NUCLEAR REGULATORY COMMISSION

[Docket Nos.: 72–1004, 72–40, 50–269, 50–270, 50–287; and NRC–2013–0135]

Duke Energy Carolinas, LLC; Oconee Nuclear Station Units 1, 2, and 3; Independent Spent Fuel Storage Installation

AGENCY: Nuclear Regulatory Commission.

ACTION: Exemption; issuance.

SUMMARY: The NRC is issuing an exemption in response to a request submitted by Duke Energy Carolinas, LLC., on August 13, 2012, for the Oconee Nuclear Station, Independent Spent Fuel Storage Installation (ISFSI).

ADDRESSES: Please refer to Docket ID NRC–2013–0135 when contacting the NRC about the availability of information regarding this document. You may access information related to this document, which the NRC possesses and is publicly available, using any of the following methods:

- *Federal Rulemaking Web site:* Go to *http://www.regulations.gov* and search for Docket ID NRC–2013–0135. Address questions about NRC dockets to Carol Gallagher; telephone: 301–287–3422; email: *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 access publicly available documents online in the NRC Library 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 email 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: Jennifer Davis, Senior Project Manager, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001; telephone: 301–287–9173; email: *BJennifer.Davis@nrc.gov.*

SUPPLEMENTARY INFORMATION:

1.0 Background

Duke Energy Carolinas, LLC (the applicant) is the holder of Facility Operating License Nos. DPR–38, DPR–47, and DPR–55, which authorize operation of the Oconee Nuclear Station, Units 1, 2, and 3 in Oconee County, South Carolina, pursuant to part 50 of Title 10, *Code of Federal Regulations* (10 CFR). The licenses provide, among other things, that the facility is subject to all rules, regulations, and orders of the NRC now or hereafter in effect.

Consistent with 10 CFR part 72, Subpart K, a general license is issued for the storage of spent fuel in an ISFSI at power reactor sites to persons authorized to possess or operate nuclear power reactors under 10 CFR part 50. The applicant is authorized to operate a nuclear power reactor under 10 CFR part 50, and holds a 10 CFR part 72 general license for storage of spent fuel at the Oconee Nuclear Station ISFSI. Under the terms of the general license, the Transnuclear, Inc. (TN) Standardized NUHOMS® dry cask storage system Certificate of Compliance (CoC) No. 1004, Amendment No. 9 is used for cask loading at the Oconee Nuclear Station ISFSI.

2.0 Request/Action

The applicant is requesting an exemption from the requirement that specifies that the fuel approved for use in these casks is ''zircaloy clad,'' which refers to Zircaloy-2 or Zircaloy-4 cladding. This requirement precludes loading Babcock and Wilcox (B&W) Mark B11 and Mark B11A fuel assemblies, which have M5[1] cladding, in TN Standardized NUHOMS® 24PHB DSCs. If approved, the applicant's exemption request would allow the loading of these fuel assemblies in these casks at Oconee until December 31, 2014.

The TN Standardized NUHOMS® certificate of compliance (CoC No. 1004) specifies the requirements, conditions, and operating limits for the TN Standardized NUHOMS® dry cask storage system in Appendix A, Technical Specifications (TS). The TS in Table 1–1i, ''PWR Fuel Specification for Fuel to be Stored in the Standardized NUHOMS®-24PHB [dry shielded canister] DSC'' specify that the fuel cladding shall be ''zircaloy-clad fuel with no known or suspected gross cladding breaches.'' Zircaloy is a type of zirconium alloy that includes both Zircaloy-2 and Zircaloy-4 cladding, but does not include M5. M5 is a different type of zirconium alloy, which does not contain any tin, as Zircaloy does, but which does contain some niobium. Therefore, M5 fuel cannot be loaded into NUHOMS®-24PHB DSCs because it is not a ''zircaloy-clad'' fuel.

In a letter dated August 13, 2012, (ADAMS Accession No. ML12227A686), the applicant requested an exemption from certain parts of the following requirements to allow storage of M5 (zirconium alloy) clad fuel in the TN 24PHB dry storage canisters (DSCs) at the Oconee Nuclear Station ISFSI:

- 10 CFR 72.212(a)(2), which states ''[t]his general license is limited to storage of spent fuel in casks approved under the provisions of this part.''
- 10 CFR 72.212(b)(5), which states that, ''each cask used by the general licensee conforms to the terms, conditions, and specifications of a CoC or an amended CoC listed in § 72.214.''
- 10 CFR 72.212(b)(11), which states in part that ''[t]he licensee shall comply with the terms, conditions, and specifications of the CoC and, for those casks to which the licensee has applied the changes of an amended CoC, the terms, conditions, and specifications of the amended CoC.…'' and
- 10 CFR 72.214, which lists the approved spent fuel storage casks.

Upon review, the NRC staff added the following requirements to the exemption for the proposed action pursuant to its authority under 10 CFR 72.7:

- 10 CFR 72.212(b)(3), which states that ''[t]he general licensee must [e]nsure that each cask used by the general licensee conforms to the terms, conditions, and specifications of a CoC or an amended CoC listed in § 72.214.''
- In addition, the applicant requested an exemption from certain requirements of 10 CFR 72.212(b)(5) allowing storage of M5 cladding associated with B&W 15x15 Mark B11 and Mark B11A fuel. The NRC has evaluated the applicant's request and determined that only an exemption from § 72.212(b)(5)(i) is warranted. The applicant does not require an exemption from §§ 72.212(b)(5)(ii) or (iii) for the proposed action. Therefore, the NRC interprets the applicant's request for an exemption from certain requirements of 10 CFR 72.212(b)(5) to be a request for an exemption only from § 72.212(b)(5)(i), which requires that ''[t]he cask, once loaded with spent fuel or once the changes authorized by an amended CoC have been applied, will conform to the terms, conditions, and

[1] M5 is AREVA's proprietary variant of Zr Nb which was approved by the NRC for PWR reactors (Reference 3 of exemption request).

specifications of a CoC or an amended CoC listed in § 72.214.''

The applicant is also requesting, an exemption from the TS for the NUHOMS® system to permit the loading of M5 fuel into these canisters. Specifically, the applicant is requesting an exemption from Technical Specification 12.1, ''Fuel Specifications,'' and the associated tables listed below, which specify requirements for the spent fuel assemblies to be loaded in the 24PHB DSCs certified under CoC No. 1004, Amendment No. 9.

- Table 1–1i, ''PWR Fuel Specification for Fuel to be Stored in the Standardized NUHOMS®-24PHB DSC.''
- Table 1–2n, ''PWR Fuel Qualification Table for Zone 1 with 0.7 kW per Assembly, Fuel With or Without BPRAs [Burnable Poison Rod Assembly], for the NUHOMS®-24PHB DSC.''
- Table 1–2o, ''PWR Fuel Qualification Table for Zone 2 with 1.0 kW per Assembly, Fuel With or Without BPRAs, for the NUHOMS®-24PHB DSC,'' and
- Table 1–2p, PWR Fuel Qualification Table for Zone 3 with 1.3 kW per Assembly, Fuel With or Without BPRAs, for the NUHOMS®-24PHB DSC.''

3.0 *Discussion*

Pursuant to 10 CFR 72.7, the Commission may, upon application by any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations of 10 CFR part 72 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.

Authorized by Law

This exemption would allow the licensee to load B&W Mark B11 and Mark B11A fuel assemblies with M5 cladding in 24PHB DSCs at the Oconee Nuclear Station ISFSI. The provisions in 10 CFR part 72 from which the applicant is requesting exemption require the licensee to comply with the terms, conditions, and specifications of the CoC for the approved cask model that they use.

The Commission issued 10 CFR 72.7 under the authority granted to it under Section 133 of the Nuclear Waste Policy Act of 1982, as amended, 42 USC 10153. Section 72.7 allows the NRC to grant exemptions from the requirements of 10 CFR part 72. Granting the licensee's proposed exemption provides adequate protection to public health and safety, and the environment. As explained below, the proposed exemption will not endanger life or property, or the common defense and security, and is otherwise in the public interest. Therefore, the exemption is authorized by law.

Will Not Endanger Life or Property or the Common Defense and Security

The provisions in section 72.212(a)(2) specifically state that the general licensee is limited to storage of spent fuel in casks approved under 10 CFR part 72. Sections 72.212(b)(3), 72.212(b)(5), 72.212(b)(5)(1) and 72.212(b)(11) limit the general licensee to storage of spent fuel in cask models approved under the provisions of 10 CFR part 72 (which are listed in 10 CFR 72.214) and to require general licensees to comply with the terms and conditions of the CoC for the approved cask model(s) that they use. This exemption would allow the licensee to load B&W Mark B11 and Mark B11A fuel assemblies with M5 cladding in 24PHB DSCs at the Oconee Nuclear Station ISFSI.

The TN Standardized NUHOMS® dry cask storage system CoC provides requirements, conditions and operating limits in Attachment A, Technical Specifications. The TS in Table 1–1i, ''PWR Fuel Specification for Fuel to be Stored in the Standardized NUHOMS®-24PHB DSC'' specify that the fuel cladding shall be ''zircaloy-clad fuel with no known or suspected gross cladding breaches.'' As described above, Zircaloy includes both Zircaloy-2 and Zircaloy-4 cladding, but does not include M5-clad fuels. This exemption only considers the loading of B&W 15x15 Mark B11 and Mark B11A spent fuel assemblies at the Oconee Nuclear Station ISFSI pending disposition of Amendment No. 13 to CoC No. 1004. Amendment No. 13 TS permit storage of ''zirconium alloy'' clad spent fuel assemblies in the 24PHB DSC, which would include both the ''zircaloy clad'' assemblies permitted under previous amendments, as well as the M5 clad assemblies at issue in this exemption request.

Approval of the exemption request will allow Oconee to effectively manage its spent fuel inventory to meet decay heat zoning requirements throughout its scheduled loading campaigns. Oconee's ability to load M5 clad fuel in the next scheduled loading campaign will mean that older ''zircaloy clad'' fuel assemblies will be available for future loadings. Amendment No. 13 is currently under review by the NRC staff. The proposed Technical Specifications, as submitted by TN (ADAMS Accession No. ML110450541), do not specify any cladding material requirements in Table 1–1i, but do reference Tables 1–2n, 1–2o, and 1–2p. The notes for Tables 1–2n, 1–2o, and 1–2p, have been changed from, ''. . .Zircaloy clad uranium-oxide rods. . . .'' to ''Zirconium-alloy clad uranium-oxide rods . . . .''

Amendment No. 13 to CoC No. 1004 Review

By application dated February 9, 2011 (ADAMS Accession Nos. ML110460525 (letter), and ML110460541 (package)), TN submitted an amendment request to amend CoC No. 1004 for the Standardized NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel, under the provisions of 10 CFR part 72, Subparts K and L. The application has been supplemented as follows:

— July 22, 2011, Responses to the Request for Supplemental Information (ADAMS Accession Nos. ML11217A043 (non-proprietary) and ML11217A045 (proprietary)),

— March 19, 2012, Response to the First Request for Additional Information (ADAMS Accession No. ML120960488 (package)), and

— September 24, 2012, Response to the Second Request for Additional Information (ADAMS Accession No. ML122700151 (package)).

Along with other changes, TN requested a change to the Technical Specifications for the 24PHB DSC to allow non-Zircaloy cladding as approved contents for the 24PHB DSC. In considering this exemption request, NRC staff was able to draw upon review work already underway in its consideration of Amendment No. 13 for CoC 1004.[2] As discussed below, the NRC staff finds that allowing non-Zircaloy cladding, specifically; allowing M5 zirconium alloy clad B&W Mark B11 and Mark B11A fuel to be loaded in the 24PHB DSC, is acceptable. The proposed cask loading of fuel with zirconium alloy cladding was analyzed using NUREG–1536, ''Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility, Rev. 1'' for material properties, for structural performance, and performance under thermal stresses, including potential elongation from decay heat and irradiation. In addition, the NRC staff notes that M5 cladding materials have improved ductility and fracture toughness properties relative to Zircaloy-4 cladding material. The zirconium alloy cladding was also analyzed with respect to maintenance of

[2] While the Amendment No. 13 application includes the addition of zirconium alloy clad fuels as authorized contents in the 24PHB DSC, the application also includes many other changes not at issue in this exemption.

subcriticality. In all cases, the NRC staff found the zirconium alloy acceptable for storage in the 24PHB DSC.

Review of the Requested Exemption

Background: The NUHOMS® system provides for the horizontal dry storage of canisterized spent fuel assemblies in a concrete horizontal storage module (HSM). The cask storage system components for NUHOMS® consist of a reinforced concrete HSM and a DSC vessel with an internal basket assembly that holds the spent fuel assemblies. The HSM is a low profile, reinforced concrete structure designed to withstand all normal condition loads, as well as abnormal condition loads created by natural phenomena such as earthquakes and tornados. It is also designed to withstand design basis accident conditions.

Request/Action: The applicant has requested an exemption from the ''zircaloy clad'' requirement in the TS of Amendment No. 9 for CoC 1004. This requirement refers to Zircaloy-2 or Zircaloy-4 cladding, and thus precludes the storage of B&W Mark B11 and Mark B11A fuel assemblies, which have M5 cladding.

The applicant has requested an exemption from the current TS to permit the loading of B&W Mark B11 and Mark B11A M5 clad fuel assemblies. This is consistent with another request currently before the Commission for Amendment No. 13 to CoC 1004, which would permit the loading of such fuel in the 24PHB DSC.

Safety Evaluation: The NRC has previously considered the acceptability of different cladding types for spent fuel storage. This is reflected in Interim Staff Guidance (ISG) 11, Revision 3, ''Cladding Considerations for the Transportation and Storage of Spent Fuel,'' (ADAMS Accession No. ML033230335), which provides technical review guidance to materials reviewers, and specifies the criteria that should be met.

Currently, other NUHOMS® storage systems included in CoC No. 1004 permit storage of fuel designs with cladding other than Zircaloy. These include the NUHOMS® 24PTH and 32PTH1 DSCs. NRC staff also notes that Amendment No. 13 to the TN Standardized NUHOMS® System is currently under review. In that amendment the ''zircaloy clad'' fuel description has been replaced with ''zirconium alloy'' specifically to permit the loading of M5™ and other non-Zircaloy zirconium alloy clad fuel into the 24PHB DSC.

Structural Review for the Requested Exemption: In Amendment No.13, which is being reviewed by the NRC staff, TN requests the ''Zircaloy clad'' fuel description be replaced with ''zirconium alloy.'' Information about the materials and structural properties of M5 clad fuel from the Amendment No. 13 application was used to supplement the NRC staff's review of this exemption request.

Section Z.3.5.2.C of Appendix Z of the Amendment No. 13 application uses the ANSYS code to analyze an 80-inch fuel rod side drop. Table Z.3.5–4 summarizes the calculated clad stresses for various fuel types including those with the M5 cladding. The resulting maximum stress of 58,768 psi for the M5 clad fuel is less than the yield strength of 67,300 psi. This translates into a factor of safety of 1.15, meaning that the cladding will not be damaged in such a drop. Thus, for the proposed exemption, the NRC staff concludes with reasonable assurance that M5 clad B&W Mark B11 and B11A fuel assemblies will continue to be preserved after a fuel rod side drop accident in TN NUHOMS® 24PHB DSCs.

Section Z.3.5.3 uses the LSDYNA code to analyze an 80-inch fuel rod corner drop. The strain ductility demand for the B&W 15 x 15 fuels is calculated to be 0.242%, which is below the cladding yield strain of 0.627%. This is an elastic fuel clad response, meaning that the cladding will not be damaged in such a drop. Thus, for the proposed exemption, the NRC staff concludes with reasonable assurance that M5 clad B&W Mark B11 and B11A fuel assemblies will continue to be preserved after a corner drop accident in TN NUHOMS® 24PHB DSCs.

Materials Review for the Requested Exemption: With regard to thermal and corrosive characteristics, the proposed exemption to permit B&W Mark B11 and Mark B11A M5 clad fuel into NUHOMS® 24PHB DSCs at Oconee Nuclear Station is acceptable to the NRC staff, as discussed below. The change will have no impact upon the thermal or corrosive characteristics of the fuel for spent fuel applications. The proprietary mechanical properties of the M5 cladding are different from Zircaloy, but as noted in the structural evaluation above, are found to be acceptable. In addition, the mechanical properties of M5 are within the current licensing basis of the 24PHB DSC (i.e., Amendment No. 9 has already been found safe for fuel cladding with the mechanical properties of M5 clad fuel). Thus, for the proposed exemption, the NRC staff concludes, with reasonable assurance, that with regard to spent fuel thermal and corrosive characteristics, that M5 clad B&W Mark B11 and B11A fuel assemblies can safely be stored in 24PHB DSCs.

Technical Review Conclusion: The NRC staff has reviewed the applicant's exemption request and finds that B&W Mark B11 and B11A M5 zirconium alloy clad fuel can safely be loaded into the NUHOMS® TN 24PHB DSC where all other requirements of Amendment No. 9 are satisfied.

Therefore, the NRC staff concludes that the exemption to allow B&W Mark B11 and Mark B11A fuel assemblies with M5 cladding to be loaded in 24PHB DSCs at the Oconee Nuclear Station ISFSI does not pose an increased risk to public health and safety or the common defense or security.

Otherwise in the Public Interest

In its exemption request, the applicant states that approval will allow Oconee to effectively manage its spent fuel inventory to meet decay heat zoning requirements throughout its scheduled loading campaigns. The applicant's ability to load M5 clad fuel in the next scheduled loading campaign will mean that older fuel assemblies will be available for later loadings. The applicant has considered in its exemption request an alternative action, which would be to load Zircaloy clad ''older'' fuel during its next loading campaign. This would impact subsequent loadings. Sufficient quantities of older fuel would not be available for subsequent loadings to meet the overall cask decay heat requirements, and the canisters would have to be ''short-loaded,'' that is, the full 24 allowed spent fuel assemblies for each cask would not be available, and the canisters would have to be loaded with fewer than 24 assemblies. This would mean that more canisters would ultimately have to be loaded, resulting in additional worker exposure and higher costs. This alternative would also generate additional radioactive contaminated material and waste from additional fuel handling operations and additional loading processes.

The proposed exemption to permit the loading of 24PHB DSCs with M5 clad B&W Mark B11 and Mark B11A fuel assemblies at Oconee Nuclear Station is consistent with NRC's mission to protect public health and safety. Approving the requested loading parameters produces less of an opportunity for a release of radioactive material than the alternative to the proposed action because there will be fewer loadings. Therefore, the exemption is in the public interest.

Environmental Consideration

The NRC staff also considered in the review of this exemption request whether there would be any significant environmental impacts associated with the exemption. For this proposed action, the NRC staff performed an environmental assessment pursuant to 10 CFR 51.30. The proposed action is the approval of a request to exempt the applicant from the requirements of 10 CFR 72.212(a)(2), 72.212(b)(3), 72.212(b)(5)(i), 72.214, and the portion of 72.212(b)(11) that states the licensee shall comply with the terms, conditions, and specifications of the CoC. This would allow the applicant to load 24PHB DSCs with M5 clad B&W Mark B11 and Mark B11A fuel assemblies in the absence of Commission of approval of Amendment No. 13 to CoC 1004.

The environmental assessment concluded that the proposed action would not significantly impact the quality of the human environment. The NRC staff concludes that the proposed action will not result in any changes in the types or amounts of any radiological effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure because of the proposed action. The proposed action only affects the requirements associated with the kinds of fuel cladding permitted for loading into the 24PHB DSC, and does not affect plant effluents, or any other aspects of the environment. The Environmental Assessment and the Finding of No Significant Impact was published on July 3, 2013; 78 FR 40200.

4.0 Conclusion

Based on the foregoing considerations, the NRC has determined that, pursuant to 10 CFR 72.7, the exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. Therefore, the NRC grants the applicant an exemption from the requirements of 10 CFR 72.212(a)(2), 72.212(b)(3), 72.212(b)(5)(i), 72.214, and the portion of 72.212(b)(11) that states the licensee shall comply with the terms, conditions, and specifications of the CoC only with regard to the loading of the M5 clad B & W Mark B11 and Mark B11A fuel. This exemption approval is only valid for authorizing the loading of B&W 15x15 Mark B11 and Mark B11A spent fuel assemblies in the TN Standardized NUHOMS® dry cask storage system at the Oconee Nuclear Station ISFSI until December 31, 2014..

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 12th day of July 2013.

For the Nuclear Regulatory Commission.

Mark Lombard,

Director, Division of Spent Fuel Storage and Transportation, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 2013–18170 Filed 7–26–13; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Application For a License to Export Radioactive Waste

Pursuant to 10 CFR 110.70 (b) ''Public Notice of Receipt of an Application,'' please take notice that the Nuclear Regulatory Commission (NRC) has received the following request for an export license. Copies of the request are available electronically through ADAMS and can be accessed through the Public Electronic Reading Room (PERR) link *http://www.nrc.gov/reading-rm.html* at the NRC Homepage.

A request for a hearing or petition for leave to intervene may be filed within thirty days after publication of this notice in the **Federal Register**. Any request for hearing or petition for leave to intervene shall be served by the requestor or petitioner upon the applicant, the office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555; the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555; and the Executive Secretary, U.S. Department of State, Washington, DC 20520.

A request for a hearing or petition for leave to intervene may be filed with the NRC electronically in accordance with NRC's E-Filing rule promulgated in August 2007, 72 Fed. Reg 49139 (Aug. 28, 2007). Information about filing electronically is available on the NRC's public Web site at *http://www.nrc.gov/site-help/e-submittals.html.* To ensure timely electronic filing, at least 5 (five) days prior to the filing deadline, the petitioner/requestor should contact the Office of the Secretary by email at *HEARINGDOCKET@NRC.GOV,* or by calling (301) 415–1677, to request a digital ID certificate and allow for the creation of an electronic docket.

In addition to a request for hearing or petition for leave to intervene, written comments, in accordance with 10 CFR 110.81, should be submitted within thirty (30) days after publication of this notice in the **Federal Register** to Office of the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Rulemaking and Adjudications

The information concerning this application for an export license follows.

NRC EXPORT LICENSE APPLICATION

[Description of material]

Name of applicant, date of application, date received, application No., docket No.	Material type	Total quantity	End use	Destination
Eastern Technologies, Inc., June 4, 2013, June 5, 2013, XW021, 11006101.	Class A radioactive waste as contaminated secondary waste resulting from the dissolving and decontamination of polyvinyl alcohol (PVA) dissolvable protective clothing and related items (e.g., zippers, hook & loop material, elastic, etc.) imported in accordance with NRC license IW032.	The total quantity authorized for export will not exceed quantities imported in accordance with NRC license IW032.	Storage or disposal by the original generators, as required or authorized by their regulator.	Canada.