0.1 SAR REVISION STATUS

Title	SAFKEG-HS 3977A Docket No. 71-9338	**Number**	CTR 2008/11
		Issue	Revision 11
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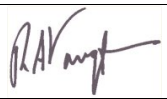
Approved		**Date**	27 October 2016
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0.2 SUPPORTING DOCUMENT REVISION STATUS

Page/Document Reference	Issue Status	Title
Section 0 – SUPPORTING DOCUMENT REVISION STATUS		
Page 0-1	Rev 6	
Page 0-2	Rev 11	
Page 0-3	Rev 11	
Page 0-4	Rev 10	
Page 0-5	Rev 10	
Page 0-6	Rev 11	
Page 0-7	Rev 11	
Page 0-8	Rev 10	
Page 0-9	Rev 10	
Page 0-10	Rev 10	
Page 0-11	Rev 10	
Page 0-12	Rev 10	
Page 0-13	Rev 10	
Page 0-14	Rev 11	
Page 0-15	Rev 10	
Section 1 - GENERAL INFORMATION		
Page 1-1	Rev 5	
Page 1-2	Rev 7	
Page 1-3	Rev 7	
Page 1-3a	Rev 7	
Page 1-4	Rev 7	
Page 1-5	Rev 7	
Page 1-5a	Rev 7	
Page 1-6	Rev 7	

Page/Document Reference	Issue Status	Title
0C-5941	Issue E	Safkeg-HS design no. 3977A (licensing drawing)
0C-5942	Issue C	Keg design no. 3977 (licensing drawing)
0C-5943	Issue B	Cork set for Safkeg-HS (licensing drawing)
1C-5944	Issue C	Containment vessel design no. 3978 (licensing drawing)
1C-5945	Issue D	Containment vessel lid (licensing drawing)
1C-5946	Issue E	Containment vessel body (licensing drawing)
2C-6173	Issue D	HS-12x95-Tu Insert Design No 3982 (Licensing drawing)
2C-6174	Issue D	HS-31x114-Tu Insert Design No 3985 (Licensing drawing)
2C-6176	Issue E	HS-55x128-SS insert design no 3987 (licensing drawing)
2C-6920	Issue A	Silicone Sponge Rubber Disc
1C-7500	Issue C	Cover sheet for Safkeg-HS design no. 3977A - Mallinckrodt Version
0C-7501	Issue C	Safkeg-HS design no. 3977A - Mallinckrodt Version
0C-7502	Issue A	Keg design no. 3977 - Mallinckrodt Version
0C-7503	Issue A	Cork set for Safkeg-HS - Mallinckrodt Version
1C-7504	Issue A	CV design no. 3978 - Mallinckrodt Version

Page/Document Reference	Issue Status	Title
1C-7505	Issue A	CV lid - Mallinckrodt Version
1C-7506	Issue A	CV body - Mallinckrodt Version
1C-7507	Issue A	Containment vessel plug – Mallinckrodt version
2C-7508	Issue C	HS-50x85-SS insert design no 4081
2C-7509	Issue B	Snap Ring
2C-7510	Issue A	Tungsten Liner
Documents in Section 1.3.4 Supporting Documents		
PCS 038	Issue G	Package Contents Specification for Safkeg-HS - Package Design No 3977A
Section 2 - STRUCTURAL EVALUATION		
Page 2-1	Rev 7	
Page 2-2	Rev 7	
Page 2-3	Rev 7	
Page 2-3a	Rev 7	
Page 2-4	Rev 7	
Page 2-5	Rev 7	
Page 2-6	Rev 5	
Page 2-7	Rev 5	
Page 2-8	Rev 5	
Page 2-9	Rev 5	
Page 2-10	Rev 5	
Page 2-11	Rev 5	

Page/Document Reference	Issue Status	Title
AMEC/CRM37327/TN_001	Issue 1	HS Container Shielding Assessment with I-131
AMEC/CRM37327/TN_001	Issue 1	HS Container Shielding Assessment with Mo-99
Section 6 - CRITICALITY EVALUATION		
Page 6-1	Rev 5	
Page 6-2	Rev 5	
Documents in Section 6.9, Appendix		
None	-	
Section 7 - OPERATING PROCEDURES		
Page 7-1	Rev 7	
Page 7-2	Rev 9	
Page 7-3	Rev 9	
Page 7-4	Rev 11	
Page 7-5	Rev 11	
Page 7-5a	Rev 11	
Page 7-6	Rev 9	
Page 7-6a	Rev 9	
Page 7-7	Rev 8	
Page 7-7a	Rev 8	
Page 7-8	Rev 9	
Page 7-9	Rev 7	
Page 7-10	Rev 7	
Page 7-11	Rev 7	
Documents in Section 7.5, Appendix		

7.1.2 Loading of Contents with A Standard Lid Containment Vessel

NOTE: The standard lid containment vessel shall only be loaded with insert design numbers 3982, 3985 or 3987.

1) The containment vessel cavity shall be checked to ensure it is dry and clean before loading with the radioactive contents.

2) The contents shall be limited as required by the Certificate of Compliance. The contents shall be chemically compatible (i.e. not chemically reactive) with their immediate packaging and the containment boundary (e.g. tungsten, Silicon O-ring).

3) From the contents type to be shipped, determine the insert required for the shipment in accordance with the Certificate of Compliance. The model/serial numbers of the insert body and lid shall be checked to ensure that the number marked on the body matches that on the lid: where the model/serial numbers of the insert (body and lid) do not match, these assemblies shall be removed from service.

4) Visually inspect the insert to be used for the shipment for any damage. Check that the lid screws freely by hand onto the body. If there is any damage or the closure does not operate correctly carry out a maintenance operation according to Section 8.2.3. Check that the O-ring is present and undamaged. If the O-ring is not present or if it is damaged, it shall be replaced.

5) Check that the contents meet the restrictions for its content type as listed in the Certificate of Compliance.

6) If the content is Special Form, check the Special Form certificate to ensure it is current.

7) If loading liquid contents the insert shall be tested in accordance with the criteria specified in ANSI N14.5 [7.4], using a bubble method. The test sensitivity shall be 10^{-3} ref.cm^3/s and the acceptance rate shall be no visible stream of bubbles.

8) If the insert fails the bubble leak test. Inspect the insert O-ring and replace as necessary. Repeat the leak test in accordance with step 7. If the leak test continues to fail, remove the insert from service and raise an NCR.

9) Load the contents into the insert and screw the insert lid tight ensuring that the match marks on the lid and the body meet to form a straight line.

10) Load the insert into the containment vessel and place the silicone sponge rubber disc onto the insert.

11) The lid shall be fitted to the containment vessel and the containment bolts tightened to a torque of 10 ± 0.5 Nm.

7.1.3 Loading of Contents with a Split CV Lid

NOTE: The split lid containment vessel shall only be loaded with insert design number 4081.

1) The containment vessel cavity shall be checked to ensure it is dry and clean before loading with the radioactive contents.

2) Confirm the contents meet the requirements of the Certificate of Compliance for the split lid CV.

3) The model/serial numbers of the insert body and lid shall be checked to ensure that the number marked on the body matches that on the lid: where the model/serial numbers of the insert (body and lid) do not match, these assemblies shall be removed from service.

4) Visually inspect the insert to be used for the shipment for any damage. Check that the lid screws freely by hand onto the body. If there is any damage or the closure does not operate correctly carry out a maintenance operation according to Section 8.2.3. Check that the O-ring is present and undamaged. If the O-ring is not present or if it is damaged, it shall be replaced.

5) The insert shall be tested in accordance with the criteria specified in ANSI N14.5 [7.4], using a bubble method. The test sensitivity shall be 10^{-3} ref.cm^3/s and the acceptance rate shall be no visible stream of bubbles.

6) If the insert fails the bubble leak test. Inspect the insert O-ring and replace as necessary. Repeat the leak test in accordance with step 5. If the leak test continues to fail, remove the insert from service and raise an NCR.

7) Place the tungsten liner inside the CV cavity.

8) Load the contents into the insert and screw the insert lid tight. Screw the snap ring into the shielding plug of the CV. Engage the insert with the snap ring.

9) Lower the shielding plug and insert into the CV using the shielding plug lifting point.

10) The lid shall be fitted to the containment vessel and the containment bolts tightened to a torque of 10 ± 0.5 Nm.

7.1.4 Preparation for Transport For a Standard or Split CV Lid Package

1) Perform a pre-shipment leak test on the double O-ring closure of the loaded containment vessel at room temperature and atmospheric ambient conditions. The closure shall be leak tested in accordance with the criteria specified in ANSI N14.5 [7.4], using a gas pressure rise or gas pressure drop method with a sensitivity of 10^{-3} ref.cm^3/s and a pass rate of $5x10^{-4}$ ref.cm^3.s^{-1}.

2) If the leak rate is unacceptable, recheck the test equipment to ensure there are no leaks. If there are no leaks disconnect from the containment vessel and open the containment vessel.