71-9279

Washington
TRU Solutions LLC

PK:07:00018
UFC:1000.00

May 9, 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

Reference: WTS Memorandum TP:02:04166:UFC:5822.00 from M. L. Caviness to D. H. Tiktinsky, dated October 1, 2002, subject: Report Pursuant to 10 CFR 71.95(c)

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 HalfPACT number 503. This packaging operates under the U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance Number 9279.

(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 March 10, 2007, representatives from the Advanced Mixed Waste Treatment Project (AMWTP) located at Idaho National Laboratory contacted the Washington TRU Solutions LLC (WTS) Packaging Maintenance Engineer on duty to report that HalfPACT number 503, which comprised a portion of shipment number IN070137, had been shipped with an improperly performed pre-shipment leakage rate test of the Outer Containment Assembly (OCA). The pre-shipment leakage rate test was performed using an unauthorized mixture of helium and nitrogen to test the main containment o-ring seal and vent port plug o-ring seal on the OCA. At the time of the notification from AMWTP, shipment number IN070137 was more than half way to the Waste Isolation Pilot Plant (WIPP) Site; therefore, the decision was made by the DOE CBFO and WTS to allow the shipment to proceed to the WIPP Site. The shipment was received at the WIPP Site on March 11, 2007, and safely unloaded and emplaced in the underground on March 12, 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 immediate corrective actions implemented consisted of a revision to the applicable operations procedure, additional training for all loading operations personnel, and secondary verification of test gas used prior to execution of each of the individual component pre-shipment leakage rate tests. An "Extent of Condition Evaluation" was performed. This evaluation identified that an additional six TRUPACT-IIs' and HalfPACTS were tested in this same manner using an unauthorized mixture of helium and nitrogen. None of the other six packages tested using the unauthorized mixture of test gases had been released for shipment. The nine other packages affected by this condition were disassembled and the pre-shipment leakage rate tests were performed in accordance with the applicable Safety Analysis Report (SAR) requirements prior to being released for shipment.

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(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 9279, Revision 4, issued for the HalfPACT 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 7.4, *Preshipment Leakage Rate Testing*, of the applicable (SAR) references the user to Section 8.2.2 of the SAR for optional methods of performing the pre-shipment leakage rate testing. Section 8.2.2 of the SAR references the user to section 8.1.3.6 & 8.1.3.7 for leak testing of the OCA main containment o-rings and vent port plug o-ring seal. Section 8.1.3.6.4 states, "Connect a vacuum pump to the OCV vent port and evacuate the OCV cavity to 90% vacuum or better (i.e. ≤ 10% ambient atmospheric pressure)." Section 8.1.3.6.6 states, "Provide a helium atmosphere inside the OCV cavity by backfilling with helium gas to a pressure slightly greater than atmospheric pressure (+1 psi, -0 psi)." Section 8.1.3.7.4 states, "Connect a vacuum pump to the OCV vent port and evacuate the OCV cavity to 90% vacuum or better (i.e. ≤ 10% ambient atmospheric pressure)." Section 8.1.3.7.5 states, "Provide a helium atmosphere inside the OCV cavity by backfilling with helium gas to a pressure slightly greater than atmospheric pressure (+1 psi, -0 psi)."

On March 8, 2007, after successfully completing the entire required pre-shipment leakage rate testing of the inner containment vessel for HalfPACT number 503 in accordance with the SAR, the requirements for OCA pre-shipment leakage rate testing on HalfPACT number 503 were initiated. After the evacuation of the OCV cavity and approximately half way through the helium backfilling process for the pre-shipment leakage rate testing of the OCA on HalfPACT number 503, the operator ran out of helium prior to achieving the required helium backfill pressure. To complete the OCA helium backfill operation the operator switched the empty helium bottle and connected the spare bottle that was in place to the helium backfill system and continued the backfilling operation. The spare bottle that was subsequently attached to the backfill system to complete the backfilling operation was nitrogen. The pre-shipment leakage rate test of the OCA main containment o-ring seal and vent port plug o-ring seal was performed using the unauthorized mixture of helium and nitrogen. 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;

March 8, 2007, approximately 1614 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 verify that the correct test gas to perform the pre-shipment leakage rate test was connected to the helium backfill system.

(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 AMWTP personnel during a facility walk down activity after shipment number IN070137 had departed for 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 performing the pre-shipment leak test to properly verify that the helium backfill system was connected to the correct test gas prior performing the leak test.

(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:

Nuclide	Activity(ci)	Percent
AM-241	.0001616956	.02
CS-137	.0000000000	.00
NP-237	.0000000000	.00
PU-238	.7261876719	99.59
PU-239	.0010928624	.15
PU-240	.0007462315	.10
PU-241	.0009593528	.13
PU-242	.0000008559	.00
SR-90	.0000000000	.00
U-233	.0000000000	.00
U-234	.0000000000	.00
U-235	.0000000000	.00
U-238	.0000000000	.00
Totals:	.7291486701	100.00

Physical and Chemical Form:

Description	Weight (kg)
Iron Base Metal Alloys	107.04
Cellulosics	6.52
Plastics	29.04
Solidified Inorganic Material	1,054.60
Steel Container Materials	290.04
Total Material Weight	1,487.24

(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 HalfPACT 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 load and perform pre-shipment leakage rate testing on HalfPACTS and TRUPACT-II to include additional specific actions to take for verification of helium test gas prior to initiation of pre-shipment leakage rate testing.

- Initiated secondary verification and sign off for verification of helium test gas at AMWTP prior to initiating pre-shipment leakage rate testing.

- Developed and initiated an interim work instruction describing the steps required for verification of the helium gas bottle prior to connecting to the helium backfill system used to perform pre-shipment leakage rate testing.

- Performed training of all effected personnel on all applicable procedure revisions and interim work instructions.

- Currently developing a procedure specifically describing the steps required to properly handle and verify the contents of compressed gas cylinders at AMWTP.

- Representatives from CBFO and WTS performed a documented surveillance at AMWTP to verify that the corrective actions identified in the first four bullets above have been adequately implemented and are effective.

- 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 HalfPACT. However, as reported to the NRC on October 1, 2002 (see Reference), six shipments from Rocky Flats Environmental Test Site comprising of 14 TRUPACT-IIs' were pre-shipment leakage rate tested using nitrogen as the test gas and shipped to the WIPP Site.

(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. A. Johnson, Contact Handled Packaging Cognizant Engineer, WTS, (505) 234-7120.

(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,

Todd Sellmer

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

TES:jeh

cc: M. R. Brown, CBFO ED
M. A. Italiano, CBFO ED
D. S. Miehls, CBFO ED
M. P. Navarette, CBFO ED