



11-9212

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UFC:5822.00

Washington TRU Solutions LLC

June 3, 2011

ATTN: Document Control Desk
Director, Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: REPORT PURSUANT TO 10 CFR 71.95

Dear Ms. Hardin:

Washington TRU Solutions (WTS) on behalf of the U. S. Department of Energy Carlsbad Field Office (DOE/CBFO), submits this letter to report a condition pursuant to 10 CFR 71.95 regarding the use of Transuranic Package Transporter Model (TRUPACT)-II number 205. This packaging operates under the U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CofC) Number 9218. During a WIPP bound transuranic (TRU) waste shipment originating from the Advanced Mixed Waste Treatment Project Site (AMWTP) located at Idaho National Laboratory on April 13, 2011, the conditions in section 11.(a) of CofC 9218 were not followed in their entirety.

Following is a description of the event, reported in accordance with 10 CFR 71.95(c):

(1) A brief abstract describing the major occurrences during the event, including all component or system failures that contributed to the event and significant corrective action taken or planned to prevent recurrence:

TRU waste shipment number IN110106 originated at the AMWTP Site, located at Idaho National Laboratory, on April 13, 2011 bound for delivery to the Waste Isolation Pilot Plant (WIPP) in New Mexico. The shipment consisted of one tractor-trailer hauling three TRUPACT-II packages, 175, 205, and 195. Each TRUPACT-II package contained one payload assembly. During Inner Containment Vessel (ICV) components inspection and cleaning operations at AMWTP for TRUPACT-II 205, the main ICV o-ring seals were installed into the wrong o-ring seal grooves. The upper o-ring seal was installed in the lower o-ring seal groove and the lower o-ring seal was installed in the upper o-ring seal groove in TRUPACT-II 205.

There were no major occurrences during the event and no component or system failures that contributed to the event, however, due to loading team personnel failure to follow the applicable operations manual, the conditions in CofC 9218 were not followed in their entirety and resulted in this shipment traveling from AMWTP to the WIPP in a non-compliant condition.

The TRUPACT-II packaging is comprised of an outer containment assembly (OCA) that provides the primary containment boundary, and an inner containment vessel (ICV) that provides the secondary containment boundary. The OCA was configured in accordance with applicable requirements with the ICV properly installed.

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Prior to shipment to the WIPP, all required pre-shipment leakage rate test (Helium) were performed on TRUPACT-II unit 205 and met the applicable acceptance criteria for these tests.

The following interim corrective/preventive actions were implemented to preclude recurrence prior to reinitiating shipments from AMWTP to the WIPP:

- AMWTP TRUPACT Operations were stopped and shipments scheduled for departure from AMWTP were placed on hold.
- A review of applicable procedures and shipping documents was initiated to ensure there were no similar problems with o-rings for pending shipments.
- Upon acceptable documentation review, scheduled shipments were allowed to resume.

(2) A clear, specific, narrative description of the event that occurred so that knowledgeable readers conversant with the requirements of part 71, but not familiar with the design of the packaging, can understand the complete event. The narrative description must include the following specific information as appropriate for the particular event:

The NRC Certificate of Compliance number 9218, Revision 20, issued for the TRUPACT-II states in Section 11 (a), "Each package must be prepared for shipment and operated in accordance with the procedures described in Chapter 7.0, *Operating Procedures*, of the application as supplemented." Section 7.1.5, "Inner Containment Vessel (ICV) Lid Installation" states in section 7.1.5.4, "As an option, sparingly apply vacuum grease to the O-ring seals and install into the appropriate O-ring seal grooves in the ICV body, ICV seal test port and vent port plugs."

As described in section 1.2.1.1.2 of the applicable Safety Analysis Report and the applicable Packaging General Arrangement Drawings, the upper main containment o-ring seal on the ICV is made from different material and is of a different cross sectional diameter than the lower main o-ring seal. The upper main o-ring seal on the ICV serves as the containment o-ring seal for the package and is made of a butyl material and has a cross sectional diameter of 0.400 inches. The lower main o-ring seal serves as a test boundary to establish a vacuum on the exterior side of the upper main o-ring seal for performance of the required pre-shipment leakage rate testing. The lower main o-ring seal on the ICV is made of either neoprene or an ethylene propylene material and has a cross sectional diameter of 0.375 inches

On April 13, 2011 TRUPACT-II unit 205 was assembled and the pre-shipment leakage rate test (Helium) performed with the upper and lower main o-ring seals placed in the incorrect o-ring seal grooves on the ICV. All required pre-shipment leakage rate testing was performed on TRUPACT-II unit 205 and met the applicable acceptance criteria for these tests, shipment number IN110106 was then released for shipment to WIPP on April 14, 2011.

All other conditions required for the operation and shipment of the package in accordance with the certificate of compliance were adhered to.

(2)(i) Status of components or systems that were inoperable at the start of the event and that contributed to the event;

This criterion is not applicable to the event because there were no components or systems that were inoperable at the start of the event.

(2)(ii) Dates and approximate times of occurrences;

April 13, 2011; 1022 hours (MST)

(2)(iii) The cause of each component or system failure or personnel error, if known;

No components or systems failed. Personnel failed to properly install the upper and lower main o-ring seals in the appropriate o-ring seal grooves.

(2)(iv) The failure mode, mechanism, and effect of each failed component, if known:

This criterion is not applicable to the event because no components failed.

(2)(v) A list of systems or secondary functions that were also affected for failures of components with multiple functions;

This criterion is not applicable to the event because no components failed.

(2)(vi) The method of discovery of each component or system failure or procedural error;

The non-compliance was discovered by WIPP personnel during receipt activities for shipment IN110106 at the WIPP Site.

(2)(vii) For each human performance-related root cause, a discussion of the cause(s) and circumstances;

The cause of the non-compliance was a failure of the AMWTP personnel to correctly perform the required assembly activities to install the main o-ring seals for the ICV in the appropriate o-ring seal grooves.

(2)(viii) The manufacturer and model number (or other identification) of each component that failed during the event; and

Manufacturer and model numbers associated with component failure are not applicable because no components failed.

(2)(ix) For events occurring during use of a packaging, the quantities and chemical and physical form(s) of the package contents.

Payload ID 94051:

Radionuclides:

<u>Nuclide</u>	<u>Activity(ci)</u>	<u>Percent</u>
AM-241	9.552	51.60
CS-137	0.000004222	0.00
NP-237	0.0001384	0.00
PU-238	0.1054	.57
PU-239	2.418	13.06
PU-240	0.5539	2.99
PU-241	5.873	31.73
PU-242	0.00009285	0.00
SR-90	0.000004644	0.00
U-233	0.000	0.00
U-234	0.001553	0.01
U-235	0.00004892	0.00
U-238	0.008201	0.04
Totals:	18.51	100.00

Physical and Chemical Form:

<u>Description</u>	<u>Weight (kg)</u>
Steel Container Materials	400.40
Solidified Inorganic Materials	1361.70
Plastics	75.60
Other Inorganic Materials	126.00
Soils	50.00
Rubber	0.50
Total:	2014.20

(3) An assessment of the safety consequences and implications of the event. This assessment must include the availability of other systems or components that could have performed the same function as the components and systems that failed during the event.

There were no safety consequences relating to the event. There were no systems or components that failed during the event.

(4) A description of any corrective actions planned as a result of the event, including the means employed to repair any defects, and actions taken to reduce the probability of similar events occurring in the future.

In addition to the completed corrective actions described at the beginning of this letter, the following are additional corrective actions being taken to prevent recurrence:

- Revise the DOE/CBFO CH Packaging Operations Manual to include more explicit directions to ensure more robust identification of the upper and lower o-rings during the removal and installation processes.
- CBFO will review and approve changes to the applicable procedures to verify that the increased requirements from the DOE/CBFO CH Packaging Operations Manual for identification of the o-rings have been incorporated prior to the applicable procedures being implemented.

There were no defects requiring repair associated with this event.

(5) Reference to any previous similar events involving the same packaging that are known to the licensee or certificate holder.

- Reference Letter PK:07:00020 describing an event on 4/14/07
Shipment IN070209 including TRUPACT-II numbers 139 and 199. During unloading activities at WIPP it was discovered that the upper and lower main containment o-ring seals on both the Outer Containment Assemblies (OCA) and the Inner Containment Vessels (ICV) were installed in the incorrect o-ring grooves respectively.
- Reference Letter PK:08:00005 describing an event on 12/8/07
Shipment SR070118 including TRUPACT-II number 163. During unloading activities at WIPP it was discovered that the Outer Containment Assembly (OCA) had been configured with an Inner Containment Vessel (ICV) upper main o-ring seal incorrectly installed in the OCA upper main o-ring groove.

6) *The name and telephone number of a person within the licensee's organization who is knowledgeable about the event and can provide additional information.*

M. W. Percy, Manager, WTS, CCP, Project Certification (575) 234-7394
D.K. Ploetz, Manager, WTS, CCP (575) 234-7125.

(7) *The extent of exposure of individuals to radiation or to radioactive materials without identification of individuals by name.*

There were no exposures to individuals as a result of the event.

If you have any questions or require additional information regarding this report, please contact me at (575) 234-7396.

Sincerely,



T. E. Sellmer, Manager
Packaging Integration

SVM:yhs

cc: M. R. Brown, CBFO
R. Unger, CBFO
J. C. Rhoades, CBFO