HOLTEC INTERNATIONAL

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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

September 6, 2007

Subject: USNRC Docket No. 72-1014, TAC L23850
HI-STORM 100 Certificate of Compliance 1014, Proposed Amendment 5

Reference:
1. Holtec Project 5014, LAR 1014-3
2. E-Mail from Joseph Sebrosky (NRC) to Evan Rosenbaum (Holtec), received on August 31st, 2007
3. Letter from Christopher Regan (NRC) to Evan Rosenbaum (Holtec), dated March 6th, 2007
4. Holtec/SFST Teleconference, September 5th, 2007
5. Holtec/SFST Teleconference, August 30th, 2007
6. Holtec/SFST Teleconference, September 6th, 2007

Dear Sir:

Via e-mail on August 31st (Reference 2), the SFST staff identified an apparent discrepancy in the Proposed Revised FSAR previously submitted in support of Proposed Amendment 5 to the HI-STORM 100 Certificate of Compliance. Holtec has investigated the apparent discrepancy and determined that Table 2.0.1 contained an incorrect maximum stainless steel design temperature. This value was "rolled back" from 1200°F to 950°F in other sections of the FSAR in response to an earlier SFST request (Reference 3), but was inadvertently left in this one table. It was agreed, in a teleconference on September 5th (Reference 4), that this oversight would be corrected. A replacement page is attached (Attachment 1).

Via teleconferences on August 30th and September 6th (References 5 and 6), the SFST staff requested several editorial changes in Appendices A and B to the Proposed Revised Certificate of Compliance. The minor modifications requested include:

1. Slight rewording to ensure that definitions in both Sections A1.1 and B1.0 are identical
2. Corrections to the Region 1 "hatching" in Figures B2.1-1 and B2.1-2
3. Correction of the title of Section IV of Table B2.1-1
4. Correcting the allowable locations for NSAs in Note 1 in Section V of Table B2.1-1
5. Correction of a typographical error in the equation for q_2 in Section B2.4.2

Replacement pages that incorporate these requested editorial changes are attached (Attachment 2).

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Attachments to this letter are as follows:

Attachment 1: Replacement Page for Proposed Revised FSAR (1 page)
Attachment 2: Replacement Pages for Proposed Amended C of C (13 pages)

Please contact us if you have any questions.

Sincerely,

Evan Rosenbaum, P.E.
Licensing Project Manager

cc: Joseph Sebrosky, NRC
Michael Call, NRC
Geoffrey Hornseth, NRC

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Table 2.0.1 (continued)
MPC DESIGN CRITERIA SUMMARY

Type	Criteria	Basis	FSAR Reference
Accident (External)	60 psig	ANSI/ANS 57.9	Sections 2.2.3.6 and 2.2.3.10
Response and Degradation Limits	SNF assemblies confined in dry, inert environment	10CFR72.122(h)(l)	Section 2.0.1
Thermal:			
Maximum Design Temperatures:			
Structural Materials:			
Stainless Steel (Normal)	725° F	ASME Code Section II, Part D	Table 2.2.3
Stainless Steel (Accident)	950° F	See Subsection 2.2.2.3~~ASME Code Section II, Part D~~	Table 2.2.3
Neutron Poison:			
Neutron Absorber (normal)	800° F	See Table 4.3.1 and Subsection 1.2.1.3.1	Table 2.2.3
Neutron Absorber (accident)	~~950°~~-1000° F	See Table 4.3.1 and Subsection 1.2.1.3.1	Table 2.2.3
Canister Drying	≤ 3 torr for ≥ 30 minutes (VDS) ≤ 21°F exiting the demoisturizer for ≥ 30 minutes or a dew point of the MPC exit gas ≤ 22.9°F for ≥ 30 minutes(FHD)	NUREG-1536, ISG-11, Rev. 3	Section 4.5, Appendix 2.B
Canister Backfill Gas	Helium	-	Section 4.4
Canister Backfill	Varies (see Table 1.2.2)	Thermal Analysis	Section 4. 4
Fuel cladding temperature limit for long term storage conditions	752 °F (400 °C)	ISG-11, Rev. 3	Section 4.3

1.1 Definitions (continued)

OVERPACK	OVERPACKs are the casks which receive and contain the sealed MPCs for interim storage on the ISFSI. They provide gamma and neutron shielding, and provide for ventilated air flow to promote heat transfer from the MPC to the environs. The OVERPACK does not include the TRANSFER CASK.
SPENT FUEL STORAGE CASKS (SFSCs)	SFSCs are containers approved for the storage of spent fuel assemblies at the ISFSI. The HI-STORM 100 SFSC System consists of the OVERPACK and its integral MPC.
STORAGE OPERATIONS	STORAGE OPERATIONS include all licensed activities that are performed at the ISFSI while an SFSC containing spent fuel is *situated* ~~sitting on a storage pad~~ within the ISFSI perimeter. STORAGE OPERATIONS does not include MPC transfer between the TRANSFER CASK and the OVERPACK, *which begins when the MPC is lifted off the HI-TRAC bottom lid and ends when the MPC is supported from beneath by the OVERPACK (or the reverse).*
TRANSFER CASK	TRANSFER CASKs are containers designed to contain the MPC during and after loading of spent fuel assemblies and to transfer the MPC to or from the OVERPACK. The HI-STORM 100 System employs either the 125-Ton or the 100-Ton HI-TRAC TRANSFER CASK.

1.1 Definitions (continued)

TRANSPORT OPERATIONS	TRANSPORT OPERATIONS include all licensed activities performed on an OVERPACK or TRANSFER CASK loaded with one or more fuel assemblies when it is being moved to and from the ISFSI. TRANSPORT OPERATIONS begin when the OVERPACK or TRANSFER CASK is first suspended from or secured on the transporter and end when the OVERPACK or TRANSFER CASK is at its destination and no longer secured on or suspended from the transporter. TRANSPORT OPERATIONS includes transfer of the MPC between the OVERPACK and the TRANSFER CASK, *which begins when the MPC is lifted off the HI-TRAC bottom lid and ends when the MPC is supported from beneath by the OVERPACK (or the reverse).*
UNLOADING OPERATIONS	UNLOADING OPERATIONS include all licensed activities on an SFSC to be unloaded of the contained fuel assemblies. UNLOADING OPERATIONS begin when the OVERPACK or TRANSFER CASK is no longer suspended from or secured on the transporter and end when the last fuel assembly is removed from the SFSC. UNLOADING OPERATIONS does not include MPC transfer between the TRANSFER CASK and the OVERPACK, *which begins when the MPC is no longer supported from beneath by the OVERPACK and ends when the MPC is lowered onto the HI-TRAC bottom lid.*

1.0 Definitions (continued)

FUEL DEBRIS	FUEL DEBRIS is ruptured fuel rods, severed rods, loose fuel pellets, containers or structures that are supporting these loose fuel assembly parts, or fuel assemblies with known or suspected defects which cannot be handled by normal means due to fuel cladding damage.
INTACT FUEL ASSEMBLY	INTACT FUEL ASSEMBLIES are fuel assemblies without known or suspected cladding defects greater than pinhole leaks or hairline cracks and which can be handled by normal means. Fuel assemblies without fuel rods in fuel rod locations shall not be classified as INTACT FUEL ASSEMBLIES unless dummy fuel rods are used to displace an amount of water greater than or equal to that displaced by the fuel rod(s).
LOADING OPERATIONS	LOADING OPERATIONS include all licensed activities on an OVERPACK or TRANSFER CASK while it is being loaded with fuel assemblies. LOADING OPERATIONS begin when the first fuel assembly is placed in the MPC and end when the OVERPACK or TRANSFER CASK is suspended from or secured on the transporter. LOADING OPERATIONS does not included MPC transfer between the TRANSFER CASK and the OVERPACK, *which begins when the MPC is lifted off the HI-TRAC bottom lid and ends when the MPC is supported from beneath by the OVERPACK.*
MINIMUM ENRICHMENT	MINIMUM ENRICHMENT is the minimum assembly average enrichment. Natural uranium blankets are not considered in determining minimum enrichment.
MULTI-PURPOSE CANISTER (MPC)	MPCs are the sealed spent nuclear fuel canisters which consist of a honeycombed fuel basket contained in a cylindrical canister shell which is welded to a baseplate, lid with welded port cover plates, and closure ring. The MPC provides the confinement boundary for the contained radioactive materials.
NON-FUEL HARDWARE	NON-FUEL HARDWARE is defined as Burnable Poison Rod Assemblies (BPRAs), Thimble Plug Devices (TPDs), Control Rod Assemblies (CRAs), Axial Power Shaping Rods (APSRs), Wet Annular Burnable Absorbers (WABAs), Rod Cluster Control Assemblies (RCCAs), Control Element Assemblies (CEAs), Neutron Source Assemblies (NSAs), water displacement guide tube plugs, orifice rod assemblies, ~~and~~ vibration suppressor inserts, *and components of these devices such as individual rods.*

(continued)

1.0 Definitions (continued)

OVERPACK	OVERPACKs are the casks which receive and contain the sealed MPCs for interim storage on the ISFSI. They provide gamma and neutron shielding, and provide for ventilated air flow to promote heat transfer from the MPC to the environs. The OVERPACK does not include the TRANSFER CASK.
PLANAR-AVERAGE INITIAL ENRICHMENT	PLANAR AVERAGE INITIAL ENRICHMENT is the average of the distributed fuel rod initial enrichments within a given axial plane of the assembly lattice.
SPENT FUEL STORAGE CASKS (SFSCs)	An SFSC is a container approved for the storage of spent fuel assemblies at the ISFSI. The HI-STORM 100 SFSC System consists of the OVERPACK and its integral MPC.
TRANSFER CASK	TRANSFER CASKs are containers designed to contain the MPC during and after loading of spent fuel assemblies and to transfer the MPC to or from the OVERPACK. The HI-STORM 100 System employs either the 125-Ton or the 100-Ton HI-TRAC TRANSFER CASK.
TRANSPORT OPERATIONS	TRANSPORT OPERATIONS include all licensed activities performed on an OVERPACK or TRANSFER CASK loaded with one or more fuel assemblies when it is being moved to and from the ISFSI. TRANSPORT OPERATIONS begin when the OVERPACK or TRANSFER CASK is first suspended from or secured on the transporter and end when the OVERPACK or TRANSFER CASK is at its destination and no longer secured on or suspended from the transporter. TRANSPORT OPERATIONS include transfer of the MPC between the OVERPACK and the TRANSFER CASK *which begins when the MPC is lifted off the HI-TRAC bottom lid and ends when the MPC is supported from beneath by the OVERPACK (or the reverse).*

(continued)

1.0 Definitions (continued)

UNLOADING OPERATIONS	UNLOADING OPERATIONS include all licensed activities on an SFSC to be unloaded of the contained fuel assemblies. UNLOADING OPERATIONS begin when the OVERPACK or TRANSFER CASK is no longer suspended from or secured on the transporter and end when the last fuel assembly is removed from the SFSC. UNLOADING OPERATIONS does not include MPC transfer between the TRANSFER CASK and the OVERPACK *which begins when the MPC is no longer supported from beneath by the OVERPACK and ends when the MPC is lowered onto the HI-TRAC bottom lid.*
ZR	ZR means any zirconium-based fuel cladding or fuel channel material authorized for use in a commercial nuclear power plant reactor.

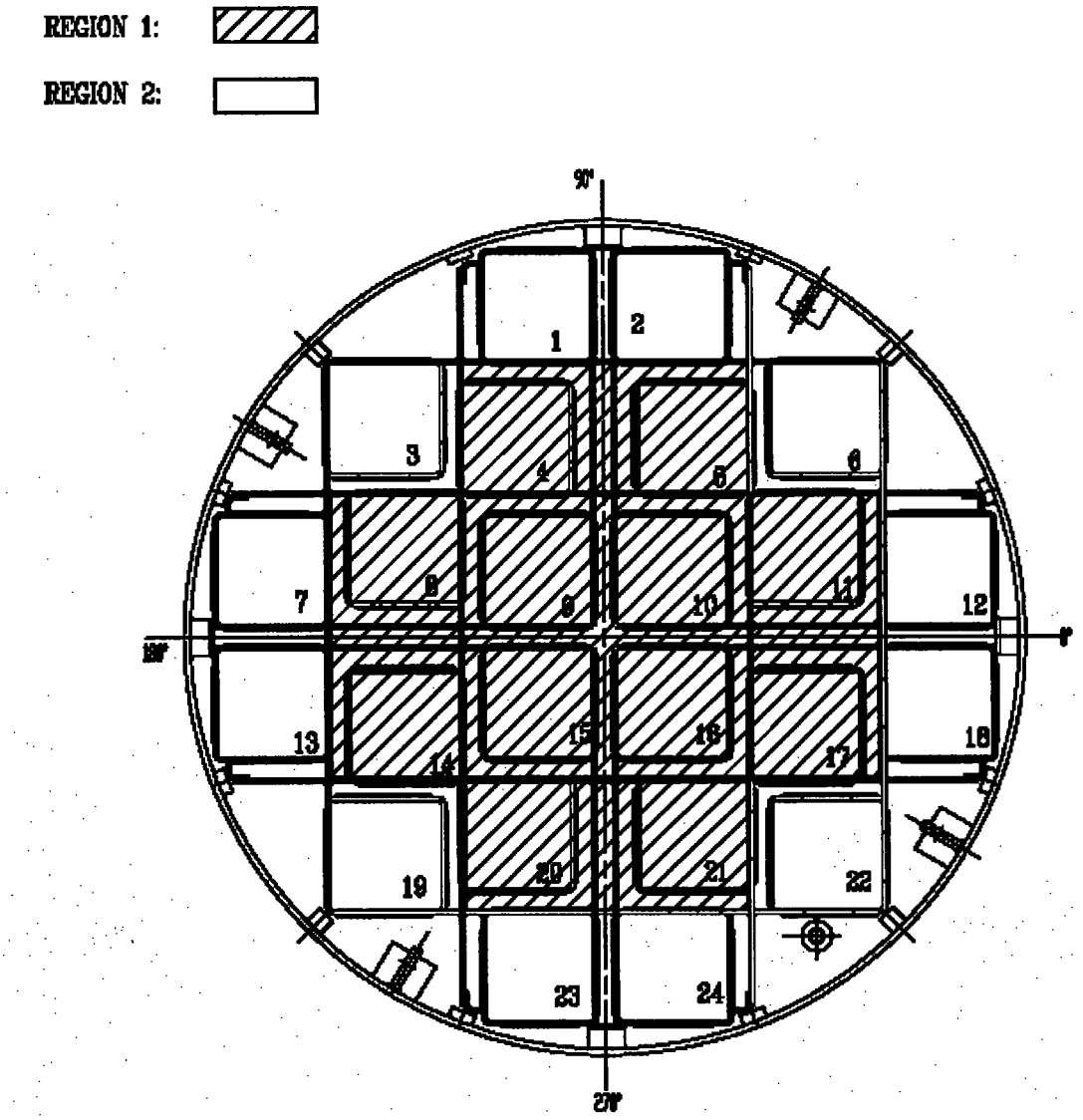

Figure 2.1-1
Fuel Loading Regions - MPC-24

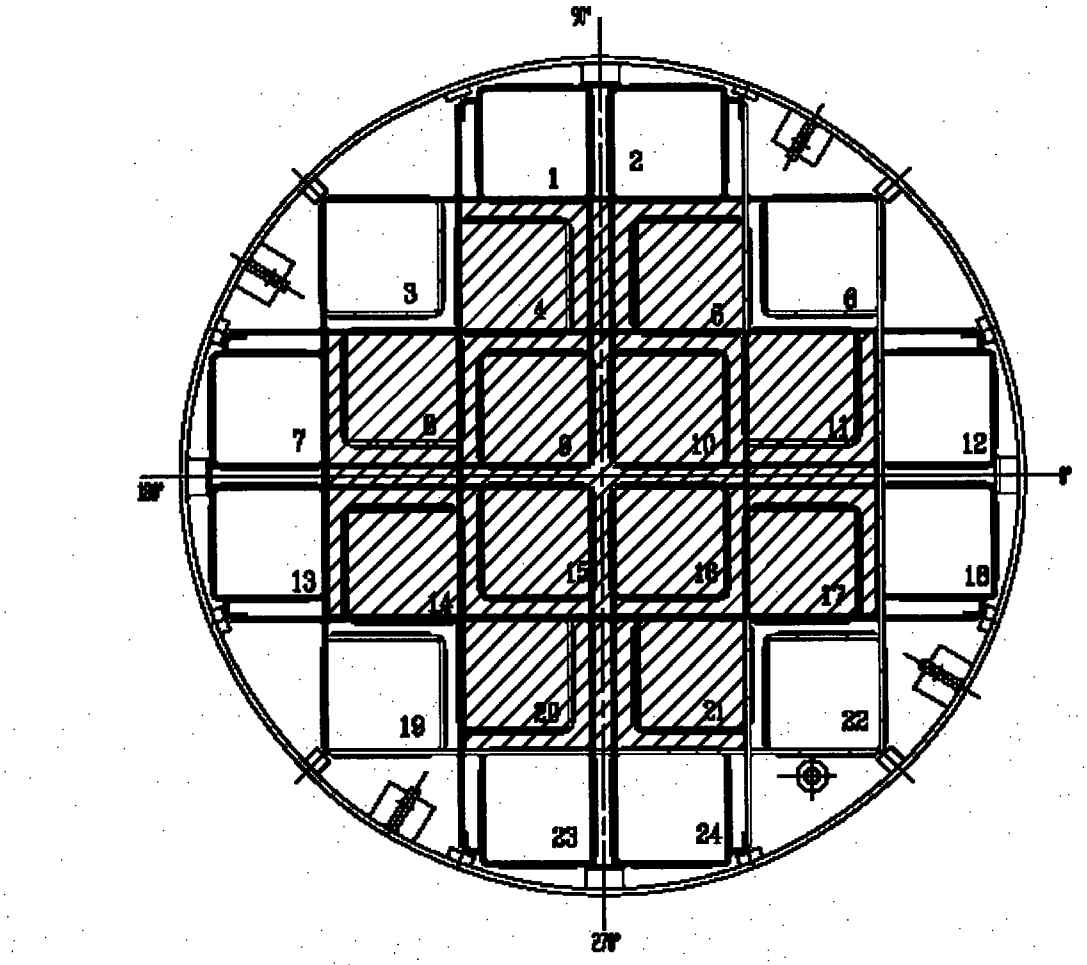

Figure 2.1-2
Fuel Loading Regions - MPC-24E/24EF

Table 2.1-1 (page 33~~2~~ of 40~~39~~)
Fuel Assembly Limits

~~VII~~. MPC MODEL: *MPC-24E and* MPC-24EF

A. Allowable Contents

1. Uranium oxide, PWR INTACT FUEL ASSEMBLIES listed in Table 2.1-2, with or without NON-FUEL HARDWARE and meeting the following specifications (Note 1):

a. Cladding Type:	ZR or Stainless Steel (SS) as specified in Table 2.1-2 for the applicable fuel assembly array/class
b. Initial Enrichment:	As specified in Table 2.1-2 for the applicable fuel assembly array/class.
c. Post-irradiation Cooling Time and Average Burnup Per Assembly:	
i. Array/Classes 14x14D, 14x14E, and 15x15G	Cooling time $\geq$ 8 years and an average burnup $\leq$ 40,000 MWD/MTU.
ii. All Other Array/Classes	As specified in Section 2.4.
iii. NON-FUEL HARDWARE	As specified in Table 2.1-8.

Table 2.1-1 (page ~~343~~ of ~~4039~~)
Fuel Assembly Limits

~~IV~~II. MPC MODEL: *MPC-24E and* MPC-24EF (continued)

A. Allowable Contents (continued)

d. Decay Heat Per Fuel Storage Location:	
i. Array/Classes 14x14D, 14x14E, and 15x15G	≤ 710 Watts.
ii. All other Array/Classes	As specified in Section 2.4.
e. Fuel Assembly Length:	≤ 176.8 inches (nominal design)
f. Fuel Assembly Width:	≤ 8.54 inches (nominal design)
g. Fuel Assembly Weight:	*≤ 1,720 lbs (including NON-FUEL HARDWARE and DFC) for assemblies that do not require fuel spacers, otherwise,* ≤ 1,680 lbs (including NON-FUEL HARDWARE *and DFC*)

Table 2.1-1 (page 354 of 4039)
Fuel Assembly Limits

IVII. MPC MODEL: *MPC-24E and* MPC-24EF (continued)

A. Allowable Contents (continued)

2. Uranium oxide, PWR DAMAGED FUEL ASSEMBLIES and FUEL DEBRIS, with or without NON-FUEL HARDWARE, placed in DAMAGED FUEL CONTAINERS. Uranium oxide PWR DAMAGED FUEL ASSEMBLIES and FUEL DEBRIS shall meet the criteria specified in Table 2.1-2 and meet the following specifications (Note 1):

a. Cladding Type:	ZR or Stainless Steel (SS) as specified in Table 2.1-2 for the applicable fuel assembly array/class
b. Initial Enrichment:	As specified in Table 2.1-2 for the applicable fuel assembly array/class.
c. Post-irradiation Cooling Time and Average Burnup Per Assembly:	
i. Array/Classes 14x14D, 14x14E, and 15x15G	Cooling time $\geq$ 8 years and an average burnup $\leq$ 40,000 MWD/MTU.
ii. All Other Array/Classes	As specified in Section 2.4.
iii. NON-FUEL HARDWARE	As specified in Table 2.1-8.

Table 2.1-1 (page 365 of ~~4039~~)
Fuel Assembly Limits

~~VII~~. MPC MODEL: *MPC-24E and* MPC-24EF (continued)

A. Allowable Contents (continued)

d. Decay Heat Per Fuel Storage Location:	
i. Array/Classes 14x14D, 14x14E, and 15x15G	≤ 710 Watts.
ii. All Other Array/Classes	As specified in Section 2.4.
e. Fuel Assembly Length	≤ 176.8 inches (nominal design)
f. Fuel Assembly Width	≤ 8.54 inches (nominal design)
g. Fuel Assembly Weight	*≤ 1,720 lbs (including NON-FUEL HARDWARE and DFC) for assemblies that do not require fuel spacers, otherwise,* ≤ 1,680 lbs (including NON-FUEL HARDWARE *and DFC*)

B. Quantity per MPC: Up to four (4) DAMAGED FUEL ASSEMBLIES and/or FUEL DEBRIS in DAMAGED FUEL CONTAINERS, stored in fuel storage locations 3, 6, 19 and/or 22. The remaining ~~MPC-24EF~~ fuel storage locations may be filled with PWR INTACT FUEL ASSEMBLIES meeting the applicable specifications.

C. One NSA is permitted for loading ~~in the MPC-24EF~~.

Note 1: Fuel assemblies containing BPRAs, TPDs, WABAs, water displacement guide tube plugs, orifice rod assemblies, or vibration suppressor inserts may be stored in any fuel storage location. Fuel assemblies containing ~~CRAs, RCCAs, CEAs,~~ APSRs or NSAs may only be loaded in fuel storage locations 9, 10, 15, and/or 16 *(see Figure 2.1-2). Fuel assemblies containing CRAs, RCCAs, or CEAs may only be stored in fuel storage locations 4, 5, 8-11, 14-17, 20 and/or 21 (see Figure 2.1-2).* These requirements are in addition to any other requirements specified for uniform or regionalized fuel loading.

Table 2.1-1 (page ~~4039~~ of ~~4039~~)
Fuel Assembly Limits

~~VIII~~. MPC MODEL: *MPC-32 and* MPC-32F (cont'd)

A. Allowable Contents (cont'd)

d.	Decay Heat Per Fuel Storage Location:	
	i. Array/Classes 14x14D, 14x14E, and 15x15G	≤ 500 Watts.
	ii. All Other Array/Classes	As specified in Section 2.3.
e.	Fuel Assembly Length	≤ 176.8 inches (nominal design)
f.	Fuel Assembly Width	≤ 8.54 inches (nominal design)
g.	Fuel Assembly Weight	*≤ 1,720 lbs (including NON-FUEL HARDWARE and DFC) for assemblies that do not require fuel spacers, otherwise,* ≤ 1,680 lbs (including NON-FUEL HARDWARE *and DFC*)

B. Quantity per MPC: Up to eight (8) DAMAGED FUEL ASSEMBLIES and/or FUEL DEBRIS in DAMAGED FUEL CONTAINERS, stored in fuel storage locations 1, 4, 5, 10, 23, 28, 29, and/or 32. The remaining ~~MPC-32F~~ fuel storage locations may be filled with PWR INTACT FUEL ASSEMBLIES meeting the applicable specifications.

C. One NSA is permitted for loading ~~in the MPC-32F~~.

Note 1: Fuel assemblies containing BPRAs, TPDs, WABAs, water displacement guide tube plugs, orifice rod assemblies, or vibration suppressor inserts may be stored in any fuel storage location. Fuel assemblies containing ~~CRAs, RCCAs, CEAs, APSRs or~~ NSAs may only be loaded in fuel storage locations 13, 14, 19 and/or 20 *(see Figure 2.1-3)*. Fuel assemblies containing CRAs, RCCAs, CEAs or APSRs may only be loaded in fuel storage locations *7, 8, 12-15, 18-21, 25 and/or 26 (see Figure 2.1-3).* These requirements are in addition to any other requirements specified for uniform or regionalized fuel loading.

2.4.2 Regionalized Fuel Loading Decay Heat Limits for ZR-Clad Fuel (cont'd)

$q_2 = Q(X) / (n_1 \times X + n_2)$

$q_1 = q_2 \times X$

Where:

Q_0 = Maximum uniform storage MPC decay heat (34 kW)
X = Inner region to outer region assembly decay heat ratio ($0.5 \leq X \leq 3$)
n_1 = Number of storage locations in inner region from Table 2.4-2.
n_2 = Number of storage locations in outer region from Table 2.4-2.

Table 2.4-2

Fuel Storage Regions ~~and Maximum Decay Heat~~ per MPC

MPC Model	***Number of Storage Locations in Inner Region (Region 1)***	***Number of Storage Locations in Outer Region (Region 2)***
MPC-24 and MPC-24E/EF	*12*	*12*
MPC- 32/32F	*12*	*20*
MPC-68/68FF	*32*	*36*

~~**MPC Model**~~	~~**Number of Fuel Storage Locations in Inner and Outer Regions**~~	~~**Inner Region Maximum Decay Heat per Assembly (kW)**~~	~~**Outer Region Maximum Decay Heat per Assembly (kW)**~~
~~MPC-24~~	~~4 and 20~~	~~1.470~~	~~0.900~~
~~MPC-24E/24EF~~	~~4 and 20~~	~~1.540~~	~~0.900~~
~~MPC-32/32F~~	~~12 and 20~~	~~1.131~~	~~0.600~~
~~MPC-68/68FF~~	~~32 and 36~~	~~0.500~~	~~0.275~~

2.4.3 Burnup Limits as a Function of Cooling Time for ZR-Clad Fuel

The maximum allowable fuel assembly average burnup varies with the following parameters:

- Minimum fuel assembly cooling time
- Maximum fuel assembly decay heat
- Minimum fuel assembly average enrichment