**[7590-01-P]**

**NUCLEAR REGULATORY COMMISSION**

**[Docket Nos. 50-313, 50-368, 72-13, and 72-1014; NRC-2014-0270]**

**Independent Spent Fuel Storage Installation, Entergy Operations, Inc.;**

**Arkansas Nuclear One, Units 1 and 2**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Environmental assessment and finding of no significant impact; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an exemption to Entergy Operations, Inc. (Entergy or the licensee), for the operation of the Arkansas Nuclear One (ANO), Units 1 and 2, Independent Spent Fuel Storage Installation (ISFSI). The request is for an exemption from the requirement to comply with the terms, conditions, and specifications in Section 2.1 of Appendix B of Certificate of Compliance (CoC) No. 1014, Amendment No. 5, for the Holtec International (Holtec) HI-STORM 100 dry cask storage system.

**DATES:** The environmental assessment and finding of no significant impact are available as of **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

**ADDRESSES:** Please refer to Docket ID NRC-2014-0270 when contacting the NRC about the availability of information regarding this document. You may obtain publicly-available information related to this document using any of the following methods:

- **Federal Rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID NRC-2014-0270. Address questions about NRC dockets to Carol Gallagher; telephone: 301-287-3422; e-mail: Carol.Gallagher@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly available documents online in the ADAMS Public Documents collection at http://www.nrc.gov/reading-rm/adams.html. To begin the search, select "ADAMS Public Documents" and then select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The ADAMS accession number for each document referenced in this document (if that document is available in ADAMS) is provided the first time that a document is referenced.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

**FOR FURTHER INFORMATION CONTACT:** Chris Allen, Office of Nuclear Material Safety and Safeguards, telephone: 301-287-9225, e-mail: William.Allen@nrc.gov; U.S. Nuclear Regulatory Commission, Washington, DC 20555.

**SUPPLEMENTARY INFORMATION:**

## I. Introduction.

The NRC is considering issuance of an exemption to Entergy, for operation of the ANO ISFSI, located in Russellville, Arkansas. Pursuant to § 72.7 of Title 10 of the *Code of Federal*

*Regulations* (10 CFR), on October 2, 2014, as supplemented on October 14 and November 7, 2014 (ADAMS Accession Nos. ML14279A246, ML14289A239, and ML14311A121, respectively), Entergy submitted its request for exemption from the requirements of 10 CFR 72.212(a)(2) and the portion of 10 CFR 72.212(b)(11) that requires compliance with the terms, conditions, and specifications of CoC No. 1014, Amendment No. 5, for the HI-STORM 100 dry cask storage system. In evaluating the request, the NRC also considered exemption from the requirements of 10 CFR 72.212(b)(3), 10 CFR 72.212(b)(5)(i), and 10 CFR 72.214 applicable to the request and has weighed these regulations in its review.

Entergy loaded spent nuclear fuel into a Model 24 Multi-Purpose Canister (MPC-24) under CoC No. 1014, Amendment No. 5. While performing drying operations on MPC-24-060, a radiation alarm actuated. In evaluating the cause of the alarm, the licensee subsequently determined that a fuel assembly loaded into MPC-24-060 may contain a fuel rod with cladding damage greater than a pinhole leak or hairline crack. Section 2.1 of Appendix B of the Technical Specifications (TS) for CoC No. 1014, Amendment No. 5, only authorizes storage of intact fuel assemblies, which is defined as fuel assemblies without known or suspected cladding defects greater than pinhole leaks or hairline cracks and which can be handled by normal means. Entergy requests an exemption to the 10 CFR Part 72 requirements to store the affected MPC in its current condition at the ISFSI associated with the operation of ANO, Units 1 and 2.

## II. Environmental Assessment (EA).

*Identification of Proposed Action:* The CoC is the NRC approved design for each dry cask storage system. The proposed action would grant Entergy an exemption from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(3), 10 CFR 72.212(b)(5)(i), and the portion of 10 CFR 72.212(b)(11) that states the licensee shall comply with the terms, conditions, and

specifications of the CoC, and from 10 CFR 72.214 to the extent necessary for Entergy to store MPC-24-060 in its current condition at the ISFSI associated with ANO, Units 1 and 2. These regulations specifically require storage of spent nuclear fuel under a general license in dry storage casks approved under the provisions of 10 CFR Part 72, and compliance with the terms and conditions set forth in the CoC for each dry storage spent fuel cask used by an ISFSI general licensee.

Section 2.1 of Appendix B of the TS for CoC No. 1014, Amendment No. 5, only authorizes storage of intact fuel, which is defined as fuel assemblies without known or suspected cladding defects greater than pinhole leaks or hairline cracks and which can be handled by normal means. Entergy performed tests on the fuel assemblies loaded into MPC-24-060 after their final operating cycle as well as visual examinations prior to loading. Nevertheless, a fuel assembly having defects greater than pinhole leaks and hairline cracks may have been inadvertently loaded into MPC-24-060.

The proposed action would grant Entergy an exemption from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(3), 10 CFR 72.212(b)(5)(i), and the portion of 10 CFR 72.212(b)(11) that states the licensee shall comply with the terms, conditions, and specifications of the CoC, and from 10 CFR 72.214, in order to allow storage of MPC-24-060 in its current condition. This exemption approval would only be valid for MPC-24-060 at the ANO ISFSI.

*Need for the Proposed Action:* The proposed action is necessary to avoid unloading the MPC. Entergy requested this exemption in order to store an MPC containing a fuel assembly which may have cladding damage greater than a pinhole leak or hairline crack. Entergy, with the assistance of Holtec, has provided an evaluation which shows that the affected MPC is bounded by the system's design basis limits and that storage of the fuel in the as-loaded configuration is safe.

Entergy has evaluated the consequences of not obtaining an exemption, which would occur if the NRC did not take the proposed action. In the absence of an exemption, Entergy would be required to correct the condition by reloading the affected MPC to comply with CoC No. 1014, Amendment No. 5. This would involve unloading the spent fuel assemblies from the MPC, performing inspections of various MPC components, reloading the spent fuel assemblies into the used MPC or a new MPC (if there was damage noted on the used MPC) in accordance with CoC No. 1014, Amendment No. 5, and performing the MPC closing procedures.

Based upon its previous experience with the loading process, Entergy estimates that unloading and reloading the MPC would result in additional personnel exposure of 600 mRem. In addition, Entergy states unloading and reloading the MPC would generate radioactive contaminated material and waste during loading and unloading operations. If the used MPC was damaged during the unloading process, it would also be disposed as radioactive waste. The licensee estimates that unloading and reloading operations would cost an estimated $300,000. If the used MPC was damaged during unloading, the licensee estimates an additional $750,000 for purchase of a new MPC and $200,000 for disposal of the used MPC. The licensee also states additional opportunities for design basis accidents such as a fuel handling accident would be introduced if the MPC were unloaded and reloaded.

*Environmental Impacts of the Proposed Action:* The potential impact of using the HI-STORM 100 dry cask storage system was initially presented in the Environmental Assessment (EA) for the rulemaking to add the HI-STORM 100 dry cask storage system for irradiated nuclear fuel to the list of approved spent fuel storage casks in 10 CFR 72.214 (64 FR 51271, September 22, 1999 (Proposed Rule); 65 FR 25241, May 1, 2000 (Final Rule)).

In support of their exemption request, the licensee submitted Holtec Report No. HI-2146265 which evaluated storage of fuel assemblies having greater than pinhole leaks and hairline cracks in the HI-STORM 100 system (ADAMS Accession No. ML14279A246). The

analysis concluded that the as-loaded condition has no impact on internal temperature or pressure, that the site boundary dose is unaffected (should relocation of material occur inside the MPC), and that potential reactivity effects remain well within acceptable margins. The analysis also concluded that the damaged fuel rods have no impact on the ability either of the MPC, the HI-TRAC transfer cask, or the HI-STORM storage cask to withstand pressure loads due to tornado winds, flood, or explosions.

Based on its review of the licensee's application, the NRC staff concludes that there are no changes in either the types or the amounts of radiological effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure as a result of the proposed activities. Therefore, there are no significant radiological environmental impacts associated with the proposed action. The NRC staff concludes that the proposed action only affects the requirements associated with the fuel assemblies already loaded into the canister and does not affect non-radiological plant effluents, or any other aspects of the environment. Accordingly, the NRC staff concludes that there are no significant environmental impacts associated with the proposed action.

*Alternative to the Proposed Action*: Because there is no significant environmental impact associated with the proposed action, alternatives with equal or greater environmental impact were not evaluated. As an alternative to the proposed action, the NRC staff considered denial of the requested exemption, which would require unloading and reloading the affected MPC as described above. Denying the exemption would result in an increase in radiological exposure to workers, a small increase in the potential for radioactive releases to the environment due to radioactive material handling accidents, and increased cost to the licensee. Therefore, the NRC staff has determined that approving the proposed action has a lesser environmental impact than the alternative.

*Agencies and Persons Consulted:* The environmental assessment associated with this exemption request was sent to Mr. Bernard Bevill Chief of the Radiation Control Section in the Arkansas Department of Health, by letter dated November 10, 2014. A response, which was received by electronic mail dated November 21, 2014 (ADAMS Accession No. ML14328A287), states that the Arkansas Department of Health has no concerns. The NRC staff has determined that a consultation under Section 7 of the Endangered Species Act is not required because the proposed action will not affect listed species or a critical habitat. The NRC staff has also determined that the proposed action is not a type of activity having the potential to cause effects on historic properties. Therefore, no consultation is required under Section 106 of the National Historic Preservation Act.

## III. 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 Environmental Assessment, the Commission finds that the proposed action of granting an exemption from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(3), 10 CFR 72.212(b)(5)(i), and the portion of 10 CFR 72.212(b)(11) that states the licensee shall comply with the terms, conditions, and specifications of the CoC, and from 10 CFR 72.214 in order to allow Entergy to store spent fuel assemblies in MPC-24-060 in the as-loaded configuration at the ISFSI associated with

ANO, Units 1 and 2, will not significantly impact the quality of the human environment. Accordingly, the Commission has determined that an environmental impact statement for the proposed exemption is not warranted and that a finding of no significant impact is appropriate.

Dated at Rockville, Maryland, this 11th day of December, 2014.

For the Nuclear Regulatory Commission.

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