

**NOTE:** Pagination has been optimized in Rev. J (optimized page breaks and regular, non-alpha page numbering). All page numbers listed for Revisions H thru H7 are the page numbers that were used in those revisions. Changes listed for Revision J indicate current page numbers.

Revision	Page	Heading/Item/Step	Para #/Item/Step	Line #/Item/Step	What it was (Revision G)	What it is (Revision J (Consolidation of Revisions H through H-7) Justification (if needed))
Global						
H-1, H-3	Multiple				“Normal form” “Special form” “Normal conditions of transport” “Normal Accident conditions” “Hypothetical Accident conditions of transport” “Hypothetical Accident conditions (HAC) of transport”	“Normal Form” “Special Form” “Normal Conditions of Transport” “Normal Conditions” “Hypothetical Accident Conditions of Transport” “Hypothetical Accident Conditions (HAC) of Transport”
J	2-985 4-216 7-28 8-21	[2.11] [4.4] [7.8] [8.4]	All	–	‘American National Standards Institute, <i>ANSI N14.5-1997</i> , “Radioactive Materials – Leakage Tests on Packages for Shipment,” February 5, 1998.’	‘American National Standards Institute, <i>ANSI N14.5-2014</i> , “Radioactive Materials – Leakage Tests on Packages for Shipment,” June 19, 2014.’
FrontMatter						
All	i	–	–	–	“Rev. G, July 27, 2012”	“Rev. J, January 31, 2021”
H through H-7	iii	Revision History	–	–	–	<Added revision entries for H, H-1, H-2, H-3, H-4, H-5, H-6, and H-7.>
J	iv	Revision History	–	–	–	<Added revision entry.> “• Consolidation of Revisions H – H7 (Revision I intentionally skipped) • Subsection 1.2.2 and Section 7.1 – Clarified that the shoring materials are structural • Paragraphs 2.5.3.1.2 through 2.5.3.1.4 – Calculations revised to correct minor errors and typos • Subsection 2.6.7 – Removed stale note created in Revision H-5 • Figures 3-18 through 3-20 – Replaced thermal transient plots for AOS Model-025 fire condition • Figure 4-3 – Changed port cover torque requirement • Chapter 9 – Updated with current requirements, approval letter, and certificate • Updated <i>ANSI N14.5</i> references to 2014 edition • Applied miscellaneous corrections (table of changes included with cover page of the submittal)”

Revision	Page	Heading/Item/Step	Para #/Item/Step	Line #/Item/Step	What it was (Revision G)	What it is (Revision J (Consolidation of Revisions H through H-7) <i>Justification (if needed)</i>
<b>Chapter 1</b>						
H-3	1-1	1.1	1	5	"...Section ."	<Corrected editing typo.> "...Section 1.2."
H-1	1-2	1.1	13	2 – 3	'Figure 1-1 and Figure 1-2 provide an isometric view of the Model AOS-025A and AOS-050A, respectively. The isometric view of the Models AOS-100A, AOS-100B and AOS-100A-S is illustrated in Figure 1-3.'	'Figure 1-1 and Figure 1-2 provide isometric views of Models AOS-025A and AOS-050A, respectively. Figure 1-3 provides an isometric view of Models AOS-100A and AOS-100B. Figure 1-4 provides an isometric view of Model AOS-100A-S.'
H-1	1-3	Figure 1-1	Figure	–	–	<Corrected and replaced the figure.>
H-1	1-4	Figure 1-2	Figure	–	–	<Corrected, updated, and replaced the figure. Update includes axial shielding plates.>
H-1	1-5	Figure 1-3	Figure	–	–	<Corrected, updated, and replaced the figure. Update includes axial shielding plates and cavity spacer plates.>
			Caption	–	"...Models AOS-100A"	"...Models AOS-100A and AOS-100B"
			Note after figure	–	'The Model AOS-100A shown is typical for all Model AOS-100 configurations.'	"The Model AOS-100B is identical to the Model AOS-100A, with the exceptions that the Model AOS-100B uses carbon steel as its shielding material, and the optional axial shielding plates and cavity spacer plates are not permitted."
H-1	1-5a	Figure 1-4	–	–	–	<Added new isometric view figure for Model AOS-100A-S.>
H-1	1-5b	–	–	–	–	<Added blank page for R/L pagination.>
H	1-6	1.2	2	2 – 3	"...content weight shall be inscribed as the maximum gross weight on the impact limiter identification nameplate, which is affixed to the package."	"...content weight shall be compared against the maximum gross weight provided in the corresponding certificate drawing."
H, H-1	1-6	Table 1-1	–	–	<Rev. G version of table.>	<Replaced entire table.>
H, H-3	1-7	1.2.1	3	All	"The solid cask outer shell, and the seal associated with the cask lid plug closure, use a double elastomeric O-Ring capture within two SS300 series flat rings or a double "C" cross-section seal within the cask lid seal joint, and provide containment under Normal and Hypothetical Accident conditions of transport."	"The AOS Transport packaging system uses either elastomeric or metallic cask lid seals. The Model AOS-025 and AOS-050 cask lid elastomeric seal has two (2) O-Rings and one (1) flat metal ring. The Model AOS-100 cask lid elastomeric seal associated with the cask lid closure uses a pair of elastomeric O-Rings captured within two (2) SS300 series flat rings. The cask lid metallic seal for all models is a double "C" cross-section seal within the cask lid seal joint. When shipping Normal Form contents, the cask lid seal provides a leak-tight containment under Normal and Hypothetical Accident Conditions of Transport."
H	1-7a, b	–	–	–	–	<Added new page 1-7a for overflow, and new page 1-7b for R/L pagination.>
H	1-7a	1.2.1.1	3 (was 5 on page 1-7)	2 – 5	"The groove on the bottom surface of the cask lid houses the cask lid seal, as well as a central recess that accommodates the cask lid plug component."	"Also, the cask lid's bottom surface has a groove in which to house the seal. The groove upper surface is channeled, which provides a path for any leaked gas to travel to the leak testing port, so that the leaked gas can be detected. Four (4) threaded holes are also included on this surface, for use by the four (4) cask lid metallic seal attachment screws."

Revision	Page	Heading/Item/Step	Para #/Item/Step	Line #/Item/Step	What it was (Revision G)	What it is (Revision J (Consolidation of Revisions H through H-7) Justification (if needed))
H-3	1-8	1.2.1.1	3	1 – 2	“Containment for...”	“When the radioactive contents are encapsulated in <i>Special Form</i> sources, containment is provided by the sealed source. For <i>Normal Form</i> material, containment for...”
H-3	1-8	1.2.1.1	3	last	“...tightness. (For...”	“...tightness. Pre-shipment leak testing is performed by way of the cask lid test port for shipments of <i>Normal</i> and <i>Special Form</i> material. (For...”
H-1	1-8	1.2.1.1	4	1 – 4	“...Models AOS-025A, AOS-100A, AOS-100B, and AOS-100A-S, require the use of a liner or axial shielding plate, to convey certain quantities of radioactive materials. These liners/axial shielding plates are...”	“...the AOS Transport Packaging System models may require the use of a liner, axial shielding plates, and/or cavity spacer plates, depending on the model, to convey certain quantities of radioactive materials. These liners, axial shielding plates, and cavity spacer plates are...”
H	1-9	1.2.1.3	1	2	“...capture between two (2)...”	“...captured within one (1) or two (2)...”
H-1, H-5	1-9	1.2.1.4	1	3	“Refer to Table 1-2 for the...”	“Refer to Table 1-2, Table 1-2a, and Table 1-2b for the...”
H, H-1, H-2, H-3, H-5, H-6, H-7	1-10 – 1-11b	1.2.2	–	–	<Rev. G version of content.>	<Replaced entire section. Includes addition of new pages 1-10a, 1-10b, 1-11a, 1-11b, and new Tables 1-2a and 1-2b.>
J	1-12	1.2.2	6	1	“All shoring materials...”	“All structural shoring materials...”
H	1-12	1.2.4	1	2	“...nor other device that allows...”	“...nor another device that can allow...”
H	1-12	1.2.4	1	5 – 6	“The seal is installed upon the cask lid and there are no alignment issues with it.”	“The seal is installed onto the cask lid.”
H-1	1-17	1.3.1	1	2	“...liner/axial shielding plates...”	“...liner, axial shielding plates, and cavity spacer plates...”
H, H-1, H-5, H-6, J	1-23	Table 1-5	–	–	<Rev. G version of table.>	<Replaced entire table.>
H-1	1-23	1.3.1.1	–	2	“...Liner/Axial Shielding Plates”	“...Liner”
H-1	1-28a	1.3.1.2	–	–	–	<Added drawing placeholder text.> “AOS Drawing No. 183C8519 Model AOS-050A Axial Shielding Plates (Left Blank) Proprietary Information withheld from public disclosure per 10 CFR 2.390(a)(4).”
H-1	1-28b	1.3.1.2	–	–	–	<Added blank page for R/L pagination.>
H-1	1-35	1.3.1.3	–	2	“Model AOS-100A / AOS-100B / AOS-100A-S Liner/Axial Shielding Plates”	“Model AOS-100A / AOS-100A-S Axial Shielding Plates”
H-1	1-35a	1.3.1.3	–	–	–	<Added drawing placeholder text.> “AOS Drawing No. 183C8518 Model AOS-100A / AOS-100A-S Cavity Spacer Plates (Left Blank) Proprietary Information withheld from public disclosure per 10 CFR 2.390(a)(4).”
H-1	1-35b	1.3.1.3	–	–	–	<Added blank page for R/L pagination.>

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H	2-2	2.1.1	3 <sup>rd</sup> bullet	1 – 3	‘...double elastomeric O-Rings capture by SS300 series flat rings, or metallic double “C” cross-section seal.’	‘...pair of elastomeric O-Rings captured within one (1) or two (2) SS300 series flat rings, or metallic double “C” cross-section arrangement.’																																																																								
H	2-23	Table 2-7	Cg Locations columns	All body rows	<table><tr><th colspan="3">Cg Locations (cm / in.)</th></tr><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>19.05</td><td>27.18</td><td>22.86</td></tr><tr><td>7.50</td><td>10.70</td><td>9.00</td></tr><tr><td>50.5</td><td>50.5</td><td>46.0</td></tr><tr><td>19.9</td><td>19.9</td><td>18.1</td></tr><tr><td>77.7</td><td>77.7</td><td>79.5</td></tr><tr><td>30.6</td><td>30.6</td><td>31.3</td></tr><tr><td>77.7</td><td>77.7</td><td>79.5</td></tr><tr><td>30.6</td><td>30.6</td><td>31.3</td></tr><tr><td>77.7</td><td>77.7</td><td>79.5</td></tr><tr><td>30.6</td><td>30.6</td><td>31.3</td></tr></table>	Cg Locations (cm / in.)			X	Y	Z	19.05	27.18	22.86	7.50	10.70	9.00	50.5	50.5	46.0	19.9	19.9	18.1	77.7	77.7	79.5	30.6	30.6	31.3	77.7	77.7	79.5	30.6	30.6	31.3	77.7	77.7	79.5	30.6	30.6	31.3	<All values changed, except for the Model AOS-025 X and Z locations.> <table><tr><th colspan="3">Cg Locations (cm / in.)</th></tr><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>19.05</td><td>26.97</td><td>22.86</td></tr><tr><td>7.50</td><td>10.62</td><td>9.00</td></tr><tr><td>45.41</td><td>46.22</td><td>41.57</td></tr><tr><td>17.88</td><td>18.20</td><td>16.37</td></tr><tr><td>77.39</td><td>87.68</td><td>77.39</td></tr><tr><td>30.47</td><td>34.52</td><td>30.47</td></tr><tr><td>77.39</td><td>87.68</td><td>77.39</td></tr><tr><td>30.47</td><td>34.52</td><td>30.47</td></tr><tr><td>77.39</td><td>87.68</td><td>77.39</td></tr><tr><td>30.47</td><td>34.52</td><td>30.47</td></tr></table>	Cg Locations (cm / in.)			X	Y	Z	19.05	26.97	22.86	7.50	10.62	9.00	45.41	46.22	41.57	17.88	18.20	16.37	77.39	87.68	77.39	30.47	34.52	30.47	77.39	87.68	77.39	30.47	34.52	30.47	77.39	87.68	77.39	30.47	34.52	30.47
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H, H-5	2-24 – 2-26	Figures 2-10 – 2-12	–	–	<Rev. G version of figures.>	<Replaced figures due to changes in Center of Gravity. Includes typo correction to Figure 2-12 caption.>																																																																								
H	2-42	Table 2-19	5 <sup>th</sup> data row (Assembly)	3 <sup>rd</sup> column	“ASME Code, Section V, and applicable requirements of NB-6000, Section III.”	“ASME Code, Section V, and applicable requirements of <i>NB-6112</i> , Section III, and <i>ANSI N14.5</i> , Section 7.3.”																																																																								
H	2-42	Table 2-19	5 <sup>th</sup> data row (Assembly)	4 <sup>th</sup> column	“Hydrostatic and He Leak test.”	“Pneumatic and Leakage test, per Reference [2.11].”																																																																								
H-6	2-44	Figure 2-13	Lower Right Callout	–	“KENSERT”	“KEENSERT”																																																																								
J	2-48	Table 2-20	Item “P”	1 <sup>st</sup> column	“0.373P”	“P”																																																																								
H-1	2-50	2.5.2	1	3	“...through Figure 1-3...”	“...through Figure 1-4...”																																																																								
J	2-54 – 2-57	2.5.3.1.2 2.5.3.1.3	All	All	<Rev. G version of paragraph.>	<Replaced entire paragraph.>																																																																								
H-5, J	2-58	2.5.3.1.4	All	All	<Rev. G version of paragraph.>	<Replaced entire paragraph.>																																																																								
H-2	2-65	2.5.3.3	–	–	–	<Added note.> “ <b>Note:</b> Analyses of the axial shielding plates (Models AOS-050A, AOS-100A, and AOS-100A-S) and cavity spacer plates (Models AOS-100A and AOS-100A-S) are provided in Appendix 2.12.15.”																																																																								

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H-2	2-69 and 2-70	2.5.3.3.2	All	–	<Rev. G version of content.>	<Deleted entire section. Replaced with “Deleted – Refer to Paragraph 2.12.15.5.”>
H-5, J	2-82	2.6.7	–	–	–	<Added Note in H-5. Referenced content does not exist; therefore stale note was removed in J.> <del><i>“Note: The following analysis does not consider the energy that the shipping cage absorbs during a free drop. For the Free Drop Shipping Cage analysis, refer to Appendix 2.12.16.”</i></del>
H-1	2-155	2.12	–	–	–	<Appended two bullets, one each for new Appendices 2.12.14 and 2.12.15.> • Analysis of Shipping Cage Lifting Bars – Models AOS-050A and AOS-100 • Shielding/Spacer Component Evaluation –Models AOS-050A, AOS-100A, and AOS-100A-S”
H	2-426	2.12.2.3.1	2 <sup>nd</sup> bullet	1	“...present present...”	“...present...”
H-3	2-932	2.12.12.11	3 – 4	All	“For AMS 4144F, aluminum alloy 2219T851, yield stress $F_y = 46.0$ ksi: $MS = 46.0 / 41.5 - 1.0 = 0.11$ ”	“For ASME SA-240/ASTM A240 Type XM-19 steel, yield stress $F_y = 55.0$ ksi, and ultimate strength $F_u = 100.0$ ksi: $MS = 55.0 / 41.5 - 1.0 = 0.32$ ”
H-1	2-942a – 2-942u (18 pp, new)	2.12.14	–	–	–	<Added appendix, “Analysis of Shipping Cage Lifting Bars – Models AOS-050A and AOS-100”.> <b><i>The change was justified in the letter dated September 26, 2013, and approved with Certificate of Compliance No. 9316 revision 3.</i></b>
H-1, H-2, H-6, H-7	2-942v – 2-942ap	2.12.15	All	–	–	<Added/updated appendix, “Shielding/Spacer Component Evaluation – Models AOS-050A, AOS-100A, and AOS-100A-S”.>
H-5, H-7	2-942aq – 2-942bh	–	–	–	–	<Blank pages created by Appendix 2.2.16 which was added in H-5 and then deleted in H-7.>
J	2-911	2.12.9.3.2	2	2	“...must must...”	“...must...”
H-1	2-944	2.13	[2.26]	2	“...Subsection NB, ...”	“...Subsections NB, NF, and NG, ...”
H-1, H-2	2-944	2.13	[2.29] – [2.34]	–	–	<Added references.>

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<b>Chapter 3</b>						
H-1, H-6	3-2	3.1.2	1	All	‘Table 1-2, “Activity Limits – All Models,” provides the maximum decay heat and radioactivity for the contents of the AOS Transport Packaging System. This includes Decay Heat (Ci/W) values for each radioisotope listed, showing that the decay heat is consistent with the maximum quantity of radioactivity contents. A summary of the Decay Heat values is shown in Table 3-2.’	‘Table 1-2, “10 CFR 71.47(a) Activity Limits (All Isotopes Except Ir-192 and Ir-194) – All Models,” Table 1-2a, “10 CFR 71.47(a) Ir-192 and Ir-194 Activity Limits – All Models,” and Table 1-2b, “10 CFR 71.47(b) Activity Limits – Models AOS-100A and AOS-100A-S,” provide the maximum decay heat and radioactivity for the AOS Transport Packaging System contents. This includes Decay Heat (W/Ci) values for each radioisotope listed, showing that the decay heat is consistent with the maximum quantity of radioactivity contents. A summary of the Decay Heat values is shown in Table 3-2. The method that is used for calculating the decay heat for the isotope mixture in Models AOS-100A and AOS-100A-S is presented in Appendix 5.5.5, “Shipments of Multiple Isotopes under 10 CFR 71.47(a).”’
H, H-4	3-3 – 3-10	Table 3-3 Table 3-4	–	–	<Rev. G version of tables.>	<Replaced entire tables.>
H	3-19	3.3	1	–	–	<Appended text.> ‘The analytical model developed represents the standard configuration of the cask component (only the A version of the cask). Therefore, the Model AOS-100A-S was not analyzed. This approach is justified, based on the cask component symmetry, in geometry and material selection. The cask lid/cask lid plug combination is similar to the bottom area of the “A” version of the cask. Furthermore, when the cask vent port pipe plug (top of cask) and cask drain port pipe plug (bottom of cask) area temperature results on the “A” versions of the casks are compared, it can be concluded that these areas have similar temperature results in Normal and Hypothetical Accident conditions of transport environments.’
J	3-80 – 3-82	Figure 3-18 Figure 3-19 Figure 3-20	–	–	<Rev. G version of figures.>	<Replaced figures.>
J	3-320 3-322 3-323 3-324	Grashof-related values that reference $\Delta T$	–	–	“DT”	“ $\Delta T$ ”

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Chapter 4						
J	4-1	4.1	1	3	"...ANSI N14.5-1997..."	"...ANSI N14.5-2014..."
H-3	4-1	4.1	2 (new)	–	–	<Added paragraph.> "When the radioactive contents are encapsulated in <i>Special Form</i> sources, containment is provided by the sealed source. For <i>Normal Form</i> material, containment is provided by the cask's Containment Boundary, as described in the following section."
H	4-1	4.1.1	4	1 – 2	"...either a two (2) elastomeric O-Rings capture by metallic flat rings..."	"...either a pair of elastomeric O-Rings captured within one (1) or two (2) SS300 series flat rings..."
H	4-2	Figure 4-1	–	–	–	<Replaced entire figure, which now represents both Model AOS-100A and Model AOS-100A-S, and added figure note.> <b>Note:</b> <i>In Figure 4-1, the Model AOS-100A containment boundary illustration is a typical representation of the Model AOS-025A, AOS-050A, and AOS-100B containment boundaries.</i>
H	4-4	4.1.2	–	–	"Containment Penetrations (Ports)"	"Containment Penetrations (Port Plugs)"
H	4-4	4.1.2	1	1	"...have three (3) containment..."	"...have two (2) containment..."
H	4-4	4.1.2	1 <sup>st</sup> bullet	4 (new)	–	<Added a sub-paragraph.> "In addition, there is one (1) penetration into the cask lid seal region, on top of the cask lid."
H	4-4	4.1.2	2 <sup>nd</sup> bullet	–	"One (1) penetration, the cask lid opening (note that the Model AOS-100A-S has two (2) cask lid openings), which leads into the cavity area."	"One (1) penetration – leak testing port. The cask lid has a port that intersects the channel in the upper surface of the cask lid seal groove, which is provided to collect leaked He gas during the leak testing procedure."

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H	4-4	4.1.2	3 – 4 and subbullets (new)	–	–	<p>&lt;Added two paragraphs and sub-bullets.&gt;</p> <p>“Two components within the port assembly close the cask cavity chamber – (1) 3/8-18NPT pipe plug, which provides the primary containment for the drain and vent passages; and (2) 37° conical seal, which isolates the cask cavity from the shield material chamber. Both components have a secondary component. The pipe plug’s secondary component is the port cover/O-Ring component. The 37° conical seal’s secondary component is the 1/8-27NPT pipe plug. In addition to this isolation function, this pipe plug opening is used for leak testing verification of the 37° conical seal during the annual inspection.</p> <p>The seal replacement schedule is as follows:</p> <ul style="list-style-type: none"> <li>• Metallic Seal – Single use only.</li> <li>• Elastomeric Seal – Once every twelve uses or every twelve (12) months, whichever comes first, or if damaged.</li> <li>• 37° Conical Seal – Only when damaged. This seal is expected to last a long time; however, it must be monitored during the periodic inspection. Replacement of this seal entails machining of the weld that secures the port plug in place, as well as removal of the port plug and its re-installation and testing, per original requirements. It is important to note that the port plug design was dropped three (3) times, without failure, during the 165 prototype’s Drop Test. Therefore, it can be expected that Normal conditions of transport will have minimum impact on this seal.”</li> </ul>
H, J	4-5	Figure 4-3	–	–	<Rev. G version of figure.>	<Replaced figure.>
H	4-5	4.1.3	1	–	“The AOS Transport Packaging System provides two cask lid seal designs:”	“The AOS Transport Packaging System provides two (2) cask lid seal designs for the Model AOS-025A and AOS-050A, and all variations of the Model AOS-100:”
H	4-5	4.1.3	1 <sup>st</sup> bullet	1	“Elastomeric O-Rings capture by two (2) flat...”	“Pair of elastomeric O-Rings captured within either one (1) or two (2) flat...”
H	4-5	4.1.3	2 (new)	–	–	<p>&lt;Added paragraph.&gt;</p> <p>“The Model AOS-025A and AOS-050A’s cask lid metallic seals are of the same standard configuration as the other models. However, their elastomeric seal consists of two (2) O-Rings separated by a metal ring, which is captured within the dove-tailed groove that is machined onto the cask lid bottom surface.”</p>
H	4-5	4.1.3	4 (was 3)	1	“...seals for the Model AOS-100A.”	“...seals.”



Revision	Page	Heading/Item/Step	Para #/Item/Step	Line #/Item/Step	What it was (Revision G)	What it is (Revision J (Consolidation of Revisions H through H-7) Justification (if needed))
H	4-5	Figure 4-4	–	–	<Rev. G version of figure.>  Figure caption: “Cask Lid Seals”.	<Replaced entire figure. Additionally, figure now includes two views – one of Model AOS-025A/AOS-050A, and one of Model AOS-100A.>  Figure caption: “Cask Lid Elastomeric and Metallic Seals”.
H	4-5	Notes @ bottom of page	–	–	“The dimensions (in inches) are those of the Model AOS-100A transport package.”	“The dimensions (in inches) are those of the Model AOS-025A and AOS-100A transport packages.”
H	4-6	4.1.3	1	1 – 2	‘Located between the cask lid seal’s two (2) elastomeric O-Rings (elastomeric seal) or double “C” cross-sections (metallic seal), the seal attachment screws are sized and installed in such a way as to prevent the screws from interfering with the deformation of the elastomeric O-Rings or double “C” cross-sections when the cask lid attachment bolts are being tightened.’	‘The Model AOS-100’s cask lid elastomeric seal, or the cask lid metallic seal for all models, is attached to the cask lid, inside its groove, by four (4) seal attachment screws. The screws are sized and installed in such a way as to prevent the screws from interfering with the deformation of the elastomeric O-Rings or metallic double “C” cross-sections when the cask lid attachment bolts are being tightened. The Model AOS-025 and AOS-050’s cask lid elastomeric seal is captured within the seal groove by dove-tail profile, on the groove’s side wall.’
H	4-6	4.1.3	2	2	“...for testing...”	“...for leak testing...”
H	4-7	4.1.4	1	1+	“The cask lid elastomeric or metallic seal assembly is attached to the cask body by a set of cask lid attachment bolts, ASME SB-637, UNS N07718. This bolted joint...”	“A set of cask lid attachment bolts, ASME SB-637, UNS N07718, attaches the cask lid to the cask lid metallic seal (all models), or to the cask lid elastomeric seal (Model AOS-100, all variations). For Models AOS-025 and AOS-050, the cask lid elastomeric seal is captured within the dove-tailed groove that is machined onto the cask lid bottom surface. The cask lid bolted joint...”
H	4-7	4.1.4	Note	1	“The cask lid plug...”	“In Figure 4-6, the cask lid plug...”
J	4-16	Table 4-1	Footnote j	Text that references ΔP	“DP”	“ΔP”
H-3	4-28	4.2.1	1 (new)	–	–	<Added paragraph.> “When the radioactive contents are encapsulated in <i>Special Form</i> sources, containment under Normal Conditions of Transport is provided by the sealed source. For <i>Normal Form</i> material, containment is provided by the cask’s containment system. The ability of the cask’s containment system to withstand Normal Conditions of Transport is presented below.”
H-3	4-30	4.3	1 <sup>st</sup> (new)	–	–	<Added paragraph.> “When the radioactive contents are encapsulated in <i>Special Form</i> sources, containment under Hypothetical Accident Conditions of Transport is provided by the sealed source. For <i>Normal Form</i> material, containment is provided by the cask’s containment system. The ability of the cask’s containment system to withstand Hypothetical Accident Conditions of Transport is presented below.”
H	4-30	4.4	1	1	“...tests that are used...”	“...tests, meeting the requirements of Reference [4.4], are used...”

Revision	Page	Heading/Item/Step	Para #/Item/Step	Line #/Item/Step	What it was (Revision G)	What it is (Revision J (Consolidation of Revisions H through H-7) Justification (if needed))
H	4-31	4.5	1 <sup>st</sup> bullet	1	“AOS Cask Lid Elastomeric Seal and Garlock Helicoflex Cask Lid Metallic Seal Drawings”	<Swapped sequence to match drawing sequence in appendix.> “Garlock Helicoflex Cask Lid Metallic Seal and AOS Cask Lid Elastomeric Seal Drawings”
H	4-33	4.5.1	Heading	1 – 2	“AOS Cask Lid Elastomeric Seal and Garlock Helicoflex Cask Lid Metallic Seal Drawings”	<Swapped sequence to match drawing sequence in appendix.> “Garlock Helicoflex Cask Lid Metallic Seal and AOS Cask Lid Elastomeric Seal Drawings”
H	4-33	4.5.1	Note	All	<i><b>Notes:</b> The Garlock Helicoflex cask lid metallic seal drawings are included in this appendix. The AOS cask lid elastomeric seal drawings, however, are provided in Chapter1 – listed in Table1-5, “AOS Transport Packaging System Certification Drawing List – All Models,” as “Cask drawings,” and included in Appendix 1.3.1, “AOS Transport Packaging System, Certification Drawings.” As used throughout this SAR, “Garlock Helicoflex” and/or “Helicoflex” are also referred to as “Technetics Group – Columbia”.</i>	<Omitted the first note because the drawings are now included in Appendix 4.5.1.> <b>Note:</b> As used throughout this SAR, “Garlock Helicoflex” and/or “Helicoflex” are also referred to as “Technetics Group – Columbia”.
H	4-38	4.5.1	–	–	“THIS PAGE INTENTIONALLY LEFT BLANK”	<Added drawing placeholder text.> “AOS Drawing No. 183C8478Goo2, Rev. A Model AOS-025A Lid Seal, Elastomeric (Left Blank) Proprietary Information withheld from public disclosure per 10 CFR 2.390(a)(4).”
H	4-38a	4.5.1	–	–	–	<Added drawing placeholder text.> “AOS Drawing No. 183C8470Goo2, Rev. D Model AOS-050A Lid Seal, Elastomeric (Left Blank) Proprietary Information withheld from public disclosure per 10 CFR 2.390(a)(4).”
H	4-38b	4.5.1	–	–	–	<Added drawing placeholder text.> “AOS Drawing No. 183C8460Goo2, Rev. B Models AOS-100A / AOS-100B / AOS-100A-S Lid Seal, Elastomeric (Left Blank) Proprietary Information withheld from public disclosure per 10 CFR 2.390(a)(4).”
H	4-109	4.5.3.2	1 <sup>st</sup> bullet	–	<blank>	<Added missing text.> “Cask Lid Attachment Bolt Fortran Program Output Files – Model AOS-025”

Revision	Page	Heading/Item/Step	Para #/Item/Step	Line #/Item/Step	What it was (Revision G)	What it is (Revision J (Consolidation of Revisions H through H-7) <i>Justification (if needed)</i>
Chapter 5						
H-2, H-5, H-6, H-7	All	All	All	All	–	<Entire Chapter 5 was replaced at Revision H-2 in response to 10CFR Part 21 notification. Subsequent updates applied in Revisions H-5, H-6, and H-7.> <b><i>Initially replaced in response to 10CFR Part 21 Notification dated August 5, 2015 (Letter to USNRC, “Report of Potential 10CFR Part 21 Failure to Comply, AOS SAR Document No. FM9054 Revision H,” August 5, 2015).</i></b>
J	5-3 5-82	5.1.1 5.6	2 [5.6]	6 1	“...AMST 2014...”	“...AMS-T-2014...”
Chapter 6 – No changes						
Chapter 7						
H, H-1, H-2, H-3, H-4, H-5, H-6, H-7	All	All	All	All	<Rev. G version of chapter.>	<Entire chapter was replaced over time as part of the listed revision updates. NRC-related change requests are included below.> <b><i>Pages 7-10 and 7-10a, Section 7.1.3.3, Rev. H1:</i></b> <b><i>The change was justified in the letters dated April 4, 2013, and changed again later with a second justification letter dated September 26, 2013. Removed some unnecessary level of detail. Wording in some steps is now consistent with the terminology and requirements of ANSI N14.5. Test A2 wording now allows the flexibility of using bottled pressurized gas for the test.</i></b> <b><i>Page 7-11, Section 7.1.3.4, step i and its note, Rev. H1:</i></b> <b><i>With the addition of the optional shipping cage lifting bar, we needed to add an instruction to disable it. Also the Note is no longer true.</i></b> <b><i>Page 7-12, Section 7.1.3.4, step I and its preceding note, Rev. H1:</i></b> <b><i>The change was justified in the letter dated June 5, 2015, and accepted per Certificate of Compliance No. 9316 revision 4. The test described in this step is not required by the regulations. Compliance with 10CFR71.43g and IAEA TS-R-1 §652 was demonstrated in Section 3.1.3 and Table 3-3 Condition 2, of the SAR. Compliance is assured for each shipment by following the procedures set forth in the SAR and the conditions of the Certificate of Compliance.</i></b>
J	7-6	7.1	3 <sup>rd</sup> bullet	1	“All shoring materials...”	“All structural shoring materials...”

Revision	Page	Heading/Item/Step	Para #/Item/Step	Line #/Item/Step	What it was (Revision G)	What it is (Revision J (Consolidation of Revisions H through H-7) Justification (if needed))
<b>Chapter 8</b>						
H	8-4	8.1.4	1	1 – 3	“The AOS Transport Packaging System cask component’s containment boundary is leak-tested before its first use, and after its third use. The Maintenance Leak test is to be performed in accordance with Subsection 8.2.2, every 12 months thereafter.”	“The AOS Transport Packaging System cask’s entire containment boundary is leak-tested per Subsection 8.2.2(b), before its first use, and after its third use. The Periodic Leak test is to be performed in accordance with Subsection 8.2.2(b), every 12 months thereafter.”
H	8-4	8.1.4	2	4	“...criterion is not met, the containment boundary is checked, suspected components ...”	“...criterion, per Reference [8.4], is not met, the containment boundary is checked, damaged components...”
J	8-4	8.1.4	1	4	“...ANSI N14.5-1997...”	“...ANSI N14.5-2014...”
H	8-11	Table 8-5	c	3+	“The dynamic test shall be per ASTM D1621-10. Dynamic Crush Strength values resulting from this test...”	“The dynamic test shall be per ASTM D1621-10, and will follow the recommendation of this Standard, with the exception of the strain rate. The test will use a controlled dynamic strain rate of 60s <sup>-1</sup> . The values obtained from this test...”
H	8-14	8.1.5.4 Table 8-8	–	–	–	<Added paragraph “Fabrication”, introductory text, and table.>
H-6	8-14	8.1.6	1	2-3	“Conducting a 100% UT examination of the shielding material surface provides the necessary inspection process for verifying the shielding attribute of these materials. As an alternate method, prior...”	“Conducting a 100% UT examination, as well as dimensional and density checks of the shielding material, provide the necessary inspection processes for verifying the shielding attribute of these materials. As an optional additional test, prior...”
H-6	8-14	8.1.6	1	9 – 11	“The criterion used to evaluate the effect of material defects (such as voids and cracks) is that the dose rate cannot exceed 1.5 times (1.5x) the mean measurable dose rate.”	“To verify the cask shielding material integrity, the measured dose rates should closely match the anticipated values from shielding/dose rate calculations, and large, unanticipated deviations should not exist between measurements.”
H	8-17	8.2	2	3 – 4	“...which is part of the Leak test.”	“...which is part of the Leak test for Normal form content.”
H	8-17	8.2	2	5 – 6	“Leak tests are...”	“Pre-shipment Leak tests are...”
H, H-3	8-17	8.2.2	–	–	<Rev. G version of subsection.>	<Replaced entire subsection except for its figure.>
H-1	8-21	–	–	–	–	<MOVED TO END OF REPORT (is now page 9-5). Page text now states, “PAGE INTENTIONALLY BLANK – CONTENTS MOVED TO END OF CHAPTER 9”.>
<b>Chapter 9</b>						
H-1 J	All 9-1 – 9-4	All 9.1, 9.3.1	All	All	–	<In Rev. H1, added Chapter 9, “Quality Assurance Program”. Moved content from page 8-21 to page 9-7. In Rev. J, updated with current requirements, approval letter, and certificate.>  <b><i>The QA chapter was added in response to a Canadian Nuclear Safety Commission request and makes the SAR format consistent with NUREG 1886 requirements. This change was communicated to the NRC on May 6, 2015 and approved with Certificate of Compliance No. 9316 revision 4.</i></b>