

SAFETY EVALUATION REPORT
Docket No. 71-9168
Model No. 8-120B
Certificate of Compliance No. 9168
Revision No. 21

SUMMARY

By letter dated February 19, 2015, EnergySolutions (ES) submitted an amendment request to the U.S. Nuclear Regulatory Commission (NRC) for the Model No. 8-120B package. ES requested the cask cavity length manufacturing tolerance be modified from $\pm \frac{1}{4}$ " to $+\frac{1}{4}$ " and $-\frac{3}{4}$ " in order to envelop the "as-built" cavity length of a recently manufactured package.

NRC staff reviewed the applicant's amendment request and found that the package meets the requirements of 10 CFR Part 71.

1.0 GENERAL INFORMATION

Except for the $\frac{1}{2}$ " increase in the minus tolerance for the cavity of the package, the design of the package, its overall dimensions, as well as the authorized contents, remain unchanged.

The staff reviewed Drawing No. C-110-E-0007, sheets 1-6, Revision 21. The revised drawing includes the cavity length tolerances of $+\frac{1}{4}$ " and $-\frac{3}{4}$ " on sheet 1, Elevation View – Cask, Zone C-7. An editorial correction was also made in the title block of sheet 2 of Drawing No. C-110-E-0007 to indicate it was a "B-size" drawing.

EnergySolutions' Drawing No. DWG-CSK-12CV01-EG-0001-0 was not modified.

2.0 STRUCTURAL EVALUATION

The structural evaluation of the package remains unchanged. The change in the cavity fabrication tolerances does not change either the specified thickness or strength of the structural components of the package. Also, the $\frac{1}{2}$ " increase in the minus tolerance reduces the cavity size by less than 0.7%. As such, this small reduction does not affect the mass properties or any other properties that are of importance in the structural evaluation of the package.

The staff has reasonable assurance that the structural design of the Model No. 8-120B package has been adequately described and evaluated and that the package meets the structural requirements of 10 CFR Part 71.

3.0 THERMAL EVALUATION

The $\frac{1}{2}$ " increase in the minus tolerance of the cavity length does not significantly affect the thermal evaluation of the package.

Staff built a 2-D model of the package to perform sensitivity analyses on the impact a reduced cavity length, volume, and surface area could have on the package temperatures for normal conditions of transport (NCT). Staff found that the package temperatures under NCT are not significantly increased, i.e., by less than 2°F. Given the significant margins on the operating pressures during hypothetical accident conditions (HAC), i.e., 155 psig vs. 66.6 psig maximum calculated pressure, the staff does not expect this small temperature increase to have any impact on the thermal evaluation of the package. Also, the reduction in the cavity length results in a slightly lower peak temperature for the HAC thermal test.

The staff has reasonable assurance that the thermal design of the Model No. 8-120B package has been adequately described and evaluated, and that the package meets the thermal requirements of 10 CFR Part 71.

4.0 CONTAINMENT EVALUATION

The containment evaluation remains unchanged because the containment calculations are not based on the cavity volume.

The staff has reasonable assurance that the containment design of the Model No. 8-120B package has been adequately described and evaluated, and that the package meets the containment requirements of 10 CFR Part 71.

5.0 SHIELDING EVALUATION

The shielding evaluation is not affected because the ½” minus tolerance increase, i.e., from ¼” to ¾”, of the length of the cavity, results in a very small change in dose in a conservative manner.

The staff has reasonable assurance that the shielding design has been adequately described and evaluated and that the package meets the external radiation requirements of 10 CFR Part 71.

6.0 CRITICALITY EVALUATION

Not applicable.

7.0 PACKAGE OPERATIONS

The package operations have not been changed by this amendment request. These include the use of shoring, the performance of dose rate surveys to ensure the package meets the regulatory dose rate limits, and that appropriate limits are used for preparation of empty packages.

The staff has reasonable assurance that the operating procedures both meet the requirements of 10 CFR Part 71 and are adequate to assure the package will be operated in a manner consistent with its evaluation for approval

8.0 ACCEPTANCE TESTS AND MAINTENANCE PROGRAM

The acceptance tests and maintenance program of the package remain unchanged. In the previous revision, the leak test requirement for leak-tight status, in Section 4.9 of the application, had been also included in Chapter 8 of the application.

CONDITIONS

The conditions specified in the Certificate of Compliance have been revised to incorporate several changes as indicated below:

Item No. 3.b has been revised to identify EnergySolutions' consolidated application dated February 2015.

Condition No. 5(a)(3) has been revised to include revision 21 of EnergySolutions Drawing No. C-110-E-0007, sheets 1-6.

Condition No. 10 was modified to authorize the use of the previous revision of the certificate for approximately one more year.

The expiration date of the certificate was not changed.

The references section was updated to include the consolidated application dated February 2015.

CONCLUSION

Based on the statements and representations in the application, as supplemented, and the conditions listed above, the staff concludes that the Model No. 8-120B package design has been adequately described and evaluated and that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9168, Revision No. 21, on April 8, 2015.