard of public participation and in-depth analysis in DOE's plutonium disposition program dictates that an SEIS be prepared and not a notoriously cursory SA. While we would expect any SEIS to include the alternative of fabrication of the LTAs in the MOX plant which might possibly be built at the Savannah River Site, we request that the SEIS include a "no action" alternative of no fabrication of the LTAs either in Europe or at SRS.

We are well aware that the U.S. Government has been in discussion with France and Belgium concerning the fabrication of the LTAs either in Belgium's P0 MOX plants or the unsafe French ATPu MOX plant at Cadarache, which was closed on July 31, 2003 due to concerns over seismic safety of the facility. Indications are that an agreement has been reached between Duke Cogema Stone & Webster (DCS) and the French company Cogema for the fabrication to take place in ATPu, whose equipment was confirmed stopped and secured by the French regulatory authority -- Autorite de Secuite Nucleaire (ASN) -- on July 16, 2003. The SEIS must not only include detailed descriptions of the European MOX facilities in which LTA MOX pellet fabrication and rod preparation would take place, but also include details on the duly licensed and regulated facility in which the individual fuel rods would be assembled into completed MOX assemblies.

As export of the plutonium oxide and import of the LTAs will necessarily require appropriate licenses from the Nuclear Regulatory Commission (NRC), we would like to know if the transport to be analyzed in the SEIS will be the responsibility of DOE or DCS? Likewise, as DOE has pursued use of European plutonium for fabrication into the LTAs, we would like to know if such material is still be considered for use and if the isotopic concentration of it can be guaranteed to be exactly the same as U.S. weapons plutonium designated for use in the program?

Recent articles in the French media concerning the arrest of a terrorist suspect in Morocco, who apparently stated that overland plutonium shipments in France were a target. A *Le Monde* article of August 25, 2003 quotes the detained suspect as saying that "plutonium transport trucks" were a target of operatives based in France. Greenpeace France, using only publicly available information, has thoroughly documented such transports and vividly demonstrated that continued shipment of plutonium by Cogema presents a grave and totally avoidable proliferation and environmental risk. Recognizing the arrest of the terrorist suspect and risk of shipment of plutonium in France, the SEIS must thoroughly analyze transport of the LTA plutonium in France and Belgium and discuss what the involvement will be of DOE and/or DCS in security and liability arrangements of the shipment.

Congress has mandated that the U.S. and Russian plutonium disposition programs be carried out in a parallel fashion, therefore we would like to know if the Russian MOX LTA program is now also at the point of meeting appropriate environmental and licensing regulations for testing in VVER-1000 reactors? If the Russian LTA program is not being carried out in parallel with the U.S. program, what is the necessity at this time to prematurely push forward with the SEIS on the U.S. LTA program?

We are supportive of a plutonium surplus disposition program that meets its stated goals: that weapons grade plutonium is effectively, safely and transparently converted into a form that is unusable for weapons use. We urge DOE to take a leadership role in pursuing a cheaper and safer non-reactor method of achieving the goal of getting the plutonium into a "proliferation resistant" form, both in the U.S. and in Russia, with a radiation barrier equivalent to that of irradiated nuclear fuel. We request that the plutonium be declared nuclear waste and managed as such, an action that would terminate any need for the dangerous shipment of U.S. weapons-grade plutonium overseas for the LTA program.

We look forward to hearing from you about the timeline for the preparation of the SEIS and how DOE will fulfill its obligations under NEPA on the MOX LTA program. Please direct your response to this letter to Mary Olson at Nuclear Information and Resource Service, Southeast Office (P.O. Box 7586 Asheville, NC 28802, 828-675-1792) and Tom Clements of Greenpeace International (702 H Street, N.W., Washington,

DC 20001, 202-319-2411). Thank you for considering our views on this very important matter, which is of great concern to the public.

Sincerely,

Tom Clements
Greenpeace International
Washington, DC

Yannick Rousselet
Greenpeace France
Paris, France

Vladimir Tchouprov
Greenpeace Russia
Moscow, Russia

Wenonah Hauter
Public Citizen's
Critical Mass Energy &
Environment Program
Washington, DC

Pamela Harris
Sierra Club, Savannah River
Group
Augusta, Georgia

Bobbie Paul
Atlanta WAND
Atlanta, Georgia

Dr. Mildred McClain
Citizens For Environmental
Justice
Savannah, Georgia

Amanda Martin
Carolina Peace
Resource Center
Columbia, South Carolina

Louis Zeller
Blue Ridge Environmental
Defense League
Glendale Springs,
North Carolina

Greg Mello
Los Alamos Study Group
Albuquerque, New Mexico

Mary Olson
Nuclear Information and
Resource Service
Asheville, North Carolina

Jan Vande Putte
Greenpeace Belgium
Brussels, Belgium

Alexey Yablokov
The Center for Russian
Environmental Policy
Moscow, Russia

Peter Stockton
Project On Government
Oversight
Washington, DC

Glenn Carroll
GANE - Georgians Against
Nuclear Energy
Atlanta, Georgia

Bob Darby
Food Not Bombs/Atlanta
Atlanta, Georgia

Sara Barczak
Southern Alliance for Clean
Energy
Savannah, Georgia

Brett Bursey
South Carolina
Progressive Network
Columbia, South Carolina

Dr. Lewis Patrie
Western North Carolina
Physicians for Social
Responsibility
Asheville, North Carolina

Jay Coghlan
Nuclear Watch of New Mexico
Santa Fe, New Mexico

Susan Gordon
Alliance For
Nuclear Accountability
Seattle, Washington

Vladimir Slivyak
Ecodefense International
Moscow, Russia

Pete Roche
Greenpeace United Kingdom
London, England

Ellen Thomas
Proposition One Committee
Washington, DC

Jenny Macuch Kato
Sierra Club, Georgia Chapter
Atlanta, Georgia

Adele Kushner
Action for a Clean Environment
Alto, Georgia

Laurel M. Suggs
League of Women Voters of
South Carolina
Columbia, South Carolina

Nancy Jocoy
York County Green Party
Fort Mill, South Carolina

Kitty Boniske
Women's International League
for Peace
and Freedom
Asheville, North Carolina

Judith Mohling
Rocky Mountain Peace and
Justice Center
Boulder, Colorado

Rich Andrews
Colorado Coalition for the Prevention of Nuclear War
Denver, Colorado

Pat Birnie
Tucson Branch, Women's International League for Peace & Freedom
Tucson, Arizona

Betty Schroeder
Arizona Safe Energy Coalition
Tucson, Arizona

Judy Treichel
Nevada Nuclear Waste Task Force
Las Vegas, Nevada

Kalynda Tilges
Shundahai Network
Las Vegas, Nevada

Peggy Maze Johnson
Citizen Alert
Las Vegas, Nevada

George Crocker
North American Water Office
Lake Elmo Minnesota

Dave Kraft
Nuclear Energy Information Service
Evanston, Illinois

Thomas Leonard
West Michigan Environmental Action Council
Grand Rapids, Michigan

Judith Johnsrud
Environmental Coalition on Nuclear Power
State College, Pennsylvania

Leon J. Glicenstein
Central Pennsylvania Citizens for Survival
State College, Pennsylvania

Scott D. Portzline
Three Mile Island Alert
Harrisburg, Pennsylvania

Phyllis Gilbert
Peace Action
Philadelphia, Pennsylvania

Alice Slater
Global Resource Action Center for the Environment
New York, New York

Deb Katz
Citizens Awareness Network
Shelburne Falls, Massachusetts

Nina Nikulina
Ecodefense' Renewables Info-center
Moscow, Russia

Alisa Nikulina
Anti-nuclear campaign of the Socio-Ecological Union Int'l
Moscow, Russia

Alexandra Koroleva
Baltic Resource and Info Center
Kaliningrad, Russia

Pavel Malyshev
Ecodefense-Kaliningrad
Kaliningrad, Russia

Alexey Milovanov
Russian bureau of WISE/NIRS
Kaliningrad, Russia

Alexey Kozlov
Ecodefense-Voronezh
Voronezh, Russia

Olga Podosenova
Ecodefense-Ekaterinburg
Ekaterinburg, Russia

Andray Pinchuk
Center for Assistance to Environmental Initiatives
Saratov, Russia

Olga Pitsunova
Clean Energy Coalition
Saratov, Russia

Dan Miner-Nordstrom
NIRS/WISE Ukraine
Kiev, Ukraine

Serghiy Fedorynchyk,
Ukrainian Environmental Association "Zeleny Svit" (Green World)
Kyiv, Ukraine

Milena Bokova
TIME - Ecoprojects Foundation
Sofia, Bulgaria

Petko Kovatchev
Centre for Environmental Information and Education
Sofia, Bulgaria

Libor Matousek
Hnuti Duha (Friends of the Earth Czech republic)
Brno, Czech Republic, Europe

Olexi Pasyuk
CEE Bankwatch Network
Kratka, Czech Republic

Daniel Swartz
The ZHABA Collective
Budapest, Hungary

Anna-Liisa Mattsoff
No More Nuclear Power movement
Helsinki, Finland

Cc: Secretary of State Collin Powell
Secretary of Defense Donald Rumsfeld
Secretary of Homeland Security Tom Ridge
National Security Advisor Condoleeza Rice
John Bolton, Under Secretary of State for Arms Control and International Security
Under Secretary Bob Card, US Department of Energy
Linton Brooks, Administrator, National Nuclear Security Administration (of DOE)
Edward Siskin, Assistant Deputy Administrator for Fissile Material Disposition, DOE
Lee Sarah Liberman Otis, General Counsel, DOE
Gregory Friedman, DOE Inspector General
Carol Borgstrom, Director, DOE Office of NEPA Policy & Compliance
Jeffrey Allison, Acting Manager, Savannah River Site
Ralph Erickson, Director, Office of Los Alamos Site Operations
Chairman Nils Diaz, Nuclear Regulatory Commission
Janice Dunn Lee, Director, NRC's Office of International Programs
John Conway, Chairman, Defense Nuclear Facilities Safety Board
Senator Pete Domenici, Chairman, Subcommittee on Energy and Water Development
Senator Harry Reid, Ranking Member, Subcommittee on Energy and Water Development
Senator Ernest Hollings, Subcommittee on Energy and Water Development
Senator Lindsey Graham, Armed Services Committee
Senator John Edwards, Intelligence Committee
Senator Elizabeth Dole, Armed Services Committee
Senator Jeff Bingaman, Energy & Natural Resources Committee
Senator Peter Fitzgerald, Senate Govt. Affairs
Senator Daniel Akaka, Senate Govt. Affairs
Representative Chris Shays, Government Reform Committee
Representative Dennis Kucinich, Government Reform Committee
Representative Doug Ose, Government Reform Committee
Representative John Tierney, Government Reform Committee
Representative David Hobson, Subcommittee on Energy and Water Development
Representative Peter Visclosky, Subcommittee on Energy and Water Development
Representative James Clyburn, Subcommittee on Energy and Water Development
Representative John Spratt, Armed Services Committee
UK Embassy, Political Affairs Division
French Embassy, Political Affairs Division
Belgian Embassy, Political Affairs Division
Michael S. Tuckman, Executive Vice President, Duke Energy Corporation

NTRS ATTACHMENT-2

RADIATION: THE MYTH OF THE MILLIREM

Natural and Man-Made Radiation
The Nuclear Age generates and processes massive amounts of radioactive material and waste. Processing uranium for use as nuclear fuel for generating electricity, in nuclear weapons and other nuclear applications, has exposed millions of workers and ordinary people worldwide to radiation. Fission in nuclear reactors and the detonation of nuclear weapons result in the generation of new sources of radioactivity. All life on Earth is exposed to and impacted by natural sources of ionizing radiation. Radiation exposures are increasing due to routine and accidental releases of man-made radioactivity.

Ionizing radiation is the emission of energetic particles (alpha, beta, neutron) or rays (gamma and x-rays) from a radioactive isotope--also called a radionuclide. These emissions may knock off an electron in its target, thus resulting in ionization. When something absorbs the energy of the ray or the particle, irradiation occurs. When a living being absorbs it, that individual has received a "dose" of radiation.

Curies, Rads, and Rems
The pioneers of the Nuclear Age invented units for measuring radioactivity. The measure of radio - active decay--the **curie** (named for Madame Marie Curie)--is the count, per second, of radioactive emissions, also called "disintegrations." One curie is that amount of a radioactive material that gives off 37 billion radioactive particles or rays per second. This unit is a fixed standard, and concentrations in curies (or fractions of a curie) per gram or per liter, and per second or per minute, can be verified with proper instrumentation.

Translating the curie amount into a potential dose to a living organism is far from precise. Unlike the curie, which has a clear definition, the units for estimating impacts of radiation on living tissues--rads, rems and millirems--are based on models and assumptions. Estimates of the biological impacts of exposure to specific types of radiation have been based on animal experiments and on a limited number of human experiments. Some estimates of dose are based on data collected from the survivors of the Hiroshima and Nagasaki bombs, even when the given situation is different.

The **Rad** is used to measure the energy absorbed by tissue that is exposed to radioactivity. In Europe the unit for 100 Rads is called a Gray.

The **Rem** combines the amount of radiation exposure (Rad) with its alleged impact on health. The estimated damage or "biological effectiveness" of the radiation is based on models. In Europe the unit for 100 Rems is called a Sievert. The prefix, "milli," denotes one-thousandth of a unit. For example: one rem equals 1,000 millirems.

The Rem (the unit of radiation dose) is not based upon a standard unit that can be verified. One must know the amount and type of radioactivity that was absorbed, the size of the body that absorbed it, and what that radiation event did to the particular body in question. Even under very controlled conditions, it is virtually impossible to derive each of these data points with certainty. In uncontrolled conditions, such as accidental releases and doses to the "general population," as we are known, it is even less possible to gather this information accurately.

The Standard Man
Emblematic of the arbitrary nature of dose assessment is the invention of the Standard Man: a fictional or contrived individual whose physical characteristics have been defined by officials who set radiation standards. Sadly, the nuclear pioneers who were charged with overseeing a work force of not-so-standard men did not take variability into account. Nor did they assess the differing impacts on women, fetuses, infants, children and elders. The work of the late Dr. Alice Stewart confirms that many groups of human beings are not comparable to the Standard Man.

When a radioactive release happens, and the dose to those impacted is estimated or "reconstructed," the characteristics of the Standard Man and the standardized assumptions about the impact of radiation on the Standard Man are used as the basis for the estimated dose. The many differences between real people and the Standard Man are not considered when estimating the official dose to individual members of the public.

Radiation Effects on Real People
Exposure to radiation increases the risk of damage to tissues, cells, DNA and other vital molecules--

potentially causing programmed cell death (apoptosis), genetic mutations, cancers, leukemias, birth defects, and reproductive, immune, cardiovascular, and endocrine system disorders. The varying impacts on health of each of the hundreds of different nuclides to which people may be exposed are simply not known.

Since scientists do not truly know the specific impacts a given radionuclide may have on the organs and tissues of a specific person, the translation of the amount of radioactivity to which that person has been exposed (in curies or fractions of a curie) into a radiation dose (in millirems) is basically speculation. That is, determining the quality and the quantity of a radiation dose is far from an exact science.

The late Dr. Donnell Boardman, a physician with many years of medical observation of nuclear workers, explained that no two radiation exposures are ever the same, even to the same individual. Ongoing research about the biochemical and physical impacts of ionizing radiation on living cells by British scientists Eric Wright and Carmel Mothersill, and others, confirms Dr. Boardman's observation. A single alpha particle, acting on a single cell, may damage that cell to the same degree as if a thousand x-rays had hit it. That is, one radiation particle can cause great damage to a single cell; that damage can even lead to a person's death, while registering a dose to the total body of zero!

"Permissible" Does NOT Mean Safe

Since the beginning of the Atomic Age, radiation standards have been set by governments based on advice from commissions composed of representatives of industries, governmental agencies, academic institutions and the medical profession involved in nuclear technologies. The standards so devised are lenient enough to allow the nuclear industry to continue exposing its workers and the public to levels of radiation decreed to be "permissible," and to continue contaminating our air, water, and soil. Permissible does not mean safe, but merely expedient.

In the U.S. the "protection" standards are usually written in rems and millirems. Since dose in rems or millirems cannot be verified, our "legal protection standards" for workers and the public cannot be verified. These standards, then, based on rems or millirems, must be taken for exactly what they are: a **myth.** Unfortunately, the radiation and its likely impacts on health are real.

The US Nuclear Regulatory Commission (NRC) has provided ample evidence of the non-verifiability of the millirem in how it has revised its radiation standards. Although in 1991 the NRC announced that it had lowered its maximum annual radiation dose for a worker and a member of the public, it actually increased the permissible levels of concentration --- in air and water --- of some radionuclides inside the workplace and in releases to our environment.

Please Don't Tell Us What You Don't Know

The "mythical millirem" has given a false legitimacy to official pronouncements about risk from exposure to radiation. Whether promoting the deregulation of radioactive waste for use in consumer products, or reporting on Chernobyl, Three Mile Island and other nuclear accidents, the nuclear industry minimizes the dangers of radiation and does not admit to the many uncertainties about monitoring and calculating the amounts of radioactivity to which workers and the public may be exposed, or its impact on our health.

A prominent health physicist admitted after an accident at the Tokaimura nuclear fuel factory in Japan in 1999, "The local government took external measurements where there was no possibility of measurement, nor were they measuring for the appropriate type of radiation .... We as a profession need to stop taking actions solely to pacify a population, when there is absolutely no benefit, and more importantly, no scientific merit."

It is time to reject the term, millirem. We should request instead that official statements about nuclear accidents, materials and facilities include data given in curies of specific radionuclides, and that authorities make it clear that the health consequences of any resulting exposure cannot be standardized or accurately predicted. Therefore any claim of "no damage to the public" has no credible basis except as one more convenient myth. --*Mary Fox Olson & Kay Drey October, 2003*

Nuclear Information & Resource Service
1424 16th St. NW Suite 404
Washington, DC 20036
202-328-0002, www.nirs.org nirsnet@nirs.org

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD PANEL

In the Matter of	)	
	)	
DUKE ENERGY CORPORATION	)	Docket Nos. 50-413
	)	50-414
Catawba Nuclear Station,)	)	
Units 1 and 2)	)	

NOTICE OF APPEARANCE

Notice is hereby given that the undersigned attorney herewith enters an appearance in the above-captioned matter in accordance with 10 C.F.R. §2.713(b).

Name:	Paul Gunter
Address:	Nuclear Information and Resource Service 1424 16th St. NW Suite 404 Washington, D.C. 20036
Telephone Number:	(202) 328-0002
Fax Number:	(202) 462-2183
E-mail Address:	pgunter@nirs.org
Name of Party:	NIRS Staff

Respectfully submitted,

original signature sent to NRC Secretary's office

Paul Gunter
Director of the Reactor Watchdog Project

Dated at Washington, DC
This 20th Day of October.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

Ann Marshall Young, Chair
Anthony J. Baratta
Thomas S. Elleman

In the Matter of	Docket No's. 50-413 50-414
DUKE ENERGY CORPORATION	
(Catawba Nuclear Station, Units 1 and 2)	October 21, 2003

Certificate of Service

I Certify that copies of "Contentions of Nuclear Information and Resource Service" in the above captioned matte and "Notice of Appearance of Paul Gunter" have been served on the following by deposit in the United States mail, first class, and additionally by electronic mail on this same day, October 21, 2003.

Honorable Ann Marshall Young Atomic Safety and Licensing Board Panel U.S. Nuclear Regulatory Commission Washington, D.C. 20555-0001 AMY@NRC.GOV	Honorable Anthony J. Baratta Atomic Safety and Licensing Board Panel U.S. Nuclear Regulatory Commission Washington, D.C. 20555-0001 AJB5@NRC.GOV
Honorable Thomas S. Elleman 5207 Creedmoor Rd. #101 Raleigh, NC 27612 elleman@eos.ncsu.edu	Office of Commission Appellate Adjudication U.S. Nuclear Regulatory Commission Mail Stop: O-16C1 Washington, D.C. 20555
Office of the Secretary ATTN: Docketing and Service U.S. Nuclear Regulatory Commission Mail Stop: O-16C1 Washington, D.C. 20555 HEARINGDOCKET@nrc.gov	Diane Curran Harmon, Curran, Spielberg & Eisenberg 1726 M Street, N.W., Suite 600 Washington, DC 20036 dcurran@harmoncurran.com
Janet Zeller Blue Ridge Environmental Defense League P.O. Box 88 Glendale Springs, NC 28629 bredl@skybest.com	Lisa F. Vaughn Legal Dept. Duke Energy Corporation 426 S. Church Street (EC11X) Charlotte, NC 28201-1006 lfVaughn@duke-energy.com

David A. Repka Anne W. Cottingham Winston & Strawn LLP 1400 L Street, N.W. Washington, D.C. 20005-3502 drepka@winston.com acotting@winston.com	Susan Uttal Antonio Fernandez Office of the General Counsel, 0-15D21 U.S. Nuclear Regulatory Commission Washington, DC 20555 slu@nrc.gov axf2@nrc.gov

Respectfully submitted,

10-21-2003

Mary Olson
Director of the Southeast Office
Nuclear Information and Resource Service