

December 9, 2005

Mr. Patrick L. Paquin  
General Manager - Engineering and Licensing  
Duratek  
140 Stoneridge Drive  
Columbia, SC 29210

SUBJECT: MODEL NO. CNS 10-160B TRANSPORTATION PACKAGE

Dear Mr. Paquin:

As requested by your application dated October 26, 2005, supplemented December 2 and 7, 2005, enclosed is Certificate of Compliance No. 9204, Revision No. 11, for the Model No. CNS 10-160B 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 these packages for shipment of radioactive material and for the packages 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. Registered Users may request by letter to remove their names from the Registered Users List.

If you have any questions regarding this certificate, please contact me or Meraj Rahimi of my staff at (301) 415-8500.

Sincerely,

**/RA/**

Robert A. Nelson, Chief  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 71-9204  
TAC No.: L23917

Enclosures: 1. Certificate of Compliance No. 9204, Rev. No. 11  
2. Safety Evaluation Report  
3. Registered Users

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

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SAFETY EVALUATION REPORT  
Docket No. 71-9204  
Model No. CNS 10-160B Package  
Certificate of Compliance No. 9204  
Revision No. 11

## **SUMMARY**

By application dated October 26, 2005, as supplemented December 2 and 7, 2005, Duratek requested an amendment to Certificate of Compliance (CoC) No. 9204, Revision No. 10, for the Model No. CNS 10-160B package. The amendment requested for the approval of a site-specific "10-day controlled-shipment" from Battelle Columbus Laboratories. Appendix 4.10.2 of the Safety Analysis Report (SAR) contains the necessary changes for this amendment request.

Based on the statements and representations in the application, the staff agrees that the changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

### **Appendix 4.10.2**

The applicant modified the text of this Appendix so that the specification of shipping period (number of days from sealing of the cask at the loading facility until opening of the cask at unloading facility) be solely addressed in Attachment C. Prior to this modification, a shipping period of 60 days was specified throughout this Appendix while its Attachment C already mentioned that a shorter, site-specific shipping period could be developed and included in the appropriate site-specific sub tier appendix. The proposed modifications do not affect the intended generality of Appendix 4.10.2.

#### **Sub Tier Appendix 4.10.2.1**

The applicant included a new Attachment C, where a site-specific shipping period of 10 days is proposed for shipments originating from the Battelle Columbus Laboratories Decommissioning Project (BCLDP) waste site. The shipping period encompasses loading, transport, and unloading times. This "controlled shipment" option is based on more stringent administration controls; otherwise, the original 60-day shipping option is still available. In addition, controlled shipments should only be approved if the route distance between shipping site and receiving site is less than or equal to 2283 miles.

Under "controlled-shipment," the loading time (time between the sealing of the inner vessel (IV) of the packaging and the departure of the package from the site) must be accomplished within 24 hours. If this time limit is not achieved, the package must be vented for a time at least equal to the amount of time the IV was sealed before the closure process is restarted. A transport time (time between the departure of the package from the site and its arrival at the receiving site) of 8 days is proposed, based on an analysis of the average truck speed and the distances between several DOE sites and the WIPP site, and relying on the establishment of administrative controls to guarantee fast responses. Once the package has arrived at the

receiving site, the unloading time (time between receiving the package and starting to unload) must not be exceed 24 hours.

The applicant addresses several expected factors (such as vehicle inspections, fueling, meals, driver relief, and state inspections) and potential factors (such as adverse weather, vehicle accidents, mechanical problems, driver illness) that may adversely challenge the 8-days transport period that is being proposed. It is imperative that appropriate administrative controls be established to guarantee successful shipments. The applicant proposes the use of DOE TRU waste transportation protocol for controlled shipments in addition to the TRANSCOM system used by DOE TRU waste transporters which provides continuous tracking of the shipment during transport.

Based on the proposed “10-day controlled-shipment,” a new set of hydrogen gas generation rate and thermal characteristics are required from the BCLDP content codes prior to loading for transportation as shown in Table 1.

Table 1: Allowable Limits (10-day controlled-shipment)

Content Code	Hydrogen Gas Generation Limit per Drum (mol/s)	Dose #0.012 watt.year		Dose > 0.012 watt.year	
		Decay Heat Limit per Drum (watts)	Decay Heat Limit per Cask (watts)	Decay Heat Limit per Drum (watts)	Decay Heat Limit per Cask (watts)
<b>BC 121A</b>	6.848E-8	0.164	1.64	0.482	2.26 <sup>a</sup>
<b>BC 121B</b>	9.691E-8	0.277	2.26 <sup>a</sup>	0.814	2.26 <sup>a</sup>
<b>BC 312A</b>	5.431E-8	— <sup>b</sup>	— <sup>b</sup>	— <sup>b</sup>	— <sup>b</sup>
<b>BC 314B</b>	5.431E-8	1.142	11.42	1.142	11.42
<b>BC 321A</b>	5.431E-8	0.197	1.97	0.402	2.26 <sup>a</sup>
<b>BC 321B</b>	5.431E-8	0.371	3.71	0.417	4.17
<b>BC 322B</b>	5.431E-8	34.27	100.0	34.27	100.0

<sup>a</sup> constrained by total decay heat that will comply with design pressure limit.

<sup>b</sup> no decay heat limits due to unknown G value; compliance must be demonstrated by measurement of hydrogen generation rate per Section 4 of Attachment B.

The original limits based on 60-day shipping period (and shown in Table 10-1A of the application) still apply, in case the “10-day controlled-shipment” is not an option.

The staff independently reproduced/verified most of the results presented by the applicant and agrees with the proposed new hydrogen generation rate and decay heat limits under controlled shipment.

No other changes were made to any other parts of the SAR.

### **CONDITIONS**

Condition No. 13 was added to the certificate to authorize use of the previous revision of the certificate for a period of approximately one year.

### **CONCLUSION**

The Certificate of Compliance has been revised to reference Revision No. 20 of the SAR with the associated changes. The changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9204, Revision No. 11 on December 9, 2005.