

10 CFR 72.7

RS-01-03

January 11, 2001

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

Dresden Nuclear Power Station, Units 1 and 2  
Facility Operating License Nos. DPR-2 and DPR-19  
NRC Docket Nos. 50-10, 50-237, and 72-37

**Subject:** Request for Exemption from 10 CFR 72.212, "Conditions of general license issued under 10 CFR 72.210," and 10 CFR 72.214, "List of approved spent fuel storage casks," Regarding the Conditions of Use for the HI-STORM 100 Cask System and for the HI-STAR 100 Cask System

- References:**
- (1) Holtec International, Inc. letter, "USNRC Docket No. 72-1014; HI-STORM 100 Certificate of Compliance 1014; HI-STORM 100 License Amendment Request 1014-1, Revision 1, Supplement 1," dated October 6, 2000
  - (2) Holtec International, Inc. letter, "NRC 10 CFR 72 Certificate of Compliance No. 1008 License Amendment Request 1008-2," dated August 4, 2000
  - (3) Letter from C. Jackson, (US NRC) to B. Gutherman (Holtec International, Inc.), "Preliminary Safety Evaluation Report and Certificate of Compliance for the HI-STAR 100 Cask System Amendment 2," dated October 20, 2000

In accordance with 10 CFR 72.7, "Specific exemptions," we are requesting NRC approval of a temporary exemption from the requirements of 10 CFR 72.212, "Conditions of general license issued under 10 CFR 72.210," paragraphs (a)(2) and (b)(2)(i)(A), and 10 CFR 72.214, "List of approved spent fuel storage casks." The requirement of 10 CFR 72.212(a)(2) limits the general license to storage of spent fuel only in casks approved by the NRC under the provisions of 10 CFR 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste." Pursuant to 10 CFR

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72.212(b)(2)(i)(A), general licensees must perform written evaluations prior to the use of an approved spent fuel storage cask that, in part, establish that the conditions set forth in the cask's CoC have been met. We are currently storing spent fuel from Dresden Nuclear Power Station (DNPS), Unit 1 in the Holtec International, Inc. (i.e., Holtec) HI-STAR 100 cask system, and plan to store additional spent fuel from DNPS, Units 1 and 2 in the HI-STORM 100 and HI-STAR 100 cask systems using the general license in 10 CFR 72.210, "General license issued." The HI-STORM 100 and the HI-STAR 100 cask systems produced by Holtec were approved by the NRC for use under the general license and are listed in 10 CFR 72.214 as Certificate of Compliance (CoC) No. 1014 and CoC No 1008, respectively.

This temporary exemption is being requested to permit placement of HI-STORM and HI-STAR cask systems on the sections of the DNPS concrete storage pads that are not within the limits of the concrete strength requirements currently specified in Design Features Item 3.4.6.b of CoC No. 1014 and Design Features Item 1.4.6.b of CoC No. 1008. Therefore, not all the conditions specified in the CoC will be met as required by 10 CFR 72.214. Since we will not meet the requirements of 10 CFR 72.214, we will not meet the requirements of 10 CFR 72.212(a)(2). In addition, we will be unable to meet the requirements of 10 CFR 72.212(b)(2)(i)(A). Pursuant to 10 CFR 72.212(b)(2)(i)(A), general licensees must perform written evaluations prior to the use of an approved spent fuel storage cask that, in part, establish that the conditions set forth in the cask's CoC have been met.

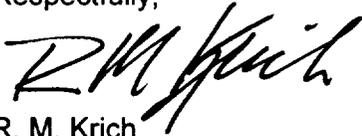
In the Reference 1 and 2 letters, Holtec requested that the concrete storage pad strength requirements specified in Design Features Item 3.4.6.b of CoC No. 1014 and Design Features Item 1.4.6.b of CoC No. 1008 be replaced by a single requirement. The single requirement is that the concrete storage pads be designed such that design basis drop and non-mechanistic tipover events on the pad result in cask deceleration below specified limits. The DNPS concrete storage pads will meet the single requirement proposed by Holtec in the Reference 1 and 2 letters. However, the rulemakings approving this proposed revision to CoC No. 1014 and CoC No. 1008 are not expected to be issued and become effective before the planned loading of HI-STORM and HI-STAR casks at DNPS. Therefore, we are requesting a temporary exemption from the regulations described above until the rulemakings that revise the HI-STORM and the HI-STAR cask system CoCs become effective.

The Attachment, "Exemption Request," identifies the specific requirements in the regulations for CoC No 1014 for the HI-STORM 100 cask system and for CoC No. 1008 for the HI-STAR 100 cask system that are the subject of the exemption request and contains the associated justification. As explained in the Attachment, the NRC may grant the requested exemption since it is authorized by law, will not endanger life, property, or the common defense and security, and is otherwise in the public interest.

We are requesting NRC approval of the temporary exemption by March 15, 2001. The requested exemption is needed to allow us to remove DNPS, Units 1 and 2 spent fuel from the DNPS, Unit 2 spent fuel pool (SFP) and load it into storage casks in sufficient time to preserve the full core offload capability of DNPS, Unit 2. DNPS, Unit 2 will lose full core offload capability in the summer of 2001. If full core offload capability is lost and it becomes necessary to unload the core, it will result in DNPS, Unit 2 being unavailable longer than necessary in the future. In order to perform a DNPS, Unit 2 full core offload, we would first have to transfer a portion of the spent fuel assemblies currently in the DNPS, Unit 2 SFP to the DNPS, Unit 3 SFP, thereby rendering DNPS, Unit 3 incapable of full core offload. The overall result will be a decrease in the availability of DNPS, Unit 2 to operate and generate electricity. Once the rulemakings that revise the HI-STORM 100 and the HI-STAR 100 cask system CoC Appendix B requirements become effective, the need for the requested exemptions will no longer exist and the exemptions could expire.

If you have any questions about this letter, please contact K. M. Root at (630) 663-7292.

Respectfully,

A handwritten signature in black ink, appearing to read "R. M. Krich". The signature is written in a cursive, somewhat stylized font.

R. M. Krich  
Director - Licensing  
Mid-West Regional Operating Group

Attachment - Exemption Request

## ATTACHMENT

### Exemption Request

- References:
- (1) Holtec International, Inc. letter, "USNRC Docket No. 72-1014; HI-STORM 100 Certificate of Compliance 1014; HI-STORM 100 License Amendment Request 1014-1, Revision 1, Supplement 1," dated October 6, 2000
  - (2) Holtec International, Inc. letter, "NRC 10 CFR 72 Certificate of Compliance No. 1008 License Amendment Request 1008-2," dated August 4, 2000
  - (3) Letter from C. Jackson, (US NRC) to B. Gutherman (Holtec International, Inc.), "Preliminary Safety Evaluation Report and Certificate of Compliance for the HI-STAR 100 Cask System Amendment 2," dated October 20, 2000
  - (4) "Environmental Assessment by the Office of Nuclear Reactor Regulation Regarding Order Authorizing Facility Decommissioning and Amendment of License No. DPR-2 Commonwealth Edison Company Dresden Nuclear Power Station, Unit 1 Docket No. 50-010," dated August 30, 1993
  - (5) "Final Environmental Statement related to the operation of Dresden Nuclear Power Station Units 2 & 3," dated November 1973

#### **I. Specific Exemption Request**

In accordance with 10 CFR 72.7, "Specific exemptions," we are requesting NRC approval of a temporary exemption from the requirements of 10 CFR 72.212, "Conditions of general license issued under 10 CFR 72.210," paragraphs (a)(2) and (b)(2)(i)(A), and 10 CFR 72.214, "List of approved spent fuel storage casks." The requirement of 10 CFR 72.212(a)(2) limits the general license to storage of spent fuel only in casks approved by the NRC under the provisions of 10 CFR 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste." Pursuant to 10 CFR 72.212(b)(2)(i)(A), general licensees must perform written evaluations prior to the use of an approved spent fuel storage cask that, in part, establish that the conditions set forth in the cask's CoC have been met. We are currently storing spent fuel from Dresden Nuclear Power Station (DNPS), Unit 1 in the Holtec International, Inc. (i.e., Holtec) HI-STAR 100 cask system, and plan to store additional spent fuel from DNPS, Units 1 and 2 in the HI-STORM 100 and HI-STAR 100 cask systems using the general license in 10 CFR 72.210, "General license issued." The HI-STORM 100 and the HI-STAR 100 cask systems produced by Holtec were approved by the NRC for use under the general license and are listed in 10 CFR 72.214 as Certificate of Compliance (CoC) No. 1014 and CoC No 1008, respectively.

## HI-STORM, CoC No. 1014

CoC No. 1014, Condition 7, "Design features," requires that the features or characteristics for the site or cask be in accordance with CoC Appendix B, "Approved Contents and Design Features for the HI-STORM 100 Cask System." Appendix B, Design Features 3.4, "Site-Specific Parameters and Analyses," specifies, in part, the requirements for the strength of the concrete storage pads upon which the HI-STORM 100 casks will be placed. This temporary exemption is being requested to permit placement of HI-STORM and HI-STAR cask systems on the sections of the DNPS concrete storage pads that are not within the limits of the strength requirements currently specified in Design Features Item 3.4.6.b, i.e., a concrete compressive strength  $\leq 4,200$  psi at 28 days. Therefore, not all the conditions specified in the CoC will be met as required by 10 CFR 72.214. Since we will not meet the requirements of 10 CFR 72.214, we will not meet the requirements of 10 CFR 72.212(a)(2). In addition, we will be unable to meet the requirements of 10 CFR 72.212(b)(2)(i)(A). Pursuant to 10 CFR 72.212(b)(2)(i)(A), general licensees must perform written evaluations prior to the use of an approved spent fuel storage cask that, in part, establish that the conditions set forth in the cask's CoC have been met.

In the Reference 1 letter, Holtec has requested that the parameters, which are specified in CoC Appendix B, Design Features 3.4.6, be removed from the CoC and be replaced by a single requirement. The single requirement is that concrete storage pads be designed such that all design basis drop and non-mechanistic tipover events on the pad result in a HI-STORM cask deceleration of  $\leq 45$  g at the top of the fuel basket. The 45 g limit is the current HI-STORM 100 cask system's design basis g-load. During the original licensing for the HI-STORM 100 cask system, a single set of concrete pad and subgrade design parameters (i.e., original set) was established. The parameters currently listed in the CoC are: 1) concrete thickness  $\leq 36$  inches, 2) concrete compressive strength  $\leq 4,200$  psi at 28 days, 3) reinforcement top and bottom - reinforcing bar yield strength of 60 ksi, and 4) soil effective modulus of elasticity  $\leq 28,000$  psi.

Experience has shown that achieving a maximum concrete compressive strength of 4,200 psi at 28 days is difficult. Therefore, a second set (i.e., new set) of concrete pad and subgrade design parameters has been developed by Holtec that includes a thinner concrete pad, a higher concrete compressive strength, and a less stiff subgrade. This new set of design parameters has been verified by Holtec to limit cask deceleration values for design basis drop and non-mechanistic tipover events to  $\leq 45$  g at the top of the fuel basket. In the Reference 1 letter, Holtec has requested that the original set of parameters, which are specified in the CoC, be removed from the CoC, and be included, along with the new set of parameters, in the HI-STORM 100 Safety Analysis Report (SAR), Table 2.2.9, "Examples of Acceptable ISFSI Pad Design Parameters." The new parameters proposed to be included in the HI-STORM 100 SAR, Table 2.2.9 are: 1) concrete thickness  $\leq 28$  inches, 2) concrete compressive strength  $\leq 6,000$  psi at 28 days, 3) reinforcement top and bottom - reinforcing bar yield strength of 60 ksi, and 4) soil effective modulus of elasticity  $\leq 16,000$  psi. All sections of the installed DNPS concrete pads are in full compliance with the new set of design parameters.

In the Reference 3 letter pertaining to the HI-STAR 100 cask system, the NRC concluded that additional site-specific cask impact analyses are not needed when the concrete pad and subgrade comply with either of the two sets of design parameters using the methodologies described in the HI-STAR SAR. Since the methodologies applicable to the HI-STORM cask system are similar, there is reasonable assurance that no structural failure of the cask system will occur after a postulated design basis drop or non-mechanistic tipover event. However, the rulemaking approving this revision to Appendix B of the HI-STORM 100 cask system CoC No. 1014 is not expected to be issued and become effective before the planned loading of HI-STORM 100 casks at DNPS. Therefore, we are requesting a temporary exemption from the regulations described above until the rulemaking that revises the HI-STORM 100 cask system CoC becomes effective.

#### HI-STAR, CoC No. 1008

CoC No. 1008, Condition 6, "Approved Design Features," requires that the features or characteristics for the site or cask be in accordance with CoC Appendix B, "Approved Contents and Design Features for the HI-STAR 100 Cask System." Appendix B, Design Features 1.4, "Site Specific Parameters and Analyses," specifies, in part, the requirements for the strength of the concrete storage pads upon which the HI-STAR 100 casks will be placed. This temporary exemption is being requested to permit placement of HI-STORM and HI-STAR cask systems on the sections of the DNPS concrete storage pads that are not within the limits of the strength requirements currently specified in Design Features Item 1.4.6.b, i.e., a concrete compressive strength  $\leq 4,200$  psi at 28 days. Therefore, not all the conditions specified in the CoC will be met as required by 10 CFR 72.214. Since we will not meet the requirements of 10 CFR 72.214, we will not meet the requirements of 10 CFR 72.212(a)(2). In addition, we will be unable to meet the requirements of 10 CFR 72.212(b)(2)(i)(A). Pursuant to 10 CFR 72.212(b)(2)(i)(A), general licensees must perform written evaluations prior to the use of an approved spent fuel storage cask that, in part, establish that the conditions set forth in the cask's CoC have been met.

In the Reference 2 letter, Holtec has requested that the parameters, which are specified in CoC Appendix B, Design Features 1.4.6, be removed from the CoC and be replaced by a single requirement. The single requirement is that concrete storage pads be designed such that all design basis drop and non-mechanistic tipover events on the pad result in a HI-STAR cask deceleration of  $\leq 60$  g at the top of the fuel basket. The 60 g limit is the current HI-STAR 100 cask system's design basis g-load. During the original licensing for the HI-STAR 100 cask system, a single set of concrete pad and subgrade design parameters (i.e., original set) was established. The parameters currently listed in the CoC are: 1) concrete thickness  $\leq 36$  inches, 2) concrete compressive strength  $\leq 4,200$  psi at 28 days, 3) reinforcement top and bottom - reinforcing bar yield strength of 60 ksi, and 4) soil effective modulus of elasticity  $\leq 28,000$  psi.

Experience has shown that achieving a maximum concrete compressive strength of 4,200 psi at 28 days is difficult. Therefore, a second set (i.e., new set) of concrete pad and subgrade design parameters has been developed by Holtec that includes a thinner concrete pad, a higher concrete compressive strength, and a less stiff subgrade. This new set of design parameters has been verified by Holtec to limit

cask deceleration values for design basis drop and non-mechanistic tipover events to  $\leq 60$  g at the top of the fuel basket. In the Reference 1 letter, Holtec has requested that the original set of parameters, which are specified in the CoC, be removed from the CoC, and be included, along with the new set of parameters, in the HI-STORM 100 SAR, Table 2.2.9, "Examples of Acceptable ISFSI Pad Design Parameters." The new parameters proposed to be included in the HI-STORM 100 SAR, Table 2.2.9 are: 1) concrete thickness  $\leq 28$  inches, 2) concrete compressive strength  $\leq 6,000$  psi at 28 days, 3) reinforcement top and bottom - reinforcing bar yield strength of 60 ksi, and 4) soil effective modulus of elasticity  $\leq 16,000$  psi. All sections of the installed DNPS concrete pads are in full compliance with the new set of design parameters.

In Reference 3, additional site-specific cask impact analyses are not needed when the concrete pad and subgrade comply with either of the two sets of design parameters using the methodologies described in the SAR. Therefore, there is reasonable assurance that no structural failure of the cask system will occur after a postulated design basis drop or non-mechanistic tipover event. However, the rulemaking approving this revision to Appendix B of the HI-STAR 100 cask system CoC No. 1008 is not expected to be issued and become effective before the planned loading of HI-STAR 100 casks at DNPS. Therefore, we are requesting a temporary exemption from the regulations described above until the rulemaking that revises the HI-STAR 100 cask system CoC becomes effective.

Specifically, we request an exemption from 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(2)(i)(A), and 10 CFR 72.214 to allow a temporary nonconformance with the HI-STORM 100 cask system CoC No. 1014 Condition 7, and the HI-STAR 100 cask system CoC No. 1008 Condition 6. This temporary nonconformance with the CoCs will exist until the amendments requested by the Reference 1 and Reference 2 letters are effective. The requested exemption could expire on the effective date of the NRC rulemaking for the above referenced letters.

## **II. Basis for the Exemption Request**

The criteria for granting specific exemptions from 10 CFR 72 regulations are stated in 10 CFR 72.7. Pursuant to 10 CFR 72.7, the NRC is authorized to grant an exemption upon determining that the exemption is authorized by law, will not endanger life, property, or the common defense and security, and is otherwise in the public interest.

### **The criteria of 10 CFR 72.7 are satisfied**

The requested exemption will permit us to be in nonconformance temporarily with the HI-STORM 100 and the HI-STAR 100 cask system CoCs. The existing DNPS concrete storage pads are designed such that all design basis drop and non-mechanistic tipover events on the pads result in a HI-STORM cask deceleration of  $\leq 45$  g at the top of the fuel basket and a HI-STAR cask deceleration of  $\leq 60$  g at the top of the fuel basket. The 45 g limit is the design basis deceleration limit for the HI-STORM 100 cask system and the 60 g limit is the design basis deceleration limit for the HI-STAR 100 cask system that ensure the multi-purpose (MPC) confinement boundaries remain intact during these postulated events. Therefore, granting the requested exemption will not endanger life or property.

The requested exemption is consistent with the common defense and security. The requested exemption would allow us to be in nonconformance temporarily with the HI-STORM 100 and the HI-STAR 100 cask system CoCs for the DNPS cask storage pads. There would be no physical change to the cask systems because of this exemption. Physical security measures at DNPS would not be altered by the requested exemption. Approval of this exemption will not compromise security or the safeguarding of spent fuel stored in a HI-STORM 100 or a HI-STAR 100 cask system.

The requested exemption is in the public interest because it will permit DNPS, Unit 2 to maintain full core offload capability. The requested exemption is needed to allow us to remove DNPS, Units 1 and 2 spent fuel from the DNPS, Unit 2 spent fuel pool and load it into storage casks in sufficient time to preserve the full core offload capability of DNPS, Unit 2. DNPS, Unit 2 will lose full core offload capability in the summer of 2001. If full core offload capability is lost and it becomes necessary to unload the core, it will result in DNPS, Unit 2 being unavailable longer than necessary in the future. In order to perform a DNPS, Unit 2 full core offload, we would first have to transfer a portion of the spent fuel assemblies currently in the DNPS, Unit 2 SFP to the DNPS, Unit 3 SFP, thereby rendering DNPS, Unit 3 incapable of full core offload. The overall result will be a decrease in the availability of DNPS, Unit 2 to operate and generate electricity. Therefore, granting the requested exemption is in the public interest.

We are scheduled to remove DNPS, Units 1 and 2 spent fuel from the DNPS, Unit 2 spent fuel pool, and load it into storage casks beginning March 19, 2001. There are a number of DNPS, Unit 1 spent fuel assemblies in the DNPS, Unit 2 spent fuel pool. The spent fuel storage strategy we have decided to use requires us to begin cask loading March 19, 2001, in order to preserve the full core offload capability of DNPS, Unit 2. DNPS, Unit 2 will lose full core offload capability in the summer of 2001, i.e., when new fuel arrives for the summer 2001 refueling outage. However, rulemakings approving the proposed revision to Appendix B of the HI-STORM 100 cask system CoC No. 1014 and the proposed revision to Appendix B of the HI-STAR 100 cask system CoC No. 1008 are not expected to be issued and become effective before the planned loading of HI-STORM and the HI-STAR 100 casks at DNPS. Therefore, we are requesting a temporary exemption from the regulations described above until the rulemakings that revise the HI-STORM 100 and the HI-STAR 100 cask system CoCs become effective. Based upon our loading schedule, we will need the requested exemption by March 15, 2001, to allow adequate time for us to finalize the preparations to commence storage cask loading activities on March 19, 2001.

### **III. ENVIRONMENTAL ASSESSMENT**

In accordance with 10 CFR 51.30, "Environmental assessment," and 10 CFR 51.32, "Finding of no significant impact," the following information is provided in support of an environmental assessment and finding of no significant impact for the proposed action. Also, the NRC, in 10 CFR 51.23, "Temporary storage of spent fuel after cessation of reactor operation - generic determination of no significant environmental impact," has already determined that spent fuel can be stored safely and without significant environmental impact at an onsite independent spent fuel storage installation.

The proposed action would grant an exemption from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(2)(i)(A), and 10 CFR 72.214 to allow a temporary nonconformance with the HI-STORM 100 cask system CoC No. 1014 Condition 7, and the HI-STAR 100 cask system CoC No. 1008 Condition 6. This temporary nonconformance with the CoCs will exist until the amendments requested by the Reference 1 and Reference 2 letters become effective.

The requested exemption is needed to allow us to load DNPS, Units 1 and 2 spent fuel into storage casks in sufficient time to preserve the full core offload capability of DNPS, Unit 2. DNPS, Unit 2 will lose full core offload capability in the summer of 2001.

The principal alternative to the proposed action would be to deny the requested exemption. Denial of the exemption request would result in no change in environmental impacts. Concerning alternative use of resources, granting the requested exemption will not involve the use of resources not previously considered in the Reference 4 and the Reference 5 environmental assessments.

The proposed action (i.e., granting the exemption) will not increase the probability or consequences of accidents, no changes are being made in the types or quantities of any radiological effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

The proposed action does not affect non-radiological plant effluents and has no other environmental impact. Therefore, there are no significant non-radiological impacts associated with the proposed action.

The environmental impacts of the proposed action and the alternative action are similar. Based on the assessment above, the proposed action will not have a significant effect on the quality of the human environment.

#### **IV. CONCLUSION**

We consider that this exemption request is in accordance with the criteria of 10 CFR 72.7. The requested temporary exemption from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(2)(i)(A), and 10 CFR 72.214 is authorized by law, will not endanger life, property, or the common defense and security, and is otherwise in the public interest.

There are no adverse environmental impacts associated with this specific exemption.