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**BY OVERNIGHT MAIL**

February 4, 2000

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

Subject: USNRC Docket No. 72-1014; TAC No. L22221  
HI-STORM 100 Storage Application  
HI-STORM TSAR, Revision 10

References: 1. Holtec Project 5014  
2. Holtec Letter, B. Gutherman to NRC, dated February 1, 2000

Dear Sir:

In accordance with our recent verbal commitments and the Reference 2 letter, Holtec International is pleased to forward replacement pages comprising Revision 10 of the HI-STORM 100 System Topical Safety Analysis Report (TSAR). This revision includes changes to reflect the resolution of comments received by the NRC during the rulemaking process. In addition, several editorial corrections have been made. Changes in the affected chapters are described in the enclosed document entitled "Summary of Changes in Revision 10."

Thank you for your continued support in the HI-STORM 100 review process. We look forward to receiving the final Certificate of Compliance and Safety Evaluation Report by July 31, 2000.

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

Sincerely,

Approval:

Brian Gutherman, P.E.  
Licensing Manager

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

cc: Ms. Marissa Bailey, USNRC (w/14 copies of TSAR Rev. 10, including instructions)  
Mr. E. William Brach, USNRC (w/o encl.)

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**H O L T E C**  
I N T E R N A T I O N A L

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Enclosure: Revision 10 of the HI-STORM 100 System Topical Safety Analysis Report  
(replacement pages and instructions).

**Technical Concurrence:**

Mr. Bernard Gilligan (Principal Design Criteria)

Dr. Alan Soler (Structural Evaluation)

Dr. Indresh Rampall (Thermal Evaluation)

Mr. Kris Cummings (Confinement Evaluation)

Mr. Steve Agace (Operations)

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## INSTRUCTIONS FOR HI-STORM TSAR REVISION 10

1. Insert cover letter and summary of revisions in the front of TSAR Volume I.
2. Remove Table of Contents, Revision 8 and replace with Table of Contents, Revision 10.
3. Remove List of Effective Pages, Rev. 9 and replace with List of Effective Pages, Rev. 10.
4. Remove page 1.0-33/34, Rev. 6 and replace with page 1.0-33/34, Rev. 10/6.
5. Remove pages 1.2-3 through 1.2-28, Rev. 8 and replace with pages 1.2-3 through 1.2-28, Rev. 10.
6. Remove pages 1.5-1 through 1.5-3, Rev. 9 and replace with pages 1.5-1 through 1.5-3, Rev. 10.
7. Remove the following drawings and replace with enclosed revised drawings:
  - 1495, Sheet 4, Rev. 8
  - 1495, Sheet 6, Rev. 3
  - BM-1575, Sheet 1, Rev. 8
  - BM-1575, Sheet 2, Rev. 8
8. Remove page 1.D-3/4, Rev. 6 and replace with page 1.D-3/4, Rev. 6/10.
9. Remove pages 2.2-1 through 2.2-18, Rev. 8 and replace with pages 2.2-1 through 2.2-18, Rev. 10.
10. Remove page 2.3-5/6, Rev. 8 and replace with page 2.3-5/6, Rev. 10/8.
11. Remove page 2.3-17/18, Rev. 8 and replace with 2.3-17/18, Rev. 10/8
12. Remove pages 3.A-11 through 3.A-15, Rev. 8 and replace with pages 3.A-11 through 3.A-15, Rev. 8/10.
13. Remove Figures 3.A-19 through 3.A-22, Rev. 5 and replace with Figures 3.A-19 through 3.A-22, Rev. 10.
14. Remove page 4.4-49/50, Rev. 8 and replace with page 4.4-49/50, Rev. 10.
15. Remove page 7.2-1/2, Rev. 8 and replace with page 7.2-1/2, Rev. 10/8.

16. Remove page 7.2-5/6, Rev. 8 and replace with page 7.2-5/6, Rev. 8/10.
17. Remove page 7.2-7, Rev. 8 and replace with page 7.2-7, Rev. 10.
18. Remove page 7.3-3/4, Rev. 8 and replace with page 7.3-3/4, Rev. 10/8.
19. Remove page 7.3-9/10, Rev. 8 and replace with page 7.3-9/10, Rev. 8/10.
20. Remove pages 8.0-1 through 8.0-4, Rev. 8 and replace with pages 8.0-1 through 8.0-4, Rev. 10.
21. Remove page 8.1-11/12, Rev. 8 and replace with page 8.1-11/12, Rev. 10/8.
22. Remove page 8.1-17/18, Rev. 8 and replace with page 8.1-17/18, Rev. 8/10.
23. Remove pages 8.1-23 through 8.1-26, Rev. 8 and replace with pages 8.1-23 through 8.1-26, Rev. 8/10.
24. Remove pages 8.1-29 through 8.1-34, Rev. 8/9 and replace with pages 8.1-29 through 8.1-34, Rev. 9/10.
25. Remove page 8.1-37/38, Rev. 8 and replace with page 8.1-37/38, Rev. 10/8.
26. Remove page 9.1-1/2, Rev. 8 and replace with page 9.1-1/2, Rev. 10.
27. Remove page 9.1-7/8, Rev. 8 and replace with page 9.1-7/8, Rev. 8/10.
28. Remove page 9.1-11/12, Rev. 8/9 and replace with page 9.1-11/12, Rev. 10/9.
29. Remove page 12.1-1 through 12.1-3, Rev. 8 and replace page 12.1-1 through 12.1-3, Rev. 10.
30. Removes pages 12.2-1 through 12.2-4, Rev. 8 and replace with pages 12.2-1 through 12.2-5, Rev. 10.
31. Remove page 12.3-1, Rev. 8 and replace with page 12.3-1, Rev. 10.
32. Remove page 12.4-1, Rev. 8 and replace with page 12.4-1, Rev. 10.
33. Remove the cover sheet for Appendix 12.A, the Table of Contents for the Technical Specifications, and all Technical Specifications. Do not remove the Technical Specification Bases except as described below.
34. Remove the title page for the Technical Specification Bases, Rev. 9 and replace with a new cover sheet for Appendix 12.A, Revision 10.

35. Remove the Table of Contents for the Technical Specification Bases, Rev. 8 and replace with the Table of Contents for the Technical Specification Bases, Rev. 10.
36. Remove TS Bases page B 3.1.1-5/6, Rev. 8 and replace with Bases page B 3.1.1-5/6, Rev. 8/10.
37. Remove TS Bases page B 3.2.1-3, Rev. 8 and replace with Bases page B 3.2.1-3, Rev. 10.
38. Remove TS Bases page B 3.2.2-1/2, Rev. 8 and replace with Bases page B 3.2.2-1/2, Rev. 10/8.

**HI-STORM 100 TSAR  
SUMMARY OF CHANGES IN REVISION 10**

Chapter 1

Table 1.0.3 has been revised to change the confinement leakage rate units to atm-cc/sec and to delete reference to the test sensitivity.

Section 1.2.1.1 and Table 1.2.1 have been revised to clearly indicate that there are three MPC models.

Table 1.D.1, Footnote 2 has been revised to add a requirement to evaluate the long-term chemical compatibility of the aggregate and cement used in the HI-STORM overpack.

Chapter 2

Section 2.2.1.2 has been revised to add a footnote to clarify the applicable procurement, testing, fabrication and NDE codes for lifting devices designed in accordance with ANSI N14.6.

Section 2.2.3.9 has been revised to delete reference to confinement boundary test sensitivity.

Table 2.2.9 has been revised to clarify the ISFSI pad design requirements and to require users to confirm the static coefficient of friction by test.

Section 2.3.3.1 has been revised to add a definition for the Cask Transfer Facility.

Section 2.3.3.2 has been revised to conform with changes to the design drawings which allow the use of temperature elements other than thermocouples for monitoring overpack outlet temperature.

Chapter 3

Table 3.A.1 has been revised to clarify the assumption used for concrete compressive strength, to correct the terminology for the subgrade soil, and to add two clarifying notes.

Table 3.A.2 has been revised to correct the rupture strain value to reflect the type of steel used in the overpack. The previous value was for stainless steel (0.38) and the new value is for carbon steel (0.21).

Table 3.A.4 and Figures 3.A.19 through 3.A.22 have been revised to reflect re-running of the tip-over analyses.

Chapter 4

Tables 4.4.20 and 4.4.21 have been revised to add a footnote clarifying the total cask heat load limit for casks loaded with fuel of varying cooling times.

### Chapter 7

Sections 7.2.1, 7.2.9, 7.3.3, and 7.3.6 have been revised to change the confinement leakage rate units to atm-cc/sec and to delete reference to the test sensitivity.

Section 7.2.8.2 has been revised to correct typographical error.

### Chapter 8

Section 8.0, Table 8.0.1, 8.1.4 have been revised to correct the location reference for the technical specifications.

Section 8.1.5, Step 26.j has been revised to change the confinement leakage rate units to atm-cc/sec and to delete reference to the test sensitivity.

Mis-numbered Subsections 8.0.6 and 8.0.7 in Section 8.1 have been revised to 8.1.6 and 8.1.7.

Tables 8.1.1 and 8.1.2 have been revised to reflect minor corrections in the weight of the water in the HI-TRAC annulus.

Tables 8.1.3 and 8.1.4 have been revised to reflect changes in the weight of the water in the HI-TRAC annulus and the neutron shield jacket. Table 8.1.3 also reflects the correction of the empty HI-TRAC cask weight. The previous value inadvertently included the weight of the water in the HI-TRAC annulus and water jacket (7556 lbs + 256 lbs).

Table 8.1.6, under Cask Primary Lifting Device, has been revised to delete reference to Technical Specification 4.9, which no longer exists.

### Chapter 9

Section 9.1 has been revised to correct the location reference for the technical specifications and to add a location reference for ASME Code exceptions.

Section 9.1.3 has been revised to change the confinement leakage rate units to atm-cc/sec, to delete reference to the test sensitivity, and to correct the location reference for technical specifications.

Section 9.1.4 has been revised to correct the location reference for technical specifications.

### Chapter 12



Sections 12.1, 12.2, 12.2.6, 12.2.7, 12.3, and 12.4 have been revised to correct the location reference for technical specifications and to add a reference to the authorized contents and design features in Appendix B to the CoC

Tables 12.1.1 and 12.1.2 have been revised to reflect the re-numbering of some LCOs and the relocation of fuel specifications and design features to Appendix B to the CoC.

The cover sheet and table of contents for Appendix 12.A have been revised to reflect the deletion of the technical specifications from the appendix and the deletion of a bases section for functional and operating limits (fuel specifications). Former functional and operating limits are now included in the authorized contents section of Appendix B to the CoC.

The bases for Surveillance Requirements 3.1.1.1, 3.1.1.2, and 3.1.1.3 have been revised to add a definition for the units of leakage "atm-cc/sec."

The bases for Surveillance Requirements 3.2.1.1 has been revised to correct a grammatical error.

The bases for LCO 3.2.2 has been revised to show the term "transport operations" in capital letters, since it is a defined term.