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October 1, 2019  
E-55202

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852

Subject: Application for Amendment 1 to NUHOMS® EOS Certificate of Compliance No. 1042, Revision 8 – Appendix 3.9.7 Editorial Correction

References: [1] Letter E-55040, from Prakash Narayanan, "TN Americas LLC, Application for Amendment 1 to NUHOMS® EOS Certificate of Compliance No. 1042, Revision 6 – Response to Request for Additional Information (Docket No. 72-1042, CAC No. 001028, EPID: L-2018-LLA-0043)," dated August 29, 2019

[2] Letter E-54376, from Prakash Narayanan, "TN Americas LLC, Application for Amendment 1 to NUHOMS® EOS Certificate of Compliance No. 1042, Revision 6 – Response to Request for Additional Information (Docket No. 72-1042, CAC No. 001028, EPID: L-2018-LLA-0043)," dated July 16, 2019

[3] Letter E-54364, from Prakash Narayanan, "TN Americas LLC, Application for Amendment 1 to NUHOMS® EOS Certificate of Compliance No. 1042, Revision 5 – Response to Request for Additional Information (Docket No. 72-1042, CAC No. 001028, EPID: L-2018-LLA-0043)," dated June 19, 2019

[4] Letter E-53166, from Prakash Narayanan, "TN Americas LLC, Application for Amendment 1 to NUHOMS® EOS Certificate of Compliance No. 1042, Revision 3 – Response to Request for Additional Information (Docket No. 72-1042, CAC No. 001028, EPID: L-2018-LLA-0043)," dated February 19, 2019

[5] Letter from Christian Jacobs (NRC) to Prakash Narayanan (TN Americas LLC), "TN Americas LLC Application for Certificate of Compliance No. 1042, Amendment No. 1, to NUHOMS® EOS System (Docket No. 72-1042, CAC No. 001028, EPID: L-2018-LLA-0043) – Request for Additional Information Part 2," dated January 30, 2019

[6] Letter from Christian Jacobs (NRC) to Prakash Narayanan (TN Americas LLC), "TN Americas LLC Application for Certificate of Compliance No. 1042, Amendment No. 1, to NUHOMS® EOS System (Docket No. 72-1042, CAC No. 001028, EPID: L-2018-LLA-0043) – Request for Additional Information," dated December 21, 2018

This submittal is a supplement to provide a minor editorial correction to CoC No. 1042 Updated Final Safety Analysis Report (UFSAR) Appendix A.3.9.7, Page A.3.9.7-2, in support of the application for Amendment 1, per References [1] through [6] above. Section A.3.9.7.1.7.1 incorrectly indicated the response spectra value of "7%" and should have indicated "5%" as the value.

Enclosure 1 is a copy of the UFSAR changed page A.3.9.7-2. This page is annotated as "72-1042 Amendment 1, Revision 8, October 2019" with the change indicated by italicized text and a revision bar and further annotated with gray shading and an indication in the footer of the changed page that the change is associated with the discussion in this letter.

TN Americas LLC is prepared to meet with the NRC staff to resolve any additional questions the staff might have. Should the NRC staff require additional information to support review of this application, please contact Mr. Glenn Mathues by telephone at (410) 910-6538, or by email at [Glenn.Mathues@orano.group](mailto:Glenn.Mathues@orano.group).

Sincerely,



Prakash Narayanan  
Chief Technical Officer

cc: Chris Jacobs (NRC SFM) as follows:

- One paper copy of this cover letter and Enclosure 1

Enclosures:

CoC 1042 Amendment 1, Revision 8 UFSAR Changed Page, Page A.3.9.7-2

Enclosure 1 to TN E-55202

CoC 1042 Amendment 1, Revision 8  
UFSAR Changed Page, Page A.3.9.7-2

#### A.3.9.7.1.4 Friction Coefficients

The static analyses are performed using a concrete-to-concrete friction coefficient of 0.6. The non-linear dynamic analysis for the seismic loads are performed for a range of friction coefficients for concrete against concrete, varying from 0.8 as the upper bound, 0.6 as the nominal coefficient of friction for concrete poured directly on the independent spent fuel storage installation (ISFSI) pad and 0.4 as the lower bound.

#### A.3.9.7.1.5 Methodology

The stability of the HSM-MX unit is evaluated for four load cases that may cause overturning and sliding of a freestanding module. These four load cases are:

- Tornado-generated wind loads
- Massive missile impact loads
- Flood loads
- Seismic loads

#### A.3.9.7.1.6 Assumptions

1. The analyses assume that the dynamic coefficient of friction is equal to the static coefficient. This assumption maximizes the rocking uplift displacements of the HSM-MX (particularly for the high friction coefficient analysis cases).
2. For the non-linear dynamic seismic analysis, coefficients of friction between the HSM-MX and the concrete ISFSI pad are varied between a lower limit of 0.4 and an upper limit of 0.8, with a single intermediate value of 0.6. The coefficients of friction for all other contact surfaces are taken as 0.25.
3. The differential pressure load caused by the tornado pressure drop does not affect the overall stability of the HSM-MX and is ignored. The structure is vented, and so any differential pressure is negligible, as the internal and external pressures equilibrate.
4. This stability evaluation is applicable to both single and double array HSM-MX design.
5. For the non-linear dynamic time history analyses, impact damping coefficients are included in all contact definitions (concrete-to-concrete and steel-to-steel) to obtain a coefficient of restitution (COR) of at least 0.8.

#### A.3.9.7.1.7 Loads and Boundary Conditions

##### A.3.9.7.1.7.1 Earthquake Input

The earthquake input motions are in the form of acceleration time histories whose response spectra match the Regulatory Guide 1.60 [A.3.9.7-8] response spectra for 5% damping anchored at 0.85g zero period acceleration (ZPA) in both horizontal directions and 0.80g in the vertical direction and enhanced for frequencies above 9 Hz.