

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

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| 9218                     | 29                 | 71-9218          | USA/9218/B(U)F-96                | 1 OF | 6     |

2. PREAMBLE

- a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, *Code of Federal Regulations*, Part 71, "Packaging and Transportation of Radioactive Material."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

- |                                                                                          |                                                                                                                                 |
|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| a. ISSUED TO ( <i>Name and Address</i> )<br>Department of Energy<br>Washington, DC 20585 | b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION<br>"TRUPACT-II Safety Analysis Report," application dated<br>May 28, 2025. |
|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5. (a) Packaging

- (1) Model No.: TRUPACT-II
- (2) Description

A stainless steel and polyurethane foam insulated shipping container designed to provide single containment for shipment of contact-handled transuranic waste. The packaging consists of an unvented, 1/4-inch thick stainless steel inner containment vessel (ICV), positioned within an outer confinement assembly (OCA) consisting of an unvented 1/4-inch thick stainless steel outer confinement vessel (OCV), a 10-inch thick layer of polyurethane foam and a 1/4 to 3/8-inch thick outer stainless steel shell. The package is a right circular cylinder with outside dimensions of approximately 94 inches diameter and 122 inches height. The package weighs not more than 19,250 pounds when loaded with the maximum allowable contents of 7,265 pounds.

The OCA has a domed lid which is secured to the OCA body with a locking ring. Although not part of the containment boundary, the OCV confinement seal is provided by an optional butyl rubber O-ring (bore seal). The OCV is equipped with a seal test port and a vent port.

The ICV is a right circular cylinder with domed ends. The outside dimensions of the ICV are approximately 73 inches diameter and 98 inches height. The ICV lid is secured to the ICV body with a locking ring. The ICV containment seal is provided by a butyl rubber O-ring (bore seal). The ICV is equipped with a seal test port and vent port. Aluminum spacers are placed in the top and bottom domed ends of the ICV during shipping. The cavity available for the contents is a cylinder of approximately 73 inches diameter and 75 inches height.

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5. (a) (3) Drawings

The packaging and its components are constructed and assembled in accordance with the following Nuclear Waste Partnership drawings:

- (i) Drawing No. 2077-500SNP, "TRUPACT-II Packaging SAR Drawing," sheets 1-11, Rev. AC
- (ii) Drawing No. 163-001, "Standard Pipe Overpack SAR Drawing," sheets 1-3, Rev. 10;
- (iii) Drawing No. 163-002, "S100 Pipe Overpack SAR Drawing," sheets 1 and 2, Rev. 7;
- (iv) Drawing No. 163-003, "S200 Pipe Overpack SAR Drawing," sheets 1 and 2, Rev. 6;
- (v) Drawing No. 163-004, "S300 Pipe Overpack SAR Drawing," Rev. 4;
- (vi) Drawing No. 163-006, "Compacted Puck Drum Spacers SAR Drawing," Rev. 3 (spacers needed for the purpose of maintaining subcriticality in 55-, 85-, and 100-gallon drums); and
- (vii) Drawing No. 163-009, "Criticality Control Overpack SAR Drawing," sheets 1 and 2, Rev. 5.

The contents are positioned within the packaging in accordance with the Contact-Handled Transuranic Waste Authorized Methods for Payload Control (CH-TRAMPAC), Rev. 6, Section 2.9, "Payload Container/Assembly Configuration Specifications."

(b) Contents

(1) Type and form of material

Dewatered, solid or solidified transuranic and tritium-contaminated materials and wastes. Materials must be packaged in one of the following payload containers:

- (i) 55-gallon drum,
- (ii) 85-gallon drum,
- (iii) 100-gallon drum,
- (iv) standard waste box (SWB),
- (v) standard pipe overpack,
- (vi) S100 pipe overpack,
- (vii) S200 pipe overpack,
- (viii) S300 pipe overpack,
- (ix) ten-drum overpack (TDOP), or
- (x) criticality control overpack (CCO).

The payload containers are described in CH-TRAMPAC, Rev. 6, Section 2.9, "Payload Container/Assembly Configuration Specifications." Materials must be restricted to prohibit explosives, corrosives, nonradioactive pyrophorics and compressed gases. Within a payload container, radioactive pyrophorics must not exceed 1 percent by weight, and residual liquids must not exceed 1 percent by

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5. (b) (1) Type and form of material (continue)

volume. 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. 6. For payloads of content code LA 154 and SQ 154, the absence of flammable gas mixtures is ensured as described in Appendix 6.12 of the CH-TRU Payload Appendices, Rev. 5. For payload configurations with unvented heat-sealed bag layers, the absence of flammable gas mixtures is ensured as described in Appendix 6.13 of the CH-TRU Payload Appendices, Rev. 5. For Analytical Category payload containers containing puck drums, the absence of flammable gas mixtures is ensured as described in Appendix 6.14 of the CH-TRU Payload Appendices, Rev. 5.

(2) Maximum quantity of material per package

Contents not to exceed 7,265 pounds including shoring and secondary containers. Table 1 (below) includes the maximum gross weight for a payload container.

Table 1. Maximum gross weight for a payload container

| Type of Payload Container             | Maximum Gross Weight |
|---------------------------------------|----------------------|
| <b>55-gallon drum</b>                 | 1,000 pounds         |
| <b>6-inch standard pipe overpack</b>  | 328 pounds           |
| <b>12-inch standard pipe overpack</b> | 547 pounds           |
| <b>S100 pipe overpack</b>             | 550 pounds           |
| <b>S200 pipe overpack</b>             | 547 pounds           |
| <b>S300 pipe overpack</b>             | 547 pounds           |
| <b>85-gallon drum</b>                 | 1,000 pounds         |
| <b>100-gallon drum</b>                | 1,000 pounds         |
| <b>SWB</b>                            | 4,000 pounds         |
| <b>TDOP</b>                           | 6,700 pounds         |
| <b>CCO</b>                            | 350 pounds           |

Table 2. Maximum number of payload containers per package and authorized packaging configurations

| Type of Payload Container     | Maximum Number of Payload Containers per Package |
|-------------------------------|--------------------------------------------------|
| <b>standard pipe overpack</b> | 14                                               |
| <b>S100 pipe overpack</b>     | 14                                               |
| <b>S200 pipe overpack</b>     | 14                                               |
| <b>S300 pipe overpack</b>     | 14                                               |
| <b>100-gallon drum</b>        | 6                                                |
| <b>55-gallon drum</b>         | 14                                               |
| <b>85-gallon drum</b>         | 8                                                |
| <b>SWB</b>                    | 2                                                |
| <b>TDOP</b>                   | 1                                                |
| <b>CCO</b>                    | 14                                               |

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5. (b) (2) Maximum quantity of material per package (continue)

Fissile material not to exceed the limits specified in CH-TRAMPAC, Rev. 6, Section 3.1, "Nuclear Criticality." Table 2 (below) includes limits related to CCOs and pipe overpacks.

Table 3. Maximum Fissile gram equivalent in CCOs and pipe overpacks and associated additional controls/limits

| Payload Containers   | Parameters                       |                                                                                             |                                  |                                                    |
|----------------------|----------------------------------|---------------------------------------------------------------------------------------------|----------------------------------|----------------------------------------------------|
|                      | Non-machine compacted material   |                                                                                             | Machine compacted material       |                                                    |
|                      | Maximum FGE of <sup>239</sup> Pu | Additional limits/controls                                                                  | Maximum FGE of <sup>239</sup> Pu | Additional limits/controls                         |
| <b>CCO</b>           | 380                              | ≤ 1% by weight Be/BeO*                                                                      | 380                              | ≤ 1% by weight Be/BeO and<br>≤ 2,000 grams plastic |
| <b>Pipe Overpack</b> | 200                              | for Be/BeO > 1 wt%, Be/BeO must be chemically or mechanically bound to the fissile material | 200                              | ≤ 1% by weight Be/BeO                              |

\* Be means beryllium and BeO means beryllium oxide.

All payloads shall meet the activity limits specified in CH-TRAMPAC, Rev. 6, Section 3.3, "Activity Limits." The payload is limited to 10<sup>5</sup> A<sub>2</sub> quantities.

Maximum decay heat per package not to exceed 40 watts. Decay heat per payload container not to exceed the values given in CH-TRAMPAC, Rev. 6, Table 5.2-1, "List of Approved Alpha-numeric Shipping Categories, Maximum Allowable Hydrogen Gas Generation Rates, and Maximum Allowable Wattages," or calculated for approved shipping categories in accordance with the methodology specified in Section 5.2.3 of CH-TRAMPAC, Rev. 6. For content code LA 154 and SQ 154 payloads, decay heat per payload container not to exceed the values specified in Appendix 6.12 of CH-TRU Payload Appendices, Rev. 5.

- (c) Criticality Safety Index: 0.0

6. Physical form, chemical properties, chemical compatibility, configuration of waste containers and contents, isotopic inventory, fissile content, decay heat, weight, center of gravity, and radiation dose rate must be determined and limited in accordance with CH-TRAMPAC, Rev. 6.

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7. Each payload container must be assigned to a shipping category in accordance with CH-TRAMPAC, Rev. 6, Section 5.1, "Payload Shipping Category." For a payload assembly made up of payload containers with the same shipping categories, each payload container and payload assembly must not exceed the allowable wattage in accordance with CH-TRAMPAC, Rev. 6, Section 5.2.3, "Hydrogen Gas Generation Rate and Decay Heat Limits for analytical category," or must be tested for gas generation in accordance with CH-TRAMPAC, Rev. 6, Section 5.2.5, "Unified Flammable Gas Test Procedure." For a payload made up of payload containers with different (nonequivalent) shipping categories, the flammability index of each payload container must not exceed 50,000 in accordance with CH-TRAMPAC, Rev. 6, Section 6.2.4, "Mixing of Shipping Categories," and Appendix 2.4 of the CH-TRU Payload Appendices, Rev. 5, "Mixing of Shipping Categories and Determination of the Flammability Index." For Analytical Category payload containers containing puck drums, the absence of flammable gas mixtures is ensured as described in Appendix 6.14 of the CH-TRU Payload Appendices, Rev. 5. Each content code LA 154 and SQ 154 payload container must be assigned to a shipping category in accordance with Appendix 6.12 of CH-TRU Payload Appendices, Rev. 5. Content code LA 154 and SQ 154 payload containers may only be assembled with other payload containers belonging to content code LA 154 and SQ 154, respectively, or dunnage in accordance with Appendix 6.12 of CH-TRU Payload Appendices, Rev. 5. For a payload of content code LA 154 or SQ 154 containers with different shipping categories, the flammability index of each payload container must not exceed 50,000 in accordance with Appendix 6.12 of CH-TRU Payload Appendices, Rev. 5.
8. Payload containers within a package shall be selected in accordance with CH-TRAMPAC, Rev. 6, Section 6.0, "Payload Assembly Requirements." Payload containers of content code LA 154 and SQ 154 shall be assembled in accordance with Appendix 6.12 of CH-TRU Payload Appendices, Rev. 5.
9. Each payload container must be vented in accordance with Section 2.5, "Filter Vents," of the CH-TRAMPAC, Rev. 6. Payload containers which were not equipped with filtered vents during storage must be aspirated in accordance with CH-TRAMPAC, Rev. 6, Section 5.3, "Venting and Aspiration."
10. For close-proximity and controlled shipments meeting the conditions specified in Appendices 3.5 and 3.6, respectively, of CH-TRU Payload Appendices, Rev. 5, shipping periods of 20 days and 10 days may be applicable. The shipping period for any mode of transport is not to exceed 60 days. For content code LA 154 and SQ 154 shipments, the shipping period as defined in Appendix 6.12 of the CH-TRU Payload Appendices, Rev. 5 is not to exceed 5 and 10 days, respectively.
11. In addition to the requirements of Subpart G of 10 CFR Part 71:
  - (a) Each package must be prepared for shipment and operated in accordance with the procedures described in Chapter 7.0, "Operating Procedures," of the application, as supplemented. For content code LA 154 and SQ 154 payloads, each package must be prepared for shipment and operated in accordance with the procedures described in Chapter 7.0 of the application, as modified by Appendix 6.12 of CH-TRU Payload Appendices, Rev. 5.
  - (b) Each package must be tested and maintained in accordance with the procedures described in Chapter 8.0, "Acceptance Tests and Maintenance Program," of the application, as supplemented.
  - (c) All free-standing water must be removed from the inner containment vessel cavity and the outer confinement vessel cavity before shipment.
12. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

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13. Transport by air of fissile material is not authorized.

14. Expiration date: September 30, 2029.

REFERENCES

“TRUPACT-II Safety Analysis Report,” application dated May 28, 2025.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



Yilma, Haimanot signing on behalf  
of Diaz-Sanabria, Yaira  
on 08/26/25

Yaira Diaz-Sanabria, Chief  
Storage and Transportation Licensing Branch  
Division of Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Date: August 26, 2025





**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

**SAFETY EVALUATION REPORT  
Docket No. 71-9218  
Model No. TRUPACT-II  
Certificate of Compliance No. 9218  
Revision No. 29**

**SUMMARY**

By letter dated May 28, 2025 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML25148A336) Salado Isolation Mining Contractors, LLC (SIMCO)(hereon referred to as the applicant), requested an amendment on behalf of the U.S. Department of Energy (DOE) for Certificate of Compliance (CoC) No. 9218, for the Model No. TRUPACT-II transportation package. The application included a safety analysis report (SAR), "TRUPACT-II SAR, Revision 27," in which the applicant proposed changes in the following drawings of the SAR: 2077-500SNP, 163-001, 163-002, 163-003, 163-004, 163-006, and 163-009.

**EVALUATION**

Structural Evaluation

The applicant proposed to revise the weld at drawing zone C-3 of Sheet No. 4 of the Drawing 2077-500SNP, "TRUPACT-II Packaging," Revision AC, to a complete joint penetration type. The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the proposed change in the drawing and found that the change does not affect the safety functions of the package. Therefore, the NRC staff determined that the proposed change is acceptable.

In addition, the applicant proposed to update and/or add information to the following drawings:

- Standard Pipe Overpack, 163-001, Revision 10,
- S100 Pipe Overpack, 163-002, Revision 7,
- S200 Pipe Overpack, 163-003, Revision 6,
- S300 Pipe Overpack, 163-004, Revision 4,
- Compacted Puck Drum Spacers, 163-006, Revision 3, and
- Criticality Control Overpack, 163-009, Revision 5.

The NRC staff reviewed the proposed changes in the drawings and found that all drawings have updated information (i.e., name of the contractor) in the title block and border of the drawings from Nuclear Waste Project to SIMCO, as the managing contractor for the DOE's Waste Isolation Pilot Plant facility. This change is only an administrative change and there is no impact on the safety basis of the packaging. Therefore, the NRC staff determined that the proposed change is acceptable.

### *Evaluation Findings*

Based on review of the statements and presentations in the application, the NRC staff determined that the proposed changes are acceptable and concludes that the package maintains adequate structural integrity to meet the structural requirements in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 71.

### Material Evaluation

The staff reviewed Revision 27 to the TRUPACT-II SAR to verify that the material performance of the transportation package meets the requirements of 10 CFR Part 71. Only the sections of the materials evaluation that changed from the previous SAR will be discussed below.

The applicant submitted a revision to the TRUPACT-II SAR to provide minor revisions to the licensed drawings. These changes include modifications to welding penetration notes, geometric modifications to ease fabrication, removing the callout of the diameter of a hoist ring, and other non-technical administrative changes. The applicant states that these revisions have no impact on the existing safety basis. The staff reviewed the revised drawings in Section 1.3.1 of the TRUPACT-II SAR and determined that they do not affect the staff's previous evaluation of the licensed drawings.

### *Evaluation findings*

The staff concludes that Revision 27 to the TRUPACT-II SAR does not alter the staff's previous finding that the SAR adequately considers material properties and material quality controls such that the design is in compliance with 10 CFR Part 71.

## **CONDITIONS**

The following changes have been made to the CoC:

Condition 3.b was updated to reflect the consolidated application submitted by SIMCO, LLC on May 28, 2025.

Condition 5(a)(3) was updated to reflect the new revision numbers of the drawings listed in this condition.

References were updated to reference the consolidated application submitted by SIMCO, LLC on May 28, 2025.

## **CONCLUSION**

This change does not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with CoC No. 9218, Revision No. 29.