

June 27, 2012

Ms. Lori Podolak
Senior Regulatory Affairs Specialist
Regulatory Affairs Department
QSA Global, Inc.
40 North Avenue
Burlington, MA 01803

SUBJECT: REVISION NO. 1 OF CERTIFICATE OF COMPLIANCE NO. 9357 FOR THE
MODEL NO. SENTRY PACKAGE

Dear Ms. Podolak:

As requested by your application dated May 22, 2012, enclosed is Certificate of Compliance No. 9357, Revision No. 1, for the Model No. SENTRY package. The staff's Safety Evaluation Report is also enclosed.

This approval constitutes authority to use the package for shipment of radioactive material and for the package to be shipped in accordance with the general license provisions of 10 CFR 71.17 and the provisions of 49 CFR 173.471.

If you have any questions regarding this certificate, please contact Pierre Saverot of my staff at (301) 492-3408.

Sincerely,

/RA/ B. H. White for

Michael D. Waters, Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9357
TAC No. L24646

Enclosures: 1. Certificate of Compliance No. 9357, Rev. No. 1
2. Safety Evaluation Report

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

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DISTRIBUTION:

(Closes TAC No. L24646) ADAMS Package No.: ML12179A455 ADAMS Memo # ML12179A459

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SAFETY EVALUATION REPORT
Model No. SENTRY Package
Certificate of Compliance No. 9357
Revision No. 1

SUMMARY

By application dated May 1, 2012, supplemented May 15 and May 22, 2012, QSA Global, Inc., submitted an amendment request for the Model No. SENTRY package. The amendment request, dated May 22, 2012, supersedes in its entirety the original application dated May 1, 2012, supplemented May 15, 2012.

The package, designed for the transport of Type B quantities of special form ^{60}Co radioactive material, includes three models, the Model Nos. SENTRY 110, SENTRY 330, and SENTRY 867. These models share the same common design but incorporate some variations to improve their functionality as radiography devices. The applicant requested to be allowed (i) the use of lockwashers and thread lubricant in place of the approved threadlocker configuration, and (ii) to use supplemental depleted uranium (DU) disks to the shield surface area where initial shield profiles indicate the unit may exceed the allowable transport limits.

NRC staff reviewed the amendment request using the guidance in NUREG 1609, "Standard Review Plan for Transportation Packages for Radioactive Material." Based on the statements and representations in the application, and the conditions listed below, the staff concludes that the package meets the requirements of 10 CFR Part 71.

EVALUATION

The applicant requested the optional use of lockwashers in combination with thread lubricant in place of threadlockers for the 48 screws and four bit bolts shown on sheet No. 4 of licensing drawing R86000, Rev. E. The staff finds this acceptable: such use does not impact the package's ability to meet the regulatory requirements of 10 CFR 71.51(a) since the aforementioned screws and bolts are not important to safety and have no torque requirements associated with their use.

The thread lubricant on sheet No. 4 of licensing drawing R86000, Rev. E, is described as "Aluminum, copper and graphite blend" and has not changed from the previously approved licensing drawing R86000, Rev. C. The applicant is aware of the potential for chloride-induced stress corrosion cracking (SCC) and uses lubricants, e.g., either "aluminum, copper, and graphite mixtures" or lubricants meeting MIL-PRF-23827C, that generally preclude the intentional addition of halide-bearing compounds that could potentially induce SCC. The applicant provided technical specifications that show that the Permatex lubricant does not contain any chlorides. The staff finds the use of non-chloride bearing lubricants in compliance with 10 CFR 71.43(d).

The applicant also requested to be allowed to attach supplemental DU disks to the shield surface when the initial shield profiles indicate that the finished package may exceed the allowable transport limits. The supplemental DU disks are temporarily taped or strapped to the shield until the addition of the polyurethane foam during the package fabrication process. Once solidified, the foam retains the added shielding in place and prevents any movement. The use of such supplemental shielding has been approved by staff for QSA Model Nos. 660, 680, and 741 with Docket Nos. 71-9283, 71-9035, and 71-9027, respectively. The supplemental shielding is not required to meet the requirements of 10 CFR 71.51(a)(2) under accident conditions. Based on previous approvals of similar packages designed, owned, or fabricated by QSA, and an operational history with no compliance issues as a result of the supplemental shielding with similar designs, the staff finds the use of supplemental shielding and the related temporary attachments acceptable for the Model No. SENTRY package.

The use of supplemental shielding does not change the currently approved shield weights for these packages, as listed on sheet No. 9 of licensing drawing R86000, Rev. E. The maximum DU thickness added is effectively limited by the radiation dose limits listed in note 6 on sheet No. 9 of that drawing, as shield's dose measurements that could be outside the regulatory limits would not be acceptable for supplemental shielding in this manner and would be rejected.

As specified on licensing drawing R86000, Rev. E, the ability to add DU shielding to the existing shield, that needs only minor spot shielding added to a limited area, is actually more limiting than what was previously allowed. This added shielding does not constitute the majority or even a significant portion of the composite shield weight.

The staff reviewed the application, as supplemented, and determined that the required documentation is available and complete.

Changes to Certificate of Compliance

The following changes have been made to the Certificate:

Condition No. 5 (a)(3) was updated to include Revision E of Drawing No. R86000.

Condition No. 9 was changed to specify that the supplemental shielding shall not exceed 5% of the DU casting, with a thickness not to exceed 0.5 inch.

Condition No. 10 was changed to authorize use of the previous revision of the certificate for a period of approximately one year.

Condition Nos. 9 and 10 of Revision 0 of the Certificate were renumbered Condition Nos. 11 and 12.

The May 22, 2012, submittal was included in the References section.

CONCLUSION

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

Issued with Certificate of Compliance No. 9357, Revision No. 1,
on June 27, 2012.