71-9218

Washington
TRU Solutions LLC

PK:08:00005
UFC:1000.00

February 18, 2008

Mr. M. Rahimi, Senior 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 Letter PK:07:00018:UFC:1000.00 from T.E. Sellmer to M. Rahimi, dated June 7, 2007, 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(c) regarding the use of TRUPACT-II Packaging Unit 163. 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 December 19, 2007, Washington TRU Solutions LLC (WTS) discovered that TRUPACT-II number 163, which comprised a portion of shipment number SR070118, had been shipped with an incorrect upper main o-ring installed in the OCA (Outer Containment Assembly). TRUPACT-II number 163 had been configured with an ICV (Inner Containment Vessel) upper main o-ring incorrectly installed in the OCA upper main o-ring groove. Shipment number SR070118 was shipped from the Savannah River National Laboratory in South Carolina on December 17, 2007 received at the WIPP Site on December 18, 2007 and safely unloaded with the contents of the shipment emplaced in the underground on December 19, 2007. There were no component or system failures that attributed to the event. All other conditions required for the operation and shipment of the package in accordance with the certificate of compliance were adhered to.

DOE/CBFO issued a corrective action report and a formal corrective action plan from the WIPP Site is being prepared for review and approval by CBFO.

Immediate corrective actions implemented were;

- An immediate correction of the non-compliant condition of the package
- Verification that all main o-rings were correctly installed on the Package
- An extent of condition evaluation was performed on the CH packaging main o-rings inventory in the WIPP Site CH bay as well as a review of the applicable maintenance records

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Actions to prevent recurrence are:

- DOE/WIPP 02-3184 *"CH Packaging Operations Manual"* is being revised to mandate increased requirements for the control and identification of main o-rings. These controls include:
    - Secondary verification for replacement of main containment o-rings with the correct like-for-like components
    - Individual identification tags to be placed on each upper and lower main o-ring during individual removal of each main o-ring during packaging operations.
    - Secondary verification that the correct identification tag is placed on each main o-ring
- The WIPP Site issued a standing work instruction (SWI) to supplement the applicable WIPP Site specific procedures while DOE/WIPP 02-3184 is being revised. This SWI includes individual tagging of main o-rings during packaging operations, secondary verification during replacement of main containment o-rings
- Training of applicable WIPP Site personnel on the requirements of the SWI issued
- A lessons learned session was held on January 22, 2008 with all users of the CH Packages to identify and address the issue
- A "go / no-go" measuring device will be implemented at all CH package users operation facilities as a means of a secondary positive identification of main o-rings prior to installation onto the CH packages. The use of the "go / no-go" measuring device will be in effect until such time that a more robust alternate method of main o-ring positive identification can be established, approved and implemented by CBFO

(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:

Section 11 (a) of the NRC Certificate of Compliance number 9218, Revision 18, issued for the TRUPACT-II requires that "Each package be prepared for shipment and maintained in accordance with the procedures described in Chapter 7.0, "Operating Procedures", of the application, as supplemented."

Section 7.2.6.1 of the TP-II SAR states "Visually inspect each of the following OCA components for wear or damage that could impair their function and, if necessary, replace or repair per the requirements of the drawings in Appendix 1.3.1, Packaging General Arrangement Drawings"

a. OCV main o-rings and sealing surfaces

On December 8, 2007 after completion of payload removal activities and while performing the required maintenance and inspection activities on TP-II number 163 at the WIPP Site waste handling technicians noticed a condition in the OCA upper main o-ring that required the OCA upper main o-ring to be replaced. The waste handling technician inadvertently replaced the damaged OCA upper main o-ring with a new ICV upper main o-ring.

The Packaging General Arrangement Drawings identified in appendix 1.3.1 of the SAR defines the OCA Upper Main O-ring as 75-5/8 I.D. (±2%) x ∅.400 ±. .010; that same drawing defines the ICV Upper Main O-ring as 71-1/2 I.D. (±2%) x ∅.400 ±. .010. Both the ICV and OCA upper main o-rings are made from the same material and have the same visual characteristics.

TP-II number 163 was then prepared for empty shipment and sent to the Savannah River National Laboratory. After receipt at Savannah River National Laboratory TP-II number 163 was disassembled, the required maintenance and inspection activities performed, loaded and prepared for shipment in the "as received" condition from the WIPP Site. Review of applicable records reflect that this was the only use of TP-II unit 163 since being shipped from the WIPP Site on December 8, 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;

December 8, 2007 (time unknown) the improper installation of ICV upper main o-ring occurred on the empty package and on December 17, 2007 at 7:30 AM EST the shipment of the loaded package occurred.

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

No components or systems failed. Personnel failed to install the correct replacement part during packaging maintenance activities.

(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 issue was discovered by a WTS Packaging Maintenance Engineer (PME) while inputting the information from the maintenance record into the maintenance tracking software system. The PME noted that the "Discrepant Condition" and "Work Performed" on the maintenance record were not consistent. The condition identified replacement of an OCA Upper Main O-ring, while the part used was listed as an ICV Upper Main O-ring.

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

The first cause of the non-compliance was a failure of the WIPP Waste Handling personnel to select the correct replacement part. The second cause was a failure of the WIPP Waste Handling personnel to adequately verify that the newly installed component was a correct like-for-like replacement of the damaged component.

(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.

The package contained a Ten Drum Overpack (TDOP) SRTP02016; chemical and physical form(s) of contents as follows:

<<< RADIONUCLIDES >>>

Radionuclide	Description	Activity (Ci)	Percent
AC-228	ACTINIUM 228	0.0000004780	<0.0
AM-241	AMERICIUM 241	0.0456600000	0.2
BI-214	BISMUTH 214	0.0000051150	<0.0
CO-60	COBALT 60	0.0000013550	<0.0
CS-134	CESIUM-134	0.0000029300	<0.0
CS-137	CESIUM 137	0.0079440000	<0.0
EU-154	EUROPIUM-154	0.0000300000	<0.0
NA-22	SODIUM 22 (NA-22)	0.0000013930	<0.0
NP-237	NEPTUNIUM 237	0.0000963700	<0.0
PB-214	LEAD -214	0.0000001386	<0.0
PU-238	PLUTONIUM 238	14.240000000	70.1
PU-239	PLUTONIUM 239	0.9389000000	4.6
PU-240	PLUTONIUM 240	0.2628000000	1.3
PU-241	PLUTONIUM 241	4.8040000000	23.7
PU-242	PLUTONIUM 242	0.0000233500	<0.0
SR-90	STRONTIUM 90	0.0079440000	<0.0
TH-232	THORIUM 232	0.0000037080	<0.0
TL-208	THALLIUM 208	0.0000929000	<0.0
U-232	URANIUM 232	0.0000122400	<0.0
U-234	URANIUM 234	0.0024470000	<0.0
U-235	URANIUM 235	0.0000018840	<0.0
U-238	URANIUM 238	0.0000091600	<0.0
TOTAL:		20.309976020	100

<<<MATERIALS PHYSICAL & CHEMICAL FORM>>>

Materials	Description	Wgt (kg)
	IRON BASE METAL ALLOYS	294.90
	OTHER INORGANIC MATERIALS	57.30
	CELLULOSICS	19.90
	RUBBER	13.70
	PLASTICS	147.70
	STEEL CONTAINER MATERIALS	725.62
	Total Weight:	1259.12

(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 for the following reasons:

- Post discovery dimensional inspections performed on the applicable OCA upper main o-ring groove and the ICV upper main o-ring (in place during the occurrence) did not result in less than the 12.5% minimum o-ring compression defined in the Hypothetical Accident Conditions (HAC) of the TRUPACT-II SAR, Table 8.2-1.

- The unit passed the required pre-shipment leak tests for both the ICV and OCA to ANSI N14.5 leak tight criteria ($\leq 1.0 \times 10^{-7}$ scc/s air) prior to shipment.

- The ICV and OCA Upper Main O-rings are the same cross-sectional diameter and tolerance.

- The ICV and OCA Upper Main O-rings are made from the same material.

- The ICV and OCA Upper Main O-rings are classified as the same quality category and are procured to the same quality requirements.

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 are in process to prevent recurrence on future shipments:

- DOE/WIPP 02-3184 *"CH Packaging Operations Manual"* is being revised to mandate increased requirements for the control and identification of main o-rings. These controls include:
    - Secondary verification for replacement of main containment o-rings
    - Individual identification tags to be placed on each upper and lower main o-ring during individual removal of each main o-ring during packaging operations.
    - Secondary verification that the correct identification tag is placed on each main o-ring will be performed

- The WIPP Site issued a standing work instruction (SWI) to supplement the applicable WIPP Site specific procedures while DOE/WIPP 02-3184 is being revised. This SWI includes individual tagging of main o-rings during packaging operations, secondary verification during replacement of main containment o-rings

- Training of applicable WIPP Site personnel on the requirements of the SWI issued

- A lessons learned session was held on January 22, 2008 with all users of the CH Packages to identify and address the issue

- A "go / no-go" measuring device will be implemented at all CH package users operation facilities as a means of a secondary positive identification of main o-rings prior to installation onto the CH packages. The use of the "go / no-go" measuring device will be in effect until such time that a more robust alternate method of main o-ring positive identification can be established, approved and implemented by CBFO.

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

There has been one similar event concerning main containment o-rings being placed in the incorrect o-ring grooves. As reported to the NRC on June 7, 2007 (see reference) TP-II numbers 139 & 199 were shipped from the Advanced Mixed Waste Treatment Project (AMWTP) with both the ICV and OCA upper and lower main o-rings incorrectly placed in their respective o-ring grooves (i.e. upper and lower main o-rings placed in the incorrect o-ring grooves).

(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
Packaging Manager
Washington TRU Solutions, LLC

TES:yhc

cc: D.C. Gadbury, CBFO ED
M. R. Brown, CBFO ED
M. A. Italiano, CBFO ED
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