Department of Energy
Washington, DC 20585

September 19, 2019

MEMORANDUM FOR MICHAEL D. BUDNEY
MANAGER
SAVANNAH RIVER OPERATIONS OFFICE

FROM: JOANNE D. LORENCE
HEADQUARTERS CERTIFYING OFFICIAL
DIRECTOR
OFFICE OF PACKAGING AND TRANSPORTATION

SUBJECT: Revision of Department of Energy Certificate of Compliance Number 9979

In response to the email request from Maxcine Maxted dated April 5, 2019, as supplemented August 28, 2019, to James M. Shuler of my staff, Department of Energy (DOE) Certificate of the Compliance (CoC) Number 9979, Revision 15, for the Model 9979 package is issued with its attached Safety Evaluation Report. Changes to the CoC are indicated by vertical bars in the right page margin.

This CoC is issued by DOE under the authority of 49 CFR 173.7(d) and is conditional upon fulfilling the applicable Operational and Quality requirements of 49 CFR Parts 100-199 and 10 CFR Part 71 and the conditions specified in Item 5 of the CoC.

The expiration date of the certificate is September 30, 2020.

If you have any questions, please contact me or Dr. Shuler at (301) 903-5513.

Attachments

cc: Maxine Maxted, SR
Robert Watkins, SRNL
Yung Liu, ANL
James Shuler, EM-4.24

U.S. DEPARTMENT OF ENERGY

DOE Packaging Certification Program

CERTIFICATE OF COMPLIANCE
For Radioactive Materials Package

DOE F 5822.1
(5-85 Formerly EV-618)

1a. Certificate Number	1b. Revision No.	1c. Package Identification No.	1d. Page No.	1e. Total No. Pages
9979	15	USA/9979/AF-96 (DOE)	1	11

2. PREAMBLE

2a. This certificate is issued under the authority of 49 CFR Part 173.7(d).

2b. The packaging and contents described in Item 5 below meet the safety standards set forth in subpart E, "Package Approval Standards" and subpart F, "Package, Special Form, and LSA III Tests" Title 10, Code of Federal Regulations, Part 71.

2c. 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 —

(1) Prepared by (*Name and Address*):	(2) Title and identification of report or application:	(3) Date:
U.S. Department of Energy Savannah River Operations Office P.O. Box A Aiken, SC 29808	Safety Analysis Report for Packaging Model 9979 Type AF-96, S-SARP-G-00006, Revision 4, March 2015, as supplemented [see 5(e)]	March 2015

4. CONDITIONS
This certificate is conditional upon fulfilling of the applicable Operational and Quality Assurance requirements of 49CFR parts 100 – 199 and 10CFR Part 71, and the conditions specified in Item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Transport Index, other Conditions, and References:

(a) Packaging

(1) Model Number: 9979

(2) Description:

The 9979 package is a drum 24 inches in diameter and 34-½ inches tall to transport less than one A_2 of fissile uranium metal and oxides, and other solid compounds by road.

The packaging is composed of one insulated 55-gallon carbon steel outer drum and one 30-gallon carbon steel inner drum. The outer drum and lid are insulated with polyurethane foam to provide impact and thermal protection of the package during accident conditions. A carbon steel liner is welded to the inside of the outer drum body and lid to provide a cavity for the insulation. The inner drum is the package containment boundary. The packaging configuration is shown in Figure 1.

6a. Date of Issuance: 09/19/2019	6b. Expiration Date: September 30, 2020
FOR THE U.S. DEPARTMENT OF ENERGY	
7a. Address (*of DOE Issuing Office*) U.S. Department of Energy Office of Packaging and Transportation (EM-4.24) 1000 Independence Avenue, SW Washington, DC 20585	7b. Signature, Name, and Title (*of DOE Approving Official*) Joanne D. Lorence Joanne D. Lorence Headquarters Certifying Official Director Office of Packaging and Transportation

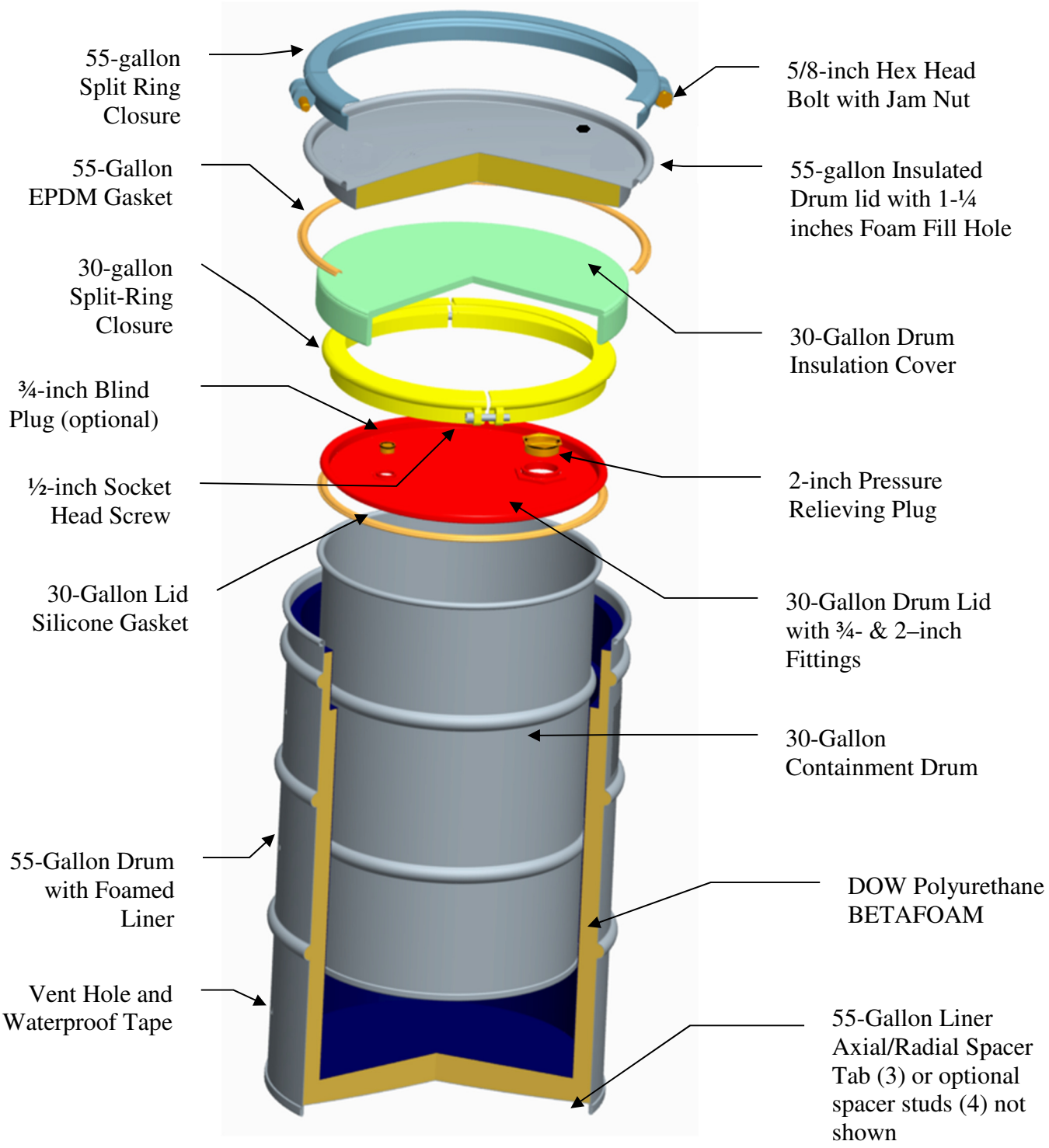

Figure 1 – 9979 Packaging Configuration

The 55-gallon overpack drum body is fabricated from 16-gauge carbon steel and the welded liner is fabricated from 16 and 18-gauge carbon steel. The 55-gallon overpack drum wall has nine ¾-inch holes spaced uniformly in the wall and two 1-¼ inches diameter foam fill holes in the drum bottom, all covered with 2.0-mil polystyrene waterproof tape. In the event the package is exposed to a severe thermal environment, the tape will disintegrate allowing the overpack to vent gases generated from the thermal decomposition of the insulation. The estimated weight of the 55-gallon overpack drum without its lid is 140.3 lb. (Drawing R-R2-G-00057).

The 55-gallon overpack drum closure lid is fabricated from 16-gauge carbon steel and incorporates a shallow pan formed from 16-gauge carbon steel. The pan is nominally 2 inches deep × 20-¾ inches diameter and is welded to the bottom of the closure lid. The formed cavity is filled with the 24 lb./ft^3 BETAFOAM™. The 55-gallon overpack drum closure lid incorporates a 1-¼ inches hole to facilitate foam filling and the hole is sealed with 2.0-mil polystyrene waterproof tape. The 55-gallon overpack drum lid weighs 24.2 lb. When installed the lid assembly extends into the drum body liner (Drawing R-R2-G-00059). An ethylene propylene diene M-class (EPDM) gasket seals the overpack closure (Drawing R-R1-G-00029).

The 55-gallon overpack drum is closed with a split-ring closure device fabricated from 12-gauge carbon steel. The closure device is similar to standard commercial C-ring closures used on most open-head drums but is halved and incorporates two 1 inch flange extensions, one extending horizontally and the other vertically from the C-ring. Lugs are welded at each end of the two split-rings. Each split-ring is identical, with one 1-½ inch lug threaded with 5/8-11UNC-2B thread and the other with a ¾ inch diameter through hole. The closure device secures the closure lid to the drum via two 3-½ inches long, 5/8 carbon steel hex head bolts and jam nuts. Each lug includes a 0.13 inch hole to receive a tamper-indicating device (TID). The 55-gallon split-ring closure weighs approximately 9.8 lb.

The estimated nominal weight of the 9979 55-gallon overpack assembly (body, closure lid and split-ring closure device) is calculated to be 174.5 lb. (Drawing R-R1-G-00029).

The general outside dimensions of the 30-gallon containment drum is 18.6 inches in diameter by 29 inches high when closed. The drum and its closure lid are fabricated from 16-gauge carbon steel. The lid incorporates two standard commercially stamped and threaded bung hole flanges, one is ¾ inch in diameter and the other is 2 inches in diameter: the ¾ inch bung hole is optional. The 2 inch bung hole is fitted with a 2 inch pressure relieving plug that vents between 12-15 psig to limit buildup of internal pressure during hypothetical accident conditions (HAC). The ¾ inch fitting is sealed with a standard ¾ inch non-venting drum plug. A formed silicon gasket seals the 30-gallon containment drum closure. The 30-gallon drum with lid and split-ring closure weighs 50 lb.

The 30-gallon containment drum split-ring closure device is similar to the 55-gallon drum overpack's closure device except for its smaller size and low profile lugs. The 30-gallon containment drum split-ring closure device is fabricated from 12-gauge carbon steel. Low profile lugs are welded at each end of the two split rings. Each split-ring is identical, with one lug threaded with ½-13UNC-2B thread and the other with a through hole. The split-ring secures the closure lid to the drum via two 2-½ inches long, ½ inch carbon steel socket head screws. Each lug includes a 0.13-inch hole to receive a tamper-indicating device (TID). The 30-gallon split-ring closure weighs approximately 7.2 lb.

A lifting device may be necessary for loading the 30-gallon containment drum into the 55-gallon overpack drum. Users may develop their own lifting apparatus but must obtain final approval from the Savannah River Packaging Technology (SRPT) Design Authority prior to use.

Installation of the split-ring requires striking each half with a rubber hammer as the bolts are torqued, and the process continues until sustaining torque values in accordance with Drawings R-R1-G-00028 and R-R1-G-00029 given in Appendix 1.1 of the Safety Analysis Report for Packaging (SARP). The repeated striking and torque sequence is necessary to overcome the static friction between the drum closure and split-ring connection. With fully applied torque, the ends of the split-ring halves must retain a visually discernable gap. Jam nuts are then tightened against the unthreaded lugs on the 55-gallon drum. (The 30-gallon containment drum split-ring closure does not include jam nuts.)

Two weights limits are applicable to the 9979. The gross weight of a fully loaded 9979 package shall not exceed 415 lb. The package contents including radioactive material, dunnage, packing, and thermal insulating bag (if used) is limited to 200 lb.

The content envelope limits, listed in Tables 2, 3, and 4, restrict package contents to materials with low decay-heat rates. Heat transfer by the 9979 package to its ambient surroundings is passive.

Payload decay heat is limited to a maximum of 3.5 watts. Moisture within the payload is limited to a maximum of one weight percent.

The 9979 package design does not incorporate a pressure-retaining leak-testable containment boundary because its radioactive contents are limited to not exceed an A_2 value. The 30-gallon drum functions as a containment boundary for the radioactive contents. The 30-gallon containment drum closure lid includes a pressure relieving plug to ensure that an over pressure condition does not occur during transport under hypothetical accident conditions.

The 9979 package design does not incorporate any specific shielding features. Distance between the contents and points external to the package provides sufficient dose-rate attenuation.

The 9979 package design does not incorporate any specific criticality-control features. The 9979 package design ensures subcriticality by limiting package contents and maintaining a minimum distance between adjacent fissile material sources.

(3) Drawings:

The 9979 Packaging design is defined by the following Savannah River Site drawings.

Drawing Number	Revision Number	Title
R-R5-G-00006	4	9979 Type AF Package Tree (U)
R-R1-G-00026	8A	9979 Type AF 30-Gallon Container Split Ring Assembly (U)
R-R1-G-00027	7A	9979 Type AF 55-Gallon Drum Lid Split Ring Assembly (U)
R-R1-G-00028	6A	9979 Type AF 30-Gallon Drum Assembly (U)
R-R1-G-00029	5	9979 Type AF 55-Gallon Drum Assembly (U)
R-R1-G-00030	4A	9979 Type AF Packaging Assembly (U)
R-R2-G-00057	11A	9979 Type AF 55-Gallon Drum Sub-Assembly and Weldment (U)
R-R2-G-00058	6A	9979 Type AF 30-Gallon Drum (U)
R-R2-G-00059	7A	9979 Type AF 55-Gallon Drum Lid Sub-Assembly and Weldment (U)
R-R2-G-00060	5A	9979 Type AF 30-Gallon Drum Lid with Dual Bung Closures (U)
R-R4-G-00062	4B	9979 Type AF 30-Gallon Drum Lid Gasket (U)
R-R4-G-00064	3	9979 Type AF Insulation Bag
R-R4-G-00065	3	9979 Type AF Insulation Cover Assembly for 30-Gallon Drum (U)
R-R4-G-00066	2	9979 Type AF Package Identification Plate (U)

Note: U is unclassified

(b) Contents

(1) Type and Form of Radioactive Material:

The payload for the 9979 package includes all radioactive (fissile and non-fissile) and non-radioactive materials confined within the 30-gallon containment drum. The radioactive contents for the 9979 package are grouped broadly into two payload categories as listed in Table 1: non-combustible materials, and combustibles materials. A general description of the content payload is listed in Table 1.

Low enriched uranium (LEU) is limited to two forms. The first form, under Table 1, Material Form “Sources and Standards” is a 10 cm cube assembly of steel encapsulated metal plates, or up to four individual plates, approximately 10 cm square by 2 cm thick each, per package. The cube assembly or plates may be packed in a 3-quart stainless steel convenience can. The second form, under Table 1, Material Form “Solid Compounds” is LEU metal waste.

Tri-Structural Isotropic (TRISO) fuel and process materials are limited to the physical and chemical forms of Highly Enriched Uranium and Thorium defined in Tables 2-1 through 2-6 of N-NCS-G-00174, Supplement 5(e)(11) of this certificate. TRISO fuel and process materials will be placed in convenience containers such as steel cans (carbon or stainless) with slip top or press fit

lids; miscellaneous small glass vials, less than 1/2 pint; or poly-bottles with screw top lids. Convenience containers may be placed in plastic bags, which are taped closed for contamination control.

Table 1 - Radioactive Content Description

Payload Categories	Material Form	General Description
COMBUSTIBLE	Filters	Roughing, sock, demister, HEPA, and other uranium filters
	Rubber, Plastics, Cellulose Products	Clothing, gaskets, bottles, filter frames, paper, wood, mop heads, etc.
	Floor Sweepings	Miscellaneous materials collected from cleaning activities
	Process Solids	Furnace residues. (pan filter cloth and scrapings, wipes/sponges, etc.)
NON-COMBUSTIBLE	Graphite/Carbon	Carbon and graphite scrap molds
	Slag and Liner	Residue that contains magnesium oxide, calcium fluoride, and/or lithium fluoride
	Ceramics/Glass	Crucibles, glassware and borosilicate rings
	Borax Pellets	From analytical x-ray operations.
	Reduction Sand	Granular magnesium oxide (MgO)
	Asbestos/Firebrick	Insulation, floor tiles, etc.
	Solid Compounds and Metal	Uranyl Fluoride, UO_4, ammonium diuranate and residues and solid mixtures; scraped unirradiated fuel rods and pellets [e.g., size-reduced light-water breeder reactor (LWBR) fuel rods]; LEU metal waste; and TRISO fuel and process materials.
	Standards and Sources	Encapsulated calibration standards, LEU cube assembly or up to four individual plates per package.

Table Note 1 Non-radioactive contents include all secondary containers, wrapping, shoring, convenience cans, plastic bagging, polyurethane foam and other dunnage material.

Table Note 2 The Payload Category “Combustible”, may also include “Non-Combustible” Material Forms.

(2) Maximum Quantity of Radioactive Material per Package:

The radioactive material and payload mass limits for the 9979 package are defined in Tables 2, 3, and 4. Table 2 defines the radioactive limits for TRISO fuel and process materials. Tables 3 and 4 define the radioactive limits for both forms of LEU.

Table 2 – Content Envelope Limits

Feature	Material	Mass (g)			
Radioisotopes	Tc-99	1,428			
	Th-232	90,000			
	U-232	5.00E-05			
	U-233	16.6			
	U-234	26.1			
	U-235	350			
	U-236	2,500			
	U-238	90,000			
	Np-237	76.9			
	Pu-238	1.58E-03			
	Pu-239	0.435			
	Pu-240	0.119			
	Pu-241	1.58E-02			
	Am-241	7.69E-03			
Impurities	Carbon	1,000 [d]	unlimited [b, e]	1,000 [d]	90,000 [c,e]
	Beryllium		0		0
	Hydrocarbons [f]	1,000	1,000	Unlimited [e]	1,000
Total Mass [a]	Fissile Material [U-235 (eq)]*	350	350	300	150
	Radioactive Material	90,000			
	Package Payload	90,000			
Note: With the exception of U-235 and U-232, the mass of each isotope listed is based on a single A_2 or 90,000 grams.					

a Package contents are limited to specified mass of U-235 (eq) and to a maximum composite A_2 of one.
* U-235(eq) = U-235 + [4.1 × U-233] + [4.1 × Pu]
[The sum of U-233 and Pu must be ≤ 5 wt% total fissile mass.) All other fissile isotopes are only allowed in trace quantities (i.e., <0.015 grams)]

b Fissile material must be fixed on graphite pieces.

c Fissile material is not fixed on graphite pieces.

d This limit applies to sum of beryllium and carbon in the payload.

e Subject to payload limit.

f Materials predominantly containing hydrogen and carbon (i.e., molecular formula involving C_xH_y…) such as plastics, polyethylene, and oil.

Table 3 – Content Envelope Limits for LEU Cube or Plates

Feature	Material	Weight Fraction	Mass (kg)
Radioisotopes	U-235	0.199	3.819
	U-238	0.801	15.373
Total Mass	Radioactive Material	-	19.192
	Package Payload	-	90
Low Enriched Uranium less than or equal to 19.9 weight percent U-235 and 80.1 weight percent U-238. Limits are based on U-235 enrichment: weight fraction and mass of U-238 may be higher when U-235 weight fraction and mass is lower than shown in the Table.			

Table 4 – Content Envelope Limits for LEU Metal Waste

Feature	Material	Mass (g)
Radioisotopes	Tc-99	4.00E+00
	Th-228	6.72E-09
	Th-230	3.84E-03
	Th-232	1.76E+00
	U-232	6.13E-08
	U-234	2.20E+01
	U-235 [a]	2.00E+03
	U-236	1.72E+02
	U-238 [b]	9.0E+04
	Np-237	6.15E-02
	Pu-238	1.22E-06
	Pu-239	5.63E-03
	Pu-241	3.41E-05
	Am-241	9.97E-07
Total Mass	Radioactive Material	9.0E+04
	Package Payload	9.0E+04

a Low Enriched Uranium (LEU) Content Envelope ≤ 1.25 weight % U-235

b Includes contributions from daughter products, e.g., Th-234, etc.

(c) Criticality Safety Index

The Criticality Safety Index CSI is 1.0, i.e., CSI=1.0 for Table 2 contents

CSI=0.1 for Table 3 contents

CSI=0.0 for Table 4 contents

(d) Conditions

(1) The maximum allowable radioactive decay heat rate is 3.5 watts.

(2) Two weights limits are applicable to the 9979. The gross weight of a fully loaded 9979 package shall not exceed 415 lb. The package contents including radioactive material, dunnage, packing, and Thermal Insulation Bag, if used, is limited to 200 lb.

(3) Pyrophoric materials, cryogenic liquids, compressed gasses, visible liquids, and chemically reactive substances are prohibited as content in the 9979 package.

(4) Transport of fissile material by air in the 9979 package is not authorized.

(5) Moisture within the payload is limited to a maximum of one weight percent.

(6) In addition to the requirements of Subparts G and H of 10 CFR Part 71:

(a) The package must be prepared for shipment and operated in accordance with the Operating Procedures in Chapter 7 of the SARP, as supplemented by 5.(e) of this certificate,

(b) Each packaging must meet the Acceptance Tests and Maintenance Program of Chapter 8 of the SARP, and

(c) Each entity must comply with the Quality Assurance requirements of Chapter 9 of the SARP

(7) All contents shall be packaged in the 30-gallon containment drum. Contents defined in Table 1 as "Combustible", including combustible non-radioactive dunnage, must be packed in the Thermal Insulation Bag (Drawing R-R4-G-00064) by the procedure described in SARP Section 1.2.4. This bag is optional dunnage for non-combustible contents.

(8) The following are requirements for content packing configurations:

- Sharp edges and corners must be padded.
- Liquid waste and waste containing free liquids must be processed to a solid form or be collected on sorbent material sufficient to retain twice the volume of the liquid. Sorbents must be non-biodegradable in accordance with 40 CFR 265.314(e).
- Handling containers must be packed with closures upright.

(9) The shipping period and minimum package void volume in the 30-gallon drum apply for each contents as follows (Note – Shipping period begins when the 30-gallon drum is closed):

- Table 2 – shipping period is 180 days with a minimum void volume 9%;
- Table 3 – shipping period is unlimited and with no minimum void volume; and
- Table 4 – shipping period is 360 days and with a minimum void volume 3.7%

The shipping period may be reset by the diffusion or purging methods described in the operations procedures in Section 7.4.3 of the SARP, as supplemented. For the purging method, use of the 100µm sintered metal filter of 0.092" thickness is required for contamination control.

The shipping period may be reset by the detection or sampling methods described in the operations procedures in Section 7.4.4 of the SARP, as supplemented.

(10) The shipper shall replace the 2.0-mil polystyrene waterproof tape, if damaged, on the venting and fill holes on 55-gallon drum, prior to reuse of the packaging.

(11) If the shipper chooses to attach an ARG-US radio-frequency identification (RFID) tag to the packaging for monitoring during shipment or as a Tamper-Indicating Device Seal, the shipper must be trained and qualified to use the system in accordance Reference 1.

(12) Fuel pellets from scrap unirradiated LWBR fuel rods must be either be confined within sized-reduced fuel rods [e.g., the cut end(s) of the fuel rod shall be covered with metal tape] or placed in a stainless steel convenience container, prior to loading in the 30-gallon containment drum. Loose fuel pellets are prohibited in the containment drum.

(13) Packaging serial numbers 11-100 through 11-599 must be modified in accordance with Appendix 8.2 of the SARP, prior to authorized use under this certificate.

(14) Revision 9 of this certificate may be used until October 31, 2019. Revisions 10 and 11 of this certificate may be used until April 30, 2020. Revisions 12 and 13 of this certificate may be used until July 31, 2020. Revision 14 of this certificate may be used until September 30, 2020.

(15) This certificate authorizes use of two hundred (200) silicone gaskets from Batch No.0057022890, Lot # S0059225 produced by Parker Hannifin Corporation in accordance with the Drawing R-R4-G-00062, Rev. 3.

(16) Only DOE or persons working under contract to DOE shall consign the package for shipment.

(17) NRC or Agreement State licensees shall not consign a DOE certified package for shipment, but can transfer the material on-site to DOE or persons working under contract to DOE, for consignment of the package.

(e) Supplements

(1) *Guide to the RFID Monitoring System (Models 9975, 9977, and 9978 Packages)*, Argonne National Laboratory, ANL/DIS-09-5, December 3, 2009 and its Supplements.

(2) *Alternative Silicone Gasket Material for 9979 30-gallon Drum and SARP Chapter Evaluation*, Savannah River National Laboratory, SRNL-L4500-2016-00106, Revision 1, February 15, 2017.

(3) *Safety Analysis Report for Packaging - Model 9979 Type AF-96*, S-SARP-G-00006, Revision 5, January 2018 (consolidation of SARP Rev 5a through 5d).

(4) *Safety Analysis Report for Packaging – Model 9979 Type AF-96*, S-SARP-G-00006, Revision 5, Page-changes: 3-20, 3-32, and 7-5, July 26, 2018.

(5) *Hydrogen Gas Generated from the Contents in the 9979 Package,* M-CLC-A-00631, Revision 2, July 26, 2018.

(6) *Safety Analysis Report for Packaging – Model 9979 Type AF-96*, S-SARP-G-00006, Revision 5, Page-changes: Appendix 1.1 - ii, 9-22, and 9-31, February 22, 2019.

(7) *Model 9979 Type AF 55-Gallon Drum Subassembly and Weldment*, Drawing No. R R2 G-00057, Revision 11A, February 19, 2019

(8) *Application for Contents Amendment for Shipping Low Enriched Uranium with 19.9 wt.% U-235 in 9979 Packaging (Docket No. 17-20-9979)*, SRNL-L4500-2018-00003, March 14, 2018.

(9) *Nuclear Criticality Safety Evaluation: LEU Cube and Plates in a 9979 Type AF Shipping Package*, N-NCS-A-00031, Revision 1, October 2018.

(10) *Application for Contents Amendment for Shipping TRISO Fuel in 9979 Packaging*, SRNL-L4500-2018-00004, Rev. 1, June 20, 2018.

(11) *Nuclear Criticality Safety Assessment: Uranium - Thorium in a 9979 Shipping Package*, N-NCS-G-00174, Revision 1, March 2018.

(12) *Safety Analysis Report for Packaging – Model 9979 Type AF-96*, S-SARP-G-00006, Revision 5, Page-changes: 1-11, 3-7, 5-7, Appendix 4.1-3, and Appendix 5.2-ii, February 20, 2019.

(13) *Application for 9979 Package CoC Amendment to Address 30-Gallon Drum Welding Requirements*, SRNL-L4500-2018-00117, Rev. 0, November 29, 2018.

(14) *Revised submittal for Docket 19-19-9979*, SRNL-L4500-2018-00011, Rev. 0, February 22, 2019.

(15) *Justification for Docket 19-19-9979 Requested SARP Changes*, SRNL-L4500-2019-00018, Rev. 1, April 30, 2019.

(16) *Safety Analysis Report for Packaging – Model 9979 Type AF-96*, S-SARP-G-00006, Revision 5, Page-changes: 1-3, 2-13, 2-45, and 2-46, April 30, 2019.

(17) Drawings:

- *Model 9979 Type AF 30-Gallon Container Split Ring Assembly (U)*, Drawing No. R-R1-G-00026, Revision 8A, February 13, 2019
- *Model 9979 Type AF 55-Gallon Drum Lid Split Ring Assembly (U)*, Drawing No. R-R1-G-00027, Revision 7A, February 13, 2019
- *Model 9979 Type AF 55-Gallon Drum Subassembly and Weldment (U)*, Drawing No. R-R2-G-00057, Revision 11A, February 19, 2019
- *Model 9979 Type AF 30-Gallon Drum (U)*, Drawing No. R-R2-G-00058, Revision 6A, February 19, 2019
- *Model 9979 Type AF 55-Gallon Drum Lid Subassembly and Weldment (U)*, Drawing No. R-R2-G-00059, Revision 7A, February 19, 2019

(18) *Safety Analysis Report for Packaging – Model 9979 Type AF-96*, S-SARP-G-00006, Revision 5, Page-changes: 7-ii and 7-10 through 7-12, January 11, 2019.

(19) *Safety Analysis Report for Packaging – Model 9979 Type AF-96*, S-SARP-G-00006, Revision 5, Page-changes: 7-11, July 9, 2019.

(20) *Safety Analysis Report for Packaging – Model 9979 Type AF-96*, S-SARP-G-00006, Revision 5, Page-changes: 3-20, 3-21, 7-12, and 7-13, April 5, 2019.

(21) *Safety Analysis Report for Packaging – Model 9979 Type AF-96*, S-SARP-G-00006, Revision 5, Page-changes: 7-12, August 28, 2019.