Progress Energy

FEB 24 2011

SERIAL: BSEP 11-0025

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

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Renewed Facility Operating License Nos. DPR-71 and DPR-62
Docket Nos. 50-325 and 50-324
Independent Spent Fuel Storage Installation (ISFSI) Docket No. 72-006
Registration and Use of Cask to Store Spent Fuel and System Thermal Performance Assessment

Ladies and Gentlemen:

In accordance with 10 CFR 72.212(b)(1)(ii), Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., is registering the use of an approved spent fuel storage cask at the Brunswick Steam Electric Plant (BSEP) ISFSI. Registration of the cask is required no later than 30 days after using that cask to store spent fuel. The required cask registration information is provided in Enclosure 1.

This letter is also providing a summary of the results of the thermal performance assessment for the highest heat load dry storage canister (DSC) as required by the General Requirements and Conditions of the Technical Specifications for Amendment No. 10 to Certificate of Compliance No. 1004, Section 1.1.7, "Special Requirements for First System in Place." Enclosure 2 provides the results of the thermal performance assessment for DSC BNP-61BTH-2-F-1-HZ08, which has the highest heat load to date.

No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Mr. Lee Grzeck, Acting Supervisor - Licensing/Regulatory Programs, at (910) 457-2487.

Sincerely,

Phyllis N. Mentel

Phyllis N. Mentel
Manager - Support Services
Brunswick Steam Electric Plant

Progress Energy Carolinas, Inc.
Brunswick Nuclear Plant
PO Box 10429
Southport, NC 28461

NMSS24

WRM/wrm

Enclosures:
1. Cask Registration Information Required by 10 CFR 72.212(b)(1)(ii)
2. NUHOMS-61BTH System Thermal Performance Information

cc (with enclosures):

U. S. Nuclear Regulatory Commission, Region II
ATTN: Mr. Victor M. McCree, Regional Administrator
245 Peachtree Center Ave, NE, Suite 1200
Atlanta, GA 30303-1257

U. S. Nuclear Regulatory Commission
ATTN: Mr. Philip B. O'Bryan, NRC Senior Resident Inspector
8470 River Road
Southport, NC 28461-8869

U. S. Nuclear Regulatory Commission **(Electronic Copy Only)**
ATTN: Mrs. Farideh E. Saba (Mail Stop OWFN 8G9A)
11555 Rockville Pike
Rockville, MD 20852-2738

Chair - North Carolina Utilities Commission
P.O. Box 29510
Raleigh, NC 27626-0510

Mr. W. Lee Cox, III, Section Chief
Radiation Protection Section
North Carolina Department of Environment and Natural Resources
1645 Mail Service Center
Raleigh, NC 27699-1645

Cask Registration Information
Required by 10 CFR 72.212(b)(1)(ii)

The following information is required by 10 CFR 72.212(b)(1)(ii), which states that the general licensee shall "Register use of each cask with the Nuclear Regulatory Commission no later than 30 days after using that cask to store spent fuel."

Licensee Name	Carolina Power & Light Company (dba Progress Energy Carolinas, Inc.)
Licensee Address	Progress Energy Brunswick Steam Electric Plant P.O. Box 10429 Southport, NC 28461-0429
Reactor License Numbers	DPR-71 (Unit 1) DPR-62 (Unit 2)
Reactor Docket Numbers	50-325 (Unit 1) 50-324 (Unit 2)
Independent Spent Fuel Storage Installation (ISFSI) Docket Number	72-006
Person Responsible for Providing Additional Information	Lee Grzeck Acting Supervisor – Licensing/Regulatory Programs (910) 457-2487
Cask Certificate of Compliance Number	1004, Amendment 10
Cask Model Number	Type 2 NUHOMS®-61BTH
Horizontal Storage Module (HSM) Model Number / HSM Number	HSM-H / 0-ISFSI-HSM-008
Cask Identification Number	BNP-61BTH-2-F-1-HZ08
Service Date	February 9, 2011

NUHOMS-61BTH System Thermal Performance Information

The following provides a 30-day notification of the results of the thermal performance assessment for the highest heat load dry storage canister (DSC) as required by the General Requirements and Conditions of the Technical Specifications for Certificate of Compliance No. 1004, Amendment No. 10, Section 1.1.7, "Special Requirements for First System in Place."

Section 1.1.7, "Special Requirements for First System in Place," requires a summary of the results of thermal measurements for the first cask system in place. Specifically, Section 1.1.7 requires the heat transfer characteristics of the cask system to be recorded by temperature measurements with a DSC loaded with fuel assemblies producing approximately 24 kW heat load in a horizontal storage module (HSM). Section 1.1.7 also requires that if the system does not include fuel capable of producing a 24 kW heat load, then the user may use the lesser heat load and provide a calculation and comparison of the thermal performance, and that this process should continue to be performed and reported for any higher heat loads until a 31.2 kW heat load is achieved for the Type 2 61BTH DSC being used for the Brunswick Independent Spent Fuel Storage Installation (ISFSI).

DSC Number	BNP-61BTH-2-F-1-HZ08
HSM Number	0-ISFSI-HSM-008
Loading Date	February 9, 2011
Temperature Measurement Date (Equilibrium)	February 12, 2011
Maximum Allowable Heat Load	31.2 kW
Actual Loaded Heat Load	29.771 kW

The calculated temperature differential limit is a function of both the DSC heat load and the ambient temperature. For the loaded DSC BNP-61BTH-2-F-1-HZ08, the heat load was 29.771 kW and the ambient temperature each day, at the time of the temperature measurements, was between 42°F and 57°F (i.e., based on an average of three measurements). Based on these conditions and methodology consistent with the Transnuclear Updated Final Safety Analysis Report, the maximum allowable temperature rise is approximately 71.3°F. The HSM for the DSC BNP-61BTH-2-F-1-HZ08 was closed on February 9, 2011, and the temperature rise reached equilibrium by February 12, 2011. On February 12, 2011, the air inlet temperature was 57.4°F (i.e., based on an average of three measurements) and the air outlet temperature was 87.4°F (i.e., based on an average of four measurements). This gives an actual temperature rise of 30.0°F, which is significantly less than the allowable limit of 71.3°F.

Based on these measurements, it can be concluded that the thermal analysis, as described in Amendment No. 10 to Certificate of Compliance No. 1004 for the NUHOMS-61BTH system, is conservative.

Reference: Transnuclear, Inc. Calculation No. NUH61BTH-0425, Revision 0.