

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9035	22	71-9035	USA/9035/B(U)-96	1 OF	3

2. PREAMBLE

- a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

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| a. ISSUED TO (<i>Name and Address</i>)
QSA Global, Inc.
40 North Avenue
Burlington, MA 01803 | b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION
QSA Global, Inc., application dated
August 30, 2010, as supplemented. |
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4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

- (1) Model No.: 680-OP
- (2) Description

The Model No. 680-OP consists of a gamma ray projector within a protective steel container. The protective container is of welded steel construction and is approximately 32 inches (813 mm) long, 19 inches (483 mm) wide, and 18-1/2 inches (470 mm) high. Polyurethane foam and wood inserts locate the Model 680 series projectors in the center of the container and provide impact protection.

The 680 series projectors include the Model Nos. 680, 680E, 680A, 680AE, 680B and 680BE. The primary components of the projector consist of an outer steel shell, internal bracing, polyurethane foam, depleted uranium shield, and an "S" tube. The radioactive contents are securely positioned in the "S" tube by a source cable locking device and shipping plug. A 1/4-inch thick steel shipping plate is bolted over the source locking mechanism for additional protection during transport. Tamper-proof seals are provided on the outer steel container. The dimensions of the projector are approximately 21 inches (530 mm) long, 14-5/8 inches (372 mm) wide, and 11-13/16 inches (300 mm) high. The maximum weight of the package is 615 pounds (279 kg), and the maximum weight of the projector is 465 pounds (211 kg).

(3) Drawings

The packaging is constructed in accordance with QSA Global Inc., Drawing No. R68090, sheets 1-7, Rev. M, and R680-OP, sheets 1-7, Rev. M.

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5.(b) Contents

(1) Type and form of material:

Cobalt-60 as sealed sources which meet the requirements of special form radioactive material.

(2) Maximum quantity of material per package:

110 curies (4.1 TBq) (output)

Output curies are determined by measuring the source output at 1 meter and expressing its activity in curies derived from the following: 1.30 R/h-Ci cobalt-60 at 1 meter (Ref: American National Standards Institute, N432-1980, "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography").

(3) Maximum weight of contents: 0.09 pounds (40 grams)

6. The source shall be secured in the shielded position of the packaging by the source assembly lock; lock cap and safety plug assembly. The source assembly lock, lock cap and safety plug assembly must be fabricated of materials capable of resisting a 1475°F fire environment for one half hour and maintaining their positioning function. The locking ball of the source assembly must engage the locking device. The flexible cable of the source assembly and shipping plug must be of sufficient length and diameter to provide positive positioning of the source in the shielded position.

7. The nameplates shall be fabricated of materials capable of resisting the fire test of 10 CFR Part 71 and maintaining their legibility.

8. In addition to the requirements of Subpart G of 10 CFR Part 71:

(a) The package must meet the Acceptance Tests and Maintenance Program of Section 8 of the application; and

(b) Each package shall be operated and prepared for shipment in accordance with Section 7 of the application.

9. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

10. No support for replacement of "non-Posilock style" assemblies is allowed after September 2010. However, future manufacture and production of all package components, including the inner device, is authorized.

11. Revision No. 21 of this certificate may be used until October 31, 2011.

12. Expiration date: October 31, 2015.

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REFERENCES

QSA Global, Inc., application dated August 30, 2010.

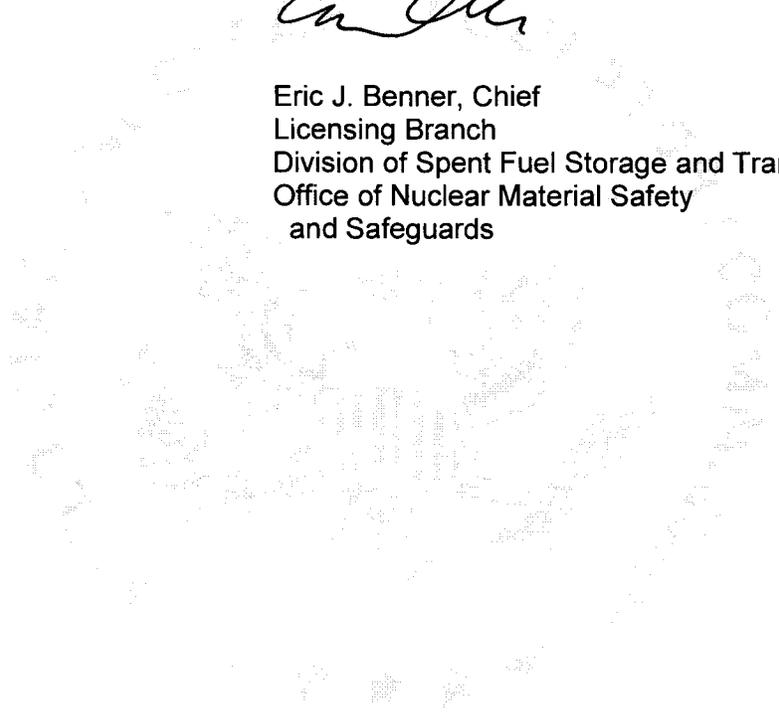
Supplements dated: September 21 and 28, 2010.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



Eric J. Benner, Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Date: October 12, 2010.





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

SAFETY EVALUATION REPORT
Model No. 680-OP Package
Certificate of Compliance No. 9035
Revision No. 22

SUMMARY

By application dated February 22, 2010, and supplemented March 26, March 29, April 15, August 30, September 21 and 28, 2010, QSA Global, Inc. (QSA) submitted an amendment request for the Model No. 680-OP package to include corrective measures taken to address issues identified in the 10 CFR 71.95 letter dated September 21, 2009, regarding the package overpack box steel construction. QSA also requested renewal of the Certificate of Compliance No. USA/9035/B(U)-96 for the Model No. 680-OP package. QSA submitted a consolidated application and requested that the package application review includes consideration of NUREG-1886, "Joint Canada-United States Guide for Approval of Type B(U) and Fissile Material Transportation Packages." The certificate has been renewed for a five year term.

NRC staff reviewed the application using the guidance in NUREG-1609, "Standard Review Plan for Transportation Packages for Radioactive Material" and NUREG-1886, "Joint Canada-United States Guide for Approval of Type B(U) and Fissile Material Transportation Packages." Based on the statements and representation in the application, as supplemented, and the conditions listed below, the staff concludes that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71. Staff reviewed the application against NUREG-1886, and found that the highlighted areas of emphasis have been appropriately addressed.

EVALUATION

By application dated February 22, 2010, and supplemented March 26, March 29, April 15, August 30, September 21 and 28, 2010, QSA submitted an amendment request for Certificate of Compliance (CoC) No. 9035 for the Model No. 680-OP package. The amendment request included corrective measures taken to address issues identified in the 10 CFR 71.95 letter dated September 21, 2009. QSA also requested renewal of the Certificate of Compliance No. USA/9035/B(U)-96, and provided a consolidated application as specified in 10 CFR 71.38 (c). The application dated August 30, 2010, Revision No. 14, supplemented on September 21 and 28, 2010, supersedes all previous revisions of the Safety Analysis Report. QSA requested approval of the package under the auspices of NUREG-1886.

On September 21, 2009, QSA submitted a 10 CFR 71.95 report advising staff of inconsistencies between the licensing drawings and the fabricated overpacks. In particular, QSA determined that some of the steel components were "cold-rolled," as opposed to "hot-rolled," and that the 1/16-inch thickness reference in QSA drawings was incorrect because the tolerance did not match either Society of Automotive Engineers (SAE) or American Society for Testing and Materials (ASTM) specifications. On October 26, 2009, staff concluded its evaluation and found that there was no safety concern regarding the replacement of "cold-rolled" steel with "hot-rolled" steel, provided that QSA required minimum mechanical properties as currently listed on the QSA procurement plan.

The substitution of SAE 1008 steel with steels of marginally higher carbon content (<0.15% C) was found to be acceptable to the staff because all plain carbon steels, with carbon contents below 0.15%, have equivalent weldment properties. As part of the corrective actions taken by the applicant, the manufacture of the overpack box component of this package was stopped until NRC approval of this amendment request.

Materials specifications for the steel components of the overpack box are specified on the licensing drawings. Material properties referenced in Section No. 2.2.1 of the application have been revised to reflect all applicable steel material specifications used in the package.

The applicant clarified that sheet steel which is important to safety on the package will meet ASTM A1008, A1011, or A1018 standards. These standards do not list mandatory mechanical properties; however, the staff finds this clarification acceptable. The overpack acts as a sacrificial impact limiter and the foam and wood inside the overpack (not the sheet steel) are primarily responsible for limiting the impact on the projector. Therefore, the staff finds this change acceptable. The applicant also clarified that the shell weldment of the projector is constructed of ASTM A1018 steel. The A1018 standard does not list mandatory minimum properties, only typical properties. Since the projector itself was not damaged during the drop accident, the staff finds this clarification acceptable.

The applicant clarified that component safety classification is based on NUREG/CR-6407 and that Quality Class A components on the package are considered important to safety. The material specifications for the lock slide and locking pin components, both Quality Class A components important to safety, have been added to the licensing drawings.

The applicant also requested that the nylon webbing applied to the wood inserts inside the overpack be considered optional. This will not affect the operation of the package. The staff finds this change acceptable.

The applicant clarified that fasteners which are important to the safe operation of the Model No. 680-OP package and undergo maintenance or replacement, will either have minimum mechanical properties specified on the licensing drawings or will be specified by an ASTM or SAE standard. This change is consistent with the guidance in Section 2.5.2.1 of NUREG 1609, "Standard Review Plan for Transportation Packages for Radioactive Material," which the staff finds acceptable.

The safety-related components of the Posilock assembly apply ASTM standards to the materials used for the fabrication of the components. The staff finds that the standards specified by the applicant are acceptable.

The applicant clarified that American Welding Society (AWS) code D1.1 will also be used for the welding, examination, and repair of the 680 projectors manufactured after May 2010. The use of this code in the fabrication of the package is acceptable to the staff in accordance with the guidance found in Section 2.5.3.1 of NUREG 1609.

The applicant stated that there will be no support for replacement of "non-Posilock style" assemblies after September 2010. However, future manufacture and production of all package components, including the inner device, is authorized.

The staff reviewed the consolidated 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)(2) was updated to include dimensions in SI units.

Condition No. 5(a)(3) was updated to include revision M of Drawing No. R 74190.

Condition No. 5(b)(3) was added to include the maximum weight of the contents.

Condition No. 10 was rewritten to clarify that future manufacture and production of all package components, including the inner device, is authorized.

Condition No. 11 (previously known as Condition No. 10 in Revision No. 21 of the certificate) was revised to authorize use of the previous revision of the certificate for a period of approximately one year.

Condition No. 12 (previously known as Condition No. 11 in Revision No. 21 of the certificate) was revised to indicate the new expiration date of the certificate.

The August 30, 2010, submittal, supplemented September 21 and 28, 2010, supersedes all previous revisions of the application and was included in the References section.

CONCLUSION

The certificate has been renewed for a five year term which expires on October 31, 2015. Based on the statements and representations contained in the application, as supplemented, and the conditions listed above, the staff concludes that the design of the Model No. 680-OP package has been adequately described and evaluated. The staff concludes that the changes indicated do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9035, Revision No. 22,
on October 12, 2010.