



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

September 26, 2018

Mr. Glenn Mathues  
Orano USA  
7135 Minstrel Way  
Columbia, MD 21045

SUBJECT: SECOND REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF  
THE MODEL NO. NUHOMS® MP-197HB PACKAGE.

Dear Mr. Mathues:

By letter dated February 28, 2018, you submitted an application for a revision to the Certificate of Compliance No. 9302 for the Model No. NUHOMS® MP-197HB package. Staff issued a first request for additional information by letter dated May 11, 2018, to which you responded by letter dated June 27, 2018. You also supplemented your application by letter dated August 15, 2018, to clarify the quantity of material in the package, and revise a drawing for alternative material specifications for specific components of the internal sleeve.

The staff has determined that further information is needed to complete its technical review. The information requested is listed in the enclosure to this letter. We request you provide this information by October 31, 2018.

Please reference Docket No. 71-9302 and EPID - L-2018-LLA-0000 in future correspondence related to this licensing action. If you have any questions regarding this matter, please contact me at 301-415-7505.

Sincerely,

**/RA John McKirgan Acting for/**

Pierre Saverot, Project Manager  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 71-9302  
EPID - L-2018-LLA-0000

Enclosure:  
2nd Request for Additional Information

SUBJECT: SECOND REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF  
THE MODEL NO. NUHOMS® MP-197HB PACKAGE, DOCUMENT  
DATE: September 26, 2018

**DISTRIBUTION:** SFM r/f RPowell, RI BBonser, RII MKunowski, RIII JKatanic, RIV

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**ADAMS Accession No.: ML18267A328**

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<b>DATE:</b>	08/27/2018	08/27/2018	08/29/2018	08/28/2018	09/18/2018	
<b>OFFICE:</b>	NMSS/DSFM	NMSS/DSFM	NMSS/DSFM	NMSS/DSFM	NMSS/DSFM	NMSS/DSFM
<b>NAME:</b>	WWheatley	JMcKirgan	MLayton			
<b>DATE:</b>	09/05/2018	9/24/2018	9/26/2018			

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**Second Request for Additional Information**  
**ORANO USA**  
**Docket No. 71-9302**  
**Model No. NUHOMS® MP-197HB Package**

By letter dated February 28, 2018, Orano USA (TN Americas LLC) submitted an application for a revision to the Certificate of Compliance No. 9302 for the Model No. NUHOMS® MP-197HB transportation package. The letter requested to add a dismantling and decommissioning radioactive waste container, as a variant of a currently approved design configuration.

Staff issued a first request for additional information (RAI) by letter dated May 11, 2018, to which you responded by letter dated June 27, 2018. You also supplemented your application by letter dated August 15, 2018, to clarify the quantity of material in the package, and revise a drawing for alternative material specifications for specific components of the internal sleeve.

This second RAI identifies information needed by the U.S. Nuclear Regulatory Commission (NRC) staff (the staff) in connection with its review of the application.

Each individual RAI describes information needed by the staff to complete its review of the application and to determine whether the applicant has demonstrated compliance with the regulatory requirements of 10 CFR Part 71.

## CHAPTER 2 MATERIALS REVIEW

- 2-1 Justify that subcomponents 1 through 5 of Drawing No. NUHRWC-71-1001, Revision 3, should not be designated as Quality Category A upon considering (1) that the geometry of the radioactive waste container (RWC) and the volume occupied by the irradiated and/or contaminated hardware are specified in the MCNP shielding models, and (2) the assumption for the gamma shielding configuration in NUREG/CR-6407. Otherwise, revise Quality Categories as appropriate.

The geometry of the RWC is defined in the MCNP shielding models per the response to RAI 2-1 and Section A.5.3.1.3 of the application. Therefore, the structural performance of the RWC is necessary to ensure that these analyses remain valid, and a higher classification is warranted per NUREG/CR-6407 which states that: "*The shielding is usually enclosed by the inner and outer shells and, as a solid, is not subject to removal during normal conditions of transport. ... The requirements of a specific design may dictate that a higher category be assigned to gamma shielding in some circumstances.*" Therefore, the RWC must not be subject to reconfiguration, if it is to be designated as Quality Category B.

Unless an adequate justification is provided that the RWC's structural performance is not needed to ensure that the shielding analyses remain valid, designate subcomponents 1 through 5 of Drawing No. NUHRWC-71-1001, Revision 3, as Quality Category A.

The information is required by staff to determine compliance with 10 CFR 71.107(a).

- 2-2 Justify the recategorization of the siphon and vent port cover plate from Quality Category A (per Drawing No NUHRWC-71-1001, Revision 1) to not-important-to-safety (NITS) (per Drawing No NUHRWC-71-1001, Revision 3). Justify the removal of all quality

assurance requirements for the RWC's grapple ring and grapple ring support: such subcomponents were revised from Quality Category C (per Drawing No NUHRWC-71-1001, Revision 1) to NITS (per Drawing No NUHRWC-71-1001, Revision 3).

The applicant states that "*The level of detail provided in the previously approved drawings (12 sheets) for features of the RWC that are not important to safety is not required for the technical evaluations, and many of the features of the design are common to the RWC-W, RWC-B, and RWC-DD. Furthermore, the RWC internals described in the previously-approved Drawing NUHRWC-71-1002, Revision 1 are not needed for the purpose of the safety analysis, and the bolted closure design described in the previously-approved Drawing NUHRWC-71-1003, Revision 0 has been brought into Drawing NUHRWC-71-1001.*" However, the applicant did not provide a justification for the recategorization of the siphon and vent port cover plate from Quality Category A to not-important-to-safety (NITS) nor did it justify the downgrading of the RWC's grapple ring and grapple ring support from Quality Category C to NITS.

The information is required by staff to determine compliance with 10 CFR 71.107(a).

- 2-3 Revise Drawing No NUHRWC-71-1001, Revision 3, to incorporate the weld requirements (procedures, inspections, welder qualifications) for the fabrication of RWCs, as defined in Section A.1.4.9A of the application. Otherwise, justify the exclusion of weld requirements for drawing NUHRWC-71-1001, Revision 3, in light of the response to RAI 2-1 above.

The response to RAI 2-2, dated May 11, 2018, is inadequate since the quality/safety categorization of Drawing NUHRWC-71-1001, Revision 3, has not been properly justified. If the RWC configuration has been assumed in the shielding safety analyses (per your response to RAI 2-1), then the drawing should identify the weld requirements that ensure its adequate structural performance.

The information is required by staff to determine compliance with 10 CFR 71.107(a).

- 2-4 Revise, as appropriate, the design basis drawings for the primary containment subcomponents to identify the nominal O-ring groove dimensions for seal contact surfaces, along with the corresponding tolerances. Justify these nominal dimensions and their tolerances per the assumptions in the containment safety analyses.

The responses to RAI 2-3 and RAI 4-1, dated May 11, 2018, are inadequate. The applicant incorporated reference dimensions for the O-ring groove dimensions to allow flexibility for future changes. In accordance with Interim Staff Guidance (ISG)-20, the staff shall verify that the drawings for the package show the seal surface and O-ring groove details, including among other, groove dimensions within strict tolerances.

The staff does not consider that the use of reference dimensions is appropriate for containment-related seals. In addition, per ASME Y14.5-2009, "Dimensioning and Tolerancing," a reference dimension is used for informational purposes only, is considered auxiliary information and does not govern production or inspection operations. The containment-related features of the package are not consistent with the definition of reference dimensions per ASME Y14.5-2009.

The information is required by staff to determine compliance with 10 CFR 71.107(a).

## CHAPTER 5 SHIELDING REVIEW

- 5-1 Define the contents for the RWC and justify that the source assumed within the shielding analysis is bounding.

Section A.1.4.9A.3 of the application states that: *“The quantity of radioactive material is limited to a maximum of 8,182 A2. This is equivalent to 90,000 Ci of cobalt-60 with a total energy release equivalent of 225,000 MeV/sec. The radioactive material is typically in the form of neutron activated metals, or metal oxides in solid form. Surface contamination may also be present on the irradiated components.”*

Although the staff finds that Co-60 is the most significant contributor to the external dose rate, contributions from other nuclides are not addressed in this evaluation. The staff's experience with other activated steel analysis with a relatively short decay time (less than 1 year) show that other short-lived radionuclides with significant gammas can also have some contribution to external dose rates (such as Fe-59, Co-58, and Mn-54). Although these nuclides are still a minor contributor compared to Co-60, characterizing activated steel only by Co-60 would neglect these other nuclides.

10 CFR 71.33(b) requires than an application identify radioactive constituents and its maximum radioactivity and, as discussed in NRC RIS 2013-04 “Content Specification and Shielding Evaluation for Type B Transportation Packages”, multiples of A2 do not satisfy this requirement.

The staff requests that the applicant specifies detailed contents, in terms of nuclides or energy and emission rate, and explain how the current shielding analysis bounds all potential contents.

This information is required by the staff to determine compliance with 10 CFR 71.33(b).