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NUCLEAR ENERGY INSTITUTE

October 29, 2021

Mr. John W. Lubinski
Director, Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555–0001

Subject: Backfitting Concerns with NRC's Developing Position on Protection of Dry Storage Systems from Natural Phenomena During Short Term Operations

Project Number: 689

Dear Mr. Lubinski:

The Nuclear Energy Institute (NEI)[1], on behalf of our members, is writing to express our concern that the U.S. Nuclear Regulatory Commission's (NRC) developing position with respect to the protection of Dry Storage Systems (DSS) from natural phenomena during short term operations – specifically tornadoes and tornado missiles – constitutes a generic backfit for which the potential safety benefits and costs must be carefully weighed. This issue is of very low safety significance issue and is creating unnecessary regulatory attention that may disrupt dry cask operations across the industry when there is reasonable assurance of adequate protection with existing licensee controls. NEI is aware that the NRC hosted a public meeting on July 7, 2021 to discuss issues related to licensing and design basis tornado analyses supporting the approval of certain DSS.[2] There is also a public workshop being planned for November 9, 2021, where the application of the Very Low Safety Significance Issue Resolution (VLSSIR) process as a means to reach a documented resolution to this issue will be discussed.

While we look forward to the upcoming public workshop, we are mindful of the opportunity to address the generic implications of this issue that was missed after the July 2021 meeting and are concerned that several NRC regional offices are proceeding with inspection activities and preparing enforcement actions that would make the result of the planned VLSSIR public meeting a foregone conclusion. This is especially

[1] The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.
[2] July 7, 2021 NRC public meeting with Holtec International and appropriate nuclear industry representatives to provide the NRC greater context and additional information related to the May 12, 2021 letter from Holtec International, "Extreme Environmental Phenomena During Short Term Operations Within 10 CFR 72 Jurisdiction."

concerning, given that: (1) there seems to be general agreement between the NRC and licensees that this issue is of very low safety significance; and (2) the positions being taken in several inspections raise potential backfitting issues, or, at the very least, licensing basis questions that would be best resolved using the VLSSIR process. Given these concerns, we respectfully request that the resolution of facility-specific inspection activities be coordinated with NMSS' review of the underlying licensing basis questions and generic backfitting issue in a manner that allows for meaningful review of this issue by headquarters licensing staff.

The General Design Criteria (GDC) for DSS are contained in Subpart F of 10 CFR 72. Section 72.122 of Subpart F requires structures, systems, and components (SSC) important to safety to be designed to withstand the effects of natural phenomena, including tornadoes, without impairing the capability to perform the SSCs' intended design function.[3] However, the regulations in 10 CFR 72.122 do not specify how the analysis to confirm that the design of a specific DSS meets this GDC must be conducted. Instead, the specific approaches to demonstrating compliance are provided in agency guidance, and (in the case of Part 72 general licensees) are reviewed and approved as part of DSS certification process. The method of demonstrating compliance with the GDC is described in the Final Safety Analysis Report (FSAR) developed by the holder of the Certificate of Compliance (CoC). The NRC's review of the FSAR is documented in the Safety Evaluation Report (SER) issued by the agency.

Before using a DSS for which the NRC has issued a CoC, a Part 72 general licensee must review the FSAR for the relevant CoC and the related SER to determine whether the reactor site parameters are enveloped by the cask design basis considered in the FSAR and SER. This includes an evaluation of whether the design criteria for the tornado analysis in the CoC bound the site where the DSS will be used.[4] The NRC has reviewed and approved DSS designs with tornado analyses that analyzed the DSS only in its fully-loaded configuration. Neither these approvals, nor NRC's review of the general licensees' evaluations performed pursuant to section 72.212(b)(6), required deterministic analysis of tornado impacts during short term loading evolutions where the DSS may be outdoors for periods of time in the range of 3-4 hours and not in its fully loaded configuration (e.g., in a configuration with the lid of the DSS overpack removed).

Over the decades during which cask loadings have been conducted under established licensing bases, the industry has protected against not only inclement/severe weather, but also very low probability tornado events during these abbreviated periods of time. This is accomplished through administrative procedures that assure short-term loading evolutions do not take place when there is a threat of inclement weather, which is a more conservative action than halting the evolutions when a tornado watch or warning is issued. The use of administrative controls – as opposed to a deterministic tornado analysis – in this precise situation has been reviewed and found acceptable in at least one NRC inspection of a reactor licensee's ISFSI dry run

[3] 10 C.F.R. Part 72.122(b).
[4] *See* 10 C.F.R. Part 72.212(b)(5), (6).

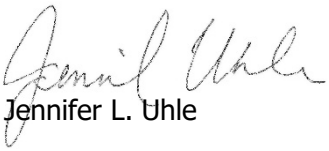
and initial loading of spent fuel in its ISFSI facility.[5] In that inspection, the NRC described the licensee's movement of the HI-STORM DSS from the reactor building receiving door to the egress pad without the HI-STORM lid installed. The NRC indicated that the movement was controlled in accordance with a licensee procedure, which imposed administrative controls that prevented the evolution from being implemented during times when severe weather could occur. In that case, NRC inspector specifically evaluated and raised questions regarding the sufficiency of the procedure to ensure that the licensee could "return the cask to an analyzed condition" in the time between the declaration of a severe weather alert and the time the severe weather reached the site.[6] The licensee modified the procedure in response to the inspector's concerns and no findings were documented with respect to the DSS design basis, or the associated screening performed pursuant to 10 CFR 72.48.

Now, it appears that the inspection process is being used to question the acceptability of the scope of the deterministic tornado analyses previously accepted by the NRC to ensure compliance with the GDC, as well as the sufficiency of evaluations performed pursuant to 10 CFR 72.48 that CoC holders performed, and licensees incorporated, in response to NRC staff concerns on this very issue. Although licensing bases will vary, on their face these inspection practices applied to Part 72 licensees raise backfitting concerns and, if not appropriately dispositioned via the backfitting process, seem to be ideal candidates for the VLSSIR process given the very low safety significance and the licensing basis uncertainty. They are certainly not clear-cut compliance issues.

We offer these concerns in the spirit of focusing NRC and industry time and attention on what matters most to safety and we look forward to an open-minded public dialogue with the NRC staff at the upcoming workshop.

If you have questions in this matter, please contact me.

Sincerely,



Jennifer L. Uhle

c: Ms. Andrea Veil, NRC/NRR
Mr. David Lew, NRC/Region I
Ms. Laura Dudes, NRC/Region II
Mr. Jack Geissner, NRC/Region III
Mr. Scott Morris, NRC/Region IV

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[5] *See* Inspections 05000354/2006010 and 07200048/2006010, PSEG Nuclear LLC-N09, Hope Creek Generating Station, Hancocks Bridge, New Jersey (Dec. 22, 2006).
[6] *Id.* at pg. 11.