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OCAN030504

March 21, 2005

Attn: Document Control Desk  
Director, Spent Fuel Project Office  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Subject: Request for Exemption from Holtec International Certificate of Compliance (CoC) (72-1014) Fuel Specification and Loading Conditions  
Arkansas Nuclear One – Units 1 and 2  
Docket Nos. 50-313, 50-368, and 72.13  
License Nos. DPR-51 and NPF-6

Dear Sir or Madam:

Pursuant to 10CFR72.7, Entergy Operations requests an exemption from the requirements of 10CFR72.212(a)(2) and 10CFR72.214. The regulations require, in part, compliance to the terms and conditions of the Holtec International Certificate of Compliance (CoC) (72-1014). Specifically, an exemption is requested from Appendix B, Section 2.1 of the Holtec International CoC (72-1014), Fuel Specifications and Loading Conditions.

In accordance with the requirements of the Holtec CoC for the HI-STORM 100 System, damaged fuel assemblies are not authorized for loading into the Model 32 Multi-Purpose Canister (MPC-32). However, on December 20, 2004, Arkansas Nuclear One (ANO) was notified that five previously loaded intact fuel assemblies had been reclassified as damaged fuel assemblies. Upon notification, the actions contained in Appendix B, Section 2.1 of the Holtec CoC, Fuel Specifications and Loading Conditions, were initiated by ANO. The affected fuel assemblies were verified to be in a safe condition, the NRC Operations Center was notified of the event within 24 hours, and a Special Report (OCAN010503) was transmitted to the NRC on January 19, 2005.

An assessment of the effect a damaged rod would have on the storage configuration of a fuel assembly in the HI-STORM 100 system was performed. Based on this assessment, loading damaged fuel assemblies in the subject Holtec MPC-32s results in no impact to safety, and all functions of the DFS casks are maintained. This assessment did not consider the requirements for the MPC to be transported off-site. As previously committed to in the aforementioned Special Report, additional reviews will be performed prior to considering these casks for transportation.

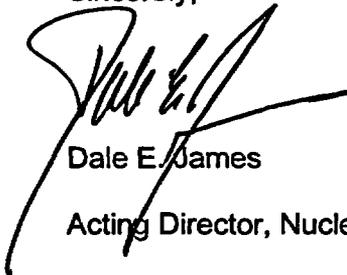
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While loading of the damaged fuel into a MPC-32 is not currently permitted by the Holtec CoC, it is Entergy's position that unloading the affected MPC-32s to restore compliance is not prudent. Rather, an exemption should be granted to allow these affected MPC-32s to remain in storage. Unloading of the subject MPC-32s would subject personnel to a significant amount of unnecessary dose, generate contaminated waste, increase the risk of a possible fuel handling accident, and increase the risk of a possible heavy load handling accident. Additionally, offloading the subject casks will reduce the number of available spaces in the spent fuel pool for new fuel storage in advance of the next outage and reduce the capability to fully discharge the core should it become necessary. Therefore, an exemption to allow the fuel assemblies conservatively classified as damaged to remain in onsite storage is requested.

Details of Entergy Operations' need and justification for the issuance of an exemption are included in the attached discussion. Should you have any questions concerning this submittal, please contact Stephanie Pyle at 479-858-4704.

There are no new commitments contained in this submittal.

Sincerely,



Dale E. James

Acting Director, Nuclear Safety Assurance

DEJ/SLP

Attachment(s)

1. Request for Exemption Request to Permit Storage of Spent Fuel Classified as Damaged in Holtec MPC-32 Cask Design at Arkansas Nuclear One
2. Holtec Report No. HI-2053369, Holtec Justification for ANO Exemption Request for Loading of Damaged Fuel

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**Attachment 1**

**0CAN030504**

**Request for Exemption Request to Permit Storage of Spent Fuel  
Classified as Damaged in Holtec MPC-32 Cask Design at Arkansas Nuclear One**

**Request for Exemption Request to Permit Storage of Spent Fuel  
Classified as Damaged in Holtec MPC-32 Cask Design at Arkansas Nuclear One**

**1.0 Request for Exemption**

Pursuant to 10CFR72.7, Entergy Operations requests an exemption from the requirements of 10CFR72.212(a)(2) and 10CFR72.214 for its Arkansas Nuclear One (ANO) facility. The regulations require, in part, compliance to the terms and conditions of the Holtec International Certificate of Compliance (CoC) (72-1014). Specifically, an exemption is requested from Appendix B, Section 2.1 of the Holtec International CoC (72-1014), Fuel Specifications and Loading Conditions.

**2.0 Background**

As discussed in our previous Special Report (0CAN010503) dated January 19, 2005, a secondary review of ANO preliminary results of UT data evaluations resulted in conservative reclassifications of assemblies as being suspect of containing a damaged pin. Specifically, rods are suspected of being damaged in ANO Unit 2 fuel assemblies AKC401, AKC504, AKD001, AKF103, and AKF110, which were previously identified as clear of fuel failures based on UT data. Because the size of the defect could not be determined based on the UT and visual examinations performed, the defects were conservatively assumed to be greater than pinhole leaks or hairline cracks. The identified assemblies were loaded in MPC-32 serial numbers 001, 002, 003, and 009, during the November and December, 2004, cask loading campaigns. Two of the subject fuel assemblies were loaded into serial number 001 and one each into serial numbers 002, 003, and 009. The dose surveys performed prior to placing each cask in service demonstrated that the cask satisfied the HI-STORM 100 dose requirements in the HI-STORM 100 CoC.

**3.0 Technical Considerations**

See Attachment 2, Holtec Report No: HI-2053369, Justification for ANO Exemption Request for Loading of Damaged Fuel.

**4.0 Regulatory Considerations**

Appendix B, Section 1.0 of the Holtec International CoC (72-1014) defines a DAMAGED FUEL ASSEMBLY, in part, as one with greater than pinhole leaks or hairline cracks. The aforementioned five assemblies have been conservatively judged as meeting the DAMAGED FUEL ASSEMBLY criteria. This section also defines an INTACT FUEL ASSEMBLY as a fuel assembly without known or suspected cladding defects greater than pinhole leaks or hairline cracks and which can be handled by normal means.

Each of the assemblies classified as damaged contain one interior fuel rod characterized as defective. The UT and visual examinations performed on the five fuel assemblies did not indicate the size of the flaw, but could be greater than a pinhole leak or hairline crack.

Appendix B, Section 2.1 of the Holtec International CoC (72-1014), Fuel Specifications and Loading Conditions, states, in part, that fuel assemblies shall meet the applicable limits specified in Tables 2.1-1. Table 2.1-1, which contains the fuel assembly limits for the MPC-

32 states, in part, that storage is allowed for up to 32 INTACT FUEL ASSEMBLIES and DAMAGED FUEL ASSEMBLIES are not authorized for loading into the MPC-32. Therefore, loading of the identified suspect assemblies into the MPC-32 assembly casks violates Appendix B, Section 2.1 of the CoC.

While loading of the damaged fuel into the MPC-32s is not allowed by the CoC, it is Entergy's and Holtec's position that unloading of the affected MPC-32s to restore compliance is not prudent. Unloading of the subject MPCs would subject personnel to a significant amount of unnecessary dose, generate additional contaminated waste, increase the risk of a possible fuel handling accident, and increase the risk of a possible heavy load handling accident.

The specific requirements for granting exemptions to 10 CFR Part 72 licensing requirements are set forth in 10CFR72.7, Specific Exemptions, which reads as follows:

*The Commission may, upon application by any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest.*

Entergy Operations has reviewed 10CFR72 and determined that an exemption to a portion of 10CFR72.212(a)(2) and 10CFR72.214 are necessary to allow continued storage of the damaged fuel. 10CFR72.210 issues a general license to store spent fuel in an ISFSI at reactor sites as long as the Part 50 reactor license remains in effect. 10CFR72.212(a)(2) limits the storage of spent fuel to casks approved in 10CFR72 Subpart K. 10CFR72.214 states that these casks "are approved for storage under the conditions specified in their Certificates of Compliance." Since loading of the damaged fuel into the MPC-32 is not in accordance with the conditions currently described in the Holtec CoC, an exemption to 10CFR72.212(a)(2) and 10CFR72.214 may be granted to allow loading in variance with the CoC.

As discussed above, the requested exemption to allow storage of the damaged fuel in the Holtec MPC-32 has low safety significance and therefore, will not endanger life and property or the common defense and security. It is also in the public's interest to grant an exemption, since unloading the cask will be more costly than regulatory action, result in increased dose to plant workers, increase the risk of contamination, increase the risk of a possible fuel handling accident, and increase the risk of a possible heavy load handling accident.

While 10CFR72.7 does not specify a showing of "special circumstances" like those required for 10CFR50 exemptions, Entergy Operations' exemption request can be elucidated by using two of the special circumstances identified in 10CFR50.12. The applicable special circumstances are discussed below:

1. 10CFR50.12(a)(2)(ii) - Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose.

The underlying purpose of 10CFR72.212 is to allow reactor licensees to utilize dry fuel storage casks that have previously been found to be safe and appropriately analyzed for use by the cask designer, the cask user, and the NRC. As described above, the storage of the subject damaged fuel assemblies has been found to be non-safety significant.

2. 10CFR50.12(a)(2)(iii) - Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or those incurred by others similarly situated.

Discharge of the conservatively classified damaged fuel assemblies from storage in the MPCs will result in inadequate storage capacity in the ANO Unit 2 Spent Fuel Pool. If discharge is required, storage of new fuel and the restoration of normal full core off-load capability prior to and after the next refueling outage 2R18 will be challenged. Recovery of pool space could be significantly hindered due to double handling of ANO Unit 2 fuel in addition to material and schedule conflicts with ANO Unit 1 activities to the extent that ANO Unit 2 core offloads could be jeopardized.

## **5.0 Summary**

In conclusion, Entergy Operations requests an exemption from the requirements of 10CFR72.212(a)(2) and 10CFR72.214. Specifically, an exemption is requested from Appendix B, Section 2.1 of the Holtec International CoC (72-1014), Fuel Specifications and Loading Conditions. While loading of the damaged fuel into the MPC-32s is not currently allowed by the CoC, it is Entergy's and Holtec's position that unloading of the affected MPC-32s to restore compliance is not prudent. As discussed above, the requested exemption to allow storage of fuel assemblies conservatively classified as damaged based on UT testing, has low safety significance and therefore, will not endanger life or property or the common defense and security. Unloading of the subject MPCs would subject personnel to a significant amount of unnecessary dose, generate additional contaminated waste, increase the risk of a possible fuel handling accident, and increase the risk of a possible heavy load handling accident.

**Attachment 2**

**OCAN030504**

**Holtec Report No. HI-2053369, Holtec Justification for  
ANO Exemption Request for Loading of Damaged Fuel**