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(1)

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BYR 99-052

U.S. Nuclear Regulatory Commission
Rulemakings and Adjudications Staff
Washington, D.C. 20555-0001

References:
a. License No. DPR-3 (Docket No. 50-29)
b. Docket No. 72-31
c. Safety Analysis Report for the NAC Multi-Purpose Canister (MPC) System, NAC International, Revision 3, Docket No. 72-1025
d. Memorandum, S. Shankman (USNRC) to P. Holahan (USNRC), "Forwarding of a Proposed Certificate of Compliance for NAC Multi-Purpose Canister System and Documents to Support Rulemaking", Docket No. 72-1025, dated March 25, 1999
e. Proposed Rule: Addition of NAC-MPC to List of Approved Spent Fuel Casks, 64FR45918, dated August 23, 1999

Subject: Rulemaking Comments on NAC-MPC Transportable Storage Cask System

The purpose of this letter is to provide Yankee Atomic Electric Company's (YAEC) comments on proposed rulemaking to add the NAC-MPC transportable storage cask system to the 10CFR Part 72 list of approved spent fuel casks [References (d) and (e)]. YAEC intends to utilize the NAC-MPC system for storage of spent nuclear fuel at the Yankee Nuclear Power Station located in Rowe, Massachusetts.

The specific comments, given in Attachment 1, request changes to the draft NAC-MPC System Technical Specifications provided in Reference (d). The requested changes encompass: (1) ISFSI pad soil and concrete design parameters, and (2) clarifications and enhancements to canister loading operations.

YAEC questions the inclusion of concrete and soil specifications in the NAC-MPC Technical Specifications. These concrete and soil specifications define variables that are used in the ISFSI supporting analyses to demonstrate compliance with the overall ISFSI design requirements (static load, seismic, cask tip-over, etc.) as specified in the NAC-MPC SAR. The concrete and soil values currently specified do not allow YAEC to construct a sufficiently durable ISFSI pad and restricts the use of locally available and technically acceptable soil and concrete mixes. Acceptable analysis results can be obtained using concrete and soil values outside those prescribed in the Technical Specifications.

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Technical Specification control of the concrete and soil parameters is not necessary, as YAEC is required, per the evaluations contained in 10CFR72.212, to demonstrate that site specific conditions and the ISFSI design are bounded by the approved NAC-MPC CoC license conditions and meet SAR design requirements. Furthermore, since a failure of the ISFSI pad is not considered to likely result in conditions adverse to safe operations, integrity of the spent fuel, or public health and safety; the addition of these concrete and soil specifications in the Technical Specifications would not meet the inclusion criteria of 10CFR72.44.

Should you have any questions regarding YAEC's comments, please contact me at (978) 568-2156.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

JTM Cuba
for

Merrill J. Atkins
Decommissioning Licensing Manager

Attachment:

c: Mr. Timothy McGinty, USNRC
Mr. Morton B. Fairtile, USNRC
Mr. Stephen O'Connor, USNRC
Director NMSS, USNRC
Mr. Donald K. Davis - YAEC
Mr. Stephen R. Whitsett – NAC

ATTACHMENT 1

Items 1 through 4 reflect changes YAEC believes are necessary to provide flexibility in the concrete and soil parameters to meet engineering requirements and the characteristics of commercially available materials. Discussions with NAC indicate that the requested changes will have no adverse consequence on the ISFSI pad design analyses. The confirmatory analysis will be documented in the site specific 10 CFR 72.212 Report.

(1) ISFSI Pad Concrete Compressive Strength
RE: Draft NAC-MPC System Technical Specifications
Section 4.4 Item 6.c, "Site Specific Parameters and Analyses"

The Technical Specification presently stipulates an ISFSI pad concrete compressive strength of $\leq$ 3,000 psi at 28 days. However, the NAC-MPC SAR [Reference (c)] analysis uses an ISFSI pad compressive strength of 4,000 psi. In order to install as durable an ISFSI pad as possible, while remaining within the bounds of the analyses, YAEC requests that the Technical Specification for the ISFSI pad concrete compressive strength be changed to$\leq$ 4,000 psi at 28 days.

(2) ISFSI Pad Concrete Density
RE: Draft NAC-MPC System Technical Specifications
Section 4.4 Item 6.d,"Site Specific Parameters and Analyses"

The Technical Specification presently stipulates an ISFSI pad concrete density of $125 \leq \rho \leq 140$ lbs/ft^3. YAEC anticipates using a locally available conventional normal weight mix with mineral aggregate having a density in the range of 140 to 150 lbs/ft^3. Therefore, YAEC requests that the Specification for the ISFSI pad concrete density be changed to $125 \leq \rho \leq 150$ lbs/ft^3.

(3) ISFSI Pad Soil Density
RE: Draft NAC-MPC System Technical Specifications
Section 4.4 Item 6.e,"Site Specific Parameters and Analyses"

The Technical Specification presently stipulates an ISFSI pad soil density (γ) of $85 \leq \gamma \leq 115$ lbs/ft^3. Soils meeting the stiffness requirement specified in item (4) below have an installed density of 100 to 130 lbs/ ft^3. In order to provide flexibility in the selection of commercially available material, YAEC requests that the soil density upper limit be modified so that the Technical Specification would read $85 \leq \gamma \leq 130$ lbs/ ft^3.

(4) ISFSI Pad Soil Stiffness
RE: Draft NAC-MPC System Technical Specifications
Section 4.4 Item 6.f,"Site Specific Parameters and Analyses"

The Technical Specification presently stipulates an ISFSI pad soil stiffness of $\leq$ 250 psi/in. YAEC requests that a tolerance of $\pm$ 50 be included with this parameter in order to accommodate soil

variability. Thus, the soil stiffness may be expressed as $200 \leq k \leq 300$, where k is the sub-grade modulus.

Items 5 through 10 reflect Technical Specification clarifications and enhancements associated with canister loading operations.

(5) Canister Water Temperature During Loading Operations
RE: Draft NAC-MPC System Technical Specifications
LCO Section 3.1.1, "Canister Water Temperature"

YAEC recommends that this LCO, along with its corresponding basis be removed entirely from the Technical Specifications. Although excessive moisture can interfere with obtaining high quality welds, it would be more appropriate to include this information in the canister welding procedures. Since closure welds will be examined for adequacy, this process variable does not represent a significant risk to the public health and safety. Inclusion of this parameter within the Technical Specifications is not consistent with the inclusion criteria of 10CFR72.44, nor is it consistent with the content of the draft NAC-UMS Technical Specifications.

In the event that this LCO is not removed from the Technical Specification, YAEC recommends the following: The Technical Specification presently allows air cooling of the canister as an Alternative Required Action in LCO 3.1.6 with no water in the canister, but does not allow air cooling in LCO 3.1.1 with water in the canister. In order to maximize operational flexibility, while remaining within the bounds of the analyses, YAEC requests that this Technical Specification and supporting Technical Specification Bases be modified to add air cooling of the canister as an Alternative Required Action under Condition B of LCO 3.1.1, similar to that which is presently allowed under Required Action A.2 of LCO 3.1.6.

(6) Forced Air Cooling of the Canister
RE: Draft NAC-MPC System Technical Specifications
LCO and Bases Section 3.1.5, "Canister Maximum Time in Vacuum Drying"

In LCO 3.1.5, the time duration is measured between "completion of draining the canister through completion of vacuum dryness testing and the introduction of helium." In the surveillance section, the time duration is "monitor elapsed time from the start of vacuum drying operation until the start of helium backfill." YAEC recommends the use of one term, "completion of canister draining operations", for consistency. This duration term is also consistent with the terminology used in the draft NAC-UMS Technical Specifications.

In LCO 3.1.5.2, the Required Action section does not allow air cooling. YAEC recommends that the Required Action section should include the following statement, "or commence supplying air to the transfer cask bottom fill/drain lines at a minimum rate of 250 CFM and a maximum temperature of 75 F for a minimum of 24 hours." The aforementioned wording is consistent with the draft NAC-UMS Technical Specifications. YAEC also recommends clarifying the term "in pool cooling", as described in Surveillance Requirement 3.1.5.2, to allow the use of a "heat exchanger" instead of an in-pool condenser unit.

YAEC also recommends that the bases section of T.S. 3.1.5 be revised to address "forced air cooling" in order to be consistent with its associated LCO.

(7) Forced Air Cooling Enhancement During Loading Operations

RE: Draft NAC-MPC System Technical Specifications
LCO 3.1.6, "Canister Maximum Time in Transfer Cask"

In LCO 3.1.6.1, a time duration is defined as "from completion of backfilling the CANISTER with helium through completion of the CANISTER transfer operation from the TRANSFER CASK to the CONCRETE CASK." However, SR 3.1.6.1 has a time duration of "from start of helium backfill until completion of loading CANISTER into CONCRETE CASK". These times are similar but not equal. In order to clarify this Technical Specification and facilitate the monitoring and documenting of time duration, YAEC recommends the use of one time duration, "from completion of backfilling…. ."

Providing 1,000 CFM of air though the two available connections at the bottom of the NAC-MPC transfer cask, as detailed in Required Action A.2.1, presents operational concerns. More recent analysis by NAC concludes that a rate of 250 CFM will provide sufficient cooling of the canister with the design basis heat load. YAEC requests that the 1,000 CFM value in LCO Required Action A.2.1 and supporting Technical Specification Bases be changed to 250 CFM.

(8) Cooling of the Canister in Transfer Cask

RE: Draft NAC-MPC System Technical Specifications
Surveillance Requirement 3.1.6.2,"Canister Maximum Time in Transfer Cask"

For consistency, the last sentence of the Technical Specification Bases section for SR 3.1.6.2 should include the words "or forced air cooling" so as to read "..if in-pool cooling operations or forced air cooling…".

(9) Canister Fuel Cooldown Requirements

RE: Draft NAC-MPC System Technical Specifications
Limiting Condition for Operation, Surveillance Requirements, and Bases Sections for 3.1.7 "Fuel Cooldown Requirements"

This section implies that a user may "wet" unload back to the spent fuel pool. Following transition to dry fuel storage, facilities undergoing decommissioning typically plan on dismantlement of their spent fuel pools as part of the overall site remediation and restoration. There are no design basis events, for the NAC-MPC, which would require the unloading of a canister's contents. Consequently, wet unloading back to the spent fuel pool would not be an alternative for a decommissioning plant that stores their fuel dry and decommissions the spent fuel pool. YAEC recommends that this section either be clarified to only be applicable for licensee's maintaining spent fuel pools beyond dry fuel storage or deleted from the Technical Specifications.

(10) Pressure Testing requirements
RE: Draft NAC-MPC System Technical Specifications
Table 12A3-1, "Canister Limits"

There is an inconsistency between the SAR and Technical Specifications. Specifically, SAR Section 8.1.1 step 24 indicates a pressure test value of 50 psig. However, the Technical Specifications (Table 12A3-1, CANISTER Limits) state: "Canister Pressure Test 15.0 (+2,-0) psig for > 10 min."

YAEC recommends that the pressure test value in Technical Specification Table 12A3-1 be corrected to 50 psig.