



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

SAFETY EVALUATION REPORT

Docket No. 71-9342
Model No. Versa-Pac
Certificate of Compliance No. 71-9342
Revision 14

Summary

By application dated March 20, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19079A335), Daher-TLI, (Transport Logistics International, Inc. [TLI] or the applicant) requested revision to and renewal of Certificate of Compliance No. 9342, for the Model No. Versa-Pac package.

The changes made in this application are limited to the Versa-Pac licensing drawings in Section 1.4 of the safety analysis report (SAR) referenced in the certificate of compliance (CoC) in this application is listed below. To keep the designs between the VP-55 and VP-110 equivalent, identical changes were made to the VP-110 licensing drawings to match the changes described above for the VP-55 licensing drawing. Thus, any description of changes to a "Sheet" refer to changes made in both VP-55 LD and VP-110 LD licensing drawings.

- Multiple small weld changes to match the welds on the fabricated test package used for the updated drop testing,
- The weld-all-around symbols were adjusted in Sheet 2,
- Revised Note 5 on Sheet 1 and added a delta note to Sheet 2, and
- Revised Note 9 on VP-55-LD and VP-110-LD Sheet 1.

The only requested changes to the content of the CoC is an update to the revision level of the referenced drawings to revision 3 and the new expiration date as a result of the 5-year renewal request. In addition, staff made small editorial changes to improve readability of the CoC.

The staff used the guidance in NUREG-1609, "Standard Review Plan for Transportation Packages for Radioactive Material," as well as associated interim staff guidance documents to perform the review of the proposed package changes. Based on the statements and representations in the application, as supplemented, and the conditions listed in the following chapters, the staff concludes that the package meets the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 71.

EVALUATION

1.0 GENERAL INFORMATION

1.1 Packaging Description

The Versa-Pac packaging consists of two designs, i.e., the VP-55, a 55-gallon drum, and the VP-110, a 110-gallon version, both use a bolted closure ring, standard carbon steel lugs,

5/8-inch diameter American Society for Testing and Materials (ASTM), A429 bolts and nuts, and a closed-cell rubber lid gasket.

Both drums use vertical stiffeners fabricated from 1-1/4 inch carbon steel square tubing, two inner liners of rolled 16-gauge carbon steel insulated by ceramic fiber blanket which encase the vertical tubing, and a 1/4-inch carbon steel reinforcing plate on the bottom.

The package's inner container is insulated (thermal protection) with layers of ceramic fiber blanket around the containment area with rigid polyurethane foam disks on the top and bottom. A 1/2-inch-thick fiberglass ring is used as a thermal break, which is fit in between the steel components with twelve 1/2-inch bolts connecting the structural members to the fiberglass.

The containment boundary of the package is defined as the payload vessel with its associated welds, payload vessel high temperature heat resistant silicone coated fiberglass gasket, payload vessel blind flanges, and reinforcing ring. The payload vessel is comprised of a 10 gauge carbon steel sheet for the body and bottom. The upper end of the vessel is fitted with a 1/4-inch inner carbon steel flange ring with a 1/2-inch-thick carbon steel blind flange. The vessel has three circumferential welds (two at the flange, one at the base) and one longitudinal weld. A 1/8-inch high temperature, heat resistant silicone coated fiberglass gasket is used between the steel flange ring and blind flange. The payload vessel blind flange is secured with twelve 1/2-inch bolts.

1.1.1 Model No. VP-55/VP-55 with 5-inch Pipe

The overall outer dimensions of the 55-gallon drum are 23-3/16 inches outer diameter by 34-3/4 inches in height to the top of the outer drum bolt ring. The drum cover is reinforced by a 10-gauge thick 22-3/8-inch outer diameter by 18-3/8-inch inner diameter plate, and four 1/2-inch bolts. The exterior skin of the packaging is a UN1A2/Y425/S carbon steel material (formerly UN1A2/X400/S carbon steel).

1.1.2 Model No. VP-110

The overall outer dimensions of the 110-gallon drum are 30-7/16 inches (outer diameter) by 42-3/4 inches in height to the top of the outer drum bolt ring. The drum cover is reinforced by a 10-gauge 29-3/4-inch outer diameter by 27-1/4-inch inner diameter ring. The exterior skin of the packaging is a UN1A2/Y409/S carbon steel material.

1.2 Contents

There were no changes made to the package's approved contents.

1.3 Drawings

Daher-TLI submitted revised drawings showing the approved transport configurations for the proposed changes.

The revised drawings showing the transport packaging include:

VP-55-LD, Rev. 3 (sheets 1 and 2) 55-Gallon Versa-Pac Shipping Container

VP-110-LD, Rev. 3 (sheets 1 and 2) 110-Gallon Versa-Pac Shipping Container

2.0 STRUCTURAL EVALUATION

The objective of this NRC structural and materials evaluation is to verify that the applicant has adequately evaluated the structural performance of the package (packaging together with contents) and demonstrated that it meets the regulations in 10 CFR Part 71, "Packaging and Transportation of Radioactive Material".

The applicant has requested to make a few revisions to the weld types called for on the licensing drawings. For those welds that were revised, they were revised to match the welds used in the prototypes. These prototypes were used in the original drop testing campaign. As a result, these modifications will not affect the package's performance with respect to normal and hypothetical accident drop tests.

The staff reviewed the structural performance of the packaging under the normal conditions of transport prescribed in 10 CFR 71.71 and concludes that there will be no substantial reduction in the effectiveness of the packaging that would prevent it from satisfying the requirements of 10 CFR 71.55(d)(2).

The staff reviewed the structural performance of the packaging under the hypothetical accident conditions required by 10 CFR 71.73 and concludes that the packaging has adequate structural integrity to satisfy the subcriticality requirements of 10 CFR 71.55(e) for a fissile material package.

2.1 Evaluation Findings

Based on review of the statements and representations in the application, the NRC concludes that the package has been adequately described and evaluated to demonstrate that it satisfies the structural integrity requirements of 10 CFR Part 71.

Based on the review of the statements and representations in the application, the NRC staff concludes that the materials used in the transportation package design have been adequately described and evaluated for potential chemical, galvanic, and other reactions and that the package meets the requirements of 10 CFR Part 71.

3.0 THERMAL EVALUATION

There were no changes that affected the package's thermal evaluation.

4.0 CONTAINMENT

There were no changes that affected the package's containment evaluation.

5.0 SHIELDING EVALUATION

There were no changes that affected the package's criticality evaluations.

6.0 CRITICALITY EVALUATION

There were no changes that affected the package's criticality evaluation.

7.0 PACKAGE OPERATIONS

There were no changes that affected the package's operations.

8.0 ACCEPTANCE TESTS AND MAINTENANCE PROGRAM REVIEW

There were no changes that affected the package's acceptance tests or maintenance program.

9.0 CONDITIONS

The staff made editorial changes to improve the readability of the CoC. The CoC includes the following condition(s) of approval:

Condition No. 3.b., "Title and Identification of Report or Application," has been updated to reflect the consolidated application submitted by Daher-TLI.

Condition No. 5(a)(1) was edited to account for only two configurations.

Condition No. 5(a)(3), "Drawings," has been updated to reflect applicable revisions to the licensing drawings for VP-55 and VP-110 packages.

Condition No. 5(c) and portions of Condition No. 5(b) were moved above Tables 3, 4, and 5 for clarity and readability.

Condition 12 was revised to reflect a new expiration date of May 31, 2024.

The references section has been updated to include reference to this request.

10.0 CONCLUSIONS

Based on the statements and representations contained in the application, as supplemented, and the conditions listed above, the staff concludes that the design has been adequately described and evaluated, and the Versa-Pac package meets the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9342, Revision No. 14, for the Model No. Versa-Pac.