

Summary of Changes

Each item in the table below corresponds to a description of change that affects one or more section in the SAR. Each "Description of change" is itemized and may be associated with one or more affected sections in the SAR. Each affected section associated with an item may have a separate justification, or a single justification is provided at the end of the item that applies to all the affected sections. Affected sections that require changes may include an excerpt from the SAR, in addition to the change pages that are provided A SAR page number is provided to assist in finding the affected section in the SAR or within the change pages provided after the table.

Item	Chapter/Appendix/Section	Description and Justification
	Chapter A.1	General Information
1	A.1.2 Package Description	<p><u>Description of change:</u></p> <p>Added optional specifications to the package design to allow for fitment of impact limiter attachment bolts. As-built condition of impact limiters does not allow for required thread engagement of impact limiter bolts.</p>
1a	A.1.2.1.3 Impact Limiters Page A.1-5	<p><u>SAR</u></p> <p><i>Due to the low maximum allowable heat load for the secondary containers, i.e.. 5 kW compared to 32 kW for DSCs, secondary containers such as the RWC can be transported using the thermal shield designed for DSCs or the RWC specific thermal shield. The details of the thermal shield including the RWC-only option thermal shield are included in Drawing MP197HB-71-1002, -1003 and -1009.</i></p> <p><u>Justification:</u></p> <p>Added information for optional thermal shield and specific use with RWC only.</p>
1b	Appendix A.1.4.10 NUHOMS®-MP197HB SAR Drawings Page A.4.1.10-i, 1 thru 7	<p><u>SAR</u></p> <p>Change drawing number revisions for MP197HB-71-1002 Rev 8, MP197HB-71-1008 Rev 4, and MP197HB-71-1009 Rev 4.</p> <p>Reformatted all pages to add headers corresponding to Table of Contents A.1.4.10-i.</p> <p><u>Justification:</u></p> <p>Editorial changes due to drawing revisions and reformatting.</p>
1c	MP197HB-71-1002 Rev 8 Sheet 2 of 2	<p><u>SAR</u></p> <p>Added item 75 to parts list.</p> <p><u>Justification</u></p> <p>The requested change is consistent with the existing design and only adds assurance that the impact limiter will not shift during transportation.</p>
1d	MP197HB-71-1008 Rev 4 Sheet 1 of 1, NUHOMS® MP197HB PACKAGING IMPACT LIMITER ASSEMBLY	<p><u>SAR</u></p> <p>Revise View A-A and SECTION C-C to add reference to diamond note 8 to allow option for shims, and added diamond note 8 as follows. OPTIONAL RADIAL SHIMS (ITEM 75) MAY BE INSTALLED BETWEEN THE OUTER SHELL OF THE CASK (ITEM 4) AND THE INNER DIAMETER OF THE IMPACT LIMITER (ITEM 23B) WHEN USING THE RWC-ONLY THERMAL SHIELD (SEE DRAWING MP197HB-71-1009) IN ORDER TO ASSURE CENTERING OF IMPACT LIMITER ON THE CASK. MAXIMUM THICKNESS OF THE SHIMS TO BE 3/8", SHIMS THICKNESS MAY BE ADJUSTED AS REQUIRED.</p> <p>Revise Item 19 view to change the thread length from 3.75 to 2.00 MIN.</p>

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		<p><u>Justification</u> It was observed that the bolts began to bind with just under 2" of thread engagement. It is expected that increasing the inner tunnel I.D. for a length of up to 8" (as described in 1e) will reduce the angle needed to accommodate the misalignment to the point where a full 3" of engagement can be tolerated. Note that although the current callout is for 3.75" of threads, the threaded insert is only 3" long. However, since only 1.86" of thread engagement is needed per calculation, the option of reducing thread engagement to 2" does not affect the required minimum thread engagement length required for structural considerations.</p>
1e	<p>MP197HB-71-1009 Rev 4 Sheet 1 of 1, NUHOMS® MP197HB PACKAGING IMPACT LIMITER DETAILS</p>	<p><u>SAR(1.e.i)</u> Increase the diameter of the inner tunnels to provide additional clearance between the tunnel and the impact limiter attachment bolt (DETAIL H). Added reference to diamond note 4 after "1.75 I.D. X 1/4 WALL" in Detail H and added diamond note 4 as follows: "INNER DIAMETER OF BOLT TUNNEL (ITEM 23V) MAY BE INCREASED UP TO 2.00" FOR A LENGTH NOT EXCEEDING 8".</p> <p><u>Justification</u> The effect of removing material from the I.D. of the inner tunnel has been analyzed and found acceptable as discussed in Chapter A.2 (see Item 2b). The design change is an enhancement in that it assures the impact limiter attachment bolts can be installed and aligned with the threaded holes in the attachment blocks with the impact limiter fully assembled/seated. The requested change eliminates the need to repeat the tightening sequence multiple times in order to avoid interference between the end of the inner tunnels and the bolt threads.</p> <p><u>SAR (1.e.ii)</u> Added THERMAL SHIELD (RWC-ONLY OPTION) item 58. The RWC-only thermal shield does not have the flange or cylindrical portion of the existing thermal shield.</p> <p><u>Justification</u> The change adds an option for RWC-only applications. It does not affect the current design (i.e. no changes are made to the existing Item 58 thermal shield). The acceptability of the alternative thermal shield design for RWC applications has been analyzed and found acceptable as discussed in the Chapter A.2.</p>
	Chapter A.2	Structural Evaluation
2		<p><u>Description of change:</u> Provide analytical evaluation of optional specifications added to the package design to allow for fitment of impact limiter attachment bolts.</p>
2a	<p>A.2.1.1 Discussion Page A.2-2</p> <p>A.2.7 Hypothetical Accident Conditions Pages A.2-29, 32</p>	<p><u>SAR</u> Added new Appendix A.2.13.18 NUHOMS®-MP197HB Package Impact Bolt Tunnel Sensitivity Analysis, and revise titles for Appendix A.2.13.12 and A.2.13.18. Added reference to new Appendix A.2.13.18.</p>

Item	Chapter/Appendix/Section	Description and Justification
	<p>A.2.13 Appendices Page A.2-49</p> <p>A.2.13.12 Page A.2.13.12-24</p> <p>A.2.13.12.11.4 Conclusions Page A.2.13.12-24</p>	<p>Supplemented by Appendix A.2.13.16 and Appendix A.2.13.18 NUHOMS®-MP197HB Package Impact Bolt Tunnel Sensitivity Analysis</p> <p>Changed impact limiter thread length from 3.50 in to minimum 2.0 in. Added reference to analysis provided in Appendix A.2.13.16 and A.2.13.18.</p> <p><i>Additional confirmatory analysis is performed using a detailed LS-DYNA model of the attachment bolts and the bolt tunnels is provided in Appendix A.2.13.16 and A.2.13.18.</i></p> <p><u>Justification:</u> Editorial to add references to existing or new analyses that justify optional specifications.</p>
2b	<p>Appendix A.2.13.18 NUHOMS®-MP197HB Package Impact Limiter Bolt Tunnel Sensitivity Analyses Page A.2.13.18-i - A.2.13.18-4</p>	<p><u>SAR</u> Appendix A.2.13.18 is newly added as a result of CoC Revision 10.</p> <p><u>Justification:</u> Evaluate the effect of reducing the impact limiter bolt tunnel tube wall thickness.</p>
	Chapter A.7	Package Operations
3	<p>A.7.1.1 NUHOMS®-MP197HB Cask Preparation for Loading Page A.7-2</p> <p>A.7.4.2 Pre-shipment Verification Leakage Testing of the NUHOMS®-MP197HB Cask Containment Boundary Page A.7-12</p> <p>Table A.7-2b Applicable Content Specification for RWC Page A.7-18</p>	<p><u>Description of change:</u> Added optional specifications to the package design to allow for fitment of impact limiter attachment bolts. As-built condition of impact limiters does not allow for required thread engagement of impact limiter bolts.</p> <p><u>SAR</u> Replace step 9 Not used with: <i>9. If transporting a DSC, verify that each impact limiter has been configured with the appropriate Thermal Shield. The RWC-Only option shall not be used with DSC shipments.</i></p> <p>Revise step 9 to change Section A.2.2 to Section A.8.2.2.</p> <p>Revise Maximum Quantity of Material per Package (c) to remove redundant specification.</p> <p><u>Justification</u> Use of optional thermal shield configuration limits the type of container that can be loaded and transported, and editorial changes not related to the description of change.</p>