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December 22, 2021  
E-60172

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

**Subject:** Supplemental Response to Request for Additional Information - Proposed Alternative to the ASME Code, NG-4230 Tack Welds for Renewed Certificate of Compliance No. CoC 1004, Amendment Nos. 13, 14, 15, 16 and 17 (Docket No. 72-1004, CAC No. 001028, EPID:L-2021-LLR-0069)

**Reference:** [1] Letter from Christian Jacobs (NRC) to Prakash Narayanan (TN Americas LLC), Proposed Alternative to the ASME Code, NG-4230 Tack Welds for Renewed Certificate of Compliance No. CoC 1004, Amendment Nos. 13, 14, 15, 16 and 17 (Docket No. 72-1004, CAC No. 001028, EPID:L-2021-LLR-0069) – Request for Additional Information, dated November 3, 2021

[2] Conversation Record re: ASME Code Alternative Request - CoC 1004 - Clarification if RAI Responses, dated December 15, 2021, ADAMS ML21350A451

TN Americas LLC (TN) hereby submits a supplement to Reference [1] above, and provides a revised response to the earlier Request for Additional Information (RAI). As a follow-up to Reference [1], the NRC and TN held a conference call on December 15, 2021 for the purpose of clarifying TN's response to RAI-1 and RAI-4, as documented in Reference [2]. Enclosure 2, herein, provides the revised responses to RAI-1 and RAI-4. Enclosure 3 contains images that illustrate how certain components are positionally maintained during fabrication activities.

Enclosure 3 of this submittal includes proprietary information, which may not be used for any purpose other than to support NRC staff review of the proposed code alternative. In accordance with 10 CFR 2.390, I am providing an affidavit (Enclosure 1) specifically requesting that you withhold this proprietary information from public disclosure. Because Enclosure 3 is entirely proprietary, no public version is provided.

Should you have any questions regarding this submittal, please do not hesitate to contact Mr. Douglas Yates at 434-832-3101, or me at 410-910-6859.

Sincerely,

A handwritten signature in black ink that reads "A. Prakash". The signature is written in a cursive style with a horizontal line underneath the name.

Prakash Narayanan  
Chief Technical Officer

cc: Christian Jacobs (NRC-DFM)

Enclosures:

1. Affidavit
2. RAI-1 and RAI-4 Revised Responses
3. Pictures of Fabrication Tooling/Fixtures (Proprietary)

TN Americas LLC )  
State of Maryland ) SS.  
County of Baltimore )

The information for which proprietary treatment is sought meets the provisions of paragraph (a) (4) of Section 2.390 of the Commission's regulations. The information is contained in Enclosure 3, as listed below:

- Enclosure 3 – Pictures of Fabrication Tooling/Fixtures (Proprietary)

Pursuant to the provisions of paragraph (b) (4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure, included in the above referenced document, should be withheld.

- 1) The information sought to be withheld from public disclosure involves photographs of fabrication details associated with the Standardized NUHOMS® Dry Spent Fuel Storage System, which is owned by and has been held in confidence by TN Americas LLC.
- 2) The information is of a type customarily held in confidence by TN Americas LLC, and not customarily disclosed to the public. TN Americas LLC has a rational basis for determining the types of information customarily held in confidence by it.
- 3) Public disclosure of the information is likely to cause substantial harm to the competitive position of TN Americas LLC, because the information consists of photographs of fabrication details associated with the Standardized NUHOMS® Dry Spent Fuel Storage System, the application of which provide a competitive economic advantage. The availability of such information to competitors would enable them to modify their product to better compete with TN Americas LLC, take marketing or other actions to improve their product's position or impair the position of TN Americas LLC's product, and avoid developing similar data and analyses in support of their processes, methods or apparatus.

Further the deponent sayeth not.

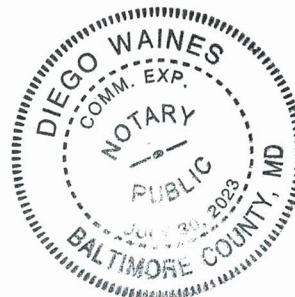
A. Prakash

Prakash Narayanan  
Chief Technical Officer, TN Americas LLC

Subscribed and sworn before me this 20<sup>th</sup> day of December 2021.

Diego Wainess  
Notary Public

My Commission Expires 07/30/2023



**Materials RAIs:****RAI-1:**

Provide additional information on how the mockup coupons will adequately represent the production welding set-up and how the applicant will account for variation in tack weld profiles, root opening, and defect orientation.

The applicant states that tack welds are used during fit-up and alignment of the welded components of the R45 transition rails and use of tack welds is standard practice for keeping parts closely together while completing the first pass or the root pass of a production weld. The NRC staff is unclear how the length of the Procedure Qualification Record (PQR) mockup coupons with respect to length of the actual transition rail component will adequately represent production welding (i.e., number of tack welds, size of tack welds, and gap between the tack welds.)

The applicant states that three coupons will be produced for each joint geometry to account for variations in joint design and a tack will be broken to prepare the coupon for PQR. Since the tacks weld are made manually, there will be variation in the tack welds from welder to welder. In addition, there will be variations in the defect orientations. The staff is unclear how the applicant will account for these variations in their mockup coupons.

The applicant states that an additional PQR shall be prepared in accordance with ASME Section IX with coupons that were produced with three broken tack welds per coupon at fit-up. The staff is unclear about the intent of this PQR and its applicability.

This information is needed to determine if it meets the requirements of Part 72 of Title 10 of the *Code of Federal Regulations* (10 CFR) 72.236(b) and 72.158.

**Revised Response to RAI-1:**

*A Procedure Qualification Record (PQR) coupon is made by welding two materials together and then the coupon is machined into multiple specimens for mechanical testing of the weld. The PQR coupon is approximately 12 inches by 12 inches, prior to machining the specimens. Typically, a few tack welds are used to secure the two materials together for the weld-out. To ensure that the specimens represent a bounding condition related to the code alternative request, TN proposes to complete a manual tack weld on the entire width of the coupon and then break the tack weld before the weld-out of the coupon. Therefore, all specimens that are machined from the coupon will have welds that were completed at the location of broken tack welds.*

*Typical tensile specimens are “dog-bone” shaped with a width of 1/2 inch at the location of the weld.*

The intent of introducing defective tack welds in PQR coupons is to demonstrate that the mechanical strength of the welding process continues to be acceptable by destructively testing the coupons per American Society of Mechanical Engineers (ASME) Section IX requirements.

TN Americas LLC (TN) does not see the need to complete a *partial or full length mock-up* of the R45 transition rail *that simulates multiple failed tack welds*. *The welding of these of types of parts cannot be completed by securing the parts with tack welds alone. Rigid fixtures are necessary for securing the parts together to both minimize the gaps at welding and maintain the overall geometry of the sub-assembly. The fixture resists the distortion that is inherently caused by the welding of stainless steels. It is standard practice for the fixture to be stronger than the parts being welded. Photos are provided in Enclosure 3 of TN's fixture and typical setup of the R45 transition rail prior to completing the root pass.*

*If multiple continuous tack welds are broken and not identified by the welding supervisor, the rigid fixture is still providing support to the parts in the correct position. Additionally, the weld operator is still required to ensure that the root gap opening is in compliance with the Welding Procedure Specification (WPS). The weld operator's adherence to all WPS requirements would ensure that the root pass weld is performed satisfactorily and bound by the PQR. If, at some point, multiple tack weld failures resulted in a root gap too large, then the welder would not proceed with welding or shut-down the welding equipment and notify his supervisor of a problem. TN does not see the need to assume this scenario is credible because of the multiple failures of individuals and equipment that would need to occur.*

**Impact:**

No change as a result of this RAI.

**RAI-4:**

Please provide additional information to add clarity for the applicability for NB-4123 and NB-4423.

Applicant's request for a code alternative pertains to subsection NG. In Subsection NG, NG-4123 and NG-4423 are similar to NB-4123 and NB-4423 respectively. The staff is unclear the applicability of the reference to NB-4123 and NB-4423.

This information is needed to determine if it meets the requirements of 10 CFR 72.236(b).

***Revised Response to RAI-4:***

*TN agrees to withdraw the reference to paragraphs of NB-4000 in the code alternative request.*

**Impact:**

No change as a result of this RAI.

**Enclosure 3 to E-60172**

**Pictures of Fabrication Tooling/Fixtures  
(Proprietary)**

**Withheld Pursuant to 10 CFR 2.390**