NEXTera ENERGY SEABROOK

July 19, 2010

10 CFR 72.7

SBK-L-10107
Docket No. 50-443

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

**Seabrook Station**

**"Request for Exemption from 10 CFR 72.212(b)(7) for Dry Fuel Storage"**

Pursuant to 10 CFR 72.7, NextEra Energy Seabrook, LLC (NextEra) requests an exemption from a requirement specified in 10 CFR 72.212, "Conditions of general license issued under § 72.210." Specifically, the request is for exemption from the stipulation in 10 CFR 72.212(b)(7) that states "The licensee shall comply with the terms and conditions of the certificate."

This request is for an exemption from the requirement to perform the daily visual inspections of the horizontal storage modules (HSM) required by Appendix A (Technical Specifications) to Certificate of Compliance 72-1030. As an alternative to performing daily visual inspections of the HSMs, NextEra will use a temperature measurement system to monitor thermal performance of the HSMs. Attachment 1 to this letter contains the details regarding the need and justification for this exemption request, and Attachment 2 provides the environmental assessment.

The purpose of this exemption request is to eliminate the potential for injuries to personnel that could occur when accessing the HSMs to perform visual inspections under adverse winter weather conditions. Therefore, NextEra requests NRC staff review and approval of this exemption request by November 1, 2010.

Should you have any questions regarding this letter, please contact Mr. Michael O'Keefe, Licensing Manager, at (603) 773-7745.

NM552

Sincerely,

NextEra Energy Seabrook, LLC.

E. T. Metcalf
Plant Assistant Manager for

Paul Freeman
Site Vice President

Attachments

cc: NRC Region I Administrator
G. E. Miller, NRC Project Manager
W. J. Raymond, NRC Senior Resident Inspector

Attachment 1

**NextEra Energy Seabrook's Evaluation of the Request for Exemption from 10 CFR 72.212(b)(7) for Dry Fuel Storage**

## 1.0 Request for Exemption

Certificate of Compliance (CoC) 72-1030, Amendment 0, for the NUHOMS HD-32PTH storage cask is in use at Seabrook Station. The CoC is approved for use by holders of 10 CFR Part 50 licenses subject to the conditions specified in 10 CFR 72.212 and Appendix A to the CoC, which contains the Technical Specifications (TS). 10 CFR 72.212(b)(7) requires that a general licensee comply with the terms and conditions of the CoC; consequently, NextEra must comply with the TS or request an exemption from the requirement to comply as allowed under 10 CFR 72.7.

TS 5.2.5 requires a program for thermal monitoring of each horizontal storage module (HSM). Included in this monitoring program is a requirement that site personnel will conduct a daily visual inspection of the air vents to ensure that HSM air vents are not blocked for more than 34 hours and that blockage will not exist for periods longer than assumed in the safety analysis. As an alternative to performing daily visual inspections, NextEra proposes to use a temperature measuring system to monitor thermal performance of the HSMs. Therefore, the purpose of this request is to obtain approval for an exemption from the requirement to perform daily visual inspections of the HSM air vents and use an alternate method of temperature monitoring. Specifically, NextEra requests an exemption from the requirement in 10 CFR 72.212(b)(7) that states "The licensee shall comply with the terms and conditions of the certificate."

## 2.0 Need for the Exemption Request

TS 5.2.5, HSM–H Thermal Monitoring Program, states that " Site personnel will conduct a daily visual inspection of the air vents to ensure that HSM-H air vents are not blocked for more than 34 hours and that blockage will not exist for periods longer than assumed in the safety analysis." Seabrook has installed pan/tilt/zoom cameras to perform the inspections of the HSM vents remotely. However, during adverse winter weather conditions, snow and ice obstruct the camera lenses and prevent viewing the HSM vents. As a result, local inspections require a person at the HSM to inspect the bottom vents and to access the top vents by climbing a ladder. Accessing the top of the HSMs to inspect the vents under adverse winter weather conditions poses a safety hazard to personnel who must perform the inspections. The proposed exemption will eliminate the threat to personnel safety by discontinuing the need to visually inspect the HSMs and monitoring HSM thermal performance using a temperature monitoring system.

Transnuclear, Inc, (TN) submitted to the NRC an application to amend CoC 1030 for spent fuel storage casks. The application for amendment 1 to CoC 1030 consisted of seven letters submitted by TN (TN letters E-25747, E-27377, E-27737, E-28000, E-

28168, E28236, and E-28479). The amendment proposed a change to TS 5.2.5, which provided an alternate method of monitoring thermal performance of the HSMs using a daily temperature measurement program. NextEra understands that the NRC Spent Fuel Project Office staff has completed its review of proposed Amendment 1 to CoC 1030, including the justifications provided by TN, the proposed amendments to the TS Bases, and the proposed revisions to the NUHOMS® HD UFSAR. However, the amendment has yet to become effective. As a result, NextEra is requesting an exemption to the TS associated with CoC 1030 for the currently loaded fuel casks at Seabrook Station to allow implementation of TS 5.2.5c as proposed by TN in the amendment.

## 3.0 Technical Considerations

Thermal Monitoring of HSMs

Since the HSM-Hs are located outdoors, there is a possibility that the HSM-H air inlet and outlet openings could become blocked by debris, even though the HSM-H bird screens reduce this risk. The NUHOMS FSAR postulates and evaluates the effects of blocked air vents, and the temperature monitoring requirements are based on the ability of the dry fuel storage system to function safely if obstructions in the air inlets or outlets impair airflow through the HSM-H for extended periods. The purpose of the daily inspections required by TS 5.2.5 is to ensure that blockage will not exist for more than 34 hours and will not exist for periods longer than assumed in the safety analysis.

In its application to amend CoC 1030, TN proposed a change to TS 5.2.5 that would provide an alternate method of monitoring the thermal performance of the HSMs using a daily temperature measurement program. The user would have the option of either performing a daily visual inspection of the HSM inlets and outlets or developing a temperature measurement program to obtain daily temperature measurements of the HSMs. TN's amendment request justified the proposed change by discussing that either one of the two surveillance activities, daily visual inspection (TS 5.2.5b) or direct temperature measurement (new TS 5.2.5c), can be performed to monitor HSM thermal performance. Both of these surveillance activities are equivalent and would provide the required verification of thermal performance of the HSM.

The proposed exemption provides for continuous temperature monitoring of the HSMs using a daily temperature measurement program as proposed in TN's request for an amendment to CoC 1030 as an alternative to performing daily visual inspections. TN letter E-28479 (Revision 6 to Transnuclear, Inc. (TN) Application for Amendment 1 to NUHOMS® HD System (Docket No. 72-1030; TAC NO. L24153), September 17, 2009) provided the NRC with TS pages that reflect the changes proposed in amendment 1 to CoC 1030. The daily temperature measurement program that will be implemented by NextEra as an alternative to performing daily visual inspections of the HSMs will be consistent with the new TS 5.2.5c proposed by TN below.

c). Daily Temperature Measurement Program

i. The user shall develop a daily temperature measurement program to verify the thermal performance of each NUHOMS-HD system. The user shall establish administrative temperature limits to (1) detect off-normal and accident blockage conditions before the HSM-H components and fuel cladding temperatures would exceed temperature design limits and (2) ensure the HSMH air vents are not blocked for more than 34 hours. The daily temperature measurements shall include at least one of the following three options:

1) direct measurement of the HSM-H concrete temperature
2) direct measurement of the DSC temperature
3) direct measurement of inlet and outlet air temperatures.

If the direct measurement of the inlet and outlet air temperatures (option 3) is performed, the measured temperature differences of the inlet and outlet vents of each individual HSM-H must be compared to the predicted temperature differences for each individual HSM-H during normal operations.

ii. The user shall establish in the program, measurement locations in the HSM-H that are representative of the HSM-H thermal performance and directly correlated to the predicted fuel cladding temperatures, air mass flow rates, and NUHOMS-HD temperature distributions that would occur with the off-normal and accident blockage conditions, as analyzed in the FSAR. The administrative temperature limits shall employ appropriate safety margins that ensure temperatures would not exceed design basis temperature limits in the FSAR, and be based on the FSAR methodologies used to predict thermal performance of the NUHOMS-HD system. If the direct measurement of the inlet and outlet air temperatures (option 3) is performed, the user must develop procedures to measure air temperatures that are representative of inlet and outlet air temperatures, as analyzed in the FSAR. The user must also consider site specific environmental conditions, loaded decay heat patterns, and the proximity of adjacent HSM-H modules in the daily air temperature measurement program. The user must ensure that measured air temperatures reflect only the thermal performance of each individual module, and not the combined performance of adjacent modules.

iii. The user shall establish in the program the appropriate actions to be taken if administrative temperature criteria are exceeded. If an administrative temperature limit is exceeded during a daily measurement, the user shall inspect the vents and implement Technical Specification 5.2.5(b) for the affected system, until the cause of the excursion is determined and necessary corrective actions are completed under the site corrective action program.

iv. If measurements or other evidence indicates that the HSM-H concrete temperatures have exceeded the concrete accident criteria of 350 F for more than 24 hours, the user shall implement Technical Specification 5.5 and perform an analysis and/or tests of the concrete in accordance with ACI-349, appendix A.4.3. The user shall demonstrate that the structural strength of the HSM-H has an adequate margin of safety and take appropriate actions to return the HSM-H to normal operating conditions.

v. If measurements or other evidence indicates that off-normal or accident temperature limits for fuel cladding has been exceeded, verify that canister confinement is maintained and assess analytically the condition of the fuel. Within 30 days, take appropriate actions to return the spent fuel to a safe configuration

## 4.0 Regulatory Considerations

Regulatory Requirements

- 10 CFR 72.210 issues a general license for the storage of spent fuel in an independent spent fuel storage installation at power reactor sites to persons authorized to possess or operate nuclear power reactors under 10 CFR part 50 or 10 CFR part 52.

- 10 CFR 72.212(b)(7) requires that a general licensee shall maintain a copy of the Certificate of Compliance and documents referenced in the certificate for each cask model used for storage of spent fuel, until use of the cask model is discontinued. The licensee shall comply with the terms and conditions of the certificate.

- 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 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.

- 10 CFR 51.21 stipulates that certain licensing and regulatory actions require an environmental assessment.

**NextEra Energy Seabrook's Evaluation of the Request for Exemption from 10 CFR 72.212(b)(7) for Dry Fuel Storage**

Regulatory Analysis

NextEra holds a general license under 10 CFR 72.210 for storage of spent fuel in an independent spent fuel storage installation. Accordingly, adherence to the terms and conditions of COC 72-1030 is required unless an exemption is authorized by the Commission under the provisions of 10 CFR 72.7. The requested exemption is authorized by law and will not endanger life or property or common defense and security. The proposed alternative action, monitoring the HSMs using temperature instruments in lieu of visual inspections, is consistent with the intent of the programmatic requirement for monitoring thermal performance of the HSMs. While the TS requires only a daily inspection of the HSM, monitoring the HSM using temperature instruments is a more effective method of detecting blockage in the ventilation paths of the HSM because it will identify internal blockage within the HSM. Such a condition would not be identified by daily vent checks.

## 5.0 Conclusion

In its safety evaluation for the NUHOMS CoC 72-1030, the NRC concluded that the system meets the requirements of 10 CFR 72. The requested exemption has no impact on the performance or function of the dry fuel storage system. The requested exemption provides an equivalent, alternate method of meeting a requirement in the HSM Thermal Monitoring Program required by the TS while continuing to meet the purpose and intent of the requirement. As a result, the proposed exemption will not endanger life, property, common defense, or security. Further, the exemption will free plant personnel so that they are available to perform other duties as necessary to ensure continued safe operation of the plant and would, therefore, be in the best interest of the public.

Attachment 2

**Environmental Assessment**

Identification of the Proposed Action:

The proposed action would provide an exemption from a requirement specified in 10 CFR 72.212, "Conditions of general license issued under § 72.210," for storage of spent nuclear fuel. The proposed action would permit use of a temperature measuring system to monitor thermal performance of the horizontal storage modules (HSM) lieu of daily visual inspections.

The Need for the Proposed Action:

The proposed action will eliminate the potential for injuries to personnel that could occur when accessing the HSMs to perform visual inspections under adverse winter weather conditions.

Environmental Impacts of the Proposed Action:

The technical specifications require a thermal monitoring program for the HSMs to prevent conditions that could lead to exceeding temperature limits for the concrete and fuel clad. The proposed action will continue to meet the intent of this program by using a temperature measuring system in lieu of daily visual inspections. Consequently, the proposed action will not significantly increase the probability or consequences of accidents. No changes are being made in the types of effluents that may be released offsite, and there is no significant increase in the amount of any effluent released offsite. The proposed action results in no significant increase in individual or cumulative occupational radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action. With regard to potential non-radiological impacts, the proposed action does not have a potential to affect any historic sites. It does not affect non-radiological plant effluents and has no other environmental impact. Therefore, there are no significant non-radiological environmental impacts associated with the proposed action. Accordingly, NextEra concludes that there are no significant environmental impacts associated with the proposed action.

Environmental Impacts of the Alternatives to the Proposed Action:

As an alternative to the proposed action, the NRC could consider denial of the proposed action (i.e., the "no-action" alternative). Denial of the exemption request would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

The action does not involve the use of any different resources than those previously considered in the Final Environmental Statement for the Seabrook Station, Unit No. 1, NUREG-0895, dated December 1982.