HOLTEC INTERNATIONAL

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BY FAX AND OVERNIGHT MAIL

February 18, 2000

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

Subject: USNRC Docket No. 72-1008; TAC No. L22019
HI-STAR 100 Storage CoC 1008
License Amendment Request 1008-1, Supplement 2

References:
1. Holtec Project 5014
2. Holtec Letter to NRC dated November 24,1999, LAR 1008-1

Dear Sir:

As committed during our telephone conversation yesterday, we enclose herewith replacement pages for proposed changes to HI-STAR Part 72 Certificate of Compliance (CoC) 1008 and a sketch of the criticality model of the QUAD+ assembly. The changes to the CoC involve clarifying the burnup table for assemblies containing burnable poison rod assemblies and thimble plug devices, and clarifying the requirements for Antimony-Beryllium neutron sources.

If you have any questions or require additional information, please contact us.

Sincerely,

Brian Gutherman, P.E.
Licensing Manager

Approval:

K.P. Singh, Ph.D, P.E.
President and CEO

cc: Mr. Mark Delligatti, USNRC (w/10 copies of enclosures)
Ms. Marissa Bailey, USNRC (w/encl.)

Document ID: 5014369

Enclosures:
1. Mark-ups of CoC 1008, Appendix B (4 pages)
2. Sketch of QUAD+ Criticality Model (1 page)

NMSS01 Public

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Technical Concurrence:

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Mr. John Donnell	Private Fuel Storage, LLC (SWEC)
Dr. Stanley Turner	Holtec International, Florida Operations Center

5. *Thoria rods (ThO_2 and UO_2) placed in Dresden Unit 1 Thoria Rod Canisters and meeting the following specifications:*

a. Cladding Type:	*Zircaloy (Zr)*
b. Composition:	*98.2 wt.% ThO_2, 1.8 wt. % UO_2 with an enrichment of 93.5 wt. % ^{235}U.*
c. Number of Rods Per Thoria Rod Canister:	*$\leq$ 18*
d. Decay Heat Per Thoria Rod Canister:	*$\leq$ 115 Watts*
e. Post-irradiation Fuel Cooling Time and Average Burnup Per Thoria Rod Canister:	*A fuel post-irradiation cooling time $\geq$ 18 years and an average burnup $\leq$ 16,000 MWD/MTIHM.*
f. Initial Heavy Metal Weight:	*$\leq$ 27 kg/canister*
g. Fuel Cladding O.D.:	*$\geq$ 0.412 inches*
h. Fuel Cladding I.D.:	*$\leq$ 0.362 inches*
i. Fuel Pellet O.D.:	*$\leq$ 0.358 inches*
j. Active Fuel Length:	*$\leq$ 111 inches*
k. Canister Weight:	*$\leq$ 550 lbs, including fuel*

B. Quantity per MPC: *Up to one (1) Dresden Unit 1Thoria Rod Canister plus any* ~~Any~~ combination of DAMAGED FUEL ASSEMBLIES in DAMAGED FUEL CONTAINERS, and INTACT FUEL ASSEMBLIES, up to a total of 68.

C. Fuel assemblies with stainless steel channels are not authorized for loading in the MPC -68.

D. Dresden Unit 1 fuel assemblies with one Antimony-Beryllium neutron source are authorized for loading in the MPC-68. The Antimony-Berylium neutron source material shall be in a water rod location.

B. Quantity per MPC:

Up to four (4) DFCs containing uranium oxide or MOX BWR FUEL DEBRIS. The remaining MPC-68F fuel storage locations may be filled with array/class 6x6A, 6x6B, 6x6C, 7x7A, and 8x8A fuel assemblies of the following type, as applicable:

a. Uranium oxide BWR INTACT FUEL ASSEMBLIES;

b. MOX BWR INTACT FUEL ASSEMBLIES;

c. Uranium oxide BWR DAMAGED FUEL ASSEMBLIES placed in DFCs; ~~or~~

d. MOX BWR DAMAGED FUEL ASSEMBLIES placed in DFCs*; or*

e. Up to one (1) Dresden Unit 1 Thoria Rod Canister.

C. Fuel assemblies with stainless steel channels are not authorized for loading in the MPC-68F.

D. Dresden Unit 1 fuel assemblies with one Antimony-Beryllium neutron source are authorized for loading in the MPC-68F. The Antimony-Berylium neutron source material shall be in a water rod location.

Table 1.1-4
FUEL ASSEMBLY COOLING AND DECAY HEAT GENERATION *(Note 1)*

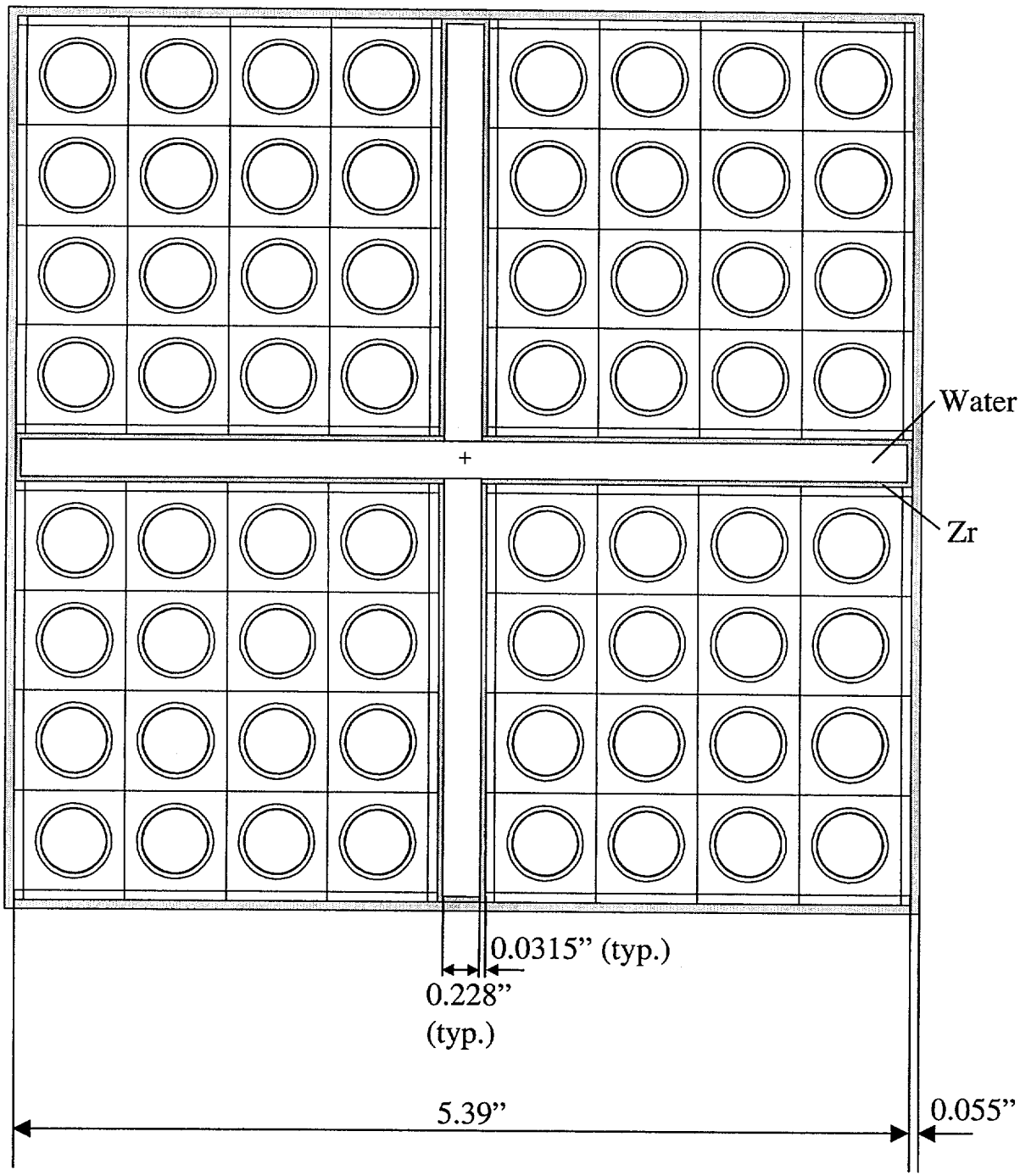
Post-irradiation Cooling Time (years)	**MPC-24 PWR Assembly *With or Without BPRAs or TPDs* Decay Heat (Watts)**	**MPC-68 BWR Assembly Decay Heat (Watts)**
≥ 5	≤ 792	≤ 272
$\leq \geq 6$	≤ 773	≤ 261
$\leq \geq 7$	≤ 703	≤ 238
$\leq \geq 8$	≤ 698	≤ 236
$\leq \geq 9$	≤ 692	≤ 234
$\leq \geq 10$	≤ 687	≤ 232
$\leq \geq 11$	≤ 683	≤ 231
$\leq \geq 12$	≤ 678	≤ 229
$\leq \geq 13$	≤ 674	≤ 228
$\leq \geq 14$	≤ 669	≤ 227
~~> 14~~ $\geq$ *15*	≤ 665	≤ 226

Note: 1. Linear interpolation between points is permitted.

Table 1.1-5
FUEL ASSEMBLY COOLING AND AVERAGE BURNUP *(Note 1)*

Post-irradiation Cooling Time (years)	**MPC-24 PWR Assembly Burnup *(Without BPRAs and With or Without TPDs)* (MWD/MTU)**	*MPC-24 PWR Assembly Burnup (With BPRAs) (MWD/MTU)*	**MPC-68 BWR Assembly Burnup (MWD/MTU)**
≥ 5	≤ 28,700	≤ *28,300*	≤ 26,000
≥ 6	≤ *32,700*	≤ *32,300*	≤ 29,100
≥ 7	≤ 33,300	≤ *32,700*	≤ 29,600
≥ 8	≤ *35,500*	≤ *35,000*	≤ 31,400
≥ 9	≤ 37,000	≤ *36,500*	≤ 32,800
≥ 10	≤ *38,200*	≤ *37,600*	≤ 33,800
≥ 11	≤ 39,300	≤ *38,700*	≤ 34,800
≥ 12	≤ *40,100*	≤ *39,500*	≤ 35,500
≥ 13	≤ *40,800*	≤ *40,200*	≤ 36,200
≥ 14	≤ 41,500	≤ *40,800*	≤ 36,900
≥ 15	≤ 42,100	≤ *41,400*	≤ 37,600

Note: 1. Linear interpolation between points is permitted.



MCNP Model of QUAD+ Assembly with Dimensions