72-1004

TRANSNUCLEAR
AN AREVA COMPANY

October 8, 2004
NUH03-04-132

Mr. L. Raynard Wharton
Spent Fuel Project Office, NMSS
U. S. Nuclear Regulatory Commission
11555 Rockville Pike M/S O13-D-13
Rockville, MD 20852

Subject: Submittal of Revision 2 of Application for Amendment No. 9 to the NUHOMS® Certificate of Compliance No. 1004 (TAC NO. L23732).

References: 1. Revision 1 of Application for Amendment No. 9 to the NUHOMS® Certificate of Compliance No. 1004 (TAC NO. L23732).

Dear Mr. Wharton:

Transnuclear, Inc. (TN) herewith submits Revision 2 of our application for Amendment No. 9 to the NUHOMS® CoC No. 1004.

This revision updates the specific changes to Technical Specifications 1.2.10 and 1.2.13 submitted previously (Reference 1) to address staff comments. Please replace the affected pages Reference 1 with the changed pages included herewith.

Should you or your staff require additional information to support review of this application, please do not hesitate to contact me at 510-744-6053 or Mr. Jayant Bondre at 510-744-6043.

Sincerely,

UBChopra

U. B. Chopra

Licensing Manager

Docket 72-1004

Enclosures:

1. Ten Copies of Replacement Pages of Revision 2 of Amendment No. 9 to the NUHOMS® Certificate of Compliance (CoC), No. 1004.

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ATTACHMENT A

Description, Justification, and Evaluation of Amendment 9 Changes

ATTACHMENT A

DESCRIPTION, JUSTIFICATION AND EVALUATION OF AMENDMENT CHANGES

1.0 INTRODUCTION

The purpose of this application for Amendment No. 9 to CoC 1004 is:

- To expand the NUHOMS®–32PT DSC Fuel Specification and Fuel Qualification Tables (FQTs), previously approved per CoC 1004 Amendment No. 5, to include reconstituted fuel assemblies and assemblies with low initial enrichment levels (between 1.1 and 2.0 wt % U-235).

- To revise the 32PT DSC Fuel Specification Table 1-1g to show the minimum soluble boron loading concentration required as a function of the fuel initial enrichment for the CE 14x14, WE 14x14, and CE 15x15 Class PWR fuel assemblies. Also, revise Fuel Specification 1.2.15a to be consistent with this change.

- To add CE 14x14, WE 14x14, WE 15x15, and WE 17x17 Class PWR fuel assemblies to the authorized contents of the NUHOMS®–24PHB DSC, that was previously approved per CoC 1004 Amendment No. 6.

This application provides the supporting shielding analysis and criticality analyses for the above listed changes. Thermal, structural, and confinement analyses for the 32PT DSC and 24PHB DSC are not affected by these changes.

This section of the application provides (1) a brief description of the changes, (2) justification for the changes, and (3) a safety evaluation for these changes.

Revision 1 of this application requests changes to Tech Specifications 1.2.2 (Table 1-1g), 1.2.10 and 1.2.13.

Revision 2 of this application revises the suggested changes to Tech Specs 1.2.10 and 1.2.13 in response to NRC comments.

2.0 BRIEF DESCRIPTION OF THE CHANGE

2.1 Significant Changes to the Technical Specifications Relative to NUHOMS® CoC 1004, Amendment 8

Attachment B of this submittal includes a mark-up of the affected Technical Specifications. The changes listed below are relative to CoC 1004 Amendments 8 which is currently under NRC review:

- For the 32PT DSC, revise Fuel Qualification Tables 1-2d, 1-2e, 1-2f, 1-2g and 1-2h to include fuel assemblies with low enrichment levels and provide cooling times for

regions depicted as "Not Analyzed" in these specific Tables. Also, revise these Tables to indicate cooling time requirements for reconstituted fuel assemblies.

- For the 32PT DSC, revise Fuel Specification Table 1-1e to include reconstituted fuel assemblies. Also, revise Table 1-1f to clarify that CE 15x15 fuel assemblies with stainless steel plugging clusters are acceptable.

- For the 32PT DSC, revise Fuel Specification Table 1-1g to include variable soluble boron loading as a function of initial enrichment for CE 14x14, CE 15x15 and WE 14x14 assembly class. Table 1-1g is revised to reflect the alternate poison plate configurations for each 32PT DSC basket type.

- For the 32PT DSC, revise "Limit/Specification" section of Specification 1.2.15a to delete 2500 ppm and add reference to Table 1-1g.

- For the 24PHB DSC, revise Table 1-1i to include storage of WE 17x17, WE 15x15, CE 14x14 and WE 14x14 PWR assembly class to the 24PHB DSC.

In addition, TN requests changes to Technical Specifications as described below which provide clarification and consistency to the contents of these Technical Specifications without altering the currently specified limits or the supporting bases of the Specifications.

- Revise the title of Specification 1.2.10 to *say "TC/DSC" instead of "DSC" to be consistent with the rest of the Specification. In addition, add a clarification to Limit 1 as shown. This change makes an explicit cross reference to Heavy Loads Requirements of Specification 1.1.4 which must be met when a loaded TC/DSC is to be lifted beyond the 80" limit of this Technical Specification. Insert the word "evaluated" in the Surveillance to correct a typographical omission.*

- Revise *Limit 4 of* Specification 1.2.13 to *add the clarification discussed above for Technical Specification 1.2.10..*

  The Action statement of this Specification is revised to correct an editorial error (the term "available" is replaced with the term "unavailable".

- Revise Technical Specification 1.2.12 to provide clarification to the intent of the Action Statement a.

2.2 Changes to Updated NUHOMS® FSAR, Revision 8

Attachments C-1 and C-2 of this submittal include revised and new pages for the Updated FSAR Appendices M and N, respectively. These updated pages are prepared in a format consistent with the Standard Review Plan for Dry Cask Storage (NUREG 1536).

Attachments C-1 and C-2 provide a complete supporting evaluation of the changes to the NUHOMS®-32PT and 24PHB System requested under this application.

3.0 JUSTIFICATION OF CHANGE

Nuclear Management Company (NMC) and Dominion Nuclear Connecticut (DNC) have contracted with TN to use the NUHOMS®-32PT system to store fuel assemblies with the revised parameters as described in this application at their Palisades and Millstone Nuclear Plants, respectively. Similarly, Progress Energy (PE) is considering an option to use 24PHB DSC to store fuel with these revised parameters at their Robinson Nuclear Plant.

To support the needs of NMC, DNC, and PE, TN requests that the staff assign appropriate priority for review of this application which is consistent with a February 2005 effective date for the amended CoC.

4.0 EVALUATION OF CHANGE

TN has evaluated the NUHOMS®-32PT and NUHOMS®-24PHB systems for structural, thermal, shielding and criticality adequacy and has concluded that the storage of PWR fuel with the revised parameters in the NUHOMS®-32PT and additional fuel types in the NUHOMS®-24PHB Systems have no significant effect on safety. This evaluation is documented in the updated Appendices M and N of the FSAR (Attachments C-1 and C-2, respectively).

ATTACHMENT B

Suggested Changes to Technical Specifications of CoC 1004 Amendment No. 8

(Changes proposed by CoC Amendment 8 have been included as current configuration.)

1.2.10 *TC*/DSC Handling Height Outside the Spent Fuel Pool Building

Limit/Specification:

1. The loaded TC/DSC shall not be handled at a height greater than 80 inches outside the spent fuel pool building *when it is not being handled in accordance with the General Requirements and Conditions of Specification 1.1.4.*

2. In the event of a drop of a loaded TC/DSC from a height greater than 15 inches: (a) fuel in the DSC shall be returned to the reactor spent fuel pool; (b) the DSC shall be removed from service and evaluated for further use; and (c) the TC shall be inspected for damage and evaluated for further use.

Applicability: The specification applies to handling the TC, loaded with the DSC, on route to, and at, the storage pad.

Objective:

1. To preclude a loaded TC/DSC drop from a height greater than 80 inches.

2. To maintain spent fuel integrity, according to the spent fuel specification for storage, continued confinement integrity, and DSC functional capability, after a tip-over or drop of a loaded DSC from a height greater than 15 inches.

Surveillance: In the event of a loaded TC/DSC drop accident, the system will be returned to the reactor fuel handling building, where, after the fuel has been returned to the spent fuel pool, the DSC and TC will be inspected and *evaluated* for future use.

Basis: The NRC evaluation of the TC/DSC drop analysis concurred that drops up to 80 inches, of the DSC inside the TC, can be sustained without breaching the confinement boundary, preventing removal of spent fuel assemblies, or causing a criticality accident. This specification ensures that handling height limits will not be exceeded in transit to, or at the storage pad. Acceptable damage may occur to the TC, DSC, and the fuel stored in the DSC, for drops of height greater than 15 inches. The specification requiring inspection of the DSC and fuel following a drop of 15 inches or greater ensures that the spent fuel will continue to meet the requirements for storage, the DSC will continue to provide confinement, and the TC will continue to provide its design functions of DSC transfer and shielding.

1.2.13 TC/DSC Lifting Heights as a Function of Low Temperature and Location

Limit/Specification:

1. No lifts or handling of the TC/DSC at any height are permissible at DSC basket temperatures below -20°F inside the spent fuel pool building.

2. The maximum lift height of the TC/DSC shall be 80 inches if the basket temperature is below 0°F but higher than -20°F inside the spent fuel pool building.

3. No lift height restriction is imposed on the TC/DSC if the basket temperature is higher than 0°F inside the spent fuel pool building.

4. The maximum lift height and handling height for all transfer operations outside the spent fuel pool building shall be 80 inches (*when it is not being handled in accordance with the General Requirements and Conditions of Specification 1.1.4*) and the basket temperature may not be lower than 0°F.

Applicability: These temperature and height limits apply to lifting and transfer of all loaded TC/DSCs inside and outside the spent fuel pool building.

The requirements of 10 CFR Part 72 apply outside the spent fuel building. The requirements of 10 CFR Part 50 apply inside the spent fuel pool building.

Objective: The low temperature and height limits are imposed to ensure that brittle fracture of the ferritic steels, used in the TC trunnions and shell and in the DSC basket, does not occur during transfer operations.

Action: Confirm the basket temperature before transfer of the TC. If calculation or measurement of this value is *un*available, then the ambient temperature may conservatively be used.

Surveillance: The ambient temperature shall be measured before transfer of the TC/DSC.

Bases: The basis for the low temperature and height limits is ANSI N14.6-1986 paragraph 4.2.6 which requires at least 40°F higher service temperature than nil ductility transition (NDT) temperature for the TC. In the case of the standardized TC, the test temperature is -40°F; therefore, although the NDT temperature is not determined, the material will have the required 40°F margin if the ambient temperature is 0°F or higher. This assumes the material service temperature is equal to the ambient temperature.

The basis for the low temperature limit for the DSC is NUREG/CR-1815. The basis for the handling height limits is the NRC evaluation of the structural integrity of the DSC to drop heights of 80 inches and less.