

August 25, 2011

Mr. William M. Arnold, President  
Century Industries  
P.O. Box 17084  
Bristol, VA 24209

SUBJECT: REVISION NO. 5 OF CERTIFICATE OF COMPLIANCE NO. 9342 FOR THE  
MODEL NO. VERSA-PAC PACKAGE

Dear Mr. Arnold:

As requested by your application dated August 4, 2011, enclosed is Certificate of Compliance No. 9342, Revision No. 5, for the Model No. Versa-Pac 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 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.

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

Sincerely,

**/RA/**

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

Docket No. 71-9342  
TAC No. L24555

Enclosures: 1. Certificate of Compliance  
No. 9342, Rev. No. 5  
2. Safety Evaluation Report  
3. Registered Users

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

Mr. William M. Arnold, President  
Century Industries  
P.O. Box 17084  
Bristol, VA 24209

SUBJECT: REVISION NO. 5 OF CERTIFICATE OF COMPLIANCE NO. 9342 FOR THE MODEL NO. VERSA-PAC PACKAGE

Dear Mr. Arnold:

As requested by your application dated August 4, 2011, enclosed is Certificate of Compliance No. 9342, Revision No. 5, for the Model No. Versa-Pac 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 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.

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

Sincerely,

**/RA/**

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

Docket No. 71-9342  
TAC No. L24555

Enclosures: 1. Certificate of Compliance  
No. 9342, Rev. No. 5  
2. Safety Evaluation Report  
3. Registered Users

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

Distribution: (Closes TAC No. L24555)

G:\SFST\PART 71 CASEWORK\71-9342.R5.doc ; G:\SFST\PART 71 CASEWORK\9342.R5.Letter&SER.doc

**ADAMS Package No.: ML112411261**

|              |            |          |          |      |  |  |  |  |  |
|--------------|------------|----------|----------|------|--|--|--|--|--|
| <b>OFC:</b>  | SFST       | SFST     | SFST     | SFST |  |  |  |  |  |
| <b>NAME:</b> | PSaverot   | MDeBose  | MWaters  |      |  |  |  |  |  |
| <b>DATE:</b> | 08/09/2011 | 08/11/11 | 08/25/11 |      |  |  |  |  |  |

**C = COVER**

**E = COVER & ENCLOSURE**

**N = NO COPY**

**OFFICIAL RECORD COPY**

SAFETY EVALUATION REPORT  
Model No. Versa-Pac Package  
Certificate of Compliance No. 9342  
Revision No. 5

## **SUMMARY**

By application dated August 4, 2011, Century Industries submitted an amendment request for the Model No. Versa-Pac package. The applicant did not request any changes to the package design or to the package's authorized contents, but requested a clarification in the description of the TRISO fuel materials.

## **EVALUATION**

By application dated August 4, 2011, Century Industries submitted an amendment request for Certificate of Compliance (CoC) No. 9342 for the Model No. Versa-Pac package. The applicant did not request any design changes to the package.

In CoC Revision No. 3, staff had approved Th-232, contained in High Temperature Gas Reactor TRISO fuel material, as authorized contents for the package. The contents were described as C/SIS/C coated ThUC<sub>2</sub> particles pressed with a carbon matrix to form rods, with each rod containing up to 0.4 grams U-235. The CoC, Revision No. 3, specified a maximum quantity of TRISO fuel material of 875 rods, based on 0.4 grams U-235 per rod and the 350 gram U-235 CoC limit for the package.

The applicant advised staff that (i) TRISO fuel rods contained in fact less U-235 than previously reported and (ii) the package could only be "partially filled" when using the number of rods (875) as the limiting factor. The applicant stated that the package was only containing an average of 110 grams of U-235 for shipments made under such conditions versus an allowed 350 grams U-235 limit. Thus, the applicant requested that CoC Condition No. 5(b)(2)(ii) be re-written to specify that the allowable number of TRISO fuel rods be in fact limited by the 350 grams U-235 limit and not by the equivalent number of fuel rods based on a theoretical upper limit of 0.4 gram U-235 per rod.

The staff finds that the requested clarification for the maximum quantity of the authorized contents as TRISO fuel is acceptable and does not affect the ability of the package to meet the requirements of 10 CFR Part 71. A limit of 350 grams U-235 is subcritical regardless of the configuration and number of corresponding rods, as evaluated in Revision No. 3 of the CoC.

### Changes to Certificate of Compliance

The following change is included in Revision No. 5 to Certificate of Compliance No. 9342:

Condition No. 5(b)(2) was revised to clarify that the maximum quantity of material, including the allowable number of TRISO fuel rods containing Th-232, is limited by a total quantity not to exceed 350 grams of U-235, enriched up to 100 weight percent.

The expiration date of the certificate was not modified.

The August 4, 2011, submittal was included in the References section.

## **CONCLUSION**

Based on the statements and representations in the application, the staff has reviewed the proposed changes for the Model No. Versa-Pac package. 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. 9342, Revision No. 5,  
on August 25, 2011