



A URS-led partnership with B&W and AREVA

CP:13:01583
UFC:5822.00

December 12, 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 133, 176, 182, 183, 193, 197, 199, 201, 203, and 210. These packagings operate under the U.S. Nuclear Regulatory Commission Certificate of Compliance (CofC) No. 9218. In 2010 and 2011, during ten (10) shipments of transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) originating from Los Alamos National Laboratory (LANL), the conditions in Section 5 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:

CofC 9218 specifies, "All payloads shall meet the activity limits specified in CH-TRAMPAC, Rev. 4, Section 3.3, "Activity Limits" ..." The Waste Data System (WDS) software that automates CH-TRAMPAC compliance was discovered, during software regression testing, to have allowed S100 Pipe Overpacks to be authorized for shipment when the payload exceeded the 406 Ci limit specified in Section 3.3 of the CH-TRAMPAC. In performing the extent of condition evaluation, 13 S100 payloads that were part of 10 TRU waste shipments were certified by the WDS software and shipped to the WIPP, in 2010 and 2011, with activity greater than the 406 Ci limit.

There were no major occurrences during the event and no component or system failures that contributed to the event. All pre-shipment surveys show compliance with the regulatory dose rates specified in 10 CFR 71.47 (b)(1) and (b)(3). However, the conditions in CofC 9218 were not followed in their entirety for these 10 shipments.

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

- All pending shipments containing S100 or S300 payload containers were suspended until the software is corrected and tested for compliance.

(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 21, issued for the TRUPACT-II states in Section 5 (b)(2), "All payloads shall meet the activity limits specified in CH-TRAMPAC, Rev.4, Section 3.3, "Activity Limits" ..." CH-TRAMPAC Section 3.3.1.2, *S100 and S300 Pipe Overpack*, states the "TRUPACT-II and HalfPACT are limited to a maximum total activity of 406 curies (Ci) when packaging payloads of either S100 or S300 pipe overpacks." A WDS software change, implemented in 2009, incorrectly overwrote the pass/fail flag used to track evaluation status with a "pass" status after failing the activity limit evaluation specific to the S100/300 payloads. Therefore, the software was correctly failing these S100 payloads during evaluation, but the software failed to correctly forward a "fail" status to the final evaluation for overall CH-TRAMPAC compliance.

The S100/300 payload activity limit evaluation incorrectly authorized the following S100 payloads exceeding the 406Ci limit for shipment:

Date / Time Shipped (MST)	Shipment No.	TRUPACT-II No.	Payload ID Number
6-24-2010 / 16:45	LA100079	182	LA1576
6-29-2010 / 16:30	LA100082	182 199	LA1583 LA1584
7-6-2010 / 16:00	LA100085	201 203	LA1591 LA1592
7-15-2010 / 15:10	LA100091	183	LA1605
7-20-2010 / 18:00	LA100092	197	LA1608
8-6-2010 / 15:00	LA100102	193	LA1634
8-12-2010 / 16:35	LA100105	193	LA1642
8-18-2010 / 15:00	LA100109	210	LA1654
10-13-2010 / 16:30	LA100144	176	LA1757
3-30-2011 / 19:10	LA110023	133 197	LA1906 LA1907

Although these 13 payloads were in violation of payload activity limits, regulatory NCT dose rate compliance with the requirements of 10 CFR 71.47 (b)(1) and (b)(3) were ensured through pre-shipment surveys at the surface of the packages and at 2 meters from the vertical planes projected by the outer edges of the transport trailers.

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;

There were no components or systems that were inoperable at the start of the event.

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

See table above for shipment dates and approximate times.

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

The Transportation Certification Officials responsible for verifying that each of the payload parameters identified on the PATCD for the subject S100 payloads failed to verify that the activity limit for the S100 payloads were in compliance with the CH TRAMPAC requirements prior to shipment. The combination of the software error and the lack of total payload activity displayed on the form were the cause of this personnel error.

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

No components failed.

(2)(v) A list of systems or secondary functions that were also affected for failures of components with multiple functions;

No components failed.

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

The software error was identified while performing testing using the more rigorous testing suite as identified as a corrective action plan in previous NWP reportable letter number CP:13:01226.

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

Section 6.2 of the CH-TRAMPAC, *Methods of Compliance and Verification*, requires that all payloads are approved for shipment by the responsible Transportation Certification Official (TCO) after verifying that all of the transportation parameters have been met. One of the 9 criteria included in Table 6.2-5, *Payload Assembly Transportation Certification Document (PATCD)*, in the Payload Certification Parameters section of the form, is that the "Payload

meets activity limits specified in Section 3.3." The TCOs are required to verify that all the criteria included in Table 6.2-5 are satisfied prior to approval. The current format of the PATCD that is automatically generated by the WDS software does not include a provision for displaying the total payload activity. The TCO relies on the WDS evaluation status (pass/fail) in order to determine compliance with the activity limits specified in CH-TRAMPAC Section 3.3 such that the omission of the activity limit total from the PATCD form contributed to this error.

(2)(viii) The manufacturer and model number (or other identification) of each component that failed during the event; and

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 following tables summarize the radionuclide content, including uncertainty, and physical and chemical form of the package contents on a per payload basis: Payload ID LA1576:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1583:

Radionuclides

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1584:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1591:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1592:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1605:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1608:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1634:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1642:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1654:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1757:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1906:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

Payload ID LA1907:

Radionuclides:

Security Related Information
Table Withheld Under 10 CFR 2.390

Physical and Chemical Form:

Security Related Information
Table Withheld Under 10 CFR 2.390

(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.

- The WDS activity limit evaluation will be corrected.
- Validation testing on the WDS software correction will be performed to ensure that the software is performing the activity limit evaluations correctly for the S100 and S300 payloads in accordance with the CH-TRAMPAC Section 3.3.1.2.
- The WDS software testing program will continue to expand its test suite to include additional testing and validation that will be utilized prior to release of the software to evaluate both new software changes and impacts to previously implemented software logic.
- A report created by the WDS software will include the total activity plus error value for the payload to allow the TCOs to independently verify the total activity prior to acceptance of the payload for shipment.
- Additional training will be given to all TCO's after the revision to the WDS report has been completed and approved for use.

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.

Washington TRU Solutions letter number PK:07:00009, dated 3/21/2007:
Incorrect hydrogen/methane concentration evaluation was caused by an electronic database programming error.

Nuclear Waste Partnership letter number CP:13:01226, dated 6/17/2013:
Incorrect Mixed Category evaluation of 3 Standard 12-inch Pipe Overpacks by the WDS software.

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, Characterization Program (CCP), Transportation Packaging (575) 234-7396

C.A. Chester, Manager, NWP, WDS & CCP Engineering (575) 234-7134

(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,

A handwritten signature in black ink, appearing to read "Todd Sellmer". The signature is fluid and cursive, with a long horizontal stroke at the end.

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

ML:jmc

cc: M. R. Brown, CBFO
G. Hellstrom, CBFO
D. S. Miehl, CBFO
J. C. Rhoades, CBFO
J. R. Stroble, CBFO

bcc: NWP Distribution

C. A. Chester	ED
D. N. Cook	ED
B. A. Day	ED
M. S. Devarakonda	ED
D. E. Gulbransen	ED
M. A. Lastra	ED
S. V. McGonagill	ED
M. W. Percy	ED
T. R. Reynolds	ED
M. L. Sensibaugh	ED
M. R. Valentine	ED
J. M. Willis	ED
NTPC Records Custodian	GSA-212