February 11, 2008

Mr. T. E. Sellmer, Manager
Packaging Integration
Washington TRU Solutions, LLC
P.O. Box 2078
Carlsbad, NM 88221-2078

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON TRUPACT-II AND HalfPACT AMENDMENT REQUESTS

Dear Mr. Sellmer:

By the application dated July 18, 2007, Washington TRU Solutions, LLC, requested approval of amendments to Certificate of Compliance No. 9218, Revision No. 21, for the Model No. TRUPACT-II package and Certificate of Compliance No. 9279, Revision No. 4, for the Model No. HalfPACT package. The enclosed request for additional information (RAI) identifies additional information needed by the U.S. Nuclear Regulatory Commission (NRC) staff in connection with its review of the application for the amendments. NUREG 1609 "Standard Review Plan for Transportation Packages for Radioactive Material" was used by the staff in its review of the application.

Each individual RAI describes information needed by the staff to complete its review of the application and/or the SARs and to determine whether that applicant has demonstrated compliance with the regulatory requirements.

You may contact me at 301-492-3338 if you have any questions regarding the attached RAI.

Sincerely,

/RA/
Meraj Rahimi, Senior Project Manager
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket Nos.: 71-9218 & 71-9279
TAC Nos.: L24110 & L24111

Enclosure: Request for Additional Information

cc w/encl: R. Boyle, Department of Transportation
J. M. Shuler, Department of Energy

February 11, 2008

Mr. T. E. Sellmer, Manager
Packaging Integration
Washington TRU Solutions, LLC
P.O. Box 2078
Carlsbad, NM 88221-2078

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON TRUPACT-II AND HalfPACT AMENDMENT REQUESTS

Dear Mr. Sellmer:

By the application dated July 18, 2007, Washington TRU Solutions, LLC, requested approval of amendments to Certificate of Compliance No. 9218, Revision No. 21, for the Model No. TRUPACT-II package and Certificate of Compliance No. 9279, Revision No. 4, for the Model No. HalfPACT package. The enclosed request for additional information (RAI) identifies additional information needed by the U.S. Nuclear Regulatory Commission (NRC) staff in connection with its review of the application for the amendments. NUREG 1609 "Standard Review Plan for Transportation Packages for Radioactive Material" was used by the staff in its review of the application.

Each individual RAI describes information needed by the staff to complete its review of the application and/or the SARs and to determine whether that applicant has demonstrated compliance with the regulatory requirements.

You may contact me at 301-492-3338 if you have any questions regarding the attached RAI.

Sincerely,
/RA/
Meraj Rahimi, Senior Project Manager
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket Nos.: 71-9218 & 71-9279
TAC Nos.: L24110 & L24111
Enclosure: Request for Additional Information
cc w/encl: R. Boyle, Department of Transportation
J. M. Shuler, Department of Energy

DISTRIBUTION:

PUBLIC Docket File 71-9218 Docket File 71-9279 S. Baggett
R. Bellamy, I D. Collins, II J. Madera, III B. Spitzberg, IV

G:\SFPO\Rahimi\71-9218\REV22\REV22RAI.wpd *previously concurred8

OFC:	SFST	E	SFST	E	SFST	E	SFST	C	SFST	N
NAME:	MRahimi*		TChuang*		PLien*		MDebose		CRegan	
DATE:	1/30/08		1/31/08		1/31/08		02/01/08		02/01/08	
OFC:	SFST	N	SFST	N						
NAME:	MWaters		Nelson							
DATE:	02/08/08		02/11/08							

C = COVER E = COVER & ENCLOSURE N = NO COPY OFFICIAL RECORD COPY

REQUEST FOR ADDITIONAL INFORMATION

Docket Nos. 71-9218 and 71-9279
Model Nos. TRUPACT-II and HalfPACT
Certificates of Compliance No. 9218 and 9279

This document, titled Request for Additional Information (RAI), contains a compilation of additional information requirements identified to date by the U.S. Nuclear Regulatory Commission (NRC) staff, during its review of Washington TRU Solutions' application for approval of amendments to the Certificates of Compliance (CoC) for the TRUPACT-II and HalfPACT packages under 10 CFR Part 71. The RAIs apply both to TRUPACT-II and HalfPACT unless it is stated otherwise.

Each individual RAI describes information needed by the staff to complete its review of the application and to determine whether Washington TRU Solutions has demonstrated compliance with the regulatory requirements.

1.0 GENERAL INFORMATION

1-1 Provide a strike-out/italics version of the revised SAR to clarify specific changes that are being requested.

In reviewing the submittal, the staff finds it difficult to identify the modification with only change bars shown on the new revision. The staff had to compare both versions word by word. The process was time consuming and error prone. The staff needs to identify all changes to the previously-approved technical basis.

This information is required by the staff to assess compliance with 10 CFR 71.31(a)(1) and 71.35(a).

1-2 Provide reference of GN58 in the weld symbol for optional joint weld configuration with complete joint penetration (CJP) at locations affected, such as OCV vent port in Zone C-3 of Drawing No. 2077-500SNP sheet 4 of 11.

An optional joint configuration for welds with CJP is added to GN58 at a number of locations. One such weld is a square groove with 3/8-inch fillet cap weld located at Outer Containment Vessel (OCV) vent port in Zone C-3 of Drawing No. 2077-500SNP, sheet 4 of 11. However, the associated weld symbol was not referred by the amended GN58. Apparently this revised GN58 should be referred in the weld symbol for all welds affected.

This information is required by the staff to assess compliance with 10 CFR 71.31(a)(1) and 71.33(a)(5).

1-3 Provide an enlarged drawing indicating the weld location in Detail U of sheet 6 of 11, Drawing No. 2077-500SNP

In the drawing sheet 6, Detail U, the welding symbol is not clear. An enlarged drawing showing the weld location should be provided.

This information is required by the staff to assess compliance with 10 CFR 71.31(a)(1) and 71.33(a)(5).

1-4 Analyze the effect of honeycomb spacer configuration modification on the void volume.

In drawing sheet 6, Zone C/D-5/6, honeycomb spacer cover plate thickness increases by 0.045 inch. In drawing sheet 6, Zone D-2, the honeycomb spacer height tolerance range changes from "+5/16 to -5/16" inch to "+5/16 to -3/4" inch. The change of cover plate thickness (0.045 inch) and honeycomb spacer height (7/16) could potentially change void volume used in the analysis of flammable gas generation limits and maximum normal operating pressure.

2.0 STRUCTURAL

2-1 Provide data and analysis to show that under side drop HAC scenario the bonding strength of the adhesive between two laminated plates designed for the cover plate of the honeycomb spacers is adequate to maintain structural integrity.

The thickness of the honeycomb spacer cover plate is increased from "0.08" inch to "0.08 - 0.125" inch in order to allow flexibility in fabrication and to enhance the robustness of the cover plate particularly in the cut-out regions. Further, instead of using single solid plate, laminated plate up to two sheet layers may be utilized with layers bonded with 1617 A-B Furane adhesive or equivalent. Under this optional design, the structural performance of the honeycomb spacers during HAC is strongly dependent on the bonding strength of the adhesive between the two laminated thin plates. Data and analysis are required to show that buckling or delamination won't occur during HAC side drop conditions so that structural integrity of the cover plate can be maintained.

This information is required by the staff to assess compliance with 10 CFR 71.73(c)(1).

3.0 Thermal

3-1 Provide an uncertainty analysis for the TRUPACT-II maximum normal operating pressure (MNOP) analysis. Justify the pressure calculation conservatively accounts for uncertainty of decay heat, temperature, void volume, etc ….

In the payload assembly decay heat limits analysis, Table 3.4-6 shows pressure increase of 49.74 psig for Type III.1. The pressure increase is very close to the specification of 50 psig. Same issue applies to Table 3.4-7 to 3.4-11.

This information is required by the staff to assess compliance with 10 CFR 71.4 and 71.33(a)(5).

Contact Handled-Transuranic Waste Authorized Methods for Payload Control (CH-TRAMPAC)

CH-1 Clarify logic diagram in Figure 5.2-4 and provide separate logic diagram for Section 5.2.5.

Logic diagram Figure 5.2-4 shows duplicate steps (i.e., CH4 concentration test, same shipping category test) described in Figure 5.2-3 for waste type I, II, and III since the entry point Step 3g already passes same tests. In addition, Step 3f in Figure 5.2-3 and Step 4f in Figure 5.2-4 are overly simplified compared to the description in Section 5.2.5. A separate logic diagram is needed to clarify Section 5.2.5.

This information is required by the staff to assess compliance with 10 CFR 71.31(a)(1) and 71.43(d).

CH-2 Provide validation of the analytical shipping category for waste Type I, II, and III based on existing shipment data (Section 5.2.2).

The staff needs to verify the consistency between gas generation compliance methods and the gas generation methodology based on the measurement of flammable gas concentration or flammable gas generation rate from shipments, particularly validation of analytical category for Type I, II, and III. For analytical category, the head space sampling data should prove the flammable gas concentration meet the limit predicted by the methodology based on waste type, package configuration, decay heat, and shipping period.

This information is required by the staff to assess compliance with 10 CFR 71.31(a)(2) and 71.43(d).

CH-3 Provide a method to quantify measurement error.

"One standard deviation" was removed from previous CH-TRAMPAC version on page 6.2-6. The staff agrees that the standard deviation does not correlate with scale error, which is related to the measurement error. However, a method to quantify the weight measurement error for each package component and the entire package is needed.

This information is required by the staff to assess compliance with 10 CFR 71.31(a)(2) and 71.33(b)(6).

The following information is required by the staff to assess compliance with 10 CFR 71.35(c) and 71.43 (d).

CH-4 Clarify the bounding distance for inter-site shipment (Section 6.2.3).

Controlled shipments are extended between sites in addition to the shipments to WIPP in this application. The shipments are requested for two DOE sites with distances less than the bounding distance (stated in CH-TRU Payload Appendices Section 3.6.2.2). Verify the current bounding distance, which was based on distance between DOE site and WIPP, is valid for all potential inter-site shipments.

CH-5 Clarify the content code approval process and functionality of WIPP CH-TRU Payload Engineer for inter-site shipment extension (Section 6.2.3).

The CH-TRU Payload Engineer approves the content code for shipment. The application should specify whether inter-site shipment affect the content code and its approval process, particularly if a container travels through a few sites before it arrives in WIPP and whether the inter-site shipment affect payload engineer responsibility and functionality.

CH-6 Explain the procedure to handle the scenario when a 9-day transport and unloading time limit is not met.

In Procedure 6.2.3.3, a procedure is specified if 24-hr limit is not met. For procedure 6.2.3.7, there is no procedure specified if the 9-day transport and unloading time limit is not met. Provide the procedure for this scenario.

Contact Handled-Transuranic (CH-TRU) Payload Appendices

The following information is required by the staff to assess compliance with 10CFR 71.31(a)(2) and 71.43(d).

AP-1 Provide justification and validation of AltMeth model for excluding the non-uniform concentration effects (Section 3.10.1).

In the Altmeth model, the concentration in a confinement layer is assumed to be constant throughout the entire region. In reality, the concentration is non-uniform and subject to many factors. For example, at elevated temperature, flammable gas tends to rise and concentrate in the upper space of confinement. Another factor is the size of confinement layer. For larger region, the concentration does not distribute uniformly as the model describes. The localized concentration effect is currently not modeled in the AltMeth. Justify that the model is still conservative without including this effect. Provide validation of AltMeth model based on measurement data from previous shipments.

AP-2 Include the proposed controls for the 100-gallon drums loaded with compacted 55 gallon drums in CH-TRAMPAC (Section 3.10.1) with the additional information on adjusted hydrogen concentration based on decay curve.

Per January 21, 2008 letter, WTS proposed to include specific controls for 100-gallon drums loaded with compacted 55-gallon drums in the CH-TRAMPC. Staff agrees with the addition of the proposed control. However, more explanation is needed on the use of decay curve for determining an adjusted hydrogen concentration.

AP-3 Clarify TRUPACT-II is bounding in the flammable gas generation limits based on the shorter period of vacuum process (Section 6.12.6.2).

Clarify that the shorter evacuation period to reach 2 torr vacuum pressure for HalfPACT leads to the conclusion that TRUPACT-II is bounding in evacuation process and the flammable gas generation limits analysis. Staff needs to clarify the relationship between evacuation period and flammable gas generation limits.

AP-4 Provide analysis results and validation for HalfPACT gas generation rate and decay heat limits (Section 6.12.9.3.1).

To ensure the TRUPACT-II configuration is bounding for determining flammable gas generation rate and decay heat limit, the staff needs to review the HalfPACT analysis run results for content code LA154 and SQ 154. In addition, the geometry (height) difference of TRUPACT-II and HalfPACT might introduce deviation in gas transport behaviors. Therefore a validation is needed to prove that TRUPACT-II is bounding in gas generation limits.

AP-5 Clarify how the innermost confinement layer flammable gas concentration is determined as 1.0353 volume percent at the end of evacuation process (Section 6.12.9.3)

This concentration is used as an initial condition in the analysis to derive flammable gas generation rate and decay heat limit. Clarify whether the hydrogen concentration value obtained from the iterative algorithm documented in Section 6.12.9.2.7 or from a hand calculation. If it is from the iterative procedure, illustrate how this value is obtained with a data flowchart.

AP-6 Clarify the multiple heat-sealed bags configuration (Section 6.13.2) and provide a schematic diagram to clarify this configuration..

In the Attachment A (Summary of Requested Changes) of the application letter dated July 18, 2007, licensee stated in the justification column “Revision allows for multiple heat-sealed bags to be present in a series as exist in some packaging configurations at the Hanford site.” The staff needs to clarify if “in a series” refers to multiple layers of bag inside out or multiple one-layer bags in series in the container.

AP-7 Provide validation of the estimated release resistance for one unvented heat-sealed bag confinement in TRUPACT-II or HalfPACT configuration (Section 6.13.2).

The release resistance for one unvented heat-sealed bag is much greater than other type inner bag layers (115741 vs 17922 of Twist and Tape in Table 2.2-1). The staff needs validation for this release resistance value. The staff also needs explanation of the needs to use multiple unvented heat-sealed layer confinements.