



71-9218  
PK:07:00020  
UFC:2300.00

June 7, 2007

Mr. Meraj Rahimi, Project Manager  
NMSS/SFPO MS/013D13  
U.S. Nuclear Regulatory Commission  
One White Flint North  
15555 Rockville Pike  
Rockville, MD 20852-2738

Subject: REPORT PURSUANT TO 10 CFR 71.95

Dear Mr. Rahimi:

On behalf of the U. S. Department of Energy Carlsbad Field Office (DOE CBFO), this letter is submitted to report a condition pursuant to 10 CFR 71.95 (*italicized below*) regarding the use of TRUPACT-II numbers 139 and 199. This packaging operates under the U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance Number 9218.

*(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:*

On April 18, 2007, representatives from the Washington TRU Solutions LLC (WTS) Integrated Waste Handling Department contacted the WTS Packaging Integration Department to report that TRUPACT-II numbers 139 & 199, which comprised a portion of shipment number IN070209, had been shipped from the Advanced Mixed Waste Treatment Project (AMWTP) located at Idaho National Laboratory and was received at the Waste Isolation Pilot Plant (WIPP) with the upper and lower main containment o-ring seals on both the Outer Containment Assemblies (OCA) and the Inner Containment Vessels (ICV) in the incorrect o-ring seal grooves respectively. The shipment was received at the WIPP Site on April 18, 2007, and safely unloaded and emplaced in the underground on April 20, 2007. There were no component or system failures that contributed to the event.

The shipper (AMWTP) issued a nonconformance report and corrective action plan to identify and address the issue. The DOE CBFO suspended shipping authorization for all shipments from AMWTP until subject matter experts from WIPP arrived at the AMWTP facility to perform 100 percent oversight of all loading operations for TRUPACT-II and HalfPACTS at the AMWTP facility. The immediate corrective actions implemented consisted of a revision to the applicable operations procedure and secondary verification of main containment o-ring seal installation to ensure that the o-ring seals were installed in the appropriate groove prior to the installation of each ICV and OCA lid on each TRUPACT-II and HalfPACT prior to shipment. Additionally, there were three shipments at AMWTP awaiting departure from the AMWTP facility, these three shipments were withheld from shipping and were disassembled and examined to verify proper placement of the main containment o-ring seals by WIPP personnel. After verification of the proper placement of the main containment o-ring seals the three shipments were reassembled and the applicable pre-shipment leakage rate testing performed prior to being released for shipment.

NMSS01

*(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 18, issued for the TRUPACT-II states in Section 11 (a), "Each package shall 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." Section 7.1.6, "Outer Containment Assembly (OCS) Lid Installation" states in section 7.1.6.4 "As an option, sparingly apply vacuum grease to the O-ring seals and install into the appropriate O-ring seal grooves in the OCV body, OCV seal test port and OCV vent port plugs."

As described in sections 1.2.1.1.1 and 1.2.1.1.2 of the applicable Safety Analysis Report and the applicable Packaging General Arrangement Drawings, the upper and lower main containment o-ring seals on both the ICV and OCA are made from different materials and are of different cross sectional diameters than the lower main o-ring seals. The upper main o-ring seals on the ICV and OCA serve as the containment o-ring seal for the package and are made of a butyl material and have 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 seals on both the ICV and OCA are made of either neoprene or an ethylene propylene material and have a cross sectional diameter of 0.375 inches.

On April 14, 2007 TRUPACT-II units 139 and 199 were assembled and the pre-shipment leakage rate test performed with the upper and lower main o-ring seals placed in the incorrect o-ring seal grooves on both the ICV and OCA respectively. All required pre-shipment leakage rate testing was performed on TRUPACT-II units 139 and 199 and met the applicable acceptance criteria for these tests, shipment number IN070209 was then released for shipment to WIPP on April 16, 2007.

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 14, 2007 approximately 1600 hours Mountain Standard Time.

*(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 IN070209 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 and OCA 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;

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.

Radionuclides: TRUPACT-II Unit 139

Nuclide	Activity(ci)	Percent
AM-241	1.3050539072	9.75
CS-137	.0000000904	.00
NP-237	.0000201700	.00
PU-238	.3390275333	2.53
PU-239	5.0221658948	37.51
PU-240	1.1079027504	8.27
PU-241	5.6158935262	41.94
PU-242	.0000908752	.00
SR-90	.0000000994	.00
U-233	.0000000000	.00
U-234	.0000011551	.00
U-235	.0000003723	.00
U-238	.0000000000	.00

Totals: 13.3901563744 100.00

Physical and Chemical Form:

Description	Weight (kg)
Iron Base Metal Alloys	812.58
Aluminum Base Metal Alloys	3.30
Rubber	115.68
Cellulosics	517.42
Plastics	214.97
Other Inorganic Material	169.61
Steel Container Materials	340.20

Total Material Weight 2,173.67

## Radionuclides: TRUPACT-II Unit 199

Nuclide	Activity(ci)	Percent
AM-241	.9197754951	3.99
CS-137	.0000000885	.00
NP-237	.0000076889	.00
PU-238	.2054983949	.89
PU-239	6.9368326837	30.06
PU-240	1.4968189489	6.49
PU-241	13.5176664206	58.58
PU-242	.0001793542	.00
SR-90	.0000000973	.00
U-233	.0000000000	.00
U-234	.0003774497	.00
U-235	.0001221450	.00
U-238	.0000015100	.00

Totals: 23.0772802768 100.00

## Physical and Chemical Form:

Description	Weight (kg)
Iron Base Metal Alloys	577.17
Cellulosics	424.60
Rubber	245.82
Plastics	319.41
Other Inorganic Material	38.46
Steel Container Materials	340.20
Total Material Weight	1,945.66

*(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; all other TRUPACT-II Certificate of Compliance limits was met. 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.*

The following corrective actions were taken or planned to prevent recurrence.

Initiated procedure change relative to the operating procedure used at AMWTP to assemble and inspect the TRUPACT-II prior to release for shipment.

- Initiated secondary verification and sign off for verification of proper placement of main o-ring seals in to the appropriate o-ring seal grooves in the applicable AMWTP procedure.
- Modified training content relevant to the task for installing main o-ring seals on the ICV and OCA.
- Performed training of all effected personnel on all applicable procedure revisions and interim work instructions.

- Subject Matter Experts from WIPP were sent to the AMWTP facility to perform 100 percent oversight of all TRUPACT-II operations for a period of 14 days.
- A CBFO TRUPACT-II and HalfPACT users lessons learned session was conducted.

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

There are no previous occurrences of this event relative to the TRUPACT-II.

*(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.*

Mr. M. L. Sensibaugh, Manager  
Program Development  
Washington TRU Solutions  
(505) 234-7122.

*(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 (505) 234-7396.

Sincerely,



T. E. Sellmer, Manager  
Packaging  
Retrieval, Characterization and Transportation

TES:jeh

cc: M. R. Brown, CBFO	ED
D. C. Gadbury, CBFO	ED
M. A. Italiano, CBFO	ED
D. S. Miehl, CBFO	ED
M. P. Navarette, CBFO	ED