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November 5, 2013

Mr. Anthony Patko
Director, Licensing
Engineering
NAC International
3930 East Jones Bridge Road, Suite 200
Norcross, GA 30092

SUBJECT: CERTIFICATE OF COMPLIANCE NO. 9225, REVISION NO. 59, FOR THE
MODEL NO. NAC-LWT PACKAGE (TAC NOS. L24765 AND L24776)

Dear Mr. Patko:

As requested by your applications dated July 19, 2013 (two applications), as supplemented on October 18, 2013, enclosed is Certificate of Compliance No. 9225, Revision No. 59, for the Model No. NAC-LWT transportation package. Changes made to the enclosed certificate are indicated by vertical lines in the margin. The 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* (49 CFR) 173.471. Those on the attached list have been registered as users of the package under the general license provisions of 10 CFR 71.17 or 49 CFR 173.471.

Sincerely,

/RA/

Michele M. Sampson, Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9225
TAC Nos. L24765 and L24776

Enclosures: 1. Certificate of Compliance
No. 9225, Rev. No. 59
2. Safety Evaluation Report
3. Registered Users

Upon removal of Enclosure 3, this
document is uncontrolled

cc w/encls. 1& 2: R. Boyle, Department of Transportation
J. Shuler, Department of Energy

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SAFETY EVALUATION REPORT

Docket No. 71-9225
Model No. NAC-LWT
Certificate of Compliance No. 9225
Revision No. 59

SUMMARY

By applications dated July 19, 2013 (two submissions), as supplemented on October 18, 2013, NAC International (NAC or the applicant) requested revisions to Certificate of Compliance (CoC) No. 9225 for the Model No. NAC-LWT (NAC-LWT) transportation package. The first application requested a change to the generic MTR fuel description to authorize shipment of MTR fuel assemblies with active fuel heights less than 56 centimeters (cm). The second application requested a modification to the drawings for the NRU/NRX basket weldments to revise specific items in the bill of materials and a weld callout, in addition to correcting an error in the units of measurement used in the certificate. The staff performed its review of the applications, as supplemented, using the guidance in NUREG-1617, "Standard Review Plan for Transportation Packages for Spent Nuclear Fuel."

The requested revisions are necessary to support shipments to the Savannah River Site in the U.S. as part of the U.S. Department of Energy (DOE) National Nuclear Security Administration (NNSA) Foreign Research Reactor Return (FRR) program.

Based on the statements and representations in the application, as supplemented, the U.S. Nuclear Regulatory Commission (NRC) 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.

EVALUATION

Revisions to Generic MTR Active Fuel Height

The staff evaluated a series of MTR models, based on the NISTR fuel specifications, to determine whether reducing the uranium content in proportion to the reduction in fuel length would also yield enough of a reactivity reduction to remain bounded by the previously evaluated configuration.

The staff ran a series of computer simulations in which it varied the number of plates, plate width, plate thickness, fuel density, and active fuel length for MTR fuel. The analysis did not include a bias and uncertainty analysis to verify maximum reactivity but rather evaluated the changes in reactivity as a result of altered fuel parameters. The staff also analyzed models that changed active fuel width, active fuel length, and a reduction of fuel density so the uranium mass per plate is reduced proportional to the fraction of active fuel height when shorter than 56 cm.

As a result of these analyses, the staff confirmed that there is no increase in reactivity from the design basis case provided the uranium mass per plate is proportionally reduced, and that no more than 42 assemblies are loaded in a single package. Accordingly, the staff finds that the proposed changes to the authorized contents of the NAC-LWT transportation package meet the applicable criticality safety requirements, and do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Revisions to NRU/NRX Basket Weldment Drawings

The staff reviewed the applicant's request for minor changes to the drawings related to the National Research Universal (NRU) and National Research Experimental (NRX) fuel basket and determined that the requested revisions to the basket materials are acceptable and provide reasonable assurance for safety of the package. The package is constructed with materials and processes in accordance with acceptable industry codes and standards.

CONDITIONS

The following changes have been made to the certificate of compliance:

Condition 5.(a)(3)(ii) was revised to specify the revised drawings for the NRU/NRX basket weldment.

Condition 5.(b)(1)(iv), Table (b), was revised to include a new note authorizing generic MTR active fuel lengths less than 56 cm, provided the uranium-235 content per plate and per assembly is also proportionally reduced.

Condition 5.(b)(1)(xix) was revised to correct the units of measurement for "Maximum Weight of Contents per Tube" from grams (g) to pounds per tube (lb/tube).

Condition 19 was removed. Use of previous Revision No. 55 has been completed and further authorization was not requested.

Condition 20 was renumbered as Condition 19 and revised to authorize use of Revision No. 58 of the certificate for a period for approximately one year, until October 31, 2014.

The previous Condition 21 was renumbered as Condition 20. The expiration date is unchanged, February 28, 2015.

CONCLUSION

Based on the statements and representations in the application, and with the conditions listed above, the staff agrees that the proposed changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued on November 5, 2013.