

April 3, 2001

Mr. R. Krich  
Vice President - Regulatory Services  
Exelon Generation Company, LLC  
1400 Opus Place  
Downers Grove, IL 60515-5701

SUBJECT: FEDERAL REGISTER NOTICE PUBLISHING AN ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT FOR A REQUEST FOR AN EXEMPTION FROM 10 CFR 72.212 AND 72.214, DOCKET NO. 72-37 (TAC NO. L23273)

Dear Mr. Krich:

In accordance with Exelon Company's exemption requests dated January 11, February 16, and March 2, 2001, and pursuant to 10 CFR 51.35, the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Material Safety and Safeguards, Spent Fuel Project Office, has issued an Environmental Assessment and Finding of No Significant Impact. The requested exemption would allow HI-STORM 100 Cask Systems to be loaded with fuel assemblies that have characteristics that differ from those listed in the HI-STORM 100 Certificate of Compliance and placed on concrete storage pads with a concrete compressive strength of less than or equal to 6,000 psi at 28 days.

NRC will notify you in a timely manner of our decision on this exemption request. Enclosed is a copy of the Federal Register Notice.

Sincerely,  
**/RA/ original signed by /s/**  
E. William Brach, Director  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Docket Nos.: 72-37, 72-1014, 50-10

Enclosure: Federal Register Notice

cc: Mr. K.P. Singh, President  
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U.S. NUCLEAR REGULATORY COMMISSION  
DOCKET 72-37  
EXELON GENERATION COMPANY, LLC  
DRESDEN INDEPENDENT SPENT FUEL STORAGE INSTALLATION  
ISSUANCE OF ENVIRONMENTAL ASSESSMENT  
AND FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC or Commission) is considering issuance of an exemption, pursuant to 10 CFR 72.7, from the provisions of 10 CFR 72.212(a)(2), 72.212(b)(2)(i)(A), and 72.214 to Exelon Generation Company, LLC (EGC). The requested exemption would allow EGC to deviate from the requirements of Certificate of Compliance 1014 (the Certificate), Appendix B, Table 2.1-3, "BWR Fuel Assembly Characteristics," which describes the acceptable fuel design characteristics. Some of the fuel assemblies EGC plans to store in the HI-STORM casks have parameters outside those specified in the Certificate, Appendix B, Table 2.1-3. The requested exemption would allow, in addition to the parameters in Appendix B, Table 2.1-3, boiling water reactor (BWR) fuel assemblies with the following fuel assembly characteristics:

Fuel assembly maximum design initial uranium mass  $\leq$  110 kg/assembly

Fuel assembly array/class 6x6A fuel rod clad ID  $\leq$  0.5105 inches

Fuel assembly array/class 6x6A fuel pellet diameter  $\leq$  0.4980 inches

Fuel assembly array/classes 6x6A and 6x6B fuel rod pitch  $\leq 0.710$  inches

Fuel assembly array/classes 6x6A, 6x6B, and 8x8A active fuel length  $\leq 120$  inches

Fuel assembly array/classes 6x6A and 6x6B number of fuel rod locations "35 or 36"

Fuel assembly array/class 8x8A number of fuel rod locations "63 or 64"

Fuel assembly array/classes 6x6A, 6x6B, and 8x8A number of water rods "1 or 0"

Fuel assembly array/classes 6x6A, 6x6B, and 8x8A water rod thickness  $\geq 0$  inches

The requested exemption would also allow EGC to deviate from the requirements of the Certificate, Appendix B, Items 3.4.6.a, 3.4.6.b and 3.4.6.d and place HI-STORM 100 Cask Systems, loaded with spent nuclear fuel, on a concrete storage pad with a concrete thickness of less than or equal to 28 inches, concrete compressive strength of less than or equal to 6,000 psi at 28 days, and soil effective modulus of elasticity of less than or equal to 16,000 psi at the Dresden Nuclear Power Station (Dresden) Independent Spent Fuel Storage Installation (ISFSI).

#### ENVIRONMENTAL ASSESSMENT (EA)

Identification of Proposed Action: By letters dated January 11, February 16, and March 2, 2001, EGC requested an exemption from the requirements of 10 CFR 72.212(a)(2), 72.212(b)(2)(i)(A), and 72.214 to deviate from the requirements of Certificate of Compliance 1014, Appendix B, Table 2.1-3 and Items 3.4.6.a, 3.4.6.b and 3.4.6.d. EGC is a general licensee, authorized by NRC to use spent fuel storage casks approved under 10 CFR Part 72, Subpart K.

EGC plans to use the HI-STORM 100 Cask System to store spent nuclear fuel, generated at the Dresden Nuclear Power Station, at an ISFSI located in Morris, Illinois, on the

Dresden Nuclear Power Station site. The Dresden ISFSI has been constructed for interim dry storage of spent nuclear fuel.

By exempting EGC from 10 CFR 72.212(a)(2), 72.212(b)(2)(i)(B), and 72.214, EGC will also be authorized to load HI-STORM 100 Cask Systems with fuel assemblies with the following characteristics:

- Fuel assembly maximum design initial uranium mass  $\leq 110$  kg/assembly
- Fuel assembly array/class 6x6A fuel rod clad ID  $\leq 0.5105$  inches
- Fuel assembly array/class 6x6A fuel pellet diameter  $\leq 0.4980$  inches
- Fuel assembly array/classes 6x6A and 6x6B fuel rod pitch  $\leq 0.710$  inches
- Fuel assembly array/classes 6x6A, 6x6B, and 8x8A active fuel length  $\leq 120$  inches
- Fuel assembly array/classes 6x6A and 6x6B number of fuel rod locations "35 or 36"
- Fuel assembly array/class 8x8A number of fuel rod locations "63 or 64"
- Fuel assembly array/classes 6x6A, 6x6B, and 8x8A number of water rods "1 or 0"
- Fuel assembly array/classes 6x6A, 6x6B, and 8x8A water rod thickness  $\geq 0$  inches

The fuel assembly characteristics specified above would be in addition to those specified in Certificate of Compliance 1014, Appendix B, Table 2.1-3.

By exempting EGC from 10 CFR 72.212(a)(2), 72.212(b)(2)(i)(B), and 72.214, EGC will also be authorized to place loaded HI-STORM 100 Cask Systems on cask storage pads that include the following characteristics:

- (1) Concrete Thickness:  $\leq 28$  inches
- (2) Concrete Compressive Strength:  $\leq 6,000$  psi at 28 days

- (3) Soil Effective Modulus of Elasticity:  $\leq 16,000$  psi

The storage pad characteristics specified above would be in lieu of those specified in Certificate of Compliance 1014, Appendix B, Items 3.4.6.a, 3.4.6.b, and 3.4.6.d, respectively. The proposed action before the Commission is whether to grant this exemption under 10 CFR 72.7.

The NRC staff has reviewed the exemption requests and determined that loading fuel assemblies with the revised characteristics and placement of HI-STORM 100 Cask Systems on storage pads with the revised characteristics would have minimal impact on the design basis and would not be inimical to public health and safety.

Need for the Proposed Action: There are a number of Dresden Unit 1 spent fuel assemblies in the Dresden Unit 2 spent fuel pool. To maintain full core offload capability in the Dresden Unit 2 spent fuel pool once new fuel arrives in the Summer of 2001, EGC needs to begin loading spent fuel into storage casks in Spring of 2001. Unless the exemption is granted, the fuel assemblies and storage pads at the Dresden ISFSI will not be in full conformance with the Certificate. The NRC is proposing to grant this exemption based on the staff's technical review of information submitted by EGC.

Environmental Impacts of the Proposed Action: The potential environmental impact of using the HI-STORM 100 Cask System was initially presented in the Environmental Assessment (EA) for the Final Rule to add the HI-STORM 100 Cask System to the list of approved spent fuel storage casks in 10 CFR 72.214 (65 FR 25241, 05/01/00). Furthermore, each general licensee must assess the environmental impacts of the specific ISFSI in

accordance with the requirements of 10 CFR 72.212(b)(2). This section also requires the general licensee to perform written evaluations to demonstrate compliance with the environmental requirements of 10 CFR 72.104, "Criteria for radioactive materials in effluents and direct radiation from an ISFSI or MRS [Monitored Retrievable Storage Installation]."

The HI-STORM 100 Cask System is designed to mitigate the effects of design basis accidents that could occur during storage. Design basis accidents account for human-induced events and the most severe natural phenomena reported for the site and surrounding area. Postulated accidents analyzed for an ISFSI include tornado winds and tornado generated missiles, design basis earthquake, design basis flood, accidental cask drop, lightning effects, fire, explosions, and other incidents.

The HI-STORM 100 Cask System consists of a stainless steel multi-purpose canister and a concrete and steel overpack. The welded MPC provides confinement and criticality control for the storage and transfer of spent nuclear fuel. The overpack provides radiation shielding and structural protection of the MPC during storage. Special design feature requirements for the cask and for the site are specified in Certificate of Compliance 1014, Appendix B. These include the storage pad design characteristics.

Considering the specific cask and site design requirements for each accident condition, the design of the cask would prevent loss of containment, shielding, and criticality control. Without the loss of either containment, shielding, or criticality control, the risk to public health and safety is not compromised.

The staff performed a safety evaluation of the proposed exemption. The staff found that the proposed exemption is consistent with the criticality, shielding, thermal and cask drop and tipover analyses presented in the revised Safety Analyses Report for the HI-STORM 100 Cask System and does not reduce the safety margin. The staff has determined that loading fuel assemblies that include the following design characteristics does not pose any increased risk to public health and safety.

Fuel assembly maximum design initial uranium mass  $\leq$  110 kg/assembly

Fuel assembly array/class 6x6A fuel rod clad ID  $\leq$  0.5105 inches

Fuel assembly array/class 6x6A fuel pellet diameter  $\leq$  0.4980 inches

Fuel assembly array/classes 6x6A and 6x6B fuel rod pitch  $\leq$  0.710 inches

Fuel assembly array/classes 6x6A, 6x6B, and 8x8A active fuel length  $\leq$  120 inches

Fuel assembly array/classes 6x6A and 6x6B number of fuel rod locations "35 or 36"

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Fuel assembly array/classes 6x6A, 6x6B, and 8x8A number of water rods "1 or 0"

Fuel assembly array/classes 6x6A, 6x6B, and 8x8A water rod thickness  $\geq$  0 inches

The staff has also determined that placement of loaded HI-STORM 100 Cask Systems on storage pads with a 1) concrete thickness of less than or equal to 28 inches, 2) concrete compressive strength of less than or equal to 6,000 psi at 28 days, and 3) soil effective modulus of elasticity less than or equal to 16,000 psi does not pose any increased risk to public health and safety. Furthermore, the proposed action now under consideration would not change the potential environmental effects assessed in the initial rulemaking (65 FR 25241, 05/01/00).

Therefore, the staff has determined that there is no reduction in the safety margin nor significant environmental impacts as a result of loading fuel assemblies with the revised characteristics (as specified above) and placing loaded HI-STORM 100 Cask Systems on storage pads with a concrete thickness of less than or equal to 28 inches, concrete compressive strength of less than or equal to 6,000 psi at 28 days, and soil effective modulus of elasticity less than or equal to 16,000 psi.

Alternative to the Proposed Action: Since there is no significant environmental impact associated with the proposed action, alternatives with equal or greater environmental impact are not evaluated. The alternative to the proposed action would be to deny approval of the exemption. Denial of the exemption request will have the same environmental impact.

Agencies and Persons Consulted: On March 20, 2001, Mr. F. Niziolek, Reactor Safety Section Head, Illinois Department of Nuclear Safety, was contacted about the Environmental Assessment for the proposed action and had no comments.

#### FINDING OF NO SIGNIFICANT IMPACT

The environmental impacts of the proposed action have been reviewed in accordance with the requirements set forth in 10 CFR Part 51. Based upon the foregoing EA, the Commission finds that the proposed action of granting an exemption from 10 CFR 72.212(a)(2), 72.212(b)(2)(i)(A), and 72.214 so that EGC may load HI-STORM 100 Cask Systems with revised (as specified above) fuel assembly characteristics and place loaded HI-STORM 100 Cask Systems on concrete storage pads with a concrete thickness of less than or equal to 28 inches, concrete compressive strength of less than or equal to 6,000 psi at 28 days, and soil

effective modulus of elasticity less than or equal to 16,000 psi at the Dresden ISFSI will not significantly impact the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed exemption.

The request for exemption was docketed under 10 CFR Part 72, Docket 72-37. For further details with respect to this action, see the exemption requests dated January 11, February 16, and March 2, 2001, which are available for public inspection at the Commission's Public Document Room, One White Flint North Building, 11555 Rockville Pike, Rockville, Maryland 20852, or from the publicly available records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Dated at Rockville, Maryland, this 3rd day of April 2001.

FOR THE NUCLEAR REGULATORY COMMISSION  
**/RA/ original signed by /s/**  
E. William Brach, Director  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
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