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0CAN011701

January 13, 2017

ATTN: Document Control Desk
Director, Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Rockville, MD 20555-0001

SUBJECT: 10 CFR 72.48 Summary Report for the Reporting Period January 1, 2015, through December 31, 2016
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:

In accordance with 10 CFR 72.48(d)(2), Arkansas Nuclear One, Units 1 and 2 (ANO-1 & 2) are required to submit a 10 CFR 72.48 report at intervals not to exceed 24 months. The report contains a brief description of any changes in the facility, the Ventilated Storage Cask (VSC), and/or the Holtec HI-STORM 100 designs. The report also contains changes in procedures and test/experiments as described in the VSC or HI-STORM 100 Safety Analyses Reports. The attached summary report addresses the reporting period from January 1, 2015, through December 31, 2016.

This letter contains no new regulatory commitments.

If you have any questions concerning this submittal or Entergy Operations' storage of spent fuel at ANO under the general license, please contact me.

Sincerely,

ORIGINAL SIGNED BY STEPHENIE L. PYLE

SLP/rwc

Attachment: 10 CFR 72.48 Summary Report for Reporting Period January 1, 2015, through December 31, 2016

cc: Mr. Kriss Kennedy
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ATTACHMENT TO

0CAN011701

10 CFR 72.48 SUMMARY REPORT FOR REPORTING PERIOD

JANUARY 1, 2015, THROUGH DECEMBER 31, 2016

10 CFR 72.48 SUMMARY REPORT FOR REPORTING PERIOD JANUARY 1, 2015, THROUGH DECEMBER 31, 2016

During the stated reporting period, two 10 CFR 72.48 evaluations were performed at Arkansas Nuclear One, Units 1 and 2 (ANO-1 & 2). These evaluations are summarized below.

DFS-15-001, Revision 0

Summary of Change

During Multi-Purpose Canister (MPC) load verification for HI-STORM MPC-24-059, Operators and Reactor Engineering discovered foreign material (FM) on the upper end fitting of a fuel assembly NJ065P. The FM was identified as a piece of torn grid strap from a fuel assembly. Attempts to remove the torn grid strap were not successful and it fell into the flux trap gap between basket cells. Visual inspection of adjacent fuel assemblies was performed. During inspection of assembly NJO65X, personnel identified that two (2) grid straps were torn in similar locations (at the corner of two adjacent straps). Therefore, it was determined that there was an additional FM item in the MPC. There are a total of two (2) FM items, both identified as torn grid straps, each having similar characteristics, and located at the bottom of the MPC in the area between cells. The fuel assembly with the torn grid straps has been removed from the MPC and replaced with an intact assembly. The condition was evaluated to accept the presence of the foreign material and continue loading the MPC.

Summary of 10 CFR 72.48 Evaluation

The Holtec HI-STORM 100 Certificate of Conformance (CoC), Amendment 5, defines Fuel Debris and NON-FUEL HARDWARE in Appendix B, as:

> FUEL DEBRIS is ruptured fuel rods, severed rods, loose fuel pellets, containers or structures that are supporting these loose fuel assembly pads, or fuel assemblies with known or suspected defects which cannot be handled by normal means due to fuel cladding damage.
>
> NON-FUEL HARDWARE is defined as Burnable Poison Rod Assemblies (BPRAs), Thimble Plug Devices (TPDs), Control Rod Assemblies (GRAs), Axial Power Shaping Rods (APSRs), Wet Annular Burnable Absorbers (WABAs), Rod Cluster Control Assemblies (RCCAs), Control Element Assemblies (CEAs), Neutron Source Assemblies (NSAs), water displacement guide tube plugs, orifice rod assemblies, vibration suppressor inserts, and components of these devices such as individual rods.

The two small pieces of grid strap material, identified as Zircaloy, do not meet any of the definitions above for Fuel Debris or Non-Fuel Hardware; therefore, the material is simply classified as FM. As such the evaluation performed by Holtec treats the material as FM. Holtec evaluated the material with regard to Normal Conditions of Storage, Off-Normal Conditions of Storage, and Accident Conditions of Storage. In all cases the small weight of the two pieces, conservatively calculated at 0.0038 pounds combined, yielded insignificant impact to the evaluated and analyzed conditions.

With Holtec as the License Holder for the HI-STORM 100 Cask System, with ANO as a General User under the license provisions of 10 CFR 72, ANO requested that Holtec perform the technical review and 72.48 Evaluation for this Foreign Material.

The Holtec 72.48 evaluation determined that there are no malfunctions associated with the HI-STORM system due to the FM and, since the containment boundary remained unchanged, no increase in malfunction likelihood or consequences is created, nor does the FM result in the possibility of a different type of malfunction than what has been previously analyzed. Methods of handling and operating the cask system are not affected and no new accidents can be created. Cask system temperatures, including fuel cladding, are not increased and MPC internal pressures are not increased; therefore, no fission product boundary limit is exceeded. In addition, no new evaluation methods are used.

DFS-16-001

Summary of Change

EC 52619 applies a concrete sealant, MasterProtect® H400, to the Energy*Solutions* VSC-24 Dry Fuel Storage Ventilated Concrete Casks (VCCs) to address identified long term degradation due to Alkali-Silica Reaction (ASR). Application of the sealant should minimize further ASR degradation.

Summary of 10 CFR 72.48 Evaluation

The VSC-24 Final Safety Analysis Report (FSAR) thermal analyses for the Normal Long-Term Storage (75 °F ambient air) case, and the associated cask system temperatures presented in FSAR Figure 4.4-5, would remain conservative even if the radiant heat transfer off the VCC concrete surface were completely neglected.

For the Severe Steady-State Hot (100 °F ambient air) case, the elimination of all VCC concrete surface radiant heat transfer would cause system temperatures to increase by at most ~2.7 °F, with interior temperatures such as the maximum cladding temperature increasing by a smaller amount. Those temperature increases are a small fraction of the component temperature margins shown in the VSC-24 FSAR. These small temperature increases are based on the extremely conservative (and unrealistic) assumption that the VCC concrete surface emissivity drops to zero (with no reduction in absorptivity) as a result of sealant application, despite the fact that the sealant does not alter surface appearance, according to its product data sheet. Thus, the proposed change clearly will not cause any of the thermal acceptance criteria to be exceeded.

Finally, it must be noted that the temperature margins presented in Table 4.1-1 of the VSC-24 FSAR are based upon a VSC system heat load of 24 kW. All of the casks at ANO had an overall heat load of less than 15 kW at the time of loading. At present, the heat loads of all ANO VSC-24 casks are significantly less than 15 kW, which in turn is far below the design basis heat load of 24 kW. Furthermore, a condition limiting any future VSC-24 cask payloads to 15 kW will soon be implemented, as part of the VSC-24 CoC renewal. These lower heat loads more than offset any effects from reduced VCC concrete surface emissivity by a very wide margin; thus, the licensing basis thermal analyses, and the temperatures presented in the FSAR, will bound those present in any of the ANO casks, after the sealant is applied, by a very wide margin.

Based on the above, it is concluded that the application of the proposed sealant to the VCC concrete surfaces at ANO will have no significant impact on the thermal performance of the VSC-24 system. The FSAR thermal analyses and associated temperatures (presented in the FSAR) will remain bounding for the resulting cask configuration. The coating (which has negligible weight) also has no impact on the structural or shielding performance of the cask system. Thus, the proposed application of sealant is an acceptable configuration change that can be performed via a 72.48 evaluation.