



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION REPORT

Docket No. 71-9269
Model No. 650L
Certificate of Compliance No. 9269
Revision No. 12

SUMMARY

By application dated October 27, 2022 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML23004A027), QSA Global, Inc. (QSA) requested an amendment to revise Certificate of Compliance (CoC) No. 9269 for the Model No. 650L shipping package. QSA only updated design drawings in the safety analysis report. U.S. Nuclear Regulatory Commission staff reviewed the application using the guidance in NUREG-2216, "Standard Review Plan for Transportation Packages for Spent Fuel and Radioactive Material." Based on the statements and representations in the application, as supplemented, the staff agrees that these changes do not affect the ability of the package to meet the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 71.

1.0 GENERAL INFORMATION

1.1 Background

A package user in the Czech Republic notified QSA that multiple 650L container lids had either significantly worn holes on the bottom plates or washers welded to the top of the bottom plate holes. QSA determined that these lids did not conform to the safety analysis report design drawings and removed them from service. Next, QSA thoroughly compared the 650L fabrication drawings against the design drawing and identified other discrepancies. QSA subsequently revised the design drawings to address these issues. After issuing the revised drawings, QSA identified typographical errors in some of the notes added while revising the drawings and revised the drawings again.

1.2 Staff Evaluation

The applicant increased the maximum tolerance for the thickness of both the shipping cover, the container top plate and the container bottom plate from ± 0.01 inches to ± 0.015 inches. The applicant chose this tolerance because these components were fabricated from 10 Gauge mild steel which has a thickness specification of 0.1345 inches and an acceptance range between 0.1425 and 0.1265 inches. The applicant also identified that no new components have been manufactured since 1999 which is when the material for the top and bottom lid plates would have been last obtained. Staff finds this change acceptable since it accurately describes the package components currently in use.

The applicant revised the inner shell specification on the drawing to identify the inner shell as 10 Gauge mild steel, and to clarify that neither repair of nor manufacture of new inner shells was allowed after September 14, 2010. The applicant stated that all 650L units in use have inner shells fabricated with material obtained as 10 Gauge mild steel, and that the CoC was conditioned in 2010 to restrict both the repair and replacement of the inner carbon steel shell. In addition, the applicant removed references to inner shells in a drawing note associated with

packaging component fabrication. Staff finds these changes acceptable for the following reasons. First, they reflect the actual material used to fabricate the inner shells. Second, staff confirmed that Condition 9 of Certificate No. 9269 restricted fabrication of replacement inner shells. Finally, in revising the note associated with the inner shells, the applicant misspelled “repair.” The applicant subsequently revised the drawing to correct the error. Staff finds this change acceptable since it is editorial in nature.

The applicant added a note stating that neither repair nor replacement of the depleted uranium shield was allowed. The applicant added this note for transparency to reflect a restriction against both repair and replacement of the depleted uranium shield that was added to Certificate 9269 in 2010. The staff confirmed Condition 9 of Certificate 9269 restricted fabrication of new depleted uranium shields. Therefore, staff finds this change acceptable.

The applicant removed a material requirement to provide flexibility for fabricating components. The drawings required that both a shipping cap spring and a lock assembly guide spring be fabricated from 300 Series stainless steel. Staff reviewed the drawings and determined that the material for the interfacing components is stainless steel. Since the change will not cause a material incompatibility between the springs and the components with which they interface, staff finds the change acceptable.

The applicant added text at various drawing locations that reference special form capsules, the source wire assembly specification and the special form capsule’s containment function to identify the maximum number of special form capsules per package. The applicant added this text to provide clarity on the maximum amount of material transported. Staff finds this change acceptable since Certificate 9269 identifies that the maximum number of special form capsules authorized for transport is two.

The applicant removed the phrase “IN PAIRS” when referencing safety wire installation because, according to the applicant, the only screws that are safety wired are the ones shown in the drawing. The staff reviewed the safety analysis report submitted with the January 15, 2020, renewal application (ADAMS Accession No. ML23011A059). Safety analysis report section 1.2.1.4 identified that four screws secure the locking assemblies to the top plate, but that only two screws on each lock assembly are designed to accommodate a safety wire. Therefore, staff finds this change acceptable.

The applicant also introduced fabrication flexibility by allowing the material associated with an optional washer to be either carbon steel or stainless steel and added language clarifying that use of the washer was optional. The applicant asserted that the washer plating would not adversely affect the components with which it interacts. Staff determined that the bolt material specified on the current drawing is stainless steel and the cover weldment surface which it contacts is carbon steel. Since staff previously determined that material incompatibility was not an issue for these components, staff finds it acceptable for the proposed configuration.

1.3 Findings

Based on a review of the statements and representations in the application, the staff concludes that the package has been adequately described to meet the requirements of 10 CFR Part 71.

2.0 STRUCTURAL

The staff reviewed the proposed changes and determined that they did not impact previous safety evaluation report (SER) findings regarding the package structural design. Therefore, the staff finds that a new evaluation is not needed.

3.0 THERMAL EVALUATION

The staff reviewed the proposed changes and determined that they did not impact previous SER findings regarding the package thermal design. Therefore, the staff finds that a new evaluation is not needed.

4.0 CONTAINMENT EVALUATION

The staff reviewed the proposed changes and determined that they did not impact previous SER findings regarding the package containment design. Therefore, the staff finds that a new evaluation is not needed.

5.0 SHIELDING EVALUATION

The staff reviewed the proposed changes and determined that they did not impact previous SER findings regarding the package shielding design. Therefore, the staff finds that a new evaluation is not needed.

6.0 CRITICALITY EVALUATION

The 650L package is not authorized to transport fissile material. Therefore, the staff finds that an evaluation is not needed.

7.0 MATERIALS EVALUATION

The staff reviewed the proposed changes and determined that they did not impact previous SER findings regarding the package material design. Therefore, the staff finds that a new evaluation is not needed.

8.0 PACKAGE OPERATIONS

The staff reviewed the proposed changes and determined that they did not impact previous SER findings regarding the package operations. Therefore, the staff finds that a new evaluation is not needed.

9.0 ACCEPTANCE TESTS AND MAINTENANCE PROGRAM REVIEW

The staff reviewed the proposed changes and determined that they did not impact previous SER findings regarding the package acceptance tests and maintenance program. Therefore, the staff finds that a new evaluation is not needed.

CONDITIONS

The CoC includes the following condition(s) of approval:

Condition 5(a)(3) was revised to identify the latest drawing revision.

Condition 9 was revised to clarify that weld repair is not authorized.

The references section has been updated to include this request.

CONCLUSION

Based on the statements and representations contained in the application, and the conditions listed above, the staff concludes that the design has been adequately described and evaluated, and the Model No. 650L package meets the requirements of 10 CFR Part 71.

Issued with CoC No. 9269, Revision No. 12, on February 24, 2023