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July 26, 2013

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 Ms. Akhavannik:

Nuclear Waste Partnership (NWP) LLC, on behalf of the U.S. Department of Energy Carlsbad Field Office, 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 numbers 164, and 174. These packagings operate under the U.S. Nuclear Regulatory Commission Certificate of Compliance (C of C) No. 9218. During a shipment of transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) originating from Idaho National Laboratory (INL) and a shipment of transuranic (TRU) waste to INL originating from Argonne National Laboratory (ANL), the conditions in Section 11.(a) of C of C No. 9218 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:*

TRU waste shipment number IN130083 originated at INL on May 29, 2013 bound for delivery to the WIPP in New Mexico. The shipment consisted of one tractor-trailer hauling two TRUPACT-II and one HalfPACT packages, Units 164, 203 and 502. Each package contained one payload assembly. During Inner Containment Vessel (ICV) components inspection and cleaning operations at the WIPP on June 1, 2013 for TRUPACT-II Unit 164, it was discovered that the O-rings installed on the ICV Seal Test Port Plug and ICV Inner Vent Port Plug were of incorrect size.

TRU waste shipment number AEIN130001 originated at ANL on May 29, 2013 bound for delivery to INL in Idaho. The shipment consisted of one tractor-trailer hauling three TRUPACT-II packages, Units 139, 157 and 174. Each TRUPACT-II package contained one payload assembly. During Inner Containment Vessel (ICV) components inspection and cleaning

operations at INL on June 1, 2013 for TRUPACT-II Unit 174, it was discovered that the O-rings installed on the ICV Seal Test Port Plug and ICV Inner Vent Port Plug were of incorrect size.

There were no major occurrences during the event and no component or system failures that contributed to the event, however, due to inadequate identification of the O-rings by the shipping sites during loading operations, the conditions in CofC 9218 were not followed in their entirety resulting in one shipment traveling from INL to the WIPP and one shipment traveling from ANL to INL in a non-compliant condition.

Prior to shipment from INL to the WIPP and from ANL to INL, all required pre-shipment leakage rate tests (Helium) were performed on TRUPACT-II Units 164 and 174 and met the applicable acceptance criteria for these tests.

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

- All pending shipments were suspended until compliance of the O-ring configuration installed on the ICV Seal Test Port Plug and ICV Inner Vent Port Plug was re-verified on assembled Packages.
- Waste Handling Technicians at the WIPP Site and Shipping Sites were given additional instructions relative to O-ring segregation and identification requirements.

*(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 9218, Revision 20, issued for the TRUPACT-II states in Section 11 (a), "Each package must be prepared for shipment and operated in accordance with the procedures described in Chapter 7.0 *Operation Procedures*, of the application as supplemented." Section 7.1.5, "Inner Containment Assembly (ICV) Lid Installation" states; in Section 7.1.5.1, "Visually inspect each of the following ICV components for wear or damage that could impair their function and , if necessary, replace or repair per the requirements of the drawing in Appendix 1.3.1, *Packaging General Arrangement Drawings*."; and in section 7.1.5.4, "As an option, sparingly apply vacuum grease to the O-ring seals and install into the appropriate O-ring seal grooves in the ICV body, ICV seal test port and vent port plugs."

As described in section 1.2.1.1.2 of the applicable Safety Analysis Report and the applicable Packaging General Arrangement Drawings; The containment boundary provided by the ICV consist of a stainless steel vessel formed by a mating lid and body, plus the uppermost of two main O-ring seals enclosed between and upper and lower seal flange.

A vent port feature in the ICV body's lower seal flange is the only other containment boundary penetration. A vent port insert and an outer ICV vent port plug with an O-ring seal define the containment boundary at the ICV vent port penetration.

Neither of the two parts in question, ICV Seal Test Port Plug/O-ring and ICV Inner Vent Port Plug/O-ring are containment boundary components.

On May 29, 2013, TRUPACT-II Unit 164 was assembled for loaded shipment at INL and then shipped to the WIPP with the ICV Seal Test Port Plug O-ring installed on the ICV Inner Vent Port Plug and the ICV Inner Vent Port Plug O-ring installed on the ICV Seal Test Port Plug. Note that the physical dimensions for these O-rings are 0.414" inside diameter x 0.072" cross section thickness and 0.468" inside diameter x 0.078" cross section thickness, respectively. All required pre-shipment leakage rate testing met the applicable acceptance criteria for these tests, shipment number IN130083 was then released for shipment to the WIPP.

On May 29, 2013, TRUPACT-II Unit 174 was assembled for loaded shipment at ANL and then shipped to INL with the ICV Seal Test Port Plug O-ring installed on the ICV Inner Vent Port Plug and the ICV Inner Vent Port Plug O-ring installed on the ICV Seal Test Port Plug. All required pre-shipment leakage rate testing met the applicable acceptance criteria for these tests, shipment number AEIN130001 was then released for shipment to INL.

All other conditions required for the operation and shipment of the packages 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;*

May 29, 2013; 1055 hours (MST)

May 29, 2013; 1035 hours (EST)

*(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 O-rings on the ICV Seal Test Port Plug and the ICV Inner Vent Port Plug.

*(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 on TRUPACT-II Units 164 and 174 was discovered by WIPP and INL personnel, respectively, during routine package unloading operations.

*(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 personnel to correctly perform the required assembly activities to install the correct O-rings on the ICV Seal Test Port Plug and the ICV Inner Vent Port Plug.

*(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 164  
Payload ID 96845

Security Related Information  
Table Withheld Under 10 CFR 2.390

## Physical and Chemical Form:

Material Category	Material Type	Weight (lbs)
Waste	Metallic	3377.11
	Inorganic	23.48
	Organic	798.52
Payload Materials	Metallic	750.14
	Total	4949.25

Package Unit 174  
Payload ID ANLE025:

Security Related Information  
Table Withheld Under 10 CFR 2.390

## Physical and Chemical Form:

Material Category	Material Type	Weight (lbs)
Payload Materials	Metallic	971.08
	Total	971.08

*(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. 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.*

In addition to the completed corrective actions described at the beginning of this letter, the following additional corrective actions are being taken to prevent recurrence:

- Revise applicable procedure(s) to enhance steps associated with O-ring removal, segregation and identification activities.
- Provide additional training to all qualified operators concerning the requirements for the removal, segregation and identification activities associated with O-rings.

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.*

- Reference Letter CP:12:01453 describing an event on 8/30/12  
Shipment number LA120148 including TRUPACT-II 196. Outer Containment Assembly (OCA) components inspection and cleaning operations at the WIPP for TRUPACT-II Unit 196, the O-ring seal for the Outer Containment Vessel (OCV) seal test port plug was installed on the OCV vent port plug.
- Reference Letter CP:11:01634 describing an event on 8/16/11  
Shipment number IN110338 including HalfPACT 507. Outer Containment Assembly (OCA) components inspection and cleaning operations at AMWTP for HalfPACT Unit 507, the O-ring seal for the Outer Containment Vessel (OCV) vent port plug was not installed in the O-ring groove (was installed on the wrong side of the flange instead of in the O-ring groove).
- Reference Letter PK:07:00020 describing an event on 4/14/07  
Shipment number IN070209 including TRUPACT-II numbers 139 and 199. During unloading activities at the WIPP it was discovered that the upper and lower main containment O-ring seals on both the Outer Containment Assemblies (OCA) and the Inner Containment Vessels (ICV) were installed in the incorrect O-ring grooves respectively.
- Reference Letter PK:08:00005 describing an event on 12/8/07  
Shipment number SR070118 including TRUPACT-II number 163. During unloading activities at the WIPP it was discovered that the Outer Containment Assembly (OCA) had been configured with an Inner Containment Vessel (ICV) upper main O-ring seal incorrectly installed in the OCA upper main O-ring groove.

- Reference Letter CP:11:01408 describing an event on 4/13/11  
Shipment number IN110106 including TRUPACT-II number 205. During unloading activities at the WIPP it was discovered that the upper and lower main O-ring seals were placed in the incorrect O-ring seal grooves on the Inner Containment Vessel (ICV).

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 Transportation Packaging (575) 234-7396  
S.V. McGonagill, Cognizant Engineer, NWP Transportation Packaging (575) 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 (575) 234-7396.

Sincerely,



T. E. Sellmer, Manager  
Transportation Packaging  
Central Characterization Program

SVM:jmc

cc: M. R. Brown, CBFO  
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