

71-9218



CP:18:01029  
UFC:5822.00

January 25, 2018

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 Mr. White:

Nuclear Waste Partnership (NWP) LLC, 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 the Type B packaging model number TRUPACT-II, serial number 191. This packaging operates under the U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CofC) No. 9218. During a shipment of transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) originating from Waste Control Specialists (WCS) located near Andrews, Texas, the conditions in Section 10 of CofC No. 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 #WC170016 originated from Waste Control Specialists (WCS) in Andrews, Texas, bound for delivery to the WIPP in New Mexico. The shipment consisted of one tractor-trailer hauling three TRUPACT-II packages, units 154, 158, and 191. Each package contained one payload assembly. Packages 154 and 158 were designated as 20-day close proximity shipments, and Package 191 was designated as a 10-day controlled shipment in accordance with CH-TRU Payload Appendices 3.5 and 3.6, respectively. Package 191 was subject to the administrative controls identified in section 6.2.3 of the CH-TRAMPAC for transport and unloading time relative to venting of the package at the receiving site. TRUPACT-II 191 was not vented at the WIPP site (receiving site) in accordance with the 9-day transport and unloading time required for a 10-day controlled shipment. CofC 9218 Section 10 specifies, "For close-proximity and controlled shipments meeting the conditions specified in Appendices 3.5 and 3.6, respectively, of CH-TRU Payload Appendices, shipping periods of 20 days and 10 days may be applicable." A failure to fully implement the administrative controls (procedures) for TRUPACT-II 191 in this shipment at the receiving site resulted in the non-compliance.

There were no major occurrences during the event and no component or system failures that contributed to the event. All other conditions for this shipment were in compliance with the applicable requirements for CofC 9218. However, due to the failure to fully implement the administrative controls (procedures) for TRUPACT-II 191 in this shipment at the receiving site, the conditions in CofC 9218 were not followed in their entirety for this shipment.

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The following interim corrective/preventive actions were implemented to preclude recurrence:

- A review was performed to determine if any additional controlled waste packages were on-site and to confirm the status of those package's vent deadlines. The review concluded that no additional controlled waste packages had exceeded their package vent deadlines and the vent deadlines for those packages were correctly recorded from the WP 08-NT3020 *TRU Waste Receipt*, Attachment 4, *WIPP Control Checklist for Controlled Shipments*, to the CH Waste Operations Tailored Shift Briefing.
- A Timely Order was developed to identify peer checking vent dates listed on WP 08-NT3020 Attachment 4 and on the CH Waste Operations Tailored Shift Briefing form. This Timely Order will remain in place until a more formalized process (procedure) can be developed/issued.
- A Root Cause Analysis was chartered to investigate and analyze information associated with the venting issue for shipment #WC170016 TRUPACT 191 to determine the direct, root, and contributing causes.

*(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-issued CofC 9218 for the TRUPACT-II specifies in Section 10, "For close-proximity and controlled shipments meeting the conditions specified in Appendices 3.5 and 3.6, respectively, of CH-TRU Payload Appendices, shipping periods of 20 days and 10 days may be applicable." CH-TRU Payload Appendix 3.6 states in section 3.6.3, "The unloading time begins with the arrival of the shipment at the receiving site and ends with the venting of the ICV. Normal unloading will be accomplished in less than one day (24 hours). Section 6.2.3 of the CH-TRAMPAC outlines administrative controls imposed to ensure venting of the inner containment vessel (ICV) within 9 days of shipment departure from the shipping site."

The ICV for TRUPACT-II 191 was sealed on 11/20/2017 at 1420 hours (MST) and successfully passed the required pre-shipment leakage rate tests. Then, TRUPACT-II 191, which comprised a portion of shipment #WC170016, departed WCS on 11/21/2017 at 1020 hours (MST) and was received at the WIPP Site on 11/21/2017 at 1200 hours (MST). The 9-day unloading time was established as 11/30/2017 at 1020 (MST) for TRUPACT-II 191. TRUPACT-II 191 was vented on 12/01/2017 at 1005 hours (MST).

All other conditions required for the operation and shipment of the package in accordance with the CofC 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;*

12/01/2017 at 1005 hours (MST)

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

No components or systems failed. Waste Handling personnel at the WIPP Site failed to transfer the correct vent date for TRUPACT-II 191 from the WP 08-NT3020 Attachment 4 (provided 11/21/2017) to the Waste Handling pre-shift brief. In addition, Waste Handling personnel failed to identify the issue once TRUPACT-II 191 was vented.

*(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;*

Mobile Loading Unit Personnel at WCS discovered that the 9-day transport and unloading time had been exceeded during reconciliation of records to close out shipment #WC170016.

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

- A Waste Handling Engineer incorrectly recorded the package vent deadline date and time of 11/30/2017 1020 from the WIPP Control Checklist for Controlled Shipments to the CH Waste Operations Tailored Shift Briefing as 12/10/2017.
  - Shipment #WC170016 arrived on site at 1200 hours on 11/21/2017, with three packages on the shipment, TRUPACT-II units 154, 158, and 191. TRUPACT-II 191 was a controlled shipment with a required venting deadline of 11/30/2017 at 1020 hours, while TRUPACT-II units 154 and 158 were 20-day shipments with a required venting deadline date of 12/10/2017. This may have contributed to the Waste Handling Engineer having incorrectly recorded the vent deadline for TRUPACT-II 191 from the WIPP Control Checklist for Controlled Shipments to the CH Waste Operations Tailored Shift Briefing as 12/10/2017.

*(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.*

**Package Unit 154**  
**Payload ID WC043**

<b>Radionuclide</b>	<b>Activity (Ci)</b>	<b>Percentage of Total</b>
AM-241	2.86E+01	39.81%
AM-243	3.29E-04	0.00%
CS-137	9.54E-07	0.00%
NP-237	3.31E-04	0.00%
PU-238	1.32E+00	1.84%
PU-239	9.97E+00	13.86%
PU-240	3.07E+00	4.26%
PU-241	2.89E+01	40.22%
PU-242	5.43E-04	0.00%
SR-90	9.54E-07	0.00%
U-233	0.00E+00	0.00%
U-234	2.20E-05	0.00%
U-235	5.47E-07	0.00%
U-238	0.00E+00	0.00%
<b>Total:</b>	<b>7.19E+01</b>	<b>100.00%</b>

Physical and Chemical Form:

<b>Material Category</b>	<b>Material Type</b>	<b>Weight (lbs)</b>
Waste	Metallic	843.41
	Inorganic	650.70
	Organic	140.90
Packaging	Metallic	1,280.22
<b>Total:</b>		<b>2,915.23</b>

**Package Unit 158**  
**Payload ID WC044**

<b>Radionuclide</b>	<b>Activity (Ci)</b>	<b>Percentage of Total</b>
AM-241	6.50E+01	31.04%
AM-243	5.98E-03	0.00%
CS-137	3.67E-06	0.00%
NP-237	5.00E-04	0.00%
PU-238	6.01E+00	2.87%
PU-239	8.65E+00	4.13%
PU-240	5.16E+00	2.46%
PU-241	1.25E+02	59.50%
PU-242	1.76E-03	0.00%
SR-90	3.67E-06	0.00%
U-232	1.35E-06	0.00%
U-233	0.00E+00	0.00%
U-234	6.98E-04	0.00%
U-235	0.00E+00	0.00%
U-238	0.00E+00	0.00%
<b>Total:</b>	<b>2.10E+02</b>	<b>100.00%</b>

Physical and Chemical Form:

<b>Material Category</b>	<b>Material Type</b>	<b>Weight (lbs)</b>
Waste	Metallic	472.53
	Inorganic	935.14
	Organic	143.55
Packaging	Metallic	1,330.94
<b>Total:</b>		<b>2,882.16</b>

**Package Unit 191**  
**Payload ID WC045**

<u>Radionuclide</u>	<u>Activity (Ci)</u>	<u>Percentage of Total</u>
AM-241	5.39E+01	46.27%
CM-243	4.21E-05	0.00%
CS-137	0.00E+00	0.00%
NP-237	5.74E-04	0.00%
PU-238	7.77E-01	0.67%
PU-239	9.39E+00	8.06%
PU-240	3.15E+00	2.71%
PU-241	4.93E+01	42.29%
PU-242	5.05E-04	0.00%
SR-90	0.00E+00	0.00%
U-233	0.00E+00	0.00%
U-234	0.00E+00	0.00%
U-235	0.00E+00	0.00%
U-238	0.00E+00	0.00%
<b>Total:</b>	<b>1.16E+02</b>	<b>100.00%</b>

Physical and Chemical Form:

<u>Material Category</u>	<u>Material Type</u>	<u>Weight (lbs)</u>
Waste	Metallic	573.96
	Inorganic	558.09
	Organic	136.93
Packaging	Metallic	1,330.94
<b>Total:</b>		<b>2,599.92</b>

*(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 systems or components that failed during the event. There were no safety consequences or implications of 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 interim corrective actions identified in (1) above the following preventative corrective actions are planned:

- Proceduralize the CH Waste Operations Tailored Shift Briefing to include signoff and verification of Package vent deadline date and time against the WP 08-NT3020 Attachment 4.
- Revise technical procedure WP 08-NT3020 to formalize the transfer of the vent date information for controlled shipments from the WP 08-NT3020 Attachment 4 to the CH Waste Operations Tailored Shift Briefing. This process will include sign offs and independent peer verification.
- Revise the Waste Data System (WDS) to:
  - Calculate the package vent date/time limits for 10-day, 20-day, and 60-day packages; display the value on the Shipment Summary Report; and,
  - Add a column for vent completion dates/times that Waste Operations can populate upon completing venting of waste packages.
    - Interim measure to prevent reoccurrence:  
Develop a computer script that will run a daily query of all loaded packages at WIPP showing vent date/time. This script will provide a query daily to Transportation and Waste Handling Operations. This script will remain in effect until the (WDS) can be revised accordingly.
- Develop and Issue a Timely Order to Transportation Engineers and Waste Handling Engineers to review the daily query at the beginning of their shift until the WDS is revised.
- Brief Waste Handling Engineers on the programmatic drivers for venting controlled packages.
- Establish an electronic means for displaying the CH Waste Operations Tailored Shift Briefing at the watch desk in the Waste Handling Building.

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.*

- Nuclear Waste Partnership letter number CP: 13:01:01490, dated 11/11/13; 10-day controlled shipment exceeded its required ventilation time.
- Nuclear Waste Partnership letter number CP: 14:01033, dated 02/03/2014; 20-day close proximity shipment exceeded its required ventilation time.

*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.*


T.E. Sellmer, Manager, NWP, Packaging and Information Systems, (575) 234-7396  
David K. Ripley, Manager, NWP, Waste Operations (575) 234-8289

*(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. All pre-shipment surveys satisfied the regulatory dose rate limits.

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 and Information Systems

TS:rg

cc: M. R. Brown, CBFO  
D. Miehl, CBFO  
J. C. Rhoades, CBFO  
D. Standiford, CBFO  
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