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May 9, 2022

ATTN: Document Control Desk  
Director, Division of Fuel Management  
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. Helton:

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 TRUPACT-II. The package 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) from the Los Alamos National Laboratory (LANL), Condition 5(b)(1) of CofC No. 9218 was not followed in its 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:*

Chapter 5.0 of the CH-TRAMPAC limits flammable volatile organic compounds (FVOCs) along with hydrogen to ensure the absence of flammable gas mixtures in TRU waste payloads. During the resolution of an NWP Centralized Characterization Program (CCP) nonconformance report (NCR), the site project manager (SPM) identified that one of the containers had not been properly captured on the NCR correlated to an outstanding need for additional characterization. This omission resulted in the TRUPACT-II shipment of a container that had not been subjected to flammable gas analysis (FGA) to quantify its total FVOC concentration.

There were no major occurrences during transportation associated with this event and no component or system failures that contributed to the event. However, the conditions in CofC No. 9218 were not followed in their entirety for this shipment.

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

- CCP SPMs validated that each certified container at every generator site has a valid FGA batch data report (BDR).
- CCP operations were paused at all active CCP locations, with CCP FGA operations formally stopped.
- CCP is implementing a compensatory action to verify all containers have a valid FGA BDR to prevent recurrence in the interim until the root causal analysis and long-term corrective actions are complete.

*(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 CofC No. 9218, Revision 25, states in Condition 5(b)(1) that “Flammable organics and methane are limited along with hydrogen to ensure the absence of flammable gas mixtures in TRU waste payloads as described in Chapter 5.0 of CH-TRAMPAC, Rev. 5.” Section 5.2.2 of the CH-TRAMPAC, *Methods of Compliance and Verification*, under Section 5.2, *Flammable (Gas/VOC) Concentration*, states that “Compliance with the flammable (gas/VOC) limits can be demonstrated under the analytical category if...the total concentration of potentially flammable VOCs within the payload container headspace is less than or equal to 500 parts per million (ppm).” Per Section 5.2.2.1 of the CH-TRAMPAC, *Analytical Category: Compliance with Flammable (Gas/VOC) Limits*, total FVOC concentration per payload container may be quantified through measurement of the container headspace gas using FGA or determined using process knowledge (e.g., knowledge of waste generation processes and chemical and material inputs to the process).

On February 24, 2022, LANL shipment number LA220009 containing Container No. LA00000077252 was shipped from LANL to WIPP in TRUPACT-II Package Unit 188 and emplaced in the underground on March 15, 2022. On March 17, 2022, CCP discovered during a review of an NCR that Container No. LA00000077252 had been incorrectly qualified for shipment using the FGA results for another container (Container No. LA00000077052). Container No. LA00000077252 itself had not been subjected to FGA prior to shipment.

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:*

LANL Shipment LA220009 including TRUPACT-II Package Unit 188 was received at WIPP on February 24, 2022, at 1722 Mountain Standard Time (MST).

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

Personnel failure to properly investigate and properly resolve a discrepancy in the recording of container identification numbers in FGA and NCR documentation resulted in Container No. LA00000077252 being shipped using the FGA data for another container.

*(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 during revision of the final disposition instructions for a CCP NCR. The NCR included Container No. LA00000077052, but should have also included Container No. LA00000077252 as requiring FGA and did not. The FGA data for Container No. LA00000077052 was incorrectly labeled and used as the FGA data for TRUPACT-II shipment of Container No. LA00000077252. This documentation error resulted in the shipment of Container No. LA00000077252 using the FGA data for Container No. LA00000077052, when both containers should have been placed ON HOLD by the NCR.

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

The cause of the non-compliance was human error. Operator documentation errors that occurred during FGA field sampling and independent technical review activities resulted in the use of nonconforming data that was not properly dispositioned. The implementation of the system of controls was neither adequate to identify and mitigate operator errors, nor sufficient to effectively mitigate (disposition) the resulting nonconforming data prior to the container being shipped.

*(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.*

**Package Unit 188**  
**Payload LR0319**

Radionuclide	Activity (Ci)	Percentage of Total
PU-239	3.267E01	67.84%
PU-240	7.643E00	15.91%
AM-241	3.979E00	8.25%
PU-238	3.143E00	6.70%
PU-241	3.721E01	1.30%
PU-242	6.203E-04	0.00%
NP-237	4.009E-05	0.00%
U-234	2.03E-05	0.00%
U-235	5.03E-07	0.00%
<b>Total:</b>	<b>8.465E01</b>	<b>100.00%</b>

Physical and Chemical Form:

Material Category	Material Type	Weight (lbs.)
Waste	Iron Base Metal Alloys	13.67
	Plastics	3.75
	Solidified Inorganic Material (Salt)	8.82
Packaging Materials	Steel Container Materials	2239.42
	Plastic/Liners Container Materials	125.02
	Cellulosics Packaging Materials	385.88
<b>Total:</b>		<b>2776.56</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. While FGA data for Container No. LA00000077252 was not collected, it is possible to conclude that the total FVOC concentration for this container is <500 ppm total using process knowledge as allowed by Chapter 5.0 of the CH-TRAMPAC. Container No. LA00000077252 contains a salt waste form generated by a process that does not use organic chemicals/solvents (i.e., includes no source of FVOCs). The salt waste is packaged directly in a metal can as the innermost confinement layer. Based on this knowledge of the waste generation process and final waste form, a total FVOC concentration in excess of 500 ppm is not expected in Container No. LA00000077252. Using process knowledge to estimate the total FVOC concentration as <500 ppm total, Container No. LA00000077252 meets the conditions for qualification under the analytical category with a measured decay heat value (0.2038 watt) well below the applicable analytical category decay heat limit (0.4708 watt for CH-TRUCON Code LA 125/225AB/Shipping Category 30 0109 0094).

*(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, CCP will be implementing corrective actions to strengthen current formal controls and formalize existing informal controls to address the vulnerability factors.

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

There are no known previous similar events.

*(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 & Information Systems, (575) 234-7396 or (575) 302-7583

*(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 this event.

If you have any questions or require additional information regarding this report, please contact me at (575) 234-7396 or (575) 302-7583.

Sincerely,

TODD SELLMER  
(Affiliate)

Digitally signed by TODD  
SELLMER (Affiliate)  
Date: 2022.05.09 11:17:47 -06'00'

T. E. Sellmer, Manager  
Packaging & Information Systems

TES:clm

cc: L. F. Gelder, SRRC  
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