NRC FORM 618
(8-2000)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9279	12	71-9279	USA/9279/B(U)F-96	1 OF	7

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 *(Name and Address)*

Department of Energy
Washington, DC 20586

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

"HalfPACT Safety Analysis Report," application dated July 16, 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.: HalfPACT Waste Shipping Container

(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), an approximate 8-inch thick layer of polyurethane foam, a 1/4-inch thick layer of ceramic fiber paper 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 92 inches height. The package weighs not more than 18,100 pounds when loaded with the maximum allowable contents of 7,600 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. 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 74 inches diameter and 69 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. The ICV is equipped with a seal test port and vent port. Aluminum

5. (a) (2) Description (continue)

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 45 inches height.

(3) Drawings

The packaging is constructed and assembled in accordance with the following Nuclear Waste Partnership, drawings:

(i) Drawing No. 707-SAR, “HalfPACT Packaging SAR Drawing,” sheets 1-12, Rev. 13;
(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,” sheet 1, Rev. 4;
(vi) Drawing No. 163-006, “Compacted Puck Drum Spacers SAR Drawing,” sheet 1, Rev. 3; (Spacers needed for the purpose of maintaining subcriticality in 55-, 85-, and 100-gallon drums);
(vii) Drawing No. 163-009, “Criticality Control Overpack SAR Drawing,” sheets 1-2, Rev. 5;
(viii) Drawing No. 163-008, “SC-30G1 Shielded Container SAR Drawing,” sheets 1-6, Rev. 8;
(ix) Drawing No. 163-010, “SC-30G2 Shielded Container SAR Drawing,” sheets 1-7, Rev. 5;
(x) Drawing No. 163-011, “SC-30G3 Shielded Container SAR Drawing,” sheets 1-8, Rev. 5;
(xi) Drawing No. 163-012, “SC-55G1 Shielded Container SAR Drawing,” sheets 1-5, Rev. 4; and
(xii) Drawing No. 163-013, “SC-55G2 Shielded Container SAR Drawing,” sheets 1-4, Rev. 5.

5. (b) Contents

(1) Type and form of material

Byproduct, source, and special nuclear material in the form of dewatered, solid or solidified materials and wastes. Materials must be packaged in one of the following payload containers:

(i) 55-gallon drum,
(ii) standard waste box (SWB),
(iii) 85-gallon drum,
(iv) standard pipe overpack,
(v) S100 pipe overpack,
(vi) S200 pipe overpack,
(vii) S300 pipe overpack,
(viii) 100-gallon drum,
(ix) criticality control overpack (CCO),
(x) SC-30G1 shielded container,
(xi) SC-30G2 shielded container
(xii) SC-30G3 shielded container
(xiii) SC-55G1 shielded container
(xiv) SC-55G2 shielded container

The payload containers are described in Section 2.9, “Payload Container/Assembly Configuration Specifications,” of the CH-TRAMPAC, Rev. 6. Explosives, corrosives (pH less than 2 or greater than 12.5), nonradioactive pyrophorics, and compressed gases are prohibited. Within a payload container radioactive pyrophorics must not exceed 1 percent by weight and residual liquids must not exceed 1 percent by 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 the 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

The package contents are limited to 7,600 pounds, including the weight of the payload containers and any other components of the payload assembly. Table 1 (below) includes the maximum gross weight for a payload container.

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

Table 1. Maximum gross weight for a payload container

Type of Payload Container	Maximum Gross Weight
6-inch standard pipe overpack	328 pounds
12-inch standard pipe overpack	547 pounds
S100 pipe overpack	550 pounds
S200 pipe overpack	547 pounds
S300 pipe overpack	547 pounds
100-gallon drum	1,000 pounds
55-gallon drum	1,000 pounds
85-gallon drum	1,000 pounds
SWB	4,000 pounds
CCO	350 pounds
Shielded container SC-30G1	2,260 pounds
Shielded container SC-30G2	3,160 pounds
Shielded container SC-30G3	6,300 pounds
Shielded container SC-55G1	3,410 pounds
Shielded container SC-55G2	6,500 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
standard pipe overpack	7
S100 pipe overpack	7
S200 pipe overpack	7
S300 pipe overpack	7
100-gallon drum	3
55-gallon drum	7
85-gallon drum	4
SWB	1
CCO	7
Shielded container SC-30G1	3
Shielded container SC-30G2	2
Shielded container SC-30G3	1
Shielded container SC-55G1	2
Shielded container SC-55G2	1

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 3 (below) includes limits related to CCOs and pipe overpacks.

Table 3. Maximum Fissile Gram Equivalent (FGE) in CCOs and pipe overpacks and associated additional controls/limits.

	Parameters			
	Non-machine compacted material		Machine compacted material	
Payload Containers	**Maximum FGE of ^{239}Pu**	**Additional limits/controls**	**Maximum FGE of ^{239}Pu**	**Additional limits/controls**
CCO	380	≤ 1% by weight Be/BeO*	380	≤ 1% by weight Be/BeO and ≤ 2,000 grams plastic
Pipe Overpack	200	for Be/BeO > 1 wt%, Be/BeO must be chemically or mechanically bound to the fissile material	200	≤ 1% by weight Be/BeO
Shielded containers	325	≤ 1% by weight Be/BeO	245	≤ 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 10^5 A_2 quantities.

Maximum decay heat per package not to exceed 30 watts. Decay heat per payload container not to exceed the values in Table 5.2-1 of the CH-TRAMPAC, Rev. 6, "List of Approved Alphanumeric 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 the CH-TRAMPAC, Rev. 6. For content code LA 154 and SQ 154 payloads, decay heat per payload container not to exceed the values determined as 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 and center of gravity, and radiation dose rate must be determined and limited in accordance with CH-TRAMPAC, Rev. 6.

7. Each payload container must be assigned to a shipping category in accordance with Section 5.1, "Payload Shipping Category" of CH-TRAMPAC, Rev. 6. Each payload container and payload assembly must not exceed the allowable wattage in accordance with 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 Section 5.2.5, "Unified Flammable Gas Test Procedure," of CH-TRAMPAC, Rev. 6. 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 drums 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 Section 6.0, "Payload Assembly Requirements," of CH-TRAMPAC, Rev. 6. 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 CH-TRAMPAC, Rev. 6. Payload containers which were not equipped with filtered vents during storage must be aspirated in accordance with Section 5.3, "Venting and Aspiration," of CH-TRAMPAC, Rev. 6.

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.

11. In addition to the requirements of Subpart G of 10 CFR Part 71 (continue):

    (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.

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

14. Expiration date: August 31, 2030.

REFERENCES

"HalfPACT Safety Analysis Report," application dated July 16, 2025.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

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

Yoira K. 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. 71-9279
Model No. HalfPACT
Certificate of Compliance No. 9279
Revision No. 12

SUMMARY

By letter dated May 28, 2025 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML25148A336), as supplemented on July 16, 2025 (ML25197A795) and August 14, 2025 (ML25226A173) 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. 9279, for the Model No. HalfPACT transportation package. The application included a safety analysis report (SAR), "HalfPACT SAR, Revision 10," in which the applicant proposed changes in the following drawings of the SAR: 707-SAR, 163-001, 163-002, 163-003, 163-004, 163-006, 163-008, 163-009, 163-010, 163-011, 163-012, and 163-013. Additionally, the applicant requested the certificate be renewed for a 5-year term.

EVALUATION

Structural Evaluation

The applicant proposed to revise the weld at drawing zone C-3 in Sheet No. 5 of the Drawing 707-SAR, "HalfPACT Packaging," Revision 13, 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,
- SC-30G1 Shielded Container, 163-008, Revision 8,
- Criticality Control Overpack, 163-009, Revision 5,
- SC-30G2 Shielded Container, 163-010, Revision 5,
- SC-30G3 Shielded Container, 163-011, Revision 5,
- SC-55G1 Shielded Container, 163-012, Revision 4, and
- SC-55G2 Shielded Container, 163-013, 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, this change is acceptable.

Furthermore, the SAR Drawings (163-010 and 163-011) have additional information. Drawing 163-010 has a center hole as a fabrication option, while Drawing 163-011 has updated information regarding the swivel hoist ring. The NRC staff reviewed the proposed changes in the drawings and found that those changes are acceptable because not only do the changes not impact the safety basis of the packaging, but also (1) an optional center hole will enhance constructability by reducing face sheet warpage during the assembly weld-up, and (2) the hoist ring information revision allows the swivel hoist ring diameter to fit within the 11/32-inch thru hole.

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 10 to the HalfPACT 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 SARs will be discussed below.

The applicant submitted revisions to the HalfPACT 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 HalfPACT SAR and determined that they do not affect the staff's previous evaluation of the licensed drawings.

Evaluation findings

The staff concludes that Revision 10 to the HalfPACT 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 July 16, 2025.

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

Condition 14, which contained the expiration date for revision 9 of the certificate, was updated to reflect the expiration date for revision 12 of the certificate to August 31, 2030.

Condition 15, which contained the expiration date for revision 11 of the certificate, was deleted.

References were updated to reference the consolidated application submitted by SIMCO, LLC on July 16, 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. 9279, Revision No. 12.