



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 28, 2018

Ms. Joyce Tomlinson,  
Adjunct Licensing Manager  
Holtec International  
Holtec Technology Campus  
One Holtec Boulevard  
Camden, NJ 08104

SUBJECT: HOLTEC INTERNATIONAL'S APPLICATION FOR SPECIFIC INDEPENDENT SPENT FUEL STORAGE INSTALLATION LICENSE FOR THE HI-STORE CONSOLIDATED INTERIM STORAGE FACILITY FOR SPENT NUCLEAR FUEL – FIRST REQUEST FOR ADDITIONAL INFORMATION, PART 1

Dear Ms. Tomlinson:

By letter dated March 30, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17115A431), as supplemented on April 13, October 6, December 21, and 22, 2017; and February 23, 2018 (ADAMS Accession Nos. ML17109A386, ML17310A218, ML17362A097, ML18011A158, and ML18058A617, respectively), Holtec International submitted to the U.S. Nuclear Regulatory Commission (NRC) an application for a specific independent spent fuel storage installation license to construct and operate the HI-STORE Consolidated Interim Storage Facility, in Lea County, New Mexico, in accordance with the requirements of Part 72 of Title 10 of the *Code of Federal Regulations*, "*Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste and Reactor-Related Greater than Class C Waste*." The license application seeks NRC approval to store up to 8,680 metric tons of commercial spent nuclear fuel in the HI-STORM UMAX Canister Storage System for a 40-year license term.

The NRC staff has begun a detailed technical review of your application and determined that additional information is necessary in connection with its review. The information needed by the staff is discussed in the enclosed request for additional information (RAI). We request that you provide the responses to these RAIs within 60 days from the date of this letter. If you are unable to meet this deadline, please notify NRC staff in writing, within two weeks of receipt of this letter, of your new submittal date and the reasons for the delay.

As discussed in our February 28, 2018, letter notifying you of our decision to docket the application and begin a detailed technical review, the NRC staff expects to issue its first round RAIs in several parts. The enclosed RAIs only address selected portions of the NRC staff review completed to date, and additional RAIs may be issued in the future as the staff's detailed review progresses. The NRC staff expects to issue all of the first round RAIs by August 2018.

J. Tomlinson

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Please reference Docket No. 72-1051 and CAC/EPID No. 001028/L-2018-NEW-0001 in future correspondence related to the technical review for this licensing action. If you have any questions, please contact me at (301) 415-0606.

Sincerely,

**/RA/**

Jose R. Cuadrado, Project Manager  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 72-1051  
CAC/EPID Nos.: 001028/L-2018-NEW-0001

Enclosure:  
1st Request for Additional Information - Part 1

SUBJECT: HOLTEC INTERNATIONAL’S APPLICATION FOR SPECIFIC INDEPENDENT SPENT FUEL STORAGE INSTALLATION LICENSE FOR THE HI-STORE CONSOLIDATED INTERIM STORAGE FACILITY FOR SPENT NUCLEAR FUEL – FIRST REQUEST FOR ADDITIONAL INFORMATION, PART 1, DOCUMENT DATE: March 28, 2018

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Letter: G:/SFST/Cuadrado/Holtec/Holtec ICSF/HI-STORE RAI – First Round Part 1.docx

**ADAMS No. ML18088A030**

<b>OFC:</b>	DSFM	DSFM	NRO/DSEA	NRO/DSEA
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<b>DATE:</b>	3/28/18			

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## First Request for Additional Information, Part 1

### Docket No. 72-1051

#### Application for specific independent spent fuel storage installation license for the HI-STORE Consolidated Interim Storage (CIS) Facility in Lea County, New Mexico

By letter dated March 30, 2017 (ADAMS Accession No. ML17115A431), as supplemented on April 13, October 6, December 21, and 22, 2017; and February 23, 2018 (ADAMS Accession Nos. ML17109A386, ML17310A218, ML17362A097, ML18011A158, and ML18058A617, respectively), Holtec International submitted to the U.S. Nuclear Regulatory Commission (NRC) an application for a specific independent spent fuel storage installation license to construct and operate the HI-STORE Consolidated Interim Storage (CIS) Facility, in Lea County, New Mexico, in accordance with the requirements of Part 72 of Title 10 of the *Code of Federal Regulations* (10 CFR 72), "*Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste and Reactor-Related Greater than Class C Waste.*" The license application seeks NRC approval to store up to 8,680 metric tons of commercial spent nuclear fuel in the HI-STORM UMAX Canister Storage System for a 40-year license term.

This request for additional information (RAI) identifies additional information needed by the NRC staff in connection with its review of the HI-STORE CIS facility license application. The requested information is listed by chapter or section number in the license application, the Safety Analysis Report, the Environmental Report, or its respective supporting analyses. The staff used the guidance in NUREG-1567, "Standard Review Plan for Spent Fuel Dry Storage Facilities" for its review of the application.

#### Safety Analysis Report (SAR), Chapter 2 – "Site Characteristics"

**RAI 2-1** - Provide an assessment of the annual hazard to the proposed CIS Facility from any flight-related activities at nearby airports and aircraft flying through the nearby airways (e.g., IR 192/194, IR 128/180, V291, and V102), as given in SAR Rev. 0B Section 2.2.3 Air Transportation.

The assessment should consider, at a minimum, the following flight-related information:

- a) Any holding pattern close to the proposed site associated with nearby airports;
- b) The distance of the proposed site of the CIS Facility from each nearby airway (e.g., centerline or edge of the airway) based on a reliable source (e.g., Federal Aviation Administration);
- c) The width of each airway near the proposed CIS Facility;
- d) The annual number of transits by each type of civilian and commercial aircraft through each of the nearby airway;
- e) The types of military aircraft traversing the nearby airways and their flight-related activities while in the vicinity of the proposed site (e.g., normal and special flight mode-related activities);

- f) Any ordnance carried onboard any military aircraft while traversing these airways, including hung ordnance;
- g) The effective area for each of the important to safety structures at the proposed facility, taking into account the footprint area of the structures, the shadow area, and the skid area of the structures for each type of aircraft with specific crash-related characteristics, and;
- h) The historical crash rate for each type of aircraft in a particular flight phase and in a particular enroute flight mode (i.e., normal or special) for a military aircraft.

The assessment should provide the cumulative annual number of aircraft crashes at the proposed facility from all flight-related activities, and the potential consequences from onboard ordnance, if any, to the proposed facility, after considering the above information. Alternatively, the applicant may use alternative approaches to assess the flight-related activities near the proposed CIS Facility and estimate the annual aircraft crash hazard with the associated justifications.

This information is necessary to determine compliance with 10 CFR 72.24(a), 72.90(a) through (d), 72.94, and 72.98.

**RAI 2-2** - Provide assessments, using site-measured geotechnical properties, to demonstrate that the soils at the subgrade and under-grade of the storage pads and the Canister Transfer Facility (CTF) would be able to withstand the loading assumed in the certification of the HI-STORM UMAX Canister Storage System. The assessments should provide, at a minimum, the following information:

1. Information and analyses to estimate the bearing capacity of the soils at the subgrade and under-grade of the storage pads and the CTF. Specifically, provide a description of the methodologies selected, the site-measured geotechnical property data used, and the effects of any spatial variation of the in-situ geotechnical properties on the estimated bearing capacity. The analyses should demonstrate that the “subgrade and under-grade soil properties at the HI-STORE CIS site are uniformly better than those assumed for the general certification of the HI-STORM UMAX system,” as stated in SAR Rev. 0B, Section 4.3.2.1, “Structural.”
2. Information and analyses to estimate the immediate and the long-term settlement of the soils at the subgrade and under-grade of the storage pads and the CTF. Specifically, provide a description of the methodologies selected, the site-measured geotechnical property data used, and the effects of any spatial variation of the in-situ geotechnical properties on the estimated immediate and long-term settlement. The analyses should demonstrate that the estimated immediate and long-term settlements at the storage pad area and the CTF, including any differential settlement, would not exceed the assumed settlements in the certification of the HI-STORM UMAX, as discussed in SAR Rev. 0B, Section 4.3.2.1, “Structural.”
3. A description of the piling design envisioned to achieve the equivalent stiffness of Space C material, as stated in SAR Rev. 0B, Table 4.3.3, which specifies that Space C “[...] may be remediated with vertical reinforcement such as pilings to achieve equivalent Boussinesq stiffness.”

4. A description of the depth for which material will be excavated at the storage pad and the CTF areas; and will be backfilled as stated in response to RSI 2-9, “[...] all excavations will be fully backfilled to final project grade. The backfill material will be selected to meet the requirements of Table 4.3.3 to ensure continued compliance with existing certification of the HI-STORM UMAX.” The description should correspond with the site borehole logs and the subgrade/under-grade nomenclature, as given in SAR Rev. 0B, Figure 4.3.1. Provide the amount, source, and minimum engineering properties of the backfill materials to be acceptable for construction of the facility. Also, any soil compaction activities planned for the materials below the excavations and the backfill materials should be described in detail. The description should include the standard(s) to be followed, procedure(s) and equipment to be used, and geotechnical acceptance criteria for acceptability of the compacted materials.

This information and analyses are necessary to determine compliance with 10 CFR 72.24(a), 72.103, and 72.122.