



Holtec Center, 555 Lincoln Drive West, Marlton, NJ 08053

Telephone (856) 797-0900

Fax (856) 797-0909

Dr. Allen Fetter
c/o Document Control Desk
U. S. Nuclear Regulatory Commission
Mail Stop T-8F5
Washington, DC 20555-0001

December 19, 2008

Subject: Applicant's Environmental Report, Response to Request for Additional Information
USNRC Docket No. 72-1014; TAC No. L24085
HI-STORM 100 System Certificate of Compliance 1014, LAR 1014-6

Reference:

1. Holtec Project 5014
2. License Amendment Request (LAR) 1014-6, dated April 27, 2007
3. NRC/SFST Letter, S. Brown to T. Morin, dated December 19, 2007
4. Holtec Letter 5014651, dated June 2, 2008
5. NRC Letter, G. Suber to T. Morin, dated November 24, 2008
6. Telecon Summary, December 9, 2008 (Fetter (NRC), Morin (Holtec), and Hinojosa (Holtec))

Dear Dr. Fetter:

Holtec submitted LAR 1014-6 [2] to add an underground storage overpack to the HI-STORM 100 system. By letter [3], the NRC SFST Staff asked Holtec to provide additional environmental information to support its development of an Environmental Assessment for this amendment. Holtec submitted report HI-2084037, Revision 0, "Environmental Report on the HI-STORM 100U VVM in the HI-STORM 100 MPC Based Storage System", which was prepared following the guidance of NUREG-1748 to meet these requests [4].

A request for additional information (RAI) regarding the review of the environmental report [5] was submitted to Holtec on November 24, 2008. On December 9, 2008 a teleconference [6] provided minor clarification to the RAI questions.



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Holtec is pleased to provide the response to the RAI, in advance of the requested date, in Enclosure 1 to this letter. We are hopeful that this response in addition to the original Environmental Report will give you sufficient information to prepare the Environmental Assessment supporting this license amendment request.

Sincerely,

Tammy S. Morin
Acting Licensing Manager
Holtec International

Enclosure:

(1) Response to Request for Additional Information on Environmental Report

Distribution: NRC Document Control Desk
Mr. L. Raynard Wharton, USNRC
Mr. John Goshen, USNRC
Group 1 (Holtec); letter only

Response to Request for Additional Information on Environmental Report

Docket No. 72-1014

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RAI question 1: The proposed FSAR [1.1] specifies Keeler and Long KL3200 (an ultra low VOC, high solids polyimide epoxy coating) for the exterior coating of the cavity enclosure canister (CEC) in contact with the subgrade, which includes contact with ground water in sites with a high water table. This coating meets both the toxicological and extraction test requirements of ANSI/NSF Standard 61. Describe the toxicological and extraction characteristics of the inorganic high zinc content coating proposed for use on the CEC in salty high humidity environments.

Holtec Response: ANSI/NSF Standard 61 is a stringent standard that is normally specified for coatings used in storage tanks and other vessels and pipes which come in contact with drinking water intended for human consumption. Holtec has noted in the Environmental Report that the Keeler and Long KL3200 coating (specified in the HI-STORM FSAR), used to coat the outside of the Cavity Enclosure Container (CEC) complies with this stringent requirement in order to show the low environmental impact that the HI-STORM 100U will have on ground water (assuming ground water is present). On the other hand, requiring the ANSI/NSF Standard 61 for coatings on the interior of the CEC and exterior above-ground portions of the VVM is excessively stringent. The VVM interior is dry under normal operating conditions and is designed, operated, maintained and inspected to ensure the CEC remains impenetrable (i.e. no leak through paths). In the event that water enters the CEC via the VVM ventilation passages, leakage out of the CEC is not credible (as discussed in the Environmental Report and in the HI-STORM FSAR). Solvent based, inorganic, high zinc content coatings (as specified for use on the interior of the CEC and the aboveground structures of the 100U) are also low VOC compliant and in many cases even capable of meeting Food and Drug Administration (FDA) requirements. One typical zinc coating that is VOC compliant and meets FDA requirements is Carboline's Carbozinc 11. This coating has been used extensively by Holtec to coat aboveground HI-STORM overpacks and by other storage overpacks suppliers and is also well established as a superior coating for outdoor metallic structures in other industries. Although the toxicological and extraction characteristics of inorganic zinc family of coatings are normally not specified to meet the requirements of ANSI/NSF Standard 61, the coating has the characteristics and is specified for an application where it can reasonably be expected to result in low environmental impact.

RAI question 2: In accordance with the design of HI-STORM 100U VVM described in FSAR, air inlet and outlet ventilation passages available for cooling through natural circulation are located close to ground surface. Describe how the proposed cask system design ensures that Threatened and Endangered Species (such as birds and small mammals), are precluded from nesting in either the air inlet or outlet ventilation passages (e.g., wire mesh barrier, etc.).

Holtec Response: As described in FSAR Section 1.I.2.1, the HI-STORM 100U VVM lid is constructed with screens on the inlet and outlet vents to prevent debris, insects and small animals from entering the VVM. Details of the screens are shown on licensing drawing 4501 Revision 3, Sheet 5, which is provided in the FSAR.

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Initial and on-going inspections of the screens are also required. Surveillance Requirement 3.1.2 in Appendix A of the proposed HI-STORM 100 Certificate of Compliance (CoC), requires the screens for the VVM to be visually inspected for blockage either every 16 hours or, if using a temperature monitoring system, when there is an indication by the system that the ventilation may be impaired. To ensure the screens are undamaged, the vent screens are inspected prior to installation and during monthly maintenance activities as specified in FSAR Tables 8.I.1 and 9.I.1, respectively. These inspections ensure the screens continue to perform their intended function.

The above method of using screens, surveillance, and inspections has been successfully used in ventilated casks to keep the ventilation passages clear. For example, Holtec's aboveground system (HI-STORM 100) uses screens, as shown on the Overpack licensing drawings (e.g. drawing 3669, Revision 16, Sheet 10), over the inlet and outlet vents to prevent debris, insects and small animals from entering the Overpack and has equivalent surveillance and inspection requirements.