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DOE Packaging Certification Program

**Safety Evaluation Report
for
Renewal of Certificate of Compliance No. 9975
Model 9975 Package Design**

Docket No. 23-25-9975

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This Safety Evaluation Report (SER) documents the U.S. Department of Energy (DOE) Packaging Certification Program's (PCP's) independent review of the consolidated Safety Analysis Report for Packaging (SARP) submitted by the Savannah River Operations Office (SR) for renewal and amendment of DOE Certificate of Compliance (CoC) Number 9975 for the Model 9975 package design.

Evaluation

By email ^[1] dated May 3, 2023, the DOE CoC 9975 certificate holder, SR, requested a docket for renewal and amendment of the CoC based on a consolidated SARP prepared for SR by the Savannah River National Laboratory (SRNL).

The consolidated SARP, Revision 5a ^[2]:

- Incorporated two previously approved addenda to the SARP,
 - *Justification for Use of Large Bore Shielded-Pig Convenience Container*, S-SARA-G-00019, Revision 1 (approved in CoC Rev 14)
 - *Gallium Content Clarification*, S-SARA-G-00022 Revision 0 (approved in CoC Rev 15)
- Added the vented, two-quart SAVY™ 4000 container design (SARP Section 1.3, Reference 26, and Figure 1-9) to the list of approved internal engineered convenience containers (non-safety items),
- Updated Chapter 9, *Quality Assurance*, to reflect the contract and organizational changes at the Savannah River Site regarding the management of SRNL,
- Converted some Appendices to References to reduce the size of the SARP, and
- Updated references and made clarifications, as needed.
- *Safety Analysis Report for Packaging Model 9975, Addendum, Shipment of Plutonium/Uranium Mixed Oxide in Plastic Bottles*, S-SARA-G-00015, Revision 3, June 2013, was for approved limited shipments and was not incorporated in the consolidated SARP.

The SAVY™ 4000 container is a vented, two-quart general-purpose, reusable convenience container for facility handling and storage of solid radioactive material. The container is made of stainless steel, which is an acceptable construction material for Food-Pack and Engineered Convenience Cans per SARP Section 1.2.3.1.1.

DOE PCP staff reviewed Revision 5a of the consolidated SARP Staff and had no regulatory safety questions or comments but identified five items in need of correction in the final consolidated SARP (Rev 5).^[3] The applicant responded to these items and proposed Revision 5b page changes to the consolidated SARP.^[4-5] Staff reviewed the applicant's proposed page changes and found them acceptable pending review in the final SARP. The applicant submitted the final consolidated SARP Revision 5.^[6-7] Staff confirmed that the page changes were properly implemented in the final consolidated SARP Rev. 5.

Based on the statements and representations in the consolidated SARP, DOE PCP staff independently confirmed by document review that the package design has been adequately described and evaluated. Therefore, staff has reasonable assurance that the regulatory requirements of 10 CFR Part 71, have been met and recommends renewal and amendment of the CoC by the DOE HCO.

Conditions of Approval

The following changes to the CoC are required to the consolidated SARP Revision 5.

- Section 3(2) *Title and identification of report or application:* and 3(2) *Date:*
 - Change to "... S-SARP-G-00003, Revision 5" and "March 2024".
- Section 5(a)(2) *Description*
 - Change to "In some cases, for Content Envelope C.9 ... between top and bottom aluminum honeycomb spacers, as shown in Figure 1-8 of the SARP." (Incorporated in the SARP)
 - Change to "... The option to use the ARG-US RFID system is authorized per this certificate and the RFID Guide (SARP Section 1.3, Reference 19). ARG-US RFID tag is not considered a part of the package." (Incorporated in the SARP)
- Section 5(b) *Contents*
 - Add "Radioactive material must be packaged in internal containers of varying designs/configurations per Section 1.2.3 of the SARP." (clarification)
 - Replace all instances of "...DOE-STD-3013-2004 ..." with "... DOE-STD-3013-2004, as superseded ..." (the -2004 standard was superseded by the -2012 and -2018 versions of the standard, with another version pending issuance. The -2012 and -2018 versions state "Plutonium-bearing materials stabilized and packaged to meet earlier versions of the standard remain DOE-STD-3013 compliant without further evaluation.")
- Section 5(b)(2) *Maximum Quantity of Material per Package: as specified in Tables 1, 2 or 3.*
 - Replace "... food-pack ..." with "... food-pack or engineered convenience ..." (clarification)
 - (iv) *For Content Envelopes C.4 or C.11:* (d) 2-places
 - (viii) *For Content Envelope C.8:* (d) 1-place, (j) 1-place
 - (ix) *For Content Envelope C.9:* (c) 1-place
 - (iv) *For Content Envelopes C.4 or C.11:* (d) – Revise to "... all void spaces are no greater than 5% by volume [See SARP Section 1.2.3.2.2]." (Incorporated in the SARP)
 - (ix) *For Content Envelope C.9:* (c) – Revise to "If the mass of U-232 ." (consistent nomenclature in CoC)
 - (x) Delete (Not Incorporated in the SARP)

- Section 5(d), Conditions: revise the following conditions.
 - (1) to delete "... as supplemented by 5(e) of this certificate." (no supplements)
 - (3) to "Internal content containers must be examined for post-sealing bulging or buckling prior to placement inside the PCV. No internal content container that has visibly bulged or buckled may be transported in the package." (clarification)
 - (4) to "Internal content containers must be examined upon removal from the PCV after shipment ..." (clarification)
 - (7) delete "... as supplemented by 5(e) of this certificate." (no supplements)
 - (9) through (12) deleted. (incorporated in the SARP)
 - (14) deleted (not incorporated in the SARP)
 - (9 – formerly 13) to "Revision 15 of this certificate may be used until May 31, 2025, for DOE domestic transport of 9975-96 packages." (allow use of previous certificate for a period of time)
 - (10 - formerly 15) to " ... domestic transport." (clarification)
 - (11 – formerly 16) to " ... for domestic transport ..." (clarification)
- Section 5(e), Supplements – revise to "None" (incorporated in the SARP)

Conclusion

Based on the statements and representations contained in the consolidated SARP and the conditions listed above, DOE PCP staff concludes that the package design has been adequately described and evaluated and the Model 9975 continues to meet the requirements of 10 CFR Part 71.

References

- [1] *DOE-SR Docket request for SRNL 9975 SARP Revision 5a*, Email, Luke Sobus to James Shuler (retd.), May 3, 2023.
- [2] *Safety Analysis Report For Packaging Model 9975*, S-SARP-G-00003, Revision 5a, April 2023.
- [3] *Docket 23-25-9975 Technical Review Complete*, Memorandum, Shenk to Sobus, December 21, 2023.
- [4] *Docket 23-25-9975 Page Changes*, Email, Dan Leduc to Lawrence Gelder, January 29, 2024, with attachments.
- [5] *Safety Analysis Report For Packaging Model 9975*, S-SARP-G-00003, Revision 5b, page-changes, January 29, 2024
- [6] *FW: Signed 9975 SARP Revision 5 Chapters File*, Email Luke, Luke Sobus to Lawrence Gelder, April 12, 2024.
- [7] *Safety Analysis Report For Packaging Model 9975*, S-SARP-G-00003, Revision 5, March 2024.