orano

Columbia Office
7135 Minstrel Way
Columbia, MD 21045
Tel: (410) 910-6900
@Orano_USA

January 16, 2019
E-53358

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

Subject: Application for Revision 9 to Certificate of Compliance No. 9302, Supplement to Responses to Second Request for Additional Information, Docket No. 71-9302 and EPID-L-2018-LLA-0000

References: [1] Letter dated September 26, 2018, from Pierre Saverot, NRC, to Glenn Mathues, Orano USA, "Second Request for Additional Information for Review of the Model No. NUHOMS® MP-197 Package."

[2] Letter E-52844, dated December 14, 2018, "Application for Revision 9 to Certificate of Compliance No. 9302, Response to Second Request for Additional Information, Docket No. 71-9302 and EPID-L-2018-LLA-0000."

This submittal supplements responses to the request for additional information (RAI) forwarded by the NRC letter [1]. This submittal adds an item 40 to Enclosure 2 of the previously provided responses [2].

Should the NRC staff have any questions or require additional information to support review of this application, please contact Mr. Peter Vescovi by telephone at 336-420-8325, or by e-mail at Peter.Vescovi@Orano.group.

Sincerely,

W. Scott Edwards
Director of Transportation
TN Americas LLC

cc: Pierre Saverot, U.S. Nuclear Regulatory Commission

Enclosures transmitted herein contain SUNSI. When separated from enclosures, this transmittal document is decontrolled.

Enclosures:

1. Letter E-52844, dated December 14, 2018, Enclosure 2 (Revision 1), NUHOMS®-MP197 Non-RAI SAR Drawing Changes
2. NUHOMS®-MP197 SAR, Drawing No. MP197HB-1005, Revision 9 (Proprietary)
3. NUHOMS®-MP197 SAR, Drawing No. MP197HB-1005, Revision 9 (Non-Proprietary)
4. Affidavit Pursuant to 10 CFR 2.390

Enclosure 1 to E-53358

Letter E-52844, dated December 14, 2018,
Enclosure 2 (Revision 1), NUHOMS®-MP197 Non-RAI SAR
Drawing Changes

NUHOMS® MP197 Safety Analysis Report (SAR) Drawing Changes

TN Americas LLC (TN) is requesting changes to the NUHOMS® MP197 SAR drawings, which are not related to the RAI questions. However, several of the specific drawing changes were the direct result of an RAI response as detailed in Enclosure 1, and are provided here as additional information.

The engineering drawings in the SAR provide details that affect the evaluation of the package design. The changes to the drawings submitted in the original application were intended to remove excessive detail that may not be appropriate for a condition of approval; however, as requested, the details have been reinstated in the drawings where appropriate. Continuing review of the design drawings during the ongoing fabrication of the cask has identified additional changes to details that were included in the SAR drawings. These changes are included in the response to the request for additional information, and were assessed to verify that the change to design features shown on the SAR drawing had no effect on the containment, shielding, thermal, and structural evaluations for the package design. The technical content provided is considered appropriate for these drawings submitted in the package application.

The requested changes are discussed by SAR drawing number in this enclosure and include a description of the change, the justification and the relation of the change to any impact to the safety analysis. The abbreviation “DCR” refers to a Design Change Request, which is a TN document used for controlling design changes for systems, structures or components subject to the requirements of 10 CFR Part 71.

1. MP197HB-71-1001, Sheet 2, G-8: make the R54.88 outer strap radius a reference dimension. This is needed because the transport skid shown on the SAR drawings is for illustration purposes only and does not reflect the actual skid that will be used for transportation; the transport skid is not part of the SAR safety analysis. Therefore, all skid dimensions must be shown as reference dimensions, for information only, and this change has no impact on the safety analysis.
2. MP197HB-71-1002, Sheet 1, Item 23K: change “BMG” to “BMN” in the materials specification. This is to correct a typographical error in the material specification and it has no impact on the safety analysis.
3. MP197HB-71-1002, Sheet 1, Items 23T and 23V: change “304N” to “304” in the materials description. This change is to be consistent with the safety analysis, which only specifies and uses the mechanical properties of type “304” material, and it, therefore, has no impact on the safety analysis.
4. MP197HB-71-1002, Sheet 1, Item 36: change quantity to “A/R” because the number of screws used to hold the metallic seal in place may vary from one supplier to the other. This change has no impact on the design and safety analysis of the package; the screws serve no safety function; their only purpose is to hold the metallic seal in place during operations.
5. MP197HB-71-1002, Sheet 2, Item 59: DCR 1001190 split Item 59 into Items 59A and 59B (because two different screw lengths are required for the impact limiter thermal shield); therefore, the Parts List of the SAR drawing is updated to reflect this change. The quantity for these items was changed to “A/R”. This change has no impact on the design and safety analysis of the package as these items are not important-to-safety (NITS) and not part of the safety evaluation. Their purpose ends once the impact limiters fitted with their thermal shields have been installed on the cask.

6. MP197HB-71-1002, Sheet 2, Item 60: remove the “3A” thread tolerance class specified for the port bolts; this information is below the level of detail required in the SAR, and therefore removing it has no impact on the safety analysis.
7. MP197HB-71-1004, E-4: change “neutron shield length” to “neutron shield shell length”. This change is only a clarification and has no impact on the safety analysis.
8. MP197HB-71-1005, Sheet 1, view M-M (D-4): make the 12.06 dimension a reference dimension. This is to be consistent with the design drawing. This dimension is not used in the safety analysis, and therefore this change does not impact the analysis.
9. MP197HB-71-1005, Sheet 1, E-2: remove “maximum diameter is 3 inches” in Note 5 and the size of the groove in the ports bolts in Note 8. This is to remove fabrication details from the drawing that have no relevance to (and do not impact) the safety analysis.
10. MP197HB-71-1005, Sheet 1, Section E-E (H-1):
    a) Move “PT” below the line (editorial correction).
    b) Show and dimension the longitudinal thermal expansion gap between the neutron shield and the neutron shield shell (per DCR NUH09-047). The maximum total cold gap is to be 0.89 inch. Clarify in the callout or in an additional note that this is a thermal expansion gap. This gap ensures that the neutron shielding resin, which has a coefficient of thermal expansion much higher than that of steel, will not subject the neutron shield shell to stresses due to thermal expansion during operations of the package.

    Impact on Design (for item b above only):

    - The total temperature variation considered is from 70 °F to 290 °F (per SAR Revision 18 Table A.3-11, volumetric average temperature at hottest cross section).
    - The mean coefficient of thermal expansion for aluminum is 13.3E-06 in/in/F at 290°F (reference ASME 2008 edition Section II Part D Table TE-2).
    - The mean coefficient of thermal expansion for Vyal B is 28.1 E-06 in/in/F (41 in/in/K from 25 °C to 126 °C and 109 in/in/K above 126 °C per “Development of Neutron Shielding Materials for High Burn Up Nuclear Fuel Storage Facilities”, Herve Issard, TN International).
    - The mean coefficient of thermal expansion for austenitic stainless steel is 9.2E-06 in/in/F from 70 °F to 290 °F (Reference ASME 2008 Edition Section II Part D Table TE-1).
    - The gap at 70 °F (assumed fabrication/inspection temperature condition) required to accommodate expansion up to the maximum neutron shielding material temperature under normal conditions of transport over 154.25 inches (distance between end caps) is:

      (154.25)(290F – 70F)(28.1E-06 – 9.2E-06) = 0.64 inch for the Vyal B;

      (154.25)(290F – 70F)(13.3E-06 – 9.2E-06) = 0.14 inch for the aluminum tubes.

    Therefore, a 0.64-inch minimum gap assures completely free expansion of both the aluminum boxes and the Vyal B neutron shielding material. An additional 0.25-inch

positive tolerance provides a reasonable manufacturing tolerance. This results in a 0.64+0.25=0.89-inch maximum cold thermal expansion gap.

11. MP197HB-71-1005, Sheet 2, D-8: change the diameter of the smaller shoulder of the double shoulder trunnion to 9.74 inches minimum, in the drawing and in the analysis (per DCR 1001422). This is to correct a mistake: according to the design drawing, 9.84 inches is the nominal value, not the minimum; the actual minimum is 9.79 inches, but in order to provide some margin, 9.74 inches minimum is used in both the drawing and the structural analysis (SAR Appendix A.2.13.5). SAR Appendix A.2.13.5 was revised to address the change in the diameter of the smaller shoulder of the double shoulder trunnion to 9.74 inches.

12. MP197HB-71-1005, Sheet 2, C-7, A-6 and C-3: make three dimensions reference dimensions. This is to be consistent with the design drawing. These dimensions are not used in the safety analysis. Therefore, this change has no impact on the safety analysis.

13. MP197HB-71-1005, Sheet 3, G-5: add “to 125” to the seal surface finish requirement. This is to match the design drawing revision (per DCR 1001190), which is consistent with the manufacturer’s recommendations for the surface finish used with a metallic seal. This information is technically needed for fabrication and has no impact on the safety analysis. Leak-tightness of the package will be demonstrated by testing during fabrication, maintenance, and prior to shipment (SAR Chapter A.8).

14. MP197HB-71-1005, Sheet 3, Detail T1: this change is per the response to RAI 2-4.

15. MP197HB-71-1005, Sheet 3, Detail T2: this change is per the response to RAI 2-4.

16. MP197HB-71-1006, Details D and G: this change is per the response to RAI 2-4.

17. MP197HB-71-1008, H-7 and H-2: move the 0° callouts slightly upwards. This is to make these two callouts visible and is an editorial change; it has no impact on the safety analysis.

18. MP197HB-71-1008, H-6: remove the all-around symbol on the weld of Item 23A to Item 23E. This change is to correct a mistake in the weld symbol; this weld is not an all-around weld (interruptions at Item 23F), and has no impact on the safety analysis, where the correct geometry of the weld (*not* all-around) is analyzed.

19. MP197HB-71-1008, Note 15 and MP197HB-71-1009, Detail H: in MP197HB-71-1008, change note to “DRILL Ø1/2” HOLES IN 8 PLACES MINIMUM, EQUALLY SPACED (SEE DETAIL H OF DRAWING MP197HB-71-1009) AND PLUG WELD ITEM 23B TO ITEM 23V”. In MP197HB-71-1009, change detail H to only show 8 equidistant plug welds, delete the 2.25-inch distance to the edge and change “12X 2.25 TYP.” to “8X MIN. EQUIDISTANT”. This change is acceptable because only 8 plug welds are modeled in the structural analysis. The 2.25-inch distance from the edge of the impact limiter to the welds has no impact on the strength of the weld. Only the weld size and number of welds are modeled in the structural analysis, which is not changed.

20. MP197HB-71-1008, C-8: change Note 5 to “THE RADIAL GAP BETWEEN THE IMPACT LIMITER AND THE CASK SHALL NOT EXCEED 0.75"”. This change is to provide some

flexibility for the inner diameter of the impact limiter during fabrication. The previous 0.25-inch requirement was incorrect. The gap modeled in the analysis is 0.50 inch. The gap expected in fabrication is in the 0.425-inch to 0.590-inch (radial) range. Setting a maximum gap of 0.75 inch is very close to the gap modeled while providing some flexibility for the inner diameter of the impact limiter during fabrication.

The nominal diameter of the cask is 84.50 inches. This is a reference dimension as it is a stack-up of the inner cavity diameter plus the various thicknesses (inner shell, lead, outer shell) and their tolerances, plus tolerances due to fabrication processes such as rolling of the inner and outer shells, welding, lead pour and minimum lead thickness requirement. The tolerances due to fabrication processes typically always add to the total diameter, which therefore always ends up on the positive side of its nominal value of 84.50 inches, but is limited by fabrication tolerances to a maximum of 84.75 inches.

Therefore, during fabrication, the cask diameter is controlled to a range of 84.50 inches to 84.75 inches. The inside diameter of the impact limiter is controlled during fabrication to between 85.50 inches and 86.00 inches. The radial gap between cask and impact limiter is therefore in the 0.375 inches to 0.75 inches range, which is sufficient to insert the 3/16-inch thick aluminum thermal shield, while limiting the radial gap between cask and impact limiter.

The 0.25±0.13-inch gap currently indicated on Drawing MP197HB-71-1008 would be very hard to meet during fabrication, and results in a minimum value which could actually prevent installation of the aluminum thermal shield between the cask and the impact limiter. Furthermore, the impact limiter structural analysis performed in calculation MP197HB-0255 uses a nominal gap of 0.505 inch. Small deviations from this value will not affect the acceleration results, as the effect on quantity of crushable material is negligible. The attachment bolts were also conservatively modeled without radial clearance to the bolt holes in order to maximize bolt loading. There is a nominal 0.2285-inch bolt-to-hole radial gap that was neglected. Therefore, any adverse impact on the attachment bolts due to increased radial cask-to-impact limiter gap is bounded by the current analysis, and it is acceptable to replace this gap range with a 0.75-inch maximum radial gap.

21. MP197HB-71-1008, G-4: change tolerance on the impact limiter outer diameter to +0.75 / -.03 inch. This is needed because the current tolerance of ±.03 inch is impossible to achieve in fabrication for a component this size. This only changes the maximum possible impact limiter outer diameter, which is conservative since a larger diameter will result in more shock absorbing capabilities; therefore this change has no impact on the design.

22. MP197HB-71-1008, D-2 and F-5: this is an editorial change; the Ø symbol is missing and has been added. This change has no impact on the design.

23. MP197HB-71-1008, add the following to Note 6: “OUTER FACE OF WOOD COMPONENTS MAY BE SLOTTED BELOW THE HOIST RING BOSS AS REQUIRED TO FACILITATE ASSEMBLY. INSIDE FACES OF THE WOOD COMPONENTS MAY BE RELIEVED BELOW ITEMS 23T, AS REQUIRED TO FACILITATE ASSEMBLY”. This is to facilitate fabrication and assembly of the impact limiters (per DCR 1001190). The volume of wood affected is very small compared to the total impact limiter wood volume, and therefore this change has no impact on the design.

24. MP197HB-71-1008, Note 17, and MP197HB-71-1009, Note 3: delete both notes (per DCR 1001190). This is an instruction to the fabricator that is not required on the SAR drawings; its intent is to provide directions to the fabricator related to the order of operations during the fabrication sequence and removing it has no impact on the safety analysis.

25. MP197HB-71-1008, in note 9: add items 23B, 23C and 23D to the note, and in view A-A, remove square groove weld callouts from items 23A and 23B weld callouts and add “CJP A/R” instead. Provide the same welds callouts for Items 23C and 23D. This change is made to provide an allowance for the fabricator flexibility to make these items as long as full penetration welds are used. This change does not result in a deviation to the design modeled in the analysis and facilitates fabrication.

26. MP197HB-71-1009, E-2: change “(31.13)” inches to “(31)” inches per DCR 1001190. Specifying a 31-inch reference dimension is adequate. This dimension is not used in the safety analysis, it is a reference dimension, and this change has no impact on the safety analysis.

27. MP197HB-71-1009, F-1: the weld between 23E and 23G is not an all-around weld, while the weld between 23G and 23H is; the weld symbol incorrectly shows both welds as all-around. Therefore, this change to correct this error has no impact on the safety analysis because both welds are correctly modeled and analyzed in the SAR.

27a. MP197HB-71-1009, Section J-J: add alternate Section J-J. This alternate section includes a design enhancement that does not affect any modeled condition. Placing the full length of the threads in the boss improves thread strength and eliminates a potential crud trap. Adding a step on the boss affects only the precision and ease of placement and moving the weld to the outside eases fabrication without having any effect on weld strength, which is PT-examined. This change does not affect the design of the impact limiter

28. NUHRWC-71-1001, Sheet 1: a new note is added to allow the use of threaded inserts for all bolted connections. This change allows repair if the threads are damaged during operations. The new note also specifies that the threaded inserts shall be quality category NITS, like the lid bolts. The NITS quality category is appropriate for lid bolts and for the threaded inserts because it is not possible for the lid to come off the RWC and allow its contents to pass into the MP197HB cavity even if all the bolts were to break, because the gap between the RWC and the cavity is a lot smaller than the depth of the shield plug (0.5 inch per Table A.7-1 and 5 inches per Drawing NUHRWC-71-1001 respectively).

29. NUHRWC-71-1001, Sheet 1: add new note to specify that “Local thin spots in the shell below the minimum of 1.75-inch thickness are acceptable provided the requirements of ASME Section III Sub-section NF are met”. This is to prevent issues in case the RWC surface gets scratched during operations. The justification is provided in SAR Section A.2.13.9, revised as a result of the RAI 2-1 response.

30. NUHRWC-71-1001, Sheet 1: add the grapple ring assembly to the Parts List as a new Item (8), Quality Category C. This change is per the response to RAI 2-2.

31. NUHRWC-71-1001: this change is per the response to RAI 2-1.

32. NUHRWC-71-1001: this change is per the response to RAI 2-2.

33. MP197HB-71-1005, Sheet 3 Section S-S: add Item 35 callout (washer) next to Item 34 callout (editorial/clarification, no design impact).

34. RWC Spacer Height. See Enclosure 3 for the discussion of this Item.

35. Drawing MP197HB-71-1002 and Drawing MP197HB-71-1005: Add another option for the cask ports elastomer seals configuration: the main option for the sealing configuration of the ports where elastomer seals are used is a simple O-ring (Item 42) inside a washer (Item 52) configuration, held in place by the port bolt (Item 40); another approved option (see Note 6 of Drawing MP197HB-71-1002) is to combine Items 42 and 52 into one single Parker Stat-O-Seal sealing washer, held by the port bolt (Item 40). This change adds a third option, where Item 52 (washer) is not used, and an alternate Item 40 with a seal groove machined in the bolt head (described in two new details to revised Drawing MP197HB-71-1005) is used, in conjunction with an alternate Item 42 (which becomes Parker part number 2-020 instead of 3-910; all other seal characteristics remain the same). This change is an improvement over the existing approved options, which is expected to make sealing easier, and is also simpler to implement since it does not require a washer. Therefore, this change has a positive impact on the design.

    Detail of the changes:

    a. Drawing MP197HB-71-1002: Add diamond Note 6 next to Item 40, add diamond Note 3 next to Item 52; mention Item 52 in the last sentence of Note 3 with Items 40 and 42 (this is an editorial correction); add wording at the end of Note 6 to allow this third option: "A*LTERNATIVELY, ITEM 52 MAY BE ELIMINATED AND A SEAL GROOVE MAY BE MACHINED UNDER THE HEAD OF ITEM 40 FOR ITEM 42 (SEAL), AS SHOWN ON ALTERNATE ITEM 40 VIEW IN DRAWING MP197HB-71-1005. IN THIS CONFIGURATION, PARKER PART NUMBER 2-019 SHALL BE USED FOR ITEM 42*.

    b. Drawing MP197HB-71-1005, Sheet 3: add alternate view of Item 40 with detailed dimensions of the seal groove under the head (see the revised drawing; two possible groove shapes are given).

36. Drawing MP197HB-71-1002 and Drawing MP197HB-71-1005. Update the references of the lid and ram access cover plate seals; dimension all seal grooves to their mean diameter instead of their inner diameter; and update ram access cover plate seal grooves locations to better match the size of the seals.

    This change is required because the lid seals currently specified are slightly too small for their specified grooves diameters, and the specified ram access cover plate seals grooves locations do not match closely any existing Parker seal part number. Also, specifying the mean diameter of the seal grooves as opposed to their inner diameter makes it easier to control the grooves during fabrication.

    The lid seals grooves inner diameters specified on Drawing MP197HB-71-1006, Detail D, are 71.145 inches and 72.267 inches. Assuming a nominal 0.233-inch groove opening, the mean diameters of the grooves are therefore 71.145 + 0.233 =71.378 inches and 72.267 + 0.233 =72.500 inches. The lid seals are custom Parker seals; 0.275 inch wide (see Items 24 and 25 in parts list on Drawing MP197HB-71-1002). For the seals to have the same mean diameter as their grooves (as recommended by Parker for full dovetail groove

designs), their inner diameters should be 71.378 - 0.275 = 71.103 inches and 72.500 - 0.275 = 72.225 inches.

For simplicity, 71.00-inch and 72.00-inch sizes are specified on revised Drawing MP197HB-71-1002 for Items 24 and 25, respectively, since this results in a maximum (72.225-72.00)/72.00=0.3% circumferential stretch, which has a negligible effect on the required seal compression range.

As far as the ram access cover plate is concerned, there are no Parker seals that closely match the grooves inner diameters of 22.457 inches and 24.788 inches specified on Drawing MP197HB-71-1005, detail T2. The closest sizes of Parker seals available are part numbers 2-472 and 2-473, with inner diameters of 22.940 and 23.940 inches, respectively. The ideal grooves mean diameters for these two seals are 22.940 + 0.275 = 23.215 inches and 23.940 + 0.0275 = 24.215 inches, respectively. However, the 24.215-inch outer groove mean diameter would result in a distance between the two grooves of approximately 1/8 inch, which is considered too small. So the outer groove mean diameter is slightly increased to 24.340 inches, which results in a slightly longer distance between the two grooves of approximately 3/16 inch while only resulting in a (24.340 -24.215)/24.215 = 0.5% circumferential stretch, which has a negligible effect on the required seal compression. The inner groove diameter is taken equal to the ideal value of 23.215 inches.

This change therefore ensures that the seals mean diameters match the grooves mean diameters, thus ensuring optimal sealing and ease of reaching leak-tightness criteria, and is therefore a design improvement.

a. Detail of the changes for Drawing MP197HB-71-1002:

	New Lid O-rings Inner Diameter (ID) (Inches)	**New Ram Access Cover Plate O-rings Part Numbers (in Note 3)**
Inner groove	71.00 (Item 24)	2-472 (Substitute for item 37)
Outer groove	72.00 (Item 25)	2-473 (Substitute for item 36)

Materials, cross-section diameter and quality categories of the seals do not change.

b. <u>Detail of the changes for Drawing MP197HB-71-1005 (detail T2):</u>

<u>The ram access cover plate seals grooves are slightly moved from their existing</u> locations to better match the available Parker seals sizes of 2-472 and 2-473, and they are dimensioned to their mean diameter instead of inner diameter. The mean diameter of the inner seal groove changes to 23.215 inches. The mean diameter of the outer seal groove changes to 24.340 inches.

Note: Only the metal seal outer diameter (24.910 inches) is used in the SAR (page A.2.13.2-17). The new outer groove outer diameter of 24.340m + 0.235 = 24.575 inches is still lower than 24.910 inches, so no further changes are required to the SAR.

c. Detail of the changes for Drawing MP197HB-71-1006 (detail D):

The lid seals grooves locations remain unchanged from their existing values. However, they are now dimensioned to their mean diameter (respectively 71.378 inches and 72.500 inches for inner and outer seals grooves) instead of to their inner diameter.

Note: this change affects SAR pages A.2.13.2-3 and A.2.13.2-5, where the 72.267 inches groove ID is used to calculate the outer seal outer diameter (72.737 inches). The value calculated from the mean diameter is 72.500 + 0.235 = 72.735 inches. Since the value used in the SAR is conservative (lower than the 72.737 inches used in the SAR) and represents a negligible variation, this change is acceptable without further changes to the SAR.

37. Drawing MP197HB-71-1002: add a new note stating “ITEMS 45A / 45B MAY BE MADE FROM MULTIPLE PLATES GLUED TOGETHER USING SCOTCH-WELD DP8005 OR TN-APPROVED EQUIVALENT”. This change is to simplify the fabrication of items 45A and 45B. It has no impact on the design because the final volume and shape of the trunnion plugs will remain the same.

38. Drawing MP197HB-71-1002, Item 23M (fusible plug washer and O-ring): change Item 23M part number to 600-31 30-1/2 and the material to “SST/Fluorocarbon”. The current designation of 600-01 02-1/2 is for a nitrile seal (“01”) paired with a zinc-plated washer material (“02”); the nitrile seal is not readily available whereas a fluorocarbon seal (“31”) is easier to source while also an adequate material for this application; as for the zinc-plated washer, it could leave rusty streaks when exposed repeatedly to humidity. The new designation (“30”) is for a stainless steel washer material which eliminates this issue. This is a design improvement.

39. Drawing MP197HB-71-1009: add a new note “IN ADDITION TO THE TWO ALL-AROUND WELDS SHOWN ON THE SIDE VIEW, THE THERMAL SHIELD (ITEM 58) MAY BE MADE FROM MULTIPLE PIECES WELDED TOGETHER USING FULL PENETRATION WELDS, AND MAY BE MARKED / STAMPED AS REQUIRED.”

40. Drawing MP197HB-71-1005: Clarify how item 7 is attached to item 9. Update longitudinal welds of neutron shield shell (item 7), as well as other welds attaching the neutron shield shell to the trunnion attachment blocks, from full penetration weld to 5/16" partial penetration groove weld.

Clarify that the weld callout of item 7 to item 10 on section E-E also applies to the weld of item 7 to item 9. Correct the weld callouts of item 7 to the top and bottom trunnion attachment blocks in details G & L: these should not be all-around welds and there is a redundant callout on detail G.

The goal is to assemble neutron shield shell segments to conform tightly to the neutron shielding boxes, and maximize weld shrinkage to ensure the required thermal contact. Using full penetration longitudinal welds for the neutron shield shell does not maximize weld shrinkage. In order to maximize weld shrinkage, partial penetration longitudinal groove welds with wide root gaps are used. The weld geometry is left unspecified to provide flexibility for the fabrication.

There is no impact on the package design evaluations. Structural evaluations and SAR Section A.2.13.4 assume 5/16" partial penetration groove welds; therefore, calling out 5/16" partial penetration groove welds as opposed to full penetration and not specifying the weld geometry is consistent with the package design.

Enclosure 3 to E-53358

NUHOMS®-MP197 SAR, Drawing No. MP197HB-1005, Revision 9
(Non-Proprietary)

Security Related and Proprietary Information on the Drawings in Section A.1.4.10.1, are Withheld per the Criteria of RIS 2005-31 and 10 CFR 2.390, respectively.

AFFIDAVIT PURSUANT TO 10 CFR 2.390

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

I, Paul Oleyar, depose and say that I am a Vice President of TN Americas LLC, duly authorized to execute this affidavit, and have reviewed or caused to have reviewed the information that is identified as proprietary and referenced in the paragraph immediately below. I am submitting this affidavit in conformance with the provisions of 10 CFR 2.390 of the Commission's regulations for withholding this information.

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 Enclosures 2 as listed below:

- Enclosure 2 - NUHOMS®-MP197 SAR, Drawing No. MP197HB-1005, Revision 9.

This documents has been appropriately designated as proprietary.

I have personal knowledge of the criteria and procedures utilized by TN Americas LLC in designating information as a trade secret, privileged or as confidential commercial or financial information.

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 portions of the Model NUHOMS®-MP197 transportation packaging SAR-related to the design of the Model NUHOMS®-MP197 transportation packaging, which are owned and have 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 is related to the design and analysis of the Model NUHOMS®-MP197 transportation packaging, the application of which provides 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 the development of similar data and analyses in support of their processes, methods, or apparatus.

Further the deponent sayeth not.

Paul Oleyar
Vice President, TN Americas LLC

Subscribed and sworn before me this 16th day of January 2019.

Notary Public

My Commission Expires 10 / 16 / 19

RONDA JONES
NOTARY PUBLIC STATE OF MARYLAND
My Commission Expires October 16, 2019