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June 14, 2021

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

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07109279

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 numbers TRUPACT-II and HalfPACT. These packagings operate under the U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CofC) Numbers 9218 and 9279. During the shipment of contact-handled (CH) transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) from multiple waste generator sites, the conditions in Section 8 of CofC Nos. 9218 and 9279 were not followed in their entirety.

Following is a description of the events, 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.**

CH-TRU waste shipments made between April 21, 1999, at 00:00 and May 13, 2021, at 22:43 (MST) originating from around the TRU Waste Complex and bound for the WIPP Site in New Mexico were found to be non-compliant to condition 8 of CofC Nos. 9218 and 9279.

Demonstration of compliance with the payload container and assembly weight limits specified in CH-TRAMPAC Section 2.3 requires measurement using a calibrated scale. To date, a combination of measured payload container weights along with individual reference weights for components used in the assembly (dunnage containers, overpacks, pallets, slip sheets, etc.) have been used to document compliance with weight limits using the Waste Data System (WDS) software. While the loaded payload assemblies have been weighed, not all individual dunnage containers and overpacks have been weighed as required by the CH-TRAMPAC.

There were no major occurrences or component or system failures that contributed to the event; however, because of a failure to completely implement the CH-TRAMPAC compliance method for weight requirements, the conditions in CofC Nos. 9218 and 9279 were not followed in their entirety. While no limits were violated, compliance per the CH-TRAMPAC was incomplete.

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To ensure verbatim compliance with the CH-TRAMPAC Section 2.3 weight requirements and to preclude recurrence, the following interim corrective/preventative actions were implemented:

- A review was performed of all WDS functionality to understand the limitations in current compliance software implementation relative to the data entry and evaluation of container/payload assembly weights. Reference weight values were increased to provide an additional margin of safety relative to the weight evaluation compliance.
- Two Standing Orders (effective May 27, 2021) were issued and will remain in place until a more formalized process (procedure) is finalized. All affected personnel have been briefed and trained on the requirements to ensure compliance with the CH-TRAMPAC Section 2.3 weight requirements. The Standing Orders clarify the following:
  - CCP-SO-147 – All dunnage containers and overpacks must be weighed using a calibrated scale with measurement error recorded. The measured weight plus measurement error for dunnage payload containers must be less than the reference value used by the WDS for populating the Payload Assembly Transportation Certification Document (PATCD).
  - CCP-SO-148 – The gross weight and associated measurement error for TRUPACT-II and HalfPACT payload assemblies must be weighed and recorded on the PATCD.
- The Waste Certification Official (WCO) will ensure that measured weights plus associated errors are less than or equal to the weights generated by WDS.

***(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 CoC Nos. 9218 and 9279 condition 8 state: "Payload containers within a package shall be selected in accordance with CH-TRAMPAC, Rev. 5, Section 6.0, Payload Assembly Requirements." Section 6 of the CH-TRAMPAC, Revision 5, references the requirements of Section 2.3 for payload container and payload assembly weights.

The CH-TRAMPAC specifies in Section 2.3.2.1, Methods of Compliance and Verification for Container/Assembly Weight, that "Compliance shall be by measurement. The weight of each payload container (or dunnage) shall be determined using a calibrated scale."

Dunnage payload containers and overpacks were not being individually weighed; instead, reference weights taken from Section 2.9 of the CH-TRAMPAC for 55 gallon drums, the standard waste box (SWB) and ten drum overpack (TDOP) plus a conservative 5% error was being added. While loaded payload assemblies were being weighed, the measured weight and associated measurement error were not being recorded on the PATCD.

**(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 events because there were no components or systems that were inoperable at the start of the events.

**(2)(ii) Dates and approximate times of occurrences;**

The shipments were made between April 21, 1999, at 00:00 and May 13, 2021, at 22:43 (MST).

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

No components or systems failed.

**(2)(iv) The failure mode, mechanism, and effect of each failed component, if known;**

This criterion is not applicable to the events 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 events because no components failed.

**(2)(vi) The method of discovery of each component or system failure or procedural error;**

Reviewing shipment data in response to a question related to a NWP Centralized Characterization Program (CCP) visual examination procedure calling out nominal packaging component weights led to the discovery that empty payload containers used as dunnage are not individually weighed prior to use in a payload. After a detailed review of all WDS functionality pertaining to the weight evaluations, additional discoveries were made. Reference weights taken from Section 2.9 of the CH-TRAMPAC for the empty SWB and empty TDOP plus a conservative 5% error were being used for calculating the total loaded overpack weights.

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

After a review of all relevant procedures and software implementation, the human performance-related root cause was determined to be misinterpretation of the CH-TRAMPAC Section 2.3.2 compliance method. An incorrect assumption was made that because the entire payload assemblies were being weighed to verify that total allowable payload assembly weights were not exceeded, weighing of each individual payload component was not necessary to properly comply with the CH-TRAMPAC requirements for evaluation of container/assembly weights.

**(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.**

A large number of shipments were made, all of which contained contents that meet the conditions of the CofCs. A detailed listing of all quantities for each shipment can be provided upon request.

**(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 events. There were no safety consequences or implications of the events.

**(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 corrective actions are planned:

- Revise the WDS to allow for user input of measured weight and measurement error for all payload assembly related components.
- Submit a revision of the CH-TRAMPAC for NRC approval to expand the allowable methods for demonstrating compliance with individual payload container, payload assembly, and loaded TRUPACT-II and HalfPACT package weight limits. These changes would allow for the use of reference weights for well-defined payload components (payload container tare weights, pallets, spacers, guide tubes, slip sheets, reinforcing plates, banding material, slings, axial and radial dunnage, etc.) as determined by analytical and/or statistical methods.

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

There have been no similar events related to weighing of payload containers.

**(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.**

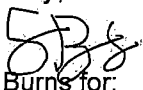
T.E. Sellmer, Manager, NWP, Packaging and Information Systems, (575) 234-7396 or (575) 302-7583.

**(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 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 or (575) 302-7583.

Sincerely,



Digitally signed by ROBERT  
BURNS (Affiliate)  
Date: 2021.06.14 16:36:42 -06'00'

Scott Burns for:

T. E. Sellmer, Manager  
Packaging and Information Systems

TES:clm

- cc: D. Foreman, CBFO
- L. F. Gelder, SRRC
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- J. Shenk, EM-4.24
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