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DOE Packaging Certification Program

Safety Evaluation Report for Certificate of Compliance No. 9516 Amendment for the Model 9516 Package

Docket No. 23-32-9516

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This Safety Evaluation Report (SER) documents the U.S. Department of Energy (DOE) Packaging Certification Program (PCP) independent technical review of the application and supplements submitted for the DOE Idaho Operations Office (ID) for amendment of DOE Certificate of Compliance (CoC) Number 9516 for the Model 9516 package design. This package is needed to support the mission of the Idaho National Laboratory (INL), Space Nuclear Power & Isotope Technologies Division.

Evaluation

By email ^[1] dated September 11, 2023, DOE-ID submitted an application ^[2] and technical justification ^[3] to the DOE PCP, requesting an amendment to DOE CoC No. 9516 Revision 11, to authorize reuse of internal packaging components in 9516 containment vessel (CV) for Shipping Configurations 9, 10, and 11. Currently, these components are replaced after each use of the package. The benefits to DOE for reusing these components are reduced operating cost of the package and waste minimization. Reuse of similar internal packaging components (i.e., graphite support and filler blocks) was authorized for Shipping Configurations 1 through 6 in Revision 4 of the CoC (Docket 17-44-9516) based on a technical justification document prepared for DOE-ID by the Idaho National Laboratory (INL) and subsequently incorporated in Revision 2 of the Safety Analysis Report for Packaging (SARP), Section 8.2.3.1, *Internal Components*, and Table 8-1, *Maintenance Reuse Inspection Criteria*.

The applicant provided technical justification ^[3] and inspection criteria for reuse of the following internal packaging components for Shipping Configurations 9, 10, and 11, and demonstrated that superficial defects of these internal components does not impair the physical condition of the package or prevent the package design from meeting the applicable regulatory performance standards (i.e., 10 CFR Part 71 for Type B, fissile-excepted, for Shipping Configurations 9, 10, and 11):

- Graphite Filler Blocks – CoC drawings 853326 and 853332,
- Graphite Support Blocks – CoC drawings 853329, 853330, and 853331,
- Stainless Steel spacers – CoC drawings 853327, 853328, and 853333, and
- Stainless Steel Cans (i.e., radiography cans) – CoC drawings SKNE2-5663 through 5665.

The safety classification of these items is Quality Level C (minor to safety), as shown in Table 9-1 of the addendum. Their safety function is to restrict movement of items within the containment; consequently, superficial defects, as defined in the inspection criteria, from normal use does affect their safety function.

The applicant implemented and submitted the inspection criteria from the technical justification in SARP Addendum 2, Revision 2a, Section 8.2, *Maintenance Program* (proposed page changes) ^[2] for reuse of the stainless steel components in Table 8.1, *Maintenance Reuse Inspection Criteria*, and incorporated by reference, in Section 8.2 of the addendum, the inspection criteria in SARP Section 8.2.3.1, Table 8-1, for reuse of the graphite components.

DOE PCP staff confirmed by document review that the reuse and inspection criteria provided by the applicant demonstrates compliance with 10 CFR 71.87(b) and ensures that the package design continues to meet the applicable regulatory performance standards of 10 CFR Part 71, for Shipping Configurations 9, 10, and 11. Staff completed their review of the application on November 27, 2023, with no regulatory questions or comments ^[4], pending implementation in a final SARP Addendum 2, Revision 2.

DOE-ID submitted ^[5, 6] a complete final SARP Addendum 2 Revision 2 on November 30, 2023. DOE PCP staff confirmed that the proposed page changes were correctly implemented in the final addendum.

Based on the statements and representations in the INL technical justification, SARP Addendum 2, Revision 2, and PCP staff's confirmatory evaluation describe in this SER, staff finds this amendment to the package acceptable and will provide reasonable assurance that the regulatory requirements of 10 CFR Part 71 have been met subject to the Conditions in the CoC.

Conditions of Approval

The following changes to the CoC are required to implement Addendum 2 changes evaluated in this SER in CoC Rev.12.

- Conditions 5(d) (CoC page 11):
 - (10) revise to “Revision 10 and 11 of this certificate may be used until July 31 and December 31, 2024, respectively.”
 - (11) revise to “Only DOE elements or persons working under contract to DOE elements shall consign the package for domestic transport.” (clarify for domestic transport)
 - (12) revise to “Nuclear Regulatory Commission (NRC) or Agreement State licensees shall not consign a DOE certified package for domestic transport but can transfer the material on-site to DOE elements or persons working under contract to DOE elements for consignment of the package.” (clarify for domestic transport)
- Supplements 5(e) (CoC page 12):
 - Add (10) “Safety Analysis Report for Packaging (SARP) for the 9516 Package, Addendum No. 2, R1033 0067 ES, Revision 2, November 2023.”

Conclusion

Based on the statements and representations contained in the INL technical justification, SARP Addendum 2, Rev. 2, and the conditions listed above, DOE PCP staff concludes that the package design has been adequately described and evaluated, and the Model 9516 package continues to meet the requirements of 10 CFR Part 71.

References

- [1] *RE: CCN 254409 9516 SARP Addendum 2 Rev 2 (Docket 23-32-9516)*, Email Nathan McBride to James Shuler, September 11, 2023.
- [2] *Safety Analysis Report for Packaging (SARP) for the 9516 Package, Addendum No. 2*, R1033-0067-ES, Rev. 2a, dated July 2022.
- [3] *Technical Justification for reuse of internal components in 9516 CV, Shipping configurations 9, 10 and 11*, ECAR-7465, Rev 0, August 31, 2023.
- [4] *Docket 23-32-9516 Technical Review Complete*, Memorandum Shuler to McBride, November 27, 2023.
- [5] *RE: CCN 254963 9516 SARP Addendum 2 rev 2 Final Submittal Ltr*, Email McBride to Shuler, November 30, 2023.
- [6] *Safety Analysis Report for Packaging (SARP) for the 9516 Package, Addendum No. 2*, R1033-0067-ES, Rev. 2, dated November 2023 (uploaded November 29, 2023).