



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

April 10, 2015

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

SUBJECT: REVISION NO. 8 OF CERTIFICATE OF COMPLIANCE NO. 9269 FOR THE
MODEL NO. 650L SERIES OF TRANSPORTATION PACKAGES

Dear Ms. Podolak:

As requested by your application dated January 13, 2015, as supplemented March 23, 2015, enclosed is Certificate of Compliance (CoC) No. 9269, Revision No. 8, for the Model No. 650L 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.

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. This 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 49 CFR 173.471.

If you have any questions regarding this certificate, you may contact me or Huda Akhavannik of my staff at 301-287-9241.

Sincerely,

/RA/

Michele Sampson, Chief
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9269
TAC No. L24984

Enclosures: 1. CoC No. 9269, Rev. No. 8
2. Safety Evaluation Report
3. Registered Users

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cc w/encls. 1 & 2: R. Boyle, Department of Transportation
J. Shuler, Department of Energy, c/o L. F. Gelder
Registered Users



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NUCLEAR REGULATORY COMMISSION**
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**SAFETY EVALUATION REPORT
Docket No. 71-9269
Model No. 650L
Certificate of Compliance No. 9269
Revision No. 8**

SUMMARY

By application dated January 13, 2015, as supplemented March 23, 2015, QSA Global, Inc. (QSA), requested amendment to Certificate of Compliance (CoC) No. 9269, for the Model No. 650L transportation package. QSA requested revising the CoC to include the ability to use a new version of the drawings. This request is in response to a December 8, 2014, interim amendment request where a previous version of their drawings, Revision H, was approved to be used for a period of a year. This provision allowed time for packagings to have been retrofitted to Revision J of the drawings which was then the most current version. Revision K of the licensing drawings also includes other minor drawing changes and also includes some minor changes in the safety analyses report (SAR). Additionally, QSA requested renewal of the package. Staff reviewed these changes and concludes that they do not affect the ability of the package to meet the requirements of 10 CFR Part 71. The certificate has been renewed for a 5 year term.

EVALUATION

By application dated January 13, 2015, as supplemented March 23, 2015, QSA requested amendment to CoC No. 9269 for the Model No. 650L transportation package. The Model No. 650L package is designed as an industrial radiography source changer and transport package for Type B quantities of special form radioactive material. The package as described in the SAR, consists of a welded carbon steel shell encasing a uranium shield which houses a titanium U tube. It measures approximately 13 ¼ inches tall x 10 inches wide x 8 ¼ inches deep, with maximum weight of 90 pounds, with an inner rectangular shell and an outer cylindrical shell. The description also provides that the package has a lid made of carbon steel, secured to the top plate by four stainless steel 3/8-16 hex head bolts with optional steel washers designed to protect the package during transport.

This application is in response to a letter dated December 9, 2014 (ML14344A271) where staff approved an interim amendment primarily to allow for use of a previous revision of the licensing drawings, Revision H. In the December 9, 2014, letter, the details regarding that interim amendment are described. In that interim amendment, the staff conditioned the CoC to allow for the packages to be compliant with Revision H of the drawings for one year. However, any welding, inspection, and replacement components would be completed with the latest revision of the drawings. Additionally, staff conditioned the CoC to allow for the packages to be compliant despite components and finishes existing on the actual packages that were omitted from the drawings. In that one year period, QSA would have needed to evaluate the need to incorporate the omissions to the drawings and develop an application. Finally, staff indicated in the safety evaluation report that QSA and the licensees of this package would be required to

submit a written report to the Commission of instances in which the conditions of approval in the CoC were not observed in making a shipment, in accordance with 10 CFR 71.95(a)(3). In their January 13, 2015, application, QSA both developed an application to incorporate the changes resulting from the interim amendment, requested additional drawing changes, and also submitted their 10 CFR 71.95 report. As part of these changes, staff also reviewed page changes to their SAR.

QSA requested minor drawing changes such as allowing for the option for the external surface of the package to be painted and added attachment rivets for the package's shipping label. Clarifications on the material descriptions of various components of the package, such as the lock assembly and through bolt, were also added. Based on the minor materials changes and revisions made to the QSA Model No. 650L SAR and drawings, the staff concludes that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

The package is constructed in accordance with the Drawing No. R65006, Sheets 1 through 5, Rev. L. QSA also added notations to specify a 1/16 inch gap between the outer sleeve and top and bottom plates of the unit and increased the finished assembly dimension tolerances to allow for ± 1 inch in height and $\pm 1/8$ in width and length. Considering the overall size and weight of the package as mentioned above, the staff determined that these changes in tolerances are very minor, and therefore concludes that these minor changes in tolerances will not affect the package weight and/or overall dimension, so as to meaningfully affect the structural performance of the package during the package lift-off and tie-down process. In addition, the staff confirmed that when the package is subjected to various 10 CFR Part 71 regulatory normal conditions of transport; and hypothetical accident drop conditions, the effect on the damage conditions described in the SAR will essentially remain the same, as the changes are minor. Therefore staff has reasonable assurance that the package will continue to meet the applicable structural requirements of the 10 CFR Part 71 regulations.

Additional drawing changes are revising the weld call out for the lid weldment to allow for six welds at the top and bottom plates. This allows for greater flexibility in that the exact location of the welds is not specified. The weld nut material is also specified to be austenitic grade stainless steel listed in ASTM A493. Another welding change is the weld nut on the through bolt attachment is revised to be a spot weld as opposed to an optional tack weld. Based on the minor materials changes and revisions made to the QSA Model No. 650L SAR and drawings, the staff concludes that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

QSA also requested the option for the inner shell and outer sleeve to be stainless steel or the already approved carbon steel. QSA also added the option for the shipping cap, including the spring and plunger, to be stainless steel for increased flexibility. In a conference call with QSA (ML15082A109), NRC staff discussed the possibility of any corrosion resulting from contact between carbon and stainless steel. The applicant indicated that there are some places where contact is made, such as bolts, but that their maintenance program contains inspections that would allow for replacement of any parts showing signs of corrosion. As a result, the staff concludes that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Sheet 3 of the drawings was updated to include a material strength table for the lock screw. The material strength table includes mechanical properties similar to 18-8 and 300 Series stainless steels. In a conference call with QSA, NRC staff asked for an explanation regarding the table that has been added to the drawing which provides material characteristics for replacement screws on the lock assembly. QSA explained that these replacement bolts are commercially available but are not assigned to a specific standard. Because of this, the

properties of the bolts, which are confirmed by QSA, are listed in the table on the drawing. As a result, the staff concludes that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

The notes in the drawings were also revised. Note 2 was revised to add additional applicable weld code standards, AWS D1.1 and 9.1, for all the sub-assemblies of the package and to remove code revision references. Note 4 was revised to remove the revision reference to code ASTM A276, Condition A, because referencing to a specific revision of the code is unnecessarily restrictive. Note 1 was revised to add 304/304L stainless steel in addition to SAE 30304 per AMS5513. As these materials are all corrosion resistant stainless steels with essentially equivalent material strength and ductility, the components are expected to perform the same as 304 stainless steel which was used in the test units of this package. Note 3 was revised to add the 304 stainless steel in addition to ASTM F593 Group 1, Condition A. Note 7 was revised to add ASTM A666 stainless steel in addition to the carbon steel standard. A new note, Note 8, was added to specify the weld nut material as austenitic grade stainless steel as listed in ASTM A493. Finally, Note 5 was deleted. Based on the minor materials changes and revisions made to the QSA Model No. 650L SAR and drawings, 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 page changes made in the application and agrees that they are consistent with the drawing changes. Additional page changes made were to include a new certificate for their special form sources and to remove any details relating to the manufacture of new units as no new units will be made.

Staff reviewed these changes and concludes that they do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

CONDITIONS

Condition No. 5.(a)(2), "Description," has been revised to include stainless steel in addition to carbon steel for the inner and outer shells and to add greater detail and clarify to the description of the package. Staff noted that previously, the description inadvertently appeared to include stainless steel to the outer shell when it should have only been carbon steel. This has now been corrected to include both stainless and carbon steels for those components.

Condition No. 5.(a)(3), "Drawings," has been updated to include the latest revision of the drawings, Revision L.

Condition No. 9 has been updated to remove the conditions related to the interim amendment. These conditions are no longer necessary as they are reflected in the latest revision of the drawings.

The deleted conditions are:

- (a) Packagings and replacement components fabricated in accordance with Drawing No. R65006, Rev. H, sheets 1-4, may continue to be used until November 30, 2015.
- (b) Replacement components installed after December 31, 2014, shall be fabricated in accordance with Drawing No. R65006, Rev. J, sheets 1-5.

- (c) All welding and inspection shall be performed in accordance with Drawing No. R65006, Rev. J, sheets 1-5.

Condition No. 9 now reads, "Fabrication of new packagings is not authorized. However, fabrication of replacement components needed to support shipment of existing packages is authorized, except for the depleted uranium shield and the inner carbon steel shell."

Condition No. 10 has been updated to say, "The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17." This condition previously stated, "Packages with titanium sleeves on the outside of the titanium source tubes not shown on the drawing may be used until November 30, 2015." This condition was a result of the interim amendment and is no longer necessary as it is reflected in the latest version of the drawings.

Condition No. 11 has been replaced to include the expiration date of the certificate. Previously, Condition No. 11 stated, "Packages with surface finish details on the outer carbon steel sleeve not shown on the drawing may be used until November 30, 2015." This condition was a result of the interim amendment and is no longer necessary as it is reflected in the latest version of the drawings.

Condition No. 12 has been deleted and is reflected in the current Condition No. 10.

Condition No. 13 has been deleted and is reflected in the current Condition No. 11.

The references section has been updated to include this request.

CONCLUSION

Based on the statements contained in the application, and the conditions listed above, 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. 9269, Revision No. 8,
on April 10, 2015.

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