

April 30, 1997

U. S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, Maryland 20555-0001

Attention: Document Control Desk

Subject: Docket No. 71-9235: Safety Analysis Report for the NAC Storable Transport Cask

References:

1. USNRC Certificate of Compliance No. 71-9235, Model No. NAC-STC Package
2. NAC International Letter to USNRC dated December 30, 1996, Application to Amend Certificate of Compliance No. 71-9235 for the NAC-STC Package (TAC No. L22394), with proposed Revision 9 of the NAC-STC SAR
3. USNRC Letter to NAC International dated February 14, 1997.
4. Docket No. 72-1025: NAC International Inc. Topical Safety Analysis Report for the NAC-MPC Multi-Purpose Canister System (NAC-MPC System), April 29, 1997.

NAC International Inc. (NAC) hereby submits supplemental information to the Application to Amend Reference No. 1 Certificate of Compliance (COC) to authorize the transport of the NAC-MPC transportable storage canister. NAC herewith submits fifteen (15) copies of Revision 9A, change pages, to the NAC-STC Safety Analysis Report (SAR). The change pages are revised pages or added pages that are to be inserted in the Reference 2 submittal. A list of active pages is also provided as well as an instruction sheet for the insertion and removal of affected pages. This proposed revision of the SAR is indicated by shading of added text and analyses. SAR pages that do not contain any Revision 9A changes are maintained "as is" except where inserted text and/or analyses cause the pagination of pages to carryover onto succeeding pages.

Attachment 1 provides the NAC responses to the NRC Acceptance Review comments from Reference No. 3. Attachment 2 provides the Revision 9A change pages. These change pages include the modifications required by Reference No. 3 concerning Greater than Class C (GTCC) Waste, failed fuel, typographical errors and the B(U)-85 designation for the NAC-STC.

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Revision 9 to the NAC-STC SAR and enclosed supplemental information, Revision 9A, demonstrate the adequacy of transporting the NAC-MPC transportable storage canister in the NAC-STC cask. The changes to NAC-STC SAR address the structural, thermal, criticality, shielding, and containment analyses as well as the operating procedures associated with the NAC-MPC canister in the NAC-STC cask. Thus, this proposed revision to the SAR documents the adequacy of the NAC-STC containing the NAC-MPC canister in satisfying all of the regulatory requirements of 10 CFR 71, April 1996, for the transport of radioactive materials. Additionally, Revision 9A addresses issues associated with the latest changes in 10 CFR 71 including: the change from Fissile Class to Transport Index for the NAC-STC package, analysis of the hypothetical crush accident based on 71.73 (c) (2), reanalysis of the hypothetical fire accident based on 71.73 (c) (4), and 2 MPa (290 psi) water immersion based on 71.61.

In this proposed amendment to the NAC-STC COC, the NAC-MPC canister is loaded into the NAC-STC cavity. Spacers are used to center the canister in the cavity. The NAC-MPC canister contains a fuel basket which is based on the tube and disk design of the licensed NAC-STC. This NAC-MPC fuel basket holds up to 36 "Yankee Class" fuel assemblies. Also, the NAC-MPC canister can accommodate a basket which holds up to 24 Greater Than Class C (GTCC) waste containers. Yankee Class fuel assemblies include both stainless steel clad and Zircalloy clad fuel rods. Fuel rods that have been identified as failed will be enclosed in stainless steel tubes and will be arranged into a Reconfigured Fuel Assembly (RFA) prior to insertion in the NAC-MPC basket.

As you are aware, NAC is under contract with Yankee Atomic Electric Company (YAEC) to implement the NAC-MPC System for the storage and transport of spent nuclear fuel and GTCC waste at the Yankee Nuclear Power Station (YNPS) at Rowe, MA. YNPS is presently in the process of decommissioning. YNPS plans to load fuel in the NAC-MPC canister for either storage on site or for shipment to a future centralized interim storage site. YNPS would like to resolve all 10 CFR 71 issues prior to loading. Thus, the timely approval of the amendment will greatly assist the YNPS decommissioning schedule. The canistered configuration of the NAC-STC is the transport component of the NAC-MPC System. The storage TSAR for the NAC-MPC System has been concurrently submitted to the USNRC under separate cover for review and certification, Reference No. 4.

NAC expects that, in the near future, several utilities will wish to use the NAC-STC in conjunction with the NAC-MPC system to handle spent fuel from the early generation of nuclear plants whose fuel will fit into the NAC-STC in a canistered mode. Prompt consideration of this amendment will also facilitate a transportation solution for these utilities.

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NAC will appreciate and support all actions that the USNRC may be able to take to expedite the review and approval of the requested amendment. If you have any comments or questions, please contact me at (770) 447-1144. NAC is ready to discuss any comments or questions that your staff may identify.

Sincerely,



Thomas C. Thompson  
Manager, Licensing  
Engineering & Design Services

TCT/jc

Enclosures

cc: C. J. Haughney (w/o enclosures)  
Marissa Bailey (w/o enclosures)  
L. A. Tremblay, Jr.

**Attachment 1**  
**Responses to NAC-STC SAR Acceptance Review Comments**  
**From USNRC Dated February 14, 1997**

1. Specify the parameters for the "Greater Than Class C" (GTCC) waste, including the maximum radioactivity of the radioactive constituents, identification and maximum quantity of fissile constituents, and the chemical and physical form of the material. These parameters should be consistent with the parameters assumed in the structural, thermal, containment, shielding and criticality analyses.

**NAC Intl. Response:**

Table 1.2-3, Isotopic Constituents of the GTCC waste, was added to Chapter 1.

2. Provide procedures for loading fuel and GTCC waste in the canister, including steps for verifying the contents, and for draining, sealing, drying, inerting, and leak-testing the canister.

**NAC Intl. Response:**

Section 7.7, Procedure for Loading the NAC-MPC Canister, was added to Chapter 7. This section discusses NAC-MPC canister loading procedures for both Yankee Class fuel and GTCC waste.

3. Specify the transport index.

**NAC Intl. Response:**

The NAC-STC is assigned a Transport Index of 20 based on the shielding evaluation presented in Section 5.1.4. As shown in Chapter 6, the Transport Index based on nuclear criticality safety is zero, since an infinite number of packages with optimum moderation remains subcritical.

4. Remove reference to Fissile Class I. Fissile Classes do not exist in 10 CFR 71.

**NAC Intl. Response:**

Reference to the NAC-STC as a Fissile Class I package has been removed from Chapters 1.0 and 6.0 of the NAC-STC SAR.

5. Remove references to Section 71.57, which no longer exists in the new 10 CFR Part 71.

**NAC Intl. Response:**

Reference to Section 71.57 has been removed from Chapter 6.0 of the NAC-STC SAR.

6. Provide a complete description and evaluation of the failed fuel shipment configuration. Chapters 7.0, page 7.0-2, refers to shipment of failed fuel in the canistered configuration. However, the application does not provide any analyses on the shipment of failed fuel.

**NAC Intl. Response:**

This revision to the NAC-STC SAR incorporates a Reconfigured Fuel Assembly (RFA) to address the issue of failed fuel in the canistered configuration. All applicable sections of the SAR have been revised to incorporate the RFA.

7. Correct the typographical errors in Section 8.1.7.4 and 8.1.8. Sections 8.1.7.4 and 8.1.8 are repeated on pages 8.1-17 and 8.1-18, and Section 8.1.8 is incomplete on both pages.

**NAC Intl. Response:**

These typographical errors have been corrected.