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

May 14, 2019

MEMORANDUM TO: Christopher M. Regan, Deputy Director
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

FROM: Richard Turtil, Rotational Assignee **/RA/**
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

SUBJECT: SUMMARY OF APRIL 10, 2019, PUBLIC MEETING BETWEEN HOLTEC INTERNATIONAL, INC., AND THE U.S. NUCLEAR REGULATORY COMMISSION, FOR HOLTEC TO PRESENT AND DISCUSS TECHNICAL DETAILS ADDRESSING SCRATCH AND ABRASION ISSUES ASSOCIATED WITH THE UMAX CERTIFICATE OF COMPLIANCE

## PURPOSE

For Holtec International, Inc., (Holtec) to present technical details addressing scratch and abrasion issues associated with the UMAX certificate of compliance, and for U.S. Nuclear Regulatory Commission (NRC) staff to ask questions of representatives from Holtec on this issue. The meeting was initially noticed on March 26, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19085A494), and was revised on April 2, 2019, to allow for additional public question and comment time (ADAMS Accession No. ML19092A251).

## MEETING SUMMARY

On April 10, 2019, NRC staff held a Category 1 public meeting with representatives from Holtec at NRC's headquarters in Rockville, Maryland. Attendees included Holtec, NRC staff, and members of the public. The meeting followed from a March 16, 2019, letter (ADAMS Accession No. ML19077A021) from Holtec, to the NRC, in which Holtec requested an urgent public meeting with the NRC, "… to enable us to present our regulations-informed position on the "scratch" matter for NRC's consideration." Holtec requested the meeting to occur in the afternoon so that concerned citizens on the West coast could participate.

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The discussion followed the agenda provided in Enclosure 1 and Holtec's presentation, "HI-STORM UMAX Canister Storage System Docket # 72-1040; Incidence and Consequences of Surface Scratches on the MPC Shell," may be found at ADAMS Accession No. ML19105B060. Members of the public were given an opportunity to ask questions and comment following discussions between NRC and Holtec. The list of meeting attendees is provided in Enclosure 2.

Following welcoming remarks and introductions, Michael Layton, Director, Division of Spent Fuel Management, NRC, indicated the purpose of the meeting was to address scratch and abrasion issues associated with the HI-STORM UMAX certificate of compliance, (CoC), and was not meant to address licensee or site-specific issues or actions associated with the CoC. Mr. Layton indicated that no regulatory decisions or actions would be made or taken at the meeting.

Stefan Anton, Holtec, next spoke and indicated that Kris Singh, President and Chief Executive Officer of Holtec, was unable to attend the day's meeting. He discussed how the "scratch" issue has come up in the past related to the Holtec multi-purpose canister (MPC) shell system, and indicated the presentation would address both technical and licensing aspects of the CoC. He indicated that the slide presentation was made publicly available and contained no proprietary information.

Charles Bullard, Holtec, began the Holtec presentation by noting Holtec's principal meeting objectives of 1) presenting its regulation-informed and American Society of Mechanical Engineers (ASME) code-based position on MPC surface scratches, for NRC consideration, and 2) providing why statements in the UMAX Final Safety Analysis Report (FSAR) related to plausible absence of scratches during loading is not safety-significant information and does not affect performance under the CoC.

Per Holtec's presentation, Mr. Bullard discussed the origin and prevalence of scratches in plates and shells affiliated with the MPC and the common occurrence of scratches in the MPC, and discussed the limited depth and population of scratches, characterizing their size and density. Mr. Bullard discussed two mechanisms by which scratches occur (simple abrasive wear of the MPC shell under contact load and adhesive wear), and characteristics of scratches derived from these wear events. Mr. Bullard discussed the potential for scratches in conjunction with other considerations, such as MPC specifications adopted to address seismic restraints and worker dose, and concluded that scratches, which he asserted are cosmetic, are tolerated to address seismic and worker dose considerations.

Mr. Bullard then discussed the prevalence of "local discontinuities" and "local structural discontinuities," such as surface scratches and ridges/valleys in as-welded seams, and differentiated these from "gross structural discontinuities." Mr. Bullard also indicated that vertical canister insertion in the UMAX system minimizes scratches and their severity, and that existing surface scratches do not impact the safety and functionality of the MPC. He then discussed the quantification of maximum scratch depth, and concluded that scratches introduced during insertion of the MPC remain a fraction of the required limit in the ASME code.

Mr. Bullard asserted that the "local structural discontinuities" are ubiquitous in every MPC. He indicated that the ASME code places no limit on their number or size because they are irrelevant to the vessel's safe operation. Accordingly, he concluded, Chapter 2, "Principal Design Criteria," in the UMAX FSAR, reflects no limits on peak stresses; that NRC's Safety Evaluation Report makes no mention of the NRC having considered peak stresses; and thus, the CoC makes no mention of any type of local discontinuities or peak stresses in the MPCs.

Mr. Bullard then addressed regulatory perspectives of the MPC, indicating that the presence of surface scratches on the MPC is not relevant to the safety determination, that clarifying the associated FSAR discussion cannot imply a change of any safety consequence, and that the statement in the FSAR regarding no risk of scratching during insertion can be deleted or amended without affecting the safety analyses and conclusions in the FSAR.

Dr. Anton then addressed licensing perspectives of the MPC, and indicated that Holtec, using the regulatory process in Title 10 of the *Code of Federal Regulations* (10 CFR) 72.48, "Changes, tests, and experiments," changed Section 9.5 in its FSAR, to clarify the FSAR language describing wear and scratches on the MPC external surface. Specifically, Dr. Anton indicated that language in the FSAR was changed, in part, from, "… [b]ecause the MPC insertion (and withdrawal) occurs in the vertical configuration with ample lateral clearances, there is no risk of scratching or gouging of the MPC's external surface…," to, in part, "MPC insertion and withdrawal occurs in a tightly controlled vertical configuration with minimal lateral clearances… Because scratches produce only localized stress raisers known as "peak stresses" in Section III of the ASME Code … the applicable stress intensity limits of ASME Section III Class 1 … for the pressure retaining boundary will remain unaffected by the presence of scratches."

Dr. Anton concluded that the statement in the original FSAR about "no risk of scratching," cannot be considered as being included by reference in the CoC.

In closing remarks, Mr. Bullard concluded that localized scratches are an inevitable factor in MPC manufacture, transport, and operation, and are not of concern from the standpoint of compliance with ASME Code, nor do they violate design or licensing requirements per the HI-STORM UMAX FSAR. He summarized that localized scratches are not a safety concern, nor do they affect UMAX functionality, and that Holtec has clarified the FSAR language describing wear and scratches on the MPC per language changes to the FSAR using 10 CFR 72.48.

Following Holtec's presentation, Mr. Layton indicated that the NRC was for the first time learning from its presentation, Holtec's application of the 10 CFR 72.48 process to affect changes to the FSAR, and that while no submittal is required on the part of Holtec, such changes are available to NRC during inspections.

NRC staff then asked several questions regarding the Holtec presentation. Staff inquired about the type of steel used on the UMAX shield ring; Holtec answered that carbon steel, with painted coating, was used, and clarified that stainless steel is used in the seismic constraints. Staff inquired about minimum wall thickness and design basis of the UMAX MPC, and staff and Holtec engaged in additional dialogue on this topic.

Approximately 13 members of the public commented following the business portion of the meeting. One commenter suggested that affects from "hysteresis" be considered for these storage systems, that the FSAR was not adequate, and that brittle fractures and past failures should be further considered in approving these systems. Another commenter expressed concern that Holtec's request was seeking a path forward to continue loading operations at San Onofre Nuclear Generating Station (SONGS), that the NRC was not addressing public safety, and that a hot cell should be considered for the SONGS site to address waste sitting at the site.

Mr. Layton emphasized to these and to other commenters during this portion of the meeting, that the NRC is open, through its web site and through toll free telephone lines, to receive safety concerns and allegations. Additionally, he indicated that concerns can be communicated using

the process in “Subpart B—Procedure for Imposing Requirements by Order, or for Modification, Suspension, or Revocation of a License, or for Imposing Civil Penalties” to 10 CFR Part 2, Section 2.206, “Requests for action under this subpart.” He also recommended the public reach out to NRC Region IV personnel to inquire about inspection activities associated with Holtec’s CoC.

Additional comments expressed concerns about scratches from other MPC activities aside from loading (i.e., unloading and transport); temperature changes during the life of the MPC; use of ASME code vs. ASME certification; questions previously submitted to the NRC related to stress in MPC systems and NRC’s timeline for responding; concerns about and NRC staff awareness of metal to metal contact in the UMAX CoC system and metal fatigue based on radiation exposure; use of these storage systems, and reliance on their integrity, in damp and sandy environments; quality control for assessment of potentially thousands of canisters; and the process reflected in previously discussed NRC regulations at 10 CFR 72.48.

The meeting adjourned at approximately 3:20 p.m. No regulatory decisions were made at the meeting.

Immediately following the meeting, one e-mail comment was received from a member of the public who had listened to the meeting. That commenter expressed appreciation for NRC’s processes allowing the public to raise concerns to the NRC, thereby offering an opportunity for the public to initiate NRC investigations into allegations and potential safety concerns.

Docket No.: 72-1040
CAC No.: 001028

Enclosures:
1. Meeting Agenda
2. Attendance List

SUBJECT: SUMMARY OF APRIL 10, 2019, PUBLIC MEETING BETWEEN HOLTEC INTERNATIONAL, INC., AND THE U.S. NUCLEAR REGULATORY COMMISSION, FOR HOLTEC TO PRESENT AND DISCUSS TECHNICAL DETAILS ADDRESSING SCRATCH AND ABRASION ISSUES ASSOCIATED WITH THE UMAX CERTIFICATE OF COMPLIANCE, DOCUMENT DATE: May 14, 2019

**DISTRIBUTION:**
DSFM r/f
NRC Attendees

Filename: G:\SFST\HI-STORM UMAX\2019 UMAX Scratch and Abrasion Issue\Mtng Summary 04102019 HOLTEC SCRATCH FINAL RHT.docx

**ADAMS Memo: ML19116A243**
C=Without attachment/enclosure E=With attachment/enclosure N=No copy

| **OFFICE:** | SFM | | SFM | | SFM | | SFM | |
|---|---|---|---|---|---|---|---|---|
| **NAME:** | RTurtil | | BWhite for JMcKirgan | | WWheatley | | MLayton | |
| **DATE:** | 4/ 25 /2019 | | 5/09/2019 | | 5/13/2019 | | 5/14/2019 | |

**OFFICIAL RECORD COPY**

**AGENDA**

**Public Meeting Between Holtec International, Inc., and the U.S. Nuclear Regulatory Commission, for Holtec to Present Technical Details Addressing Scratch and Abrasion Issues Associated with the UMAX Certificate of Compliance**

**April 10, 2019**
**1:00 p.m. – 3:00 p.m. (Eastern Standard Time)**
**Room: 3WFN-8A28**

Purpose: Licensing meeting with Holtec International, Inc., for licensee to present technical details addressing scratch and abrasion issues associated with the UMAX certificate of compliance.

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|---|---|---|
| 1:00 p.m. – 1:15 p.m. | Introductions / Opening Remarks | NRC/Holtec |
| 1:15 p.m. – 2:00 p.m. | Holtec Presentation on Regulations-Informed Position on “Scratch Issue” | Holtec |
| 2:00 p.m. – 2:15 p.m. | NRC Staff Questions for Holtec | NRC/Holtec |
| 2:15 p.m. – 3:00 p.m. | Opportunity for Public Questions and Comments | NRC/Public |
| 3:00 p.m. | Adjourn | |

**MEETING ATTENDEES**

Participants: Holtec International, the Nuclear Regulatory Commission and the Public
Date: April 10, 2019, 1:00 P.M. – 3:00 P.M.
Location: Three White Flint North, Room 8-A28

| NAME | AFFILIATION |
|---|---|
| Michael Layton | NRC |
| Linda Howell | NRC |
| John McKirgan | NRC |
| Chris Regan | NRC |
| Richard Turtil | NRC |
| Meraj Rahimi | NRC |
| Dave McIntyre | NRC |
| Marlone Davis | NRC |
| John Wise | NRC |
| Angel Moreno | NRC |
| Gordon Bjorkman | NRC |
| Chris Jacobs | NRC |
| Tim McCartin | NRC |
| Patty Jehle | NRC |
| Jessica Bielecki | NRC |
| William Allen | NRC |
| Darrell Dunn | NRC |
| Damaris Marcano | NRC |
| Christian Araguas | NRC |
| Donnie Harrison | NRC |
| Donald Chung | NRC |
| Olivier Lareynie | NRC |
| Eric Simpson/ telephone | NRC |

| NAME | AFFILIATION |
|---|---|
| Stefan Anton | Holtec |
| Charles Bullard | Holtec |
| Kimberly Manzione | Holtec |
| Pierre Oneid | Holtec |
| Don Shaw | ORANO |
| Stuart Horowitz | ORANO |
| Mike McAuliffe | Platts |
| Thomas Palmisano | SCE |
| Alan Kepple | MPR Associates |
| Donna Gilmore/ telephone | San Onofre Safety |
| Marvin Lewis/ telephone | San Onofre Safety |
| Ace Hoffman/ telephone | San Onofre Safety |
| Gary Headrick/ telephone | San Clemente Green |
| Nina Babiarz/ telephone | Public Watchdogs/San Diego |
| Rob Nikolewski/ telephone | San Diego Union Tribune |
| Marni Magda/ telephone | SCE CEP member |
| Ray Lutz/ telephone | San Onofre Safety |
| Kelli A. Gallion/ telephone | SONGS |
| Michelle Anderson/ telephone | Orange County Sheriff's Department |
| Kalene Walker/ telephone | Public |
| Sue Garcia/ telephone | San Diego Gas and Electric |
| Torgen Johnson/ telephone | Samuel Lawrence Foundation |
| Zita Martin/ telephone | Tennessee Valley Authority |
| Mitchell Maricque/ telephone | Public |

| | |
|---|---|
| Carlyn Greene/ telephone | UxC |
| | |
| Over 120 phone lines were utilized during the public meeting. Not all phone-in participants contacted the NRC (RTurtil) following the meeting, as requested, to submit their names to be made part of the public record reflecting their attendance/participation. | |