



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

April 15, 2016

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

SUBJECT: REVISION NO. 5 OF CERTIFICATE OF COMPLIANCE NO. 9357 FOR THE  
MODEL NO. SENTRY TRANSPORTATION PACKAGE

Dear Ms. Podolak:

As requested by your application dated February 29, 2016, as supplemented on March 25, 2016, enclosed is Certificate of Compliance No. 9357, Revision No. 5, for the Model No. SENTRY 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.

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 10 CFR 71.17 or 49 CFR 173.471.

If you have any questions regarding this certificate, you may contact me or Bernard White of my staff at 301-415-6577.

Sincerely,

**/RA Jose Cuadrado Acting for/**

Steve Ruffin, Acting Chief  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 71-9357  
CAC Nos. L25090 and L25091

Upon removal of Enclosure 3,  
this document is uncontrolled.

Enclosures: 1. Certificate of Compliance  
No. 9357, Rev. No. 5  
2. Safety Evaluation Report  
3. Registered Users

cc w/encls 1 and 2: R. Boyle, DOT  
J. Shuler, DOE, c/o L. F. Gelder

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Closes CAC Nos. L25090 and L25091

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**ADAMS Package No.: ML16109A181 LTR/SER: ML16109A194 CoC: ML16109A201**

**Enclosure 3: ML16109A204**

<b>OFC:</b>	DSFM	DSFM	DSFM	DSFM	DSFM
<b>NAME:</b>	BWhite	WWheatley via email	ARigato via email	DForsyth via email	DTarantino via email
<b>DATE:</b>	4/8/16	4/13/16	4/8 /16	4/13/16	4/12/16
<b>OFC:</b>	DSFM	DSFM	DSFM	DSFM	
<b>NAME:</b>	ACsontos for CMorell via email	JSmith for MRahimi via email	ACsontos via email	SEverard for JPiotter	JCuadrado for SRuffin
<b>DATE:</b>	4/14/16	4/13/16	4/14/16	4/13 /16	4/15/16



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**SAFETY EVALUATION REPORT**  
**Docket No. 71-9357**  
**Model No. SENTRY**  
**Certificate of Compliance No. 9357**  
**Revision No. 5**

**SUMMARY**

By application dated February 29, 2016, as supplemented on March 25, 2015, QSA Global (QSA or the applicant) requested a renewal and amendment to Certificate of Compliance (CoC) No. 9357, for the Model No. SENTRY transportation package. QSA requested revisions to the CoC which include changes made to the drawings to more accurately describe the fabricated package and to correct minor errors found as part of a report sent to the U.S. Nuclear Regulatory Commission (NRC) pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 71.95. Note that any NRC general license in 10 CFR 71.17 or offeror under Department of Transportation regulations in 49 CFR 173.471 must comply with the terms and conditions of the certificate, which include ensuring that the package is fabricated in accordance with the drawings referenced in the certificate of compliance.

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.

**EVALUATION**

By application dated February 29, 2016, as supplemented on March 25, 2016, QSA requested an amendment to Certificate of Compliance No. 9357, for the Model No. SENTRY transportation package. QSA requested revision to the certificate to include changes made to the drawings to more accurately describe the fabricated package and to correct minor errors found as part of a 10 CFR 71.95 report analysis. QSA discovered errors on the package drawings referenced in the certificate. The errors are a result of the production drawings of the package not meeting the licensing drawings specified in the certificate of compliance.

The applicant discovered errors regarding the specification of stainless steel alloys. On the nameplate rivets, the production drawings specify the rivet material to be "300 Series stainless steel" whereas the licensing drawings specify the stainless steel material as "302, 304, 304L or 316 stainless steel." Therefore, it is possible, although not confirmed by the applicant, that some of the fabricated units meet a stainless steel grade not specified in the licensing drawings. As all 300 series stainless steels are expected to withstand the normal conditions of transport and hypothetical accident condition tests, staff determined that the nameplate can be any 300 series stainless steel. Staff accepts the change to the licensing drawings to specify the nameplate as 300 series stainless steel.

Similarly, the dust cover lanyard material is specified to be any nylon coated 300 Series stainless steel whereas the licensing drawings specify the stainless steel material as nylon coated 302 or 304 series stainless steel. The purpose of the dust cover lanyard is to prevent the loss of the dust cover assembly when it is not secured to the lock assembly and so it does not have any impact of the package safety or integrity during transport. QSA requested changing the material to be any nylon coated stainless steel. Staff reviewed the change and determined that the dust cover lanyard can be any nylon coated stainless steel and accepts the change to the licensing drawing.

The applicant also requested removing the stainless steel alloy specification from the front plate slider/shaft spring. In the licensing drawing, the slider spring material is requested to meet, "Type 301, 302, 304 or 17-7PH stn stl per ASTM A313 or A666." The production drawings, however, only specify the shaft spring to be stainless steel without the additional material requirements.

QSA requested changing the welding of the shield rings to the endplates from 1/16-inch fillet welds to tack welds done in four places. QSA stated that the previously approved fillet welds do not affect the structural integrity of the package as the shield rings are used during assembly to elevate the Sentry 110 package. Staff determined that the use of tack welds as opposed to 1/16-inch fillet welds will not adversely impact the shield ring welding to the endplates.

## **STRUCTURAL EVALUATION**

Of the seven items belonging to the 10 CFR 71.95(a)(3) request and change item a, only the modification to the welds around the shield rings of the SENTRY 110 were examined in this portion of the safety evaluation report.

Previously, on Drawing No, R86000, Rev. R, Sheet, 2 a 1/16" fillet weld all the way around symbol was indicated for the shield ring to shell connection shown in Section B2-B2. The applicant requested the use of a tack weld in four places and annotated the weld as not important to safety. The applicant described this weld as only facilitating assembly as the final shield assembly itself will be held in place by the polyurethane foam fill, four end plate rivnuts and assembly compression and friction. According to the applicant, in the event that the shield ring were no longer supporting the shield, the shield would be supported by the titanium shield pins that belong to the welded port assemblies. The applicant described how the source contained within the depleted uranium shield would continue to remain secured in place in the event that the shield rings were not present during drop scenarios. Given this, the applicant stated that hypothetical accident conditions would not have an adverse effect on package integrity by this change and the source assembly will not move from its shielded position. The staff reviewed the applicant's evaluation and agrees that the weld is not important to safety because the foam, end plate rivnuts, and assembly compression hold the shielding in place. Therefore, the staff agrees the weld will not affect the structural performance of the package with respect to the tests and conditions in 10 CFR 71.71 and 10 CFR 71.73.

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

## **CONDITIONS**

Condition No. 5(a)(3) was revised to include Drawing No. R86000, Rev. R, sheets 1-11.

Condition No. 10 has been removed which authorized continued use of the previous revision for up to 1 year and items 11 and 12 were renumbered accordingly.

The references section has been updated to include this application and its supplement.

## **CONCLUSION**

Based on the statements and representations in the application, as supplemented, and with the conditions listed above, the staff agrees that with these changes, the package continues to meet the requirements of 10 CFR Part 71.

Issued with CoC No. 9357, Revision No. 5,  
on 4/15/16.