

September 15, 2003

Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**Subject:** Duke Energy Corporation  
McGuire Nuclear Station Units 1 & 2, Catawba Nuclear Station Units 1 & 2  
Docket Nos. 50-369, 50-370, 50-413, 50-414

Revision 16 to Duke Energy Corporation Physical Security Plan and Request for  
Exemption from Certain Regulatory Requirements in 10 CFR 11 and 73 to  
Support MOX Fuel Use

Pursuant to 10 CFR 50.4(b)(4), enclosed as Attachment 1 are four copies of Revision 16 to the Duke Energy Corporation Nuclear Security and Contingency Plan. The changes reflected in Revision 16 are submitted pursuant to 10 CFR 50.54(p)(2). These changes describe the additional security measures that will be implemented when unirradiated mixed oxide (MOX) fuel assemblies are received onsite. These changes do not decrease the safeguards effectiveness of the Nuclear Security and Contingency Plan, referred to as the physical security plan (PSP). However, because of the unique nature of the PSP changes, and the need for exemptions from selected NRC regulations, Duke proposes to delay implementation of these changes until NRC reviews and approves the changes and the associated exemption requests.

As part of the ongoing plutonium disposition program of the United States and the Russian Federation, Duke is a participant in the U.S. Department of Energy Surplus Plutonium Disposition Project, whereby excess plutonium will be disposed by fabrication into mixed oxide fuel assemblies and irradiated in the McGuire and Catawba reactors. The goal of the United States-Russian nuclear nonproliferation program is to dispose of surplus plutonium from nuclear weapons by converting the material into mixed oxide fuel and using that fuel in nuclear reactors.

On February 27, 2003, Duke submitted a license amendment application to the NRC requesting authorization to load four MOX fuel lead assemblies into either a McGuire or Catawba unit to confirm that the MOX fuel performs as expected in a reactor. This amendment request acknowledged that corresponding changes would be needed to Duke's PSP and indicated that such proposed changes would be addressed under separate cover. This submittal (including Attachments 1 through 7) sets forth the proposed changes to the Duke PSP necessitated by MOX fuel activities, the rationale for the PSP changes, and information concerning NRC security-related requirements from which Duke seeks an exemption in connection with the MOX fuel use.

**Withhold Attachments from Public Disclosure  
Pursuant to 10 CFR 2.790(d)(1)**

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Additionally, this submittal includes (as Attachment 7) a request for exemption from certain regulations in 10 CFR Part 11 (*Criteria and Procedures for Determining Eligibility for Access to or Control Over Special Nuclear Material*) and 10 CFR Part 73 (*Physical Protection of Plants and Materials*). Part 73 contains security requirements for the physical protection of special nuclear material ("SNM") at fixed sites and in transit and physical protection requirements for plants in which SNM is used. NRC reactor facilities are exempted from certain Part 73 requirements because of the characteristics of the SNM in fresh and irradiated uranium oxide fuel used in reactors. Instead, physical security requirements for reactor facilities are contained in 10 CFR 73.55 (*Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors against Radiological Sabotage*). However, the presence of a formula quantity of plutonium in unirradiated MOX fuel "re-activates" certain Part 73 provisions by eliminating these exemptions. The overall regulatory effect is to impose additional Part 73 requirements upon McGuire and Catawba because of the proposed use of MOX fuel. This submittal explains how Duke proposes to meet certain of these provisions, and why Duke is seeking an exemption from other provisions.

The components of the submittal are summarized below.

#### Attachment 1

Attachment 1 contains Revision 16 to the PSP. The PSP contains the physical security requirements for all Duke-operated reactors. Revision 16 consists of a new Section 13.3 that specifies the supplemental security measures, which will be effective when fresh/unirradiated MOX fuel assemblies are onsite at the McGuire or Catawba Nuclear Station.

#### Attachment 2

Attachment 2 to Duke's submittal describes the overall regulatory framework for this submittal and provides an overview of the information contained in the submittal. It explains why Duke believes it necessary to comply with some Part 73 requirements and seek exemptions from others in connection with the development of the proposed changes to the Duke PSP. Attachment 2 also addresses the inapplicability of 10 CFR Parts 25 and 95 regarding classified information and explains the basis for Duke's request for an exemption from certain requirement in 10 CFR Part 11 (*Criteria and Procedures for Determining Eligibility for Access to or Control over Special Nuclear Material*).

#### Attachment 3

Attachment 3 summarizes the new proposed security measures for MOX fuel (as described in PSP subsection 13.3) that are set forth in Attachment 1. Attachment 3 describes each new PSP subsection, gives the regulatory source (whether DOE, NRC, or Duke requirement) of that subsection, and provides additional regulatory bases for each of the proposed PSP changes relating to MOX fuel.

#### Attachments 4, 5, and 6

Attachment 4 lists the requirements in 10 CFR Part 73 from which NRC reactor facilities are currently exempted by the terms of Section 73.6. These same provisions could apply to McGuire and/or Catawba by virtue of the presence of a formula quantity of plutonium in fresh/unirradiated MOX fuel at the site. While Duke can and will comply with most of these requirements, there

are several that are impractical and unnecessary to assure the security of any MOX fuel assemblies. In connection with any future use of MOX fuel, Duke will therefore require exemptions from aspects of 10 CFR 73.45 and 10 CFR 73.46.

Attachments 5 and 6 provide a comparison of Duke's current security program and the proposed security program for MOX fuel to each of the requirements in Sections 73.45 and 73.46. These attachments also indicate those requirements of Sections 73.45 and 73.46 that Duke proposes to meet and those from which Duke requests an exemption.

#### Attachment 7

Attachment 7 to this submittal is the request for exemptions from selected requirements in 10 CFR Parts 11 and 73, in connection with the proposed future loading of MOX fuel assemblies at McGuire or Catawba. 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.

Duke acknowledges that there are other regulatory approaches for establishing security requirements for MOX fuel that could be utilized rather than the exemption process allowed by §73.5. In particular, §73.46(a) allows the Commission to "authorize protection measures other than those required by this section if, in its opinion, the overall level of performance meets the general performance objective and requirements of §73.20 and the performance capability requirements of §73.45." The information provided in this submittal is intended to support the exemption request process; however, it also provides supporting information to allow the NRC staff to develop other MOX fuel security requirements that the Commission could authorize as described above.<sup>1</sup> In either case, Duke would welcome the opportunity to meet with the NRC Staff to discuss these matters and to answer questions on the submittal.

Duke requests that the proposed PSP change, the supporting documentation, and Duke's related exemption request (Attachments 1 through 7) be withheld from public disclosure pursuant to 10 CFR 2.790(d)(1). In its entirety, this submittal relates to Duke's physical protection programs and is deemed to be confidential commercial information within the meaning of 10 CFR 9.17(a)(4) and 10 CFR 2.790(d)(1).<sup>2</sup> Such information is not normally disseminated outside our company. If made public, this security-related information would compromise the interests protected by these NRC regulations, and adversely affect Duke's ability to adequately protect public health and safety at its nuclear facilities. Duke therefore requests that the NRC treat the entire submittal as information within the scope of 10 CFR 2.790(d)(1), and protect this submittal from public disclosure. We have clearly marked the cover letter and all of the attached documents to indicate that the attachments should be withheld.

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<sup>1</sup> In a February 2000 meeting with Duke, the NRC staff indicated that NRC could establish security requirements for MOX fuel at reactor sites via a Commission order.

<sup>2</sup> 10 CFR 2.790(d)(1) provides that correspondence and reports to or from the NRC which contain information or records concerning a licensee's "physical protection, classified matter protection, or material control and accounting program for special nuclear material not otherwise designated as safeguards information or classified as national information or restricted data" is deemed to be commercial or financial information within the meaning of Section 9.17(a)(4) and shall be subject to disclosure only in accordance with the provisions of Section 9.19.

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Duke requests that NRC approve the PSP change in Attachment 1 (Revision 16) and the exemptions requested in Attachment 7 by September 2004 to support MOX fuel lead assembly use in Spring 2005.

Should there be any questions concerning this submittal, please contact G. A. Copp at (704) 373-5620.

*M.S. Tuckman*

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cc: w/attachments

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