

Revision 13 to the 865 SAR incorporates changes related to descriptive drawing revisions, reformats the SAR in compliance with the recommendations under NUREG-1886 and addresses other minor updates to the SAR content. These changes are listed under the SAR Section in Revision 13 where the change occurs. As noted in QSA Global, Inc. 71.95 notification dated 20 December 2016, transport of Model 865 Type B(U) containers has been suspended until amendment to the drawings and SAR are approved under the Certificate of Conformance.

Section Location	Summary Change	Comments
Various Sections	Removed previous references to 10 CFR and IAEA applicable section requirements associated with SAR section information.	This information is not recommended under NUREG-1886 and is not necessary for section detail accuracy to requirements. References were removed as unnecessary for inclusion in the SAR.
Various Sections	Updated reference to ISO 2919 from the 1999 edition to reflect the 2012 edition of this standard. Also updated reference to ANSI/HPS N43.6 from 1997 edition to 2007 edition	The changes are made to reflect the currently recognized revisions of these standards. Changes from the older to the current editions are equivalent as they relate to source capsule test and compliance criteria cited for the source transported in the Model 865 package.
1.1	Reference to IAEA TS-R-1 updated from 1996 Edition to the 2009 Edition. Grammatical change made for clarity.	None. Units compliant to 1996 Edition are also compliant to the 2009 Edition of TS-R-1.
1.2 & 5.1.1	Section reference for drawings changed from 1.4 to 1.3.	Reformatting change. Administrative.
1.2.1	Reference to “fill foam” removed and packaging component references modified to reflect terms used on descriptive drawings and in later sub-headings in Section 1.2.1 of SAR.	Fill foam has never been used on the Model 865 and was never specified on the descriptive drawings. It’s reference in the SAR was a historical error that was not previously identified. These changes are made for clarification and accuracy and will have no adverse impact on the package integrity.
1.2.1.1 thru 1.2.1.7	Section description of package components reformatted to incorporate sub-section headers. Descriptions of assemblies revised in some instances.	Change to add clarification to component break down description for package. Section revisions in detail made for added clarity on impact and interaction of package components from previous descriptions in Revision 12 of the SAR. Administrative change.
Figure 1.2a	Figure dimensions updated to fractional as shown on descriptive. Folded feet reference replaced with “Housing Support” as shown on descriptive.	Change made for consistency. No impact on units in use.
1.2.3	Section from SAR Revision 12 replaced with “Special Requirements for Plutonium”.	Change made for consistency to NUREG-1886 formatting.

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1.2.3 from SAR Rev 12 & 3.1 in SAR Rev 13	This section previously entitled “Contents” under SAR Rev 12 was deleted and the information relocated to Section 3.1 of Rev 13 of the SAR.	This section is not included in the NUREG-1886 formatting as previously shown.
1.2.4	Minor revisions to text.	Changes made to more clearly identify component references in this section as identified on the descriptive drawings.
1.3	Section revised to include Figure 1.3 Sketch of the Model 865 prepared for transport. Drawings previously contained in this section updated and revisions described under a separate drawing change table.	Formatting change for conformance to NUREG-1886.
2.1.2	Added detail of design criteria for the Model 865 as it applies to its use as an industrial radiography exposure device.	Information added for accuracy and clarification.
2.1.4.2	Section revised to clarify welding and hardware applicability based on reference to descriptive assembly drawings in Section 1.3	Information detail specified as necessary on the drawings in Section 1.3 and duplication of this information in detail in section 2.1.4.2 is redundant and unnecessary.
Table 2.2a	Table updated to provide greater detail for materials used on the Model 865 as it applies to specific material specifications. Note added to table.	Information updated for accuracy.
2.2.2	Detail added.	Added for clarification of applicability in section.
2.3.1	Added details regarding new fabrication compliance for packages.	Added to address future manufacturing of new Model 865 packages.
2.3.2	Section reference expanded to include Section 7.	Testing and evaluation of package components are addressed in both Section 8 and Section 7.
2.4	Section relocation of information previously contained in SAR Rev 12 Sections 1.3.1 and 1.3.2. Added section to address “Positive Closure” compliance. Subsequent sections in Section 2 re-sequenced to address added section.	Formatting change for conformance to NUREG-1886.
2.6.1.1, 3.1 & 3.1.4	Section revised to remove discussion related to the package components being vented to ambient with no resultant pressure build up under normal transport conditions.	The Model 865 is an airtight package under normal transport conditions. Evaluation of the pressure impacts for this package are described in Section 3.4.2.

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2.6.1.4	Section revised to include reference to hypothetical accident conditions of transport.	Accuracy.
2.6.5	Added the applicable edition revision in force at the time of the ISO 3999 vibration testing that was performed and is referenced in this section. Also updated the number of years of active service for Model 865 packages made in this section from 15 to 33 years.	Subsequent changes to the ISO 3999 standard are not applicable to the vibration testing that was performed and is referenced in this section description. Reference to the 1997 revision of this standard is necessary for clarity and accuracy. Reference to the increased years of active service is made for accuracy.
2.6.9	Revised the detail in figure 2.6.c to replace the word “Approx.” with “(Minimum).”	Based on test documentation the compressive load applied was greater than 600 lbs so the use of “minimum” is more accurate than “Approx.” Change made for accuracy.
2.6.11	Added notation that spacers are optional on the package and corrected a use of “affect” with the more appropriate use of “effect”.	Added detail and changes made for completeness and accuracy.
2.7.1.1	Added detail regarding why the intended impact location for the end drop could not be achieved under testing.	Added detail and changes made for completeness and accuracy.
2.1.2	Corrected the inappropriate use of “was” with “were”.	Grammatical correction.
2.7.1.5	Minor wording changes.	Changes made for clarity.
2.7.3.2	Added detail regarding impact location of third drop orientation.	Added detail and changes made for completeness and accuracy.
2.7.4 & Table 2.7b	Added detail to some of the description including reference to the rubber seals which make the unit weldment air tight during normal transport.	Added detail and changes made for completeness and accuracy.
2.7.6	Revised description to remove reference to the package being open to the atmosphere.	Changes made for accuracy.
2.10	Revised section to add detail related to the typical special form capsules transported in the Model 865 package.	Added detail and changes made for completeness and accuracy and to meet recommendations of NUREG-1886.
2.12.4	Added appendix for the special form certificate for the source typically transported in the Model 865.	Added detail and changes made for completeness and accuracy and to meet recommendations of NUREG-1886.

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Table 3.1b	Revised pressure under normal conditions of transport based on calculations included under section 3.4.2.	Changes made for accuracy.
3.4.2	Section revised to address error in assessment assumptions for compliance to these requirements. The 865 is not vented to atmosphere during normal transport. Changes to this section address package condition and evaluate maximum normal operating pressure during transport.	Changes made for accuracy.
3.5.3	Added detail and wording.	Changes made for clarity.
4.1.1	Removed prior section titled “Containment Boundary” and moved this information under the upper level heading in 4.1 for Description of the Containment System. Renumbered old section 4.1.2 as now 4.1.1.	The prior section format is not part of the NUREG-1886 formatting. Change administrative in nature for consistency to NUREG-1886.
4.2	Information previously in SAR Revision 12 removed from Revision 3 and subsequent sections renumbered.	The prior section format is not part of the NUREG-1886 formatting. Prior information was either not applicable to the Model 865 or also otherwise addressed for the package elsewhere in the SAR. Change administrative in nature for consistency to NUREG-1886.
Section 5.1.2 Tables	Table information reformatted to recommended layout in NUREG-1886. Added footnotes to tables for clarity.	Added detail and changes made for completeness and accuracy and to meet recommendations of NUREG-1886.
5.4.4 & 5.5.1	Information added to demonstrate the unimportance of the actuator assembly components, except for the actuator base and locking rod, as they relate to the package integrity and source containment.	As demonstrated in the added Appendix 5.5.1, the presence of most of the actuator assembly components are not necessary to ensure securement of the source rod in the Model 865 package and to comply with the NCT and HAC transport radiation dose rate limit requirements. The components that are not important to the Model 865 transport package safety or integrity have been revised on the descriptive drawings in Section 1.3 to remove unnecessary detail/specifications for these components.
7.1.1	Modified section to indicate that loading and closure of package to be performed in accordance with procedures that minimally include the information in this section.	Change made to avoid restrictions if procedures used (e.g., incorporated into operations manuals for the Model 865 device) that may be more detailed than included in section 7.1.1 will still meet requirements under the certificate of conformance.
7.1.1.2	Added note to section which had previously appeared in Section 8.2.5.7, moving this information into the section applicable to inspection and maintenance prior to loading.	Notation is more applicable to this section.

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7.1.2.1.c.3 & 6	Revised to remove details for hardware and refer back to approved descriptive drawings for the package.	Details are specified on the applicable drawings and duplication of this information in the SAR would be redundant and is unnecessary.
7.2.1.2.d	Replaced use of “overpack” with “outer container.	The Model 865 is not typically transported within an overpack and the change in wording will cover the package whether or not an overpack is used.
7.2.2.1 & 8.1.6	Replaced reference to drawing R86590 with reference to approved descriptive drawings for the package in Section 1.3.	Change made for completeness and clarity.
7.3.1	Revised section to comply with formatting used on other QSA Global, Inc. Type B SARs for this requirement.	Consistency between approval packages.
7.4.2	Updated revision reference to the Emergency Response Guidebook from 2004 to 2016.	Accuracy.
8.1.1	Section wording revised to comply with formatting used on other QSA Global, Inc. Type B SARs for these requirements.	Consistency between approval packages.
8.2.5	Section revised to identify inspections/tests that should be performed at source reloading and separate those requirements out of the inspections already described in Section 7. Removed reference to the Model 86550 control unit and the three month inspection time frame.	These changes are made for accuracy and to remove redundancy. The Model 86550 control unit has no impact and is no part of the Model 865 when transported as a Type B container, therefore reference to this unit is not applicable to the SAR. The checks identified in this section should be performed at source reloading which typically exceeds 3 months due to operation of the Model 865 in field radiography applications. The checks identified were never intended to be performed by routine package users for transport and are more appropriately performed by QSA Global, Inc. prior to source reloading.
Section 9	Section added based on NUREG-1886 format recommendations.	Administrative.