



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

December 9, 2021

**MEMORANDUM TO:** Geoffrey Miller, Deputy Director  
Division of Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

**THRU:** Hipolito Gonzalez, Chief  
Inspection and Oversight Branch  
Division of Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

**FROM:** Tomeka Terry, Project Manager  
Inspection and Oversight Branch  
Division of Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

**SUBJECT:** SUMMARY OF THE NOVEMBER 9, 2021, HYBRID PUBLIC  
MEETING WITH REPRESENTATIVES OF THE NUCLEAR  
INDUSTRY TO DISCUSS APPROACHES TO ADDRESSING  
TORNADO HAZARDS DURING INDEPENDENT SPENT FUEL  
STORAGE INSTALLATION SHORT TERM OPERATIONS

On November 9, 2021, the U.S. Nuclear Regulation Commission (NRC) staff conducted a hybrid public meeting with representatives from Nuclear Energy Institute (NEI), Holtec International (Holtec), Orano TN, and members of the public. The purpose of this meeting was to discuss approaches to addressing tornado hazards during independent spent fuel storage installation (ISFSI) short term, transient operations (STO). The public meeting notice and agenda topics are available in the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML21313A223. The enclosure to this document contains the meeting attendance list. Additionally, there were no regulatory decisions or commitments made by the NRC staff during the meeting.

During the public meeting, the NRC staff presented background information regarding the very low safety significance issue resolution (VLSSIR) process. NEI, Holtec, and Orano TN followed with presentations on ISFSI dry storage system protection during STOs. These presentations are available in ADAMS under Accession Nos. ML21313A183, ML21313A119, and ML21313A120, respectively.

**CONTACT:** Tomeka Terry, NMSS/DFM  
301-415-1488

## **Discussion**

The meeting promoted an open dialogue with representatives from NEI, Holtec, Orano TN, the nuclear industry, and members of the public. There were over 105 participants including the NRC staff.

On June 23, 2021 (ADAMS Accession No. ML211754A046), Holtec submitted to the NRC a cover memo and position paper DS-481, "Consideration of Transient Loadings during Short Term Operations." The position paper provided Holtec's method to treat transient or transitional evolutions that occur during STOs in a cask loading campaign. During the public meeting the NRC staff asked clarifying questions and provided perspectives. Presentations focused on industry viewpoints and approaches to addressing ISFSI dry storage cask system protection during STOs when cask systems may be undergoing a transition from one configuration to another during transient operations (e.g., upending or down ending activities, change out of the rigging, use of an air pallet system, or assembly of a closure lid). According to the industry, a deterministic tornado analysis is not required for loaded cask systems during transient operations. Instead, general licensees reduce the probability of a tornado missile strike through use of administrative controls (e.g., a local weather check) to ensure cask movement does not take place during inclement weather and/or they can place the cask in a safe condition upon recognition of adverse weather. Industry considers the issue as very low safety significance and asserts that application of administrative actions to restrict operations during the risk of tornados has been considered acceptable by NRC for some licensees. As such, the industry believes the VLSSIR process should be applied to this issue. They further stated that if general licensees are required to change structures, systems, and components (SSC), procedures, or other aspects for ISFSI operations, then industry considers this backfitting.

During the meeting the NRC staff discussed that the original vendor licensing reviews identify generic configurations and important to safety (ITS) SSCs for tornado missile protection. The general licensees may have different configurations and introduce new ITS SSCs than what the staff reviewed and must perform an evaluation as required by 10 CFR 72.212(b)(6) "Condition of General License Issued under 10 Part 72.210," for site-specific configurations and parameters and must design new ITS SSCs for protection against environmental conditions and natural phenomena as required by 10 CFR 72.122(b). The NRC staff also presented background information regarding the VLSSIR process. The NRC committed to continue to evaluate this issue consistent with NRC processes, including the VLSSIR process, as appropriate, and will ensure coordination/communications between all Regional and Headquarters staff on the disposition of these issues.

The meeting also provided members of the public the opportunity to ask questions and provide comments to the NRC staff. The NRC staff received one comment from the public related to the intent of 10 CFR Part 72 and reiterated how it applies to the discussion about STO's.

## **Action Items/Next Steps**

The NRC continues to evaluate regulatory applicability and safety significance (e.g., exposure time and consequences) and that NRC actions will be licensing bases dependent. The NRC will engage individual licensees and vendors regarding specific inspection findings and observations and continue the open dialogue with the industry as this issue is addressed further.

Enclosure:  
List of Attendees

SUBJECT: SUMMARY OF THE NOVEMBER 9, 2021, HYBRID PUBLIC MEETING WITH REPRESENTATIVES OF THE NUCLEAR INDUSTRY TO DISCUSS APPROACHES TO ADDRESSING TORNADO HAZARDS DURING INDEPENDENT SPENT FUEL STORAGE INSTALLATION SHORT-TERM OPERATIONS

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**ADAMS Accession No.: ML21342A221**

**\* via email**

<b>OFFICE</b>	DFM	DFM	DFM	DFM
<b>NAME</b>	TTerry*	WWheatley*	DHarrison*	HGonzalez*
<b>DATE</b>	12/8/2021	12/9/2021	12/9/2021	12/9/2021

**OFFICIAL RECORD COPY**

## LIST OF ATTENDEES

### NOVEMBER 9, 2021, HYBRID PUBLIC MEETING WITH THE NUCLEAR INDUSTRY TO DISCUSS APPROACHES TO ADDRESSING TORNADO HAZARDS DURING ISFSI STOs

<b>Name</b>	<b>Affiliation</b>
John Lubinski	Nuclear Regulation Commission (NRC)
Robert Lewis	NRC
Shana Helton	NRC
Linda Howell	NRC
Hipo Gonzalez	NRC
Marlone Davis	NRC
Matt Learn	NRC
Haile Lindsay	NRC
John McKirgan	NRC
Tomeka Terry	NRC
Donnie Harrison	NRC
Alayna Pearson	NRC
Mike King	NRC
Mirabelle Shoemaker	NRC
James Downs	NRC
Brett Klukan	NRC
Aaron Thomlinson	NRC
Angela Coggins	NRC
Audrey Klett	NRC
Briana DeBoer	NRC
Charles Kreuzbergur	NRC
Christian Jacobs	NRC
David Beaulieu	NRC
Don Habib	NRC
Jennifer Dalzell	NRC
Jeremy Tapp	NRC
John Nicholson	NRC
Jenny Weil	NRC
Jeremy Groom	NRC
Jon Woodfield	NRC
Jonathan Evans	NRC
Jonathan Rowley	NRC
Ray Kellar	NRC
Lee Brookheart	NRC
Lisa Dimmick	NRC
Marjorie McLaughlin	NRC
Mary Muessle	NRC
Neil Sheehan	NRC
Paula Cooper	NRC
Robert Williams	NRC

<b>Name</b>	<b>Affiliation</b>
Samantha Lav	NRC
Steven Koenig	NRC
Yan Chan	NRC
Jennifer Uhle	Nuclear Energy Institute (NEI)
Mark Richter	NEI
Rod McCullin	NEI
Andrew Mauer	NEI
Brett Titus	NEI
Janet Schlueter	NEI
Melody Rodriguez	NEI
Tim Riti	NEI
Jerry Bonanno	NEI
Stefan Anton	Holtec International (Holtec)
Kimberly Manzione	Holtec
Matthew Block	Holtec
Chuck Bullard	Holtec
Christopher O'Mullane	Holtec
Brian Seawright	Holtec
Debu Majumdar	Holtec
Dylan Miller	Holtec
Kyle Trotter	Holtec
Michael Beal	Holtec
Michael Williams	Holtec
PK Chaudhary	Holtec
Ryan Depalo	Holtec
TK Chadway	Holtec
Raheel Haroon	Orano TN
Don Shaw	Orano TN
Clay Channell	Southern Nuclear
Barry Coleman	Southern Nuclear
Cheryl Gayhart	Southern Nuclear
Keith Brown	Southern Nuclear
Lucas Wessel	Southern Nuclear
Carrie Osborn	Southern Nuclear
Brian Gutherman	Gutherman Technical Service, LLC
Darani Reddick	Exelon Nuclear
Kenn Hunter	Exelon Nuclear
Jeff Stone	Exelon Nuclear
Joe Dougherty	Exelon Nuclear
Zachary Kitts	Exelon Nuclear
Gary Voss	Exelon Nuclear
David Kneeper	Exelon Nuclear
Christian Williams	Exelon Nuclear
Christian Jacobs	Exelon Nuclear
Abbas Abady	Exelon Nuclear
Benjamin Day	Exelon Nuclear
George Budock	Exelon Nuclear
Michael Cazzolli	Exelon Nuclear
Glenn Stewart	Exelon Nuclear

<b>Name</b>	<b>Affiliation</b>
Larry Smith	Exelon Nuclear
Jason Zorn	Exelon Nuclear
Jenneth Greene	Exelon Nuclear
Joseph Ruark	Exelon Nuclear
Joseph Van Amberg	Exelon Nuclear
Jullianna Yockey	Exelon Nuclear
Kate Ebnet	Exelon Nuclear
Kenneth Slough	Exelon Nuclear
Madison Long	Exelon Nuclear
Patrick Simpson	Exelon Nuclear
Arthur Simpson	Exelon Nuclear
Brian Briggs	Wolf Creek
Colby Thortsen	Wolf Creek
Michael Boyce	Wolf Creek
Robert Kelley	Wolf Creek
Tony Harris	Wolf Creek
Ali Albaaj	STP Nuclear Operating Company
Gina Haub	STP Nuclear Operating Company
Mark Oswald	STP Nuclear Operating Company
George Carver	NAC International
Kyle Duke	Pacific Gas and Electric
Richard Higler	Pacific Gas and Electric
Tom Tramm	Certrec
Don Conly	Certrec
Randle Granaas	Southern California Edison
Robert Quinn	Westinghouse
Corey Cameron	Omaha Power Public District
Carlyn Greene	UXC
Paul Plante	3 Yankees
Tommy Leshinskie	Vermont Public Service Department
Keith Waldrop	Electric Power Research Institute
David Htlker	ExTen
Steve Baker	Transware Enterprises
Leo Shanley	Jensen Hughes
Mark Tursa	General Electric
Brandy Lopez	TGNE
Nick Taggiano	Fulltech International
Nicole Good	STARS
Phil Couture	Entergy
Suzanne Leblang	Entergy