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

December 19, 2019

Mr. Franz Hilbert
DAHER NUCLEAR TECHNOLOGIES GmbH
Margarete-von-Wrangell-Straße 7
D-63457 Hanau – GERMANY

SUBJECT: CERTIFICATE OF COMPLIANCE NUMBER 9362, REVISION NUMBER 2, FOR THE MODEL NUMBER DN30 PACKAGE

Dear Mr. Hilbert:

As requested by your application dated October 17, 2019, enclosed is Certificate of Compliance No. 9362, Revision No. 2, for the Model No. DN30 package. Changes made to the enclosed certificate are indicated by vertical lines in the margin. The U.S. Nuclear Regulatory Commission staff's safety evaluation report is also enclosed.

The approval constitutes authority to use the package for shipment of radioactive material and for the package to be shipped in accordance with the provisions of Title 49 of the *Code of Federal Regulations* 173.471.

If you have any questions regarding this certificate, please contact Pierre Saverot of my staff at 301-415-7505.

Sincerely,

/RA/

Daniel I. Doyle, Acting Chief
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9362
EPID L-2019-LLA-0225

Enclosures:

1. Certificate of Compliance No. 9362, Rev. No. 2
2. Safety Evaluation Report

cc w/encls.: R. Boyle, Department of Transportation
J. Shuler, Department of Energy, c/o L. Gelder

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CoC Accession No.: ML19346E286

OFC	DFM	E	DFM	C	DFM		DFM	C	DFM	C	DFM	C
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DATE	11/26/2019		11/26/2019		11/21/2019		11/26/2019		12/05/2019		11/26/2019	
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NAME	ZLi		SFigueroa		DDoyle							
DATE	11/27/2019		11/29/2019		12/19/2019							

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SAFETY EVALUATION REPORT
Model No. DN30 Package
Certificate of Compliance No. 9362
Revision No. 2

SUMMARY

By letter dated October 17, 2019, Daher Nuclear Technologies, GmbH, (the applicant) submitted an amendment request for Certificate of Compliance (CoC) No. 9362 for the Model No. DN30 package.

The applicant requested a change in the length of the bolts securing the pins in the closure device from 52 mm to 50 mm because, due to manufacturing tolerances, the bolts were about 0.5 mm longer than the length indicated in Drawing No. 0023-ZFZ-1000-103, Revision No. 0. The applicant also requested approval of a 150 Nm tightening torque of these bolts because the previous 80 Nm tightening torque for the securing bolts was found to be insufficient to allow for similar or higher loosening torques with the combination of the bolt and closure device materials.

The applicant revised (i) the Parts List 0023-STL-1000-000 to Revision No. 6 and Drawing No. 0023-ZFZ-1000-103 to Revision No. 1, (ii) the Handling Instruction 0023-HA-2015-001 to Revision No. 6 for the use and handling of the DN 30 package, (iii) the document referenced 0023-PA-2015-017 to Revision No. 2 for contamination and dose rate measurements, and (iv) the document 0023-PA-2015-016 to Revision No. 4 for periodical inspections.

Based on the statements and representations in the application, and the conditions listed in the CoC, the U.S. Nuclear Regulatory Commission staff (the staff) concludes that the package meets the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 71.

EVALUATION

The staff reviewed the proposed changes to the length and tightening torque of the securing bolts of the DN30 protective structural package (PSP) to verify that the applicant has adequately evaluated the structural performance of the package and demonstrated that the system meets 10 CFR Part 71 regulations.

The applicant changed the length of the bolts securing the closure devices of the DN30 PSP from 52 mm to 50 mm to accommodate manufacturing tolerances. The applicant performed an analysis, supported by hand calculations, to demonstrate that the thread engagement of the securing bolts is sufficient. The applicant confirmed that the 50 mm securing bolt is long enough to perform its intended function in the DN30 PSP closure device. Based on the analysis of the engagement length and continued function of the securing bolt, the staff concludes that the use of 50 mm securing bolts is acceptable for the DN30 PSP. The applicant proposed to increase the torque applied to tighten the bolts securing the closure devices of the DN30 PSP from 80 Nm to 150 Nm because it was determined that this increased torque is required to engage the closure device. The applicant performed an analysis, supported by hand

calculations, to demonstrate that the strength of the components of the closure mechanism are sufficient to withstand a 150 Nm tightening torque. Based on the results of this analysis, the staff concludes that the 150 Nm tightening torque is acceptable for the DN30 PSP. The staff concludes that these changes to the structural design have been adequately described and evaluated and that the package has adequate structural integrity to meet the requirements of 10 CFR Part 71. Most relevant to this amendment are the following findings: (i) the staff reviewed the package structural design description and concludes that the contents of the SAR satisfy the requirements of 10 CFR 71.31(a)(1) and (a)(2), (ii) the staff reviewed the structural codes and standards used in the package design and finds that they satisfy the requirements of 10 CFR 71.31(c), and (iii) the staff reviewed the analysis of the package closure system for normal and accident pressure conditions and concludes that the system satisfies the requirements of 10 CFR 71.43(c) for positive closure.

The staff did not find an ISO equivalent for DIN 6912; however, the staff verified that the Nitronic 50 (XM-19) (UNS S20910), per ASME BPV Section II-D, material properties check.

A thermal change related to this amendment was the inclusion of a soap bubble test to confirm a proper installation of the thermal fuse plugs, which is used to ensure the DN30 PSP does not over-pressurize during thermal accident conditions. According to Section 8.6 of the application, the soap bubble test, conducted in accordance with ANSI N14.5, would be performed by pulling vacuum or applying an internal overpressure to the top and bottom halves cavities. Both possibilities are now described in detail in Test Instruction 0023 PA 2015-015. The staff finds that the inclusion of the additional soap bubble acceptance test would not impact the thermal performance of the package. Based on the review of the statements and representations in the application, the staff concludes that the package design meets the thermal requirements of 10 CFR Part 71.

Standards DIN EN ISO 5817 and DIN EN ISO 23277 were added as references in Section 8.7 of the document 0023 PA-2015-016, Rev. 4, Inspection Criteria for Regular and Periodical Inspections of the DN30 package.

The applicant requested a change to the contamination and dose rate measurement and inspection instructions. The contents and the packaging are unchanged from the prior staff's approval. The applicant has updated the required measurement areas to check for non-fixed contamination. These areas cover each end, and each lateral side is split into two axial areas, for a total of six areas. Staff reviewed the handling and contamination and dose rate measurement procedures, 0023-HA-2015-001-Rev 6 and 0023-PA-2015-017-Rev 2 respectively. Staff noted the required contamination measurement areas cover the package surface, as did the previously approved measurements. Since there are no other significant changes to the procedures, staff finds there is reasonable assurance the updated procedures will ensure the package will meet the requirements of 10 CFR 71.

Based on the statements and representations in the application, as supplemented, the staff concludes that the package meets the requirements of 10 CFR Part 71.

CONDITIONS

The following changes were made to the CoC:

Item No. 3(b) identifies the application as supplemented.

Condition No. 5(a)(3) has been modified to include the new revisions of the Parts List 0023-STL-1000-000 and of Drawing No. 0023-ZFZ-1000-103.

Condition No. 11 has been modified to extend the previous revision of the certificate for approximately one year.

The expiration date of the certificate was not modified.

The References section of the certificate was updated to reference the supplemental information provided for this amendment request.

CONCLUSION

Based on the statements and representations in the application, the staff finds that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with CoC No. 9362, Revision No. 2,
On December 19, 2019.