Attachment 1 to Holtec Letter 5014811

LAR 1014-12, REVISION 0

SUMMARY OF PROPOSED CHANGES

Proposed Change #1

Addition of new loading patterns for the MPC-68M.

Reason for Proposed Change #1

This proposed change allows for storage of fuel assemblies with higher per assembly heat loads in the MPC-68M. These higher heat loads allow for fuel that has been cooled over 2 years to be stored in the MPC-68M.

Justification for Proposed Change #1

The new loading patterns have been thermally evaluated and found to maintain component temperatures below the required limits. Supporting thermal analyses have been performed, and are included in Chapter 4 of the FSAR. Additional supporting changes have also been included in Chapters 2, 3, and 5 of the FSAR. Marked up copies of the affected chapters are included, as well as proposed CoC pages to include the new patterns.

Proposed Change #2

It is proposed to add an exception to the ASME Code to allow the use of certain duplex stainless steels in the HI-STORM 100 system.

Reason for Proposed Change #2

Duplex stainless steel material can have improved corrosion resistance properties, and therefore is added to the list of options under the Alloy X designation.

Justification for Proposed Change #2

Duplex stainless steel material has been evaluated, and is included in the attached, revised Alloy X Appendix (HI-STORM 100 FSAR Appendix 1.A). The structural and thermal limits for the duplex stainless steel material have been evaluated and shown to be acceptable for use in the HI-STORM 100 system.

Proposed Change #3

It is proposed to modify the HI-STORM 100 CoC to allow storage of damaged fuel/ fuel debris in DFCs under the regionalized loading pattern.

Reason for Proposed Change #3

The current limitation of DFCs in uniform loading patterns only limits the flexibility of loading for HI-STORM 100 users. Allowing storage of damaged fuel/fuel debris in DFCs in a regionalized pattern allows users to load canisters with better ALARA strategies.

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SUMMARY OF PROPOSED CHANGES

Justification for Proposed Change #3

The impact of DFCs in the regionalized pattern has been evaluated, and a heat load reduction factor has been incorporated in the HI-STORM 100 CoC and FSAR. The heat load reduction factor is similar to that currently exists for uniform heat load pattern. There is no change to the structural, criticality, or shielding evaluations, as the same number of DFCs are allowable for storage in the same locations.

Proposed Change #4

Addition of cyclic vacuum drying for all MPCs

Reason for Proposed Change #4

This proposed change allows for cyclic drying of MPCs with time limits. Allowing this option helps users to perform vacuum drying of canisters with high burnup fuel or total decay heat exceeding threshold heat loads.

Justification for Proposed Change #4

Utilizing vacuum drying for canisters with heat loads less than the identified threshold heat load, the peak cladding temperature is maintained below the ISG-11, Revision 3 limit of 400^{o}C for an infinite duration drying times. Under the new cyclic drying scenario, cycles of vacuum drying are followed with cooling by helium until dryness criteria is achieved. The allowable time limits are dependent on canister heat load. The thermal model described in the FSAR must be used to determine the time limits on a site-specific basis for heatup/cooldown cycles. It is ensured per ISG-11 Rev 3 that the repeated thermal cycling is limited to less than 10 cycles, with cladding temperature variations less than 65^{o}C (117^{o}F) each.

Proposed Change #5

A new open loop low pressure drying (LPD) method is added for drying of MPC-68M canisters.

Reason for Proposed Change #5

This proposed change allows for non-cyclic drying of MPC-68M cavity. This process has the principal benefit of avoiding cyclic heating and quenching of the fuel associated with vacuum drying & flooding which is limited in the number of permitted cycles and the related cyclic temperature range by regulatory guidance to avoid high thermal stresses.

Justification for Proposed Change #5

Supporting thermal evaluations of this method are presented in Chapter 4 of the FSAR. The steady state peak cladding temperature under the most limiting pattern during this process is

below the ISG-11 Rev 3 temperature limit. Marked up copies of Chapter 4 are included, as well as proposed CoC pages to include the new drying method.

Clarifications and Editorial Suggestions in the CoC/FSAR

A) The description of the HI-TRAC in the HI-STORM 100 CoC has been revised to remove specific weights from the HI-TRAC names. This change aligns the HI-STORM 100 system with the HI-STORM FW system, which allows for variances in the HI-TRAC weight based on site-specific requirements. No changes have been made to the design of the HI-TRAC, nor the criteria which the HI-TRAC must meet.