

July 20, 2005

Mr. Dale E. James  
Acting Director  
Nuclear Safety Assurance - ANO  
Entergy Operations, Inc.  
1448 S. R. 333  
Russellville, AR 72802

SUBJECT: FEDERAL REGISTER NOTICE PUBLISHING AN ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT FOR AN EXEMPTION FROM 10 CFR 72.212(a)(2), 72.212(b)(2)(i), 72.212(b)(7), AND 72.214, DOCKET NO. 72-13 (TAC NO. L23826)

Dear Mr. James:

In accordance with the Entergy Operations, Inc. (Entergy), exemption request dated March 21, 2005, and pursuant to 10 CFR 72.7, the 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. Entergy, as the holder of an operating nuclear power reactor 10 CFR Part 50 license, is permitted to store spent nuclear fuel under the general license provision of 10 CFR 72.210. As a general licensee, Entergy is storing spent nuclear fuel in an approved Holtec International (Holtec) HI-STORM 100 Cask System, as codified in 10 CFR 72.214, and is therefore bound to the requirements of the Certificate of Compliance (CoC) issued for the HI-STORM 100 Cask System. Exemption from the provisions of 10 CFR 72.212(a)(2), 72.212(b)(2)(i), 72.212(b)(7), and 72.214 would allow the storage of damaged spent nuclear fuel assemblies in a Holtec HI-STORM 100 Multi-Purpose Canister (MPC) -32. Specifically, the request is for exemption from the requirements of Appendix B, Section 2.1 of the HI-STORM 100 Cask System CoC (1014), Fuel Specifications and Loading Conditions.

Pursuant to 10 CFR 51.35, the NRC has performed an Environmental Assessment for the proposed action. Enclosed is a copy of the Notice of Issuance of the Environmental Assessment and Finding of No Significant Impact regarding this action for your information and which has been forwarded to the Office of the Federal Register for publication. The NRC will notify you in a timely manner of our decision on this exemption request.

D. James

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Please reference Docket No. 72-13 and TAC No. L23826 in future correspondence related to this licensing action. If you have any questions regarding this matter, you may contact me at (301) 415-8500.

Sincerely,

**/RA/**

Christopher M. Regan, Senior Project Manager  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 72-13  
TAC No. L23826

Enclosure: Federal Register Notice

D. James

- 2 -

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Enclosure: Federal Register Notice

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**U.S. NUCLEAR REGULATORY COMMISSION**

**DOCKET NO. 72-13**

**ENTERGY OPERATIONS, INC., ARKANSAS NUCLEAR ONE**

**INDEPENDENT SPENT FUEL STORAGE INSTALLATION**

**ISSUANCE OF ENVIRONMENTAL ASSESSMENT**

**AND FINDING OF NO SIGNIFICANT IMPACT**

**REGARDING A PROPOSED EXEMPTION**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Issuance of Environmental Assessment and Finding of No Significant Impact.

**FOR FURTHER INFORMATION CONTACT:** Christopher M. Regan, Senior Project Manager, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Telephone: (301) 415-1179; fax number: (301) 415-1179; e-mail: [cmr1@nrc.gov](mailto:cmr1@nrc.gov).

**SUPPLEMENTARY INFORMATION:**

The U.S. Nuclear Regulatory Commission (NRC or Commission) is considering a request dated March 21, 2005, from Entergy Operations, Inc. (applicant or Entergy Operations) for exemption from the requirements of 10 CFR 72.212(a)(2) and 10 CFR 72.214 pursuant to 10 CFR 72.7, for the Arkansas Nuclear One (ANO), Unit 1 and Unit 2 Independent Spent Fuel Storage Installation, located 6 miles west-northwest of Russellville, Arkansas. In consideration of the request, the NRC would also grant exemption from the requirements of 10 CFR 72.212(b)(2)(i) and 72.212(b)(7). The exemption would authorize the applicant to store damaged spent nuclear fuel (SNF) assemblies in a Holtec HI-STORM 100, Amendment 1 design, Multi-Purpose Canister (MPC) -32.

**ENVIRONMENTAL ASSESSMENT (EA):****I. Identification of Proposed Action**

By letter dated March 21, 2005, Entergy Operations requested an exemption from the requirements of 10 CFR 72.212(a)(2) and 10 CFR 72.214, specifically, exemption from complying with Appendix B, Section 2.1, of the HI-STORM 100 Cask System CoC (1014), Fuel Specifications and Loading Conditions. The NRC action would also include granting exemption from the requirements of 10 CFR 72.212(b)(2)(i) and 72.212(b)(7). Approval of the exemption request would allow storage of uncanned damaged SNF assemblies in a HI-STORM 100, Amendment 1 design, MPC-32. Damaged SNF assemblies may be stored in an HI-STORM 100, Amendment 2 design, MPC-32 when properly canned. Entergy Operations has identified five previously loaded intact fuel assemblies that have been reclassified as damaged SNF assemblies. A damaged SNF assembly is defined in the HI-STORM 100, Amendment 1 CoC in part as one with greater than pinhole leak or hairline cracks. Each of the five SNF assemblies classified as damaged contain one interior rod characterized as defective. In accordance with Amendment 1 to CoC 1014 granted to Holtec for the HI-STORM 100 cask system, and as codified in 10 CFR 72.214, the MPC-32 is not permitted to store damaged fuel assemblies. ANO as a general licensee, is authorized by the NRC to use spent fuel storage casks approved under 10 CFR Part 72, Subpart K.

For the NRC to permit Entergy Operations to continue to store the five uncanned damaged SNF assemblies in four HI-STORM 100, Amendment 1 design, MPC-32's, the NRC, must grant Entergy Operations an exemption from the general license conditions defined in 10 CFR 72.212. The regulations in 10 CFR 72.212 state that the general license for storage of SNF at power reactor sites is limited to storage of SNF in casks approved under the provisions in 10 CFR Part 72. By exempting Entergy Operations from 10 CFR 72.214 and 72.212(a)(2),

72.212(b)(2)(i), and 72.212(b)(7), Entergy Operations will be authorized to use its general license to store uncanned damaged SNF assemblies in the HI-STORM 100, Amendment 1 design, MPC-32. The proposed action before the Commission is whether to grant the exemption under 10 CFR 72.7.

The ISFSI is located 6 miles west-northwest of Russellville, Arkansas, on the ANO Power Plant site. The ANO ISFSI is an existing facility constructed for interim dry storage of spent ANO nuclear fuel.

## **II. Need for the Proposed Action**

Five uncanned damaged SNF assemblies are currently loaded into four HI-STORM 100, Amendment 1 design, MPC-32's stored at the ANO ISFSI. Unloading of the damaged SNF assemblies would subject personnel to a significant unnecessary dose, generate additional contaminated waste, increase the risk of a possible fuel handling accident, and increase the risk of a heavy load handling accident. Discharge of the damaged SNF assemblies from storage in the MPCs would result in inadequate storage capacity in the ANO Unit 2 Spent Fuel Pool. If the damaged SNF assemblies are discharged into the spent fuel pool, storage of new fuel and the restoration of normal full core offload capability prior to and after the next refueling outage would be challenged. Recovery of spent fuel pool space could be significantly hindered due to double handling of ANO Unit 2 fuel in addition to material and scheduling conflicts with ANO Unit 1 activities to the extent that ANO Unit 2 core offloads could be jeopardized.

## **III. Environmental Impacts of the Proposed Action**

The potential environmental impact of using the HI-STORM 100 system was initially presented in the Environmental Assessment for the final rule to add the HI-STORM 100 system to the list of approved spent fuel storage casks in 10 CFR 72.214 (65 FR 25241; May 1, 2000). 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)(iii). This section 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 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. Considering the specific design requirements for each accident condition, the design of the HI-STORM 100, Amendment 1, cask system using an MPC-32 basket design, would prevent loss of containment, shielding, and criticality control. The loading of damaged SNF has no impact on the structural aspects of the containment boundary. The HI-STORM 100, Amendment 1 design permits storage of damaged SNF assemblies in the MPC-24 and MPC 68 which utilize the same outer containment boundary as the MPC-32. Dose surveys performed prior to placing each cask in service, including those MPC-32s containing the damaged SNF assemblies, demonstrated that each cask satisfied the dose requirements defined in the HI-STORM 100 Amendment 1 CoC. Any relocation of the damaged fuel rods, in the fuel assembly, within the MPC has a negligible effect on the  $k_{\text{eff}}$  (criticality control) of the system predominantly due to the fact that there are no more than two individual damaged fuel rods per MPC. Without the loss of either containment, shielding, or criticality control, the risk to public health and safety from the continued storage of five damaged SNF assemblies in four HI-STORM 100, Amendment 1 design, MPC-32s, is not compromised.

By permitting the continued storage of five uncanned damaged SNF assemblies using HI-STORM 100 system, Amendment 1 design, MPC-32s, there will be no additional

occupational exposure due to unloading activities, and offsite dose rates will remain well within the 10 CFR Part 20 limits. Therefore, the NRC staff has determined that an acceptable safety margin is maintained and that there are no significant environmental impacts as a result of continuing to store five damaged SNF assemblies in four HI-STORM 100, Amendment 1, MPC-32s at the ANO ISFSI.

#### **IV. Alternatives to the Proposed Action**

The staff evaluated the alternative to the proposed action to deny approval of the exemption. Denial of the exemption request would result in unloading of the damaged SNF assemblies subjecting personnel to unnecessary dose, the generation of additional contaminated waste, an increase in the risk of a possible fuel handling accident, an increase in the risk of a heavy load handling accident, and result in inadequate storage capacity in the ANO Unit 2 Spent Fuel Pool jeopardizing the ability to fully offload the ANO Unit 2 core .

#### **V. Agencies and Persons Consulted**

On July 11, 2005, Bernard Bevill from the Radiation Control Work Unit, Arkansas Department of Health, was contacted about the EA for the proposed action and had no concerns.

#### **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), 72.212(b)(7), and 72.214 so that Entergy Operations may continue to store uncanned damaged SNF assemblies in a Holtec HI-STORM 100, Amendment 1 design, MPC-32, at the ANO, Units 1 and 2 ISFSI, will not significantly impact the quality of the human environment.

**FURTHER INFORMATION**

In accordance with 10 CFR 2.390 of NRC's "Rules of Practice," final NRC records and documents regarding this proposed action, including the exemption request dated March 21, 2005, are publically available in the records component of NRC's Agencywide Documents Access and Management System (ADAMS). These documents may be inspected at NRC's Public Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. These documents may also be viewed electronically on the public computers located at the NRC's Public Document Room (PDR), O1F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852. The PDR reproduction contractor will copy documents for a fee. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC PDR Reference staff by telephone at 1-800-397-4209 or (301) 415-4737, or by e-mail to [pdrr@nrc.gov](mailto:pdrr@nrc.gov).

Dated at Rockville, Maryland, this 20th day of July 2005.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Christopher M. Regan, Senior Project Manager  
Spent Fuel Project Office  
Office of Nuclear Material Safety and Safeguards

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Dated at Rockville, Maryland, this 20th day of July 2005.

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*/RA/*

Christopher M. Regan, Senior Project Manager  
Spent Fuel Project Office  
Office of Nuclear Material Safety and Safeguards

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DATE:	7/11/05		7/12/05		7/20/05		7/20/05	

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