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
9377	1	71-9377	USA/9377/B(U)F-96	1 OF	4

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)

TN Americas LLC
7160 Riverwood Drive, Suite 200
Columbia, MD 21046

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

TN-32 Transportation Cask Safety Analysis Report, dated February 2026.

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.: TN-32B

(2) Description:

The TN-32B packaging consists of a spent fuel basket assembly, a containment vessel, a forged steel shell body, a radial neutron shielding, and impact limiters.

Basket

The spent fuel basket consists of a honeycomb-like structure of stainless-steel cells, housing 32 fuel assemblies, separated by aluminum and poison plates that form a sandwich panel. The aluminum plates provide heat conduction paths from the spent fuel assemblies to the cask cavity wall. The poison material provides the necessary criticality control. The opening of the cells is 8.7 in. x 8.7 in., leaving a minimum of 1/8 in. clearance around the fuel assemblies. The overall basket length (160.0 in.) is less than the cask cavity length to allow for thermal expansion and fuel assembly handling.

Containment Vessel

The containment vessel consists of the inner shell and bottom inner plate, shell flange, closure lid outer plate, closure lid bolts, penetration cover plates and bolts, thermocouple lance assemblies and their seals, inner metallic seals of the lid, vent and drain seals. The containment vessel, which maintains an inert atmosphere (helium) in the cask cavity, is 171 inches long, with a wall thickness of 1.5 inch. The

5. (a)(2) Description (Continued)

cylindrical cask cavity has an inner diameter of 68.8 inches and a length of 163.4 inches. The closure lid outer plate is 4.5 inches thick and is secured to the body by 48 high-strength closure lid bolts.

Body

The packaging body, i.e., a forged steel gamma shield shell, is around the inner shell and the bottom inner plate of the containment vessel. The 8.00 in. thick gamma shield shell and the 8.75 in. thick bottom plate completely surround the containment vessel shell and bottom plate, respectively. A 6.0 in. thick shield plate is also welded to the inside of the 4.5 in. thick lid outer plate, and 2.13 in. thick lance cover plates are placed over the thermocouple lances and welded to the closure lid outer plate.

The radial neutron shielding is enclosed within the welded steel outer shell. Radial neutron shielding is provided by a borated polyester resin compound surrounding the gamma shield shell. The total radial thickness of the resin and aluminum is 4.5 in.

Impact Limiters

The impact limiters, consisting of balsa wood and redwood blocks encased in stainless steel plates, have an outside diameter of 144 in. and an inside diameter of 89 in. The impact limiters, attached to each other using tie-rods, are also attached to the outer shell of the package with bolts. A puncture-resistant steel plate is placed on the cask lid and bolted to the package body prior to mounting the top impact limiter, to provide a smooth contact surface between the closure lid and the top impact limiter, and to protect the thermocouple lance assemblies from puncture.

A transport frame, which is not part of the packaging, is used for tie-down purposes.

The TN-32B package is 263.2 inches long and has a diameter of 144 in. with the impact limiters installed. The package body is 184.3 in. long (with the closure lid installed), and 87.75 in. in diameter. The closure lid is 79.50 in. in diameter. The cask outside diameter including the radial neutron shield is 98.14 in. The cask cavity is 163.38 in. long and 68.80 in in diameter. The total gross weight of the package is 269,000 lb.

5. (a)(3) Drawings

The packaging is fabricated and assembled in accordance with ORANO TN Drawing Nos.:

19885-71-1, Rev. 1	General Arrangement Assembly
19885-71-2, Rev. 1	General Assembly
19885-71-3, Rev. 1	Lid Assembly and Parts List
19885-71-4, Rev. 0	Puncture resistant Plate Assembly

5. (a)(3) Drawings (continued)

19885-71-5, Rev. 0	Trunnion Details
19885-71-6, Rev. 0	Basket Assembly and Parts List
19885-71-7, Rev. 0	Thermocouple Lance Assembly, Lance Cover Plate
19885-71-8, Rev. 1	General Assembly Impact Limiters
19885-71-9, Rev. 1	Bottom Impact Limiter Assembly
19885-71-10, Rev. 1	Top Impact Limiter Assembly

5. (b) Contents

(1) Type and form of material

(a) Only intact/undamaged fuel assemblies (*i.e.*, assemblies containing undamaged fuel rods without any known or suspected cladding defects greater than hairline cracks or pinhole leaks) limited to the following fuel types, with specifications listed in Table 1-2 of the application:

i. One (1) Westinghouse LOPAR 17×17 fuel assembly with Zirc-4 cladding

ii. Twelve (12) Westinghouse NAIF 17×17 assemblies with ZIRLO™ cladding

iii. One (1) Westinghouse NAIF 17x17 assembly with Low SN Zr-4 cladding

iv. Eighteen (18) AREVA Advanced MK-BW 17×17 assembly with M5™ cladding

(b) Fuel assembly locations and poison rod assembly (PRA) locations shall be as provided in Figure 6-1 of the application.

(c) The maximum combined weight of a fuel assembly and a PRA shall not exceed 1,551 lb.

(d) The maximum initial enrichment of any fuel assembly is 4.55 wt.% ^{235}U.

(e) The burnup for each assembly is greater than 50,000 MWd/MTU with the fuel burnup data for all 32 fuel assemblies being as provided in Table 1-3 of the application.

(f) The post-irradiation minimum cooling time is 11.6 years and the maximum total decay heat load shall be 25.84 kW, with a maximum of 0.878 kW for any fuel assembly.

(2) Maximum quantity of material per package

32 PWR assemblies as described in 5.b(1) with a combined weight (fuel assemblies and PRAs) not exceeding 50,000 lb.

5.(c) Criticality Safety Index: 0.0

6. In addition to the requirements of Subpart G 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 application, as supplemented.

   (b) Each packaging must be acceptance tested and maintained in accordance with the "Acceptance Tests and Maintenance Program" in Chapter 8 of the application, as supplemented.

7. Transport by air is not authorized.

8. The personnel barrier shall be installed at all times during transport to meet package surface temperature and/or package dose rates requirements.

9. The package shall be transported under exclusive-use.

10. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

11. Expiration date: July 31, 2029.

REFERENCES

TN Americas LLC, application "TN-32 Transportation Cask Safety Analysis Report" dated February 2026.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

DAVID BROWN

Digitally signed by DAVID BROWN
Date: 2026.03.04 09:30:52 -05'00'

Brown, David signing on behalf of Diaz-Sanabria, Yoira on 03/04/26

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

Date: March 4, 2025

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

SAFETY EVALUATION REPORT

Model No. TN-32B Package
Certificate of Compliance No. 9377
Revision No. 1

SUMMARY

By letter dated September 5, 2025, as supplemented on December 16, 2025 (Agencywide Documents Access and Management System [ADAMS] Accession Nos. ML25248A026 and ML25350C072, respectively), Orano TN (Orano or the applicant) submitted a request to revise Certificate of Compliance (CoC) No. 9377 for the Model No. TN-32B package. By letter dated February 26, 2026 (ML26057A011), Orano submitted a consolidated safety analysis report (SAR) in support of the revision.

The applicant proposed a change to the CoC and submitted changes to the CoC No. 9377 TN-32 Safety Analysis Report (SAR), Revision 1A and 1B. As part of this revision request, SAR sections 1, 2, 5 and 7 have been modified. SAR Drawings 19885-71-1, 19885-71-2, 19885-71-3, 19885-71-8, 19885-71-9 and 19885-71-10 have also been revised.

This safety evaluation report (SER) documents the NRC staff's (the staff thereafter) review of the proposed changes in Revision No. 1 for the CoC No. 9377 for the TN-32B Package. The staff determined that the following areas of review considered in "Standard Review Plan for Transportation Packages for Spent Fuel and Radioactive Material: Final Report" (NUREG-2216) (Reference 1) are not affected by this amendment and, therefore, not addressed in this SER:

3) Thermal Evaluation
4) Containment Evaluation
5) Shielding Evaluation
6) Criticality Evaluation
9) Acceptance Tests and Maintenance Program Evaluation
10) Quality Assurance Evaluation

This review of this revision only requires evaluations on Structural, Materials, and Operating Procedures, as described in this SER.

Based on the statements and representations in the application, and the conditions listed in the CoC, the staff concludes that the package meets the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 71.

References:

U.S. Nuclear Regulatory Commission. (2020). *Standard Review Plan for Transportation Packages for Spent Fuel and Radioactive Material: Final Report* (NUREG-2216). Office of Nuclear Material Safety and Safeguards. ML20234A651.

EVALUATION

1.0 GENERAL INFORMATION

The proposed revisions to CoC No. 9377 and the associated TN-32 SAR primarily clarify definitions, ensure consistency across documentation, and incorporate operational and fabrication improvements. The definition of “intact fuel assemblies” has been refined to explicitly include assemblies containing undamaged fuel rods with no known or suspected cladding defects beyond hairline cracks or pinhole leaks, aligning with other Part 71 CoCs and to confirm that such assemblies meet all safety design functions, including retrievability, structural integrity, containment, shielding, criticality, and thermal performance. Corresponding SAR text has been updated to consistently reference “intact/undamaged fuel” in sections 1.2.1, 2.12.8, 2.12.8.2.2, 5.2, and 5.4.1 to eliminate ambiguity and maintain alignment with structural analysis assumptions.

Operational procedures in chapter 7 have been revised to provide clear steps for preparing and configuring the TN-32B transportation cask for offsite shipment, including additional measures for gas sampling prior to transport, ensuring proper communication to destination site personnel. Further, SAR drawings for the impact limiter have been updated to incorporate fabrication tolerances, remove non-essential dimensions and material details, and correct editorial items in the Bill of Materials, including adjustments to quality categories and material specifications for ease of fabrication. These changes are consistent with industry practices and similar transportation package designs and do not affect the safety evaluation of the package.

The packaging is constructed and assembled in accordance with the following revised drawings:

(a) General Arrangement Assembly	Drawing No. 19885-71-1, Rev. 1
(b) General Assembly	Drawing No. 19885-71-2, Rev. 1
(c) Lid Assembly and Parts List	Drawing No. 19885-71-3, Rev. 1
(d) General Assembly Impact Limiters	Drawing No. 19885-71-8, Rev. 1
(e) Bottom Impact Limiter Assembly	Drawing No. 19885-71-9, Rev. 1
(f) Top Impact Limiter Assembly	Drawing No. 19885-71-10, Rev. 1

The staff concludes that the information presented in the application provides an adequate basis for the evaluation of the Model No. TN-32B package against 10 CFR Part 71 requirements for each technical discipline, as appropriate.

2.0 STRUCTURAL EVALUATION

On September 5, 2025, Orano TN submitted an application to renew the CoC No. 9377 for the Model No. TN-32B transportation package. The application included four proposed changes and a revised SAR, Rev. 1A (Reference 1). On December 16, 2025, a supplement was submitted adding one proposed change and a revised SAR, Rev. 1B for the TN-32 package (Reference 2).

The following three proposed changes are relevant to the structural performance of the package and require structural evaluations:

- SAR 1A-PC No. 2 - Revise “intact fuel” to “intact/undamaged fuel” for consistency in the SAR sections 1.2.1, 2.12.8, 2.12.8.2.2, 5.2, and 5.4.1;

- SAR 1A-PC No. 4 - Revise (1) the impact limiter (IL) drawings to include fabrication tolerances for some dimensions, (2) the IL drawings to remove certain dimensions, detailed material specifications, and details, and (3) the bill of materials (BOM) for the SAR Drawing 19885-71-9 to incorporate editorial corrections to the quality category and to revise material specifications for certain items; and

- SAR 1B-PC No. 1 - Revise the SAR Drawings of 19885-71-1, 19885-71-2, 19885-71-3, 19885-71-8, 19885-71-9, and 19885-71-10.

This section of the SER documents the NRC staff’s evaluations of the structural assessments performed by the applicant for the TN-32B transportation package to verify that the structural performance of the TN-32B transportation package meets the regulatory requirements of 10 CFR Part 71. The NRC staff’s evaluation of the material performance of the TN-32B package is provided in section 7 of this SER.

2.1 Evaluation of the Revisions in the SAR Section 2.12.8 for the SAR 1A-PC No. 2

The applicant proposed to change the words of “intact fuel” to “intact/undamaged fuel” in the SAR section 2.12.8, “Structural Evaluation of the Fuel Rod Cladding under Accident Impact,” and subsection 2.12.8.2.2, “TN-32B HBU Fuel Rod End Drop Analysis.” The applicant stated that the justification is to ensure consistency with other sections of the TN-32 SAR.

The NRC staff reviewed the proposed change in the SAR and found that this editorial change does not require the structural design and analysis of the fuel rod in the TN-32B package and does not change the safety conclusions made in the SAR of the TN-32 package. Therefore, the NRC staff concludes that the proposed change (SAR 1A-PC No. 2) is acceptable.

2.2 Evaluation of the Revised Drawings in the SAR for the SAR 1A-PC No. 4

The applicant submitted the revised IL drawings (SAR Drawings 19885-71-9 and 19885-71-10) with the proposed changes (i.e., fabrication tolerances, dimensions, material specifications). The applicant provided the justifications of the changes as follows:

- The tolerances are for ease of fabrication based on lessons learned from previous IL fabrication experience. The nominal dimensions of the ILs remain unchanged. The modifications are consistent with the IL SAR Drawings presented in other transportation packages (e.g., TN-LC, TN-40, TN-40HT and MP197HB);

- Certain dimensions, material specifications, and details shown in these SAR drawings are not relevant to the safety evaluation of the package and are not used so they are removed; and

- The quality category of the single tie-rod bracket (Item 16) was corrected to Category B for consistency with similar tie-rod brackets given in the IL drawings (19885-71-9 and

19885-71-10). Material specifications for certain not important to safety (NITS) items are revised for ease of fabrication.

The NRC staff reviewed the revised IL drawings and found that the materials and nominal dimensions of the ILs remain unchanged. The NRC staff also found that (1) the deleted dimensions, details, and specifications are related to the components that are NITS, and (2) the editorial correction of the changed quality category for Item 16 aligns with the specification of the two drawings (19885-71-9 and 19885-71-10), so that both drawings show the same category of the components. Therefore, the NRC staff concludes that the proposed change (SAR 1A-PC No. 4) does not impact the structural analysis of the IL under accident conditions, and it does not change the safety conclusions made in the SAR of the TN-32 package.

2.3 Evaluation of the Revised Drawings in the SAR for the SAR 1B-PC No. 1

The applicant submitted the six revised SAR Drawings 19885-71-1, 19885-71-2, 19885-71-3, 19885-71-8, 19885-71-9, and 19885-71-10 in the SAR 1B-PC No. 1 with the following descriptions:

- Change the internal diameter of Items 17 and 18 in the BOM of the SAR Drawing 19885-71-2 to 80.699 inches and 82.373 inches, respectively;

- Change the material specification of the SAR Drawing 19885-71-3 Item 12 to "HN290SP";

- Eliminate tack welds between the nuts (Item 33) and tie-rod plates (Item 16 and Item 23) in the SAR Drawing 19885-71-9 and update the BOM to remove (Item 33). These nuts will be installed and tightened during final assembly of the TN-32B package rather than pre-installed (tack-welded) as part of the IL package;

- Remove the nuts from Section A-A on Sheet 2, and the top/side views on Sheet 3 of the SAR Drawing 19885-71-9;

- Reduce the overall length of the tie-rods by 1-1/2 inches in the SAR Drawing 19885-71-8, Sheet 3;

- Revise IL general assembly SAR Drawing 19885-71-8 to add washers (Item 16) on the tie-rods (Item 8), under the hex nuts (Item 13), and update the quantity for Item 16 in the BOM to account for the newly added washers. Add lock-sleeves (Item 9) and quick release pins (Item 11) on the bottom end of the tie-rods, matching what is already present at the top end, and update the quantity of these components in the BOM to reflect these changes. Also, update Note 2 of SAR Drawing 19885-71-8 to specify a torque requirement for hex nuts (Item 13). These changes are also reflected in the cask general assembly SAR Drawing 19885-71-1; and

- Remove Note 4 on the SAR Drawings 19885-71-9 and 19885-71-10.

The applicant provided justifications for the proposed changes in the application. The NRC staff reviewed the applicant's statements and found the following:

- The diameter of the O-ring in the SAR Drawing 19885-71-2 is changed to ensure the sealing function of the O-ring as intended. There is no impact on the design.

- An incorrect material specification is fixed in the SAR Drawing 19885-71-3. This change will correct the part number so that the seal can be procured in accordance with the licensing documents. There is no impact on the design.

- Tack welds in the SAR Drawing 19885-71-9, Sheet 3 are eliminated to allow ease of the tie-rods installation. This change is aligned with the applicant's process of preparing an assembly procedure for the ILs. In addition, the nuts in the SAR Drawing 19885-71-9, Sheet 2 are removed. It is an editorial change and the appearance of these nuts in the SAR Drawing 19885-71-9 is no longer needed because the tack welds have been eliminated. There is no impact on the design.

- The length of the tie-rods is reduced by 1-1/2 inches in the SAR Drawing 19885-71-8, Sheet 3 to allow ease of installation of the tie-rods. The applicant evaluated this change based on the structural analysis documented in the UFSAR section 2.12.9, "Structural Evaluation of the Impact Limiters," and confirmed that this change does not impact the existing structural evaluations of the IL attachments addressed in the UFSAR.

- Lock-sleeves and quick release pins are added in the SAR Drawings 19885-71-1 and 19885-71-8 with the specification of the torque required to secure the tie-rods. There is no impact on the performance of the IL.

- Note-4 in the SAR Drawings 19885-71-9 and 19885-71-10 is removed. This is an editorial change since this note is no longer needed. There is no impact on the design.

Based on the review and evaluations of the proposed changes in the SAR drawings, the NRC staff concludes that the proposed change (SAR 1B-PC No. 1) is acceptable because the change either does not impact or does not require additional structural analyses of the IL under accident conditions. Therefore, the safety conclusions made by the NRC staff in the previous SER for the TN-32 transportation package (Reference 3) continue to be valid.

2.4 Conclusion

The NRC staff evaluated the changes to the TN-32B transportation package. The NRC staff concludes that the proposed changes are adequately described and evaluated to demonstrate that the structural capability and integrity of the TN-32B transportation package meet the regulatory requirements of 10 CFR Part 71.

2.5 References

1. Orano TN Application, "TN Americas LLC Application for Certificate of Compliance No. 9377 Revision 1 of the TN-32 Transportation Package (Docket No. 71-9377)," dated September 5, 2025.

2. Orano TN Application, "TN Americas LLC Supplement to Application for Certificate of Compliance No. 9377 Revision 1 of the TN-32 Transportation Package (Docket No. 71-9377), CAC 001029/EPID L-2025-LLA-0103)," dated December 16, 2025.

3. NRC Letter to TN Americas LLC, “Certificate of Compliance No. 9377, Revision No. 0, for the Model No. TN-32B Package,” dated July 2, 2024.

7.0 MATERIALS EVALUATION

The staff evaluated the proposed changes in revision 1 to the SAR for the TN-32 transportation packaging. The applicant provided the revision in two sections: 1A in Sep 2025 and 1B in December 2025. The NRC staff evaluated the following changes for materials impacts to determine whether the package continues to meet regulatory requirements:

Revision 1A, Change No. 1: Clarify the definition of intact fuel assemblies in the CoC to include assemblies containing undamaged fuel rods without any known or suspected cladding defects greater than hairline cracks or pinhole leaks.

Revision 1A, Change No. 4: Revisions to drawings to include dimensions, material specifications fabrication tolerances and revisions to the bill of materials for drawings to incorporate editorial corrections to the quality category and to revise material specifications of certain items.

Revision 1B, Change No 1: Changes to the drawings for the TN-32B and impact limiters including material and component specifications in the drawing bill of materials, changes to hardware components, changes to component dimensions, and revision to assembly specifications.

The staff used the guidance in NUREG-2216, “Standard Review Plan for Transportation Packages for Spent Fuel and Radioactive Material,” chapter 7, “Materials Evaluation,” to review the proposed packaging changes. Based on the statements in the application as supplemented, the staff concludes that the package meets the requirements of 10 CFR Part 71.

7.1 Revision 1A Change No. 1: Clarify the definition of intact fuel assemblies in the CoC

The applicant stated that this change was implemented to clarify the definition of “intact” fuel assemblies in the TN-32B CoC. Fuel assemblies, with or without hairline cracks or pinhole leaks, are considered as intact because they satisfy all the safety design functions including retrievability, structural, containment, shielding, criticality, and thermal. The applicant stated that by linking intact and undamaged fuel in the CoC, it clarifies the bounding conditions for acceptable contents in the package without altering the safety basis and that the revised definition is also consistent with the definitions in other 10 CFR Part 71 CoCs.

The applicant proposed changes to CoC Condition 5(b) Contents, (1) Type and form of material paragraph (a) to state

> *Only intact/undamaged fuel assemblies (i.e., assemblies containing undamaged fuel rods without any known or suspected cladding defects greater than hairline cracks or pinhole leaks) limited to the following fuel types, with specifications listed in Table 1-2 of the application:*

The proposed changes to the CoC by the applicant did not include changes to the types of fuel assemblies or any other changes to the contents.

The staff reviewed the proposed changes to the CoC and determined that these changes are consistent with the guidance in NUREG-2216 Section 7.4.14.1, "Spent fuel classification," and the applicant's use of the terms intact and undamaged to describe the content is consistent with the definitions of these terms in NUREG-2216 chapter 11, 'Glossary." Therefore, the staff determined that revision 1A change no. 1 is acceptable.

7.2 Revision 1A Change No. 4 and Revision 1B Change No. 1: Revisions to drawings

The applicant submitted revisions to the drawings that included the following:

- Change the impact limiter drawing numbers 19885-71-9 and 19885-71-10 as follows:
  - Include fabrication tolerances for some dimensions.
  - Remove certain dimensions, detailed material specifications, and details for some components.
  - Correct the quality category of certain components on the bill of materials.
  - Change the material specification in the bill of materials for some not-important-to-safety (NITS) components.
  - Remove a painting specification.
- Change dimensions of two components on the general assembly drawing number 19885-71-2.
- Change a vendor's part number on the cask lid assembly drawing number 19885-71-3.
- Change impact limiter drawing number 19885-7 1-9 to eliminate tack welded nuts.
- Change general assembly drawing 19885-71-8 as follows:
  - Change the dimension on one component.
  - Update quantities of two items.
  - Change an assembly detail.
  - Add a torque specification.

7.2.1 Changes to "TN-32B HBU Demonstration Cask, Bottom Impact Limiter Assembly" drawing, number 19885-71-9, and "TN-32B HBU Demonstration Cask, Top Impact Limiter Assembly" drawing, number 19885-71-10

The applicant stated that the fabrication tolerances were derived from lessons learned from fabrication of other similar impact limiters produced by the applicant and that the changes do not affect the overall dimensions or impact limiter performance.

The deleted dimensions, details and specifications pertain to components that are NITS. They do not appear in analyses and the deletions facilitate fabrication.

The changed quality category aligns the specification between drawings for the top and bottom impact limiter, drawing numbers 19885-71-9 and 19885-71-10, so that both drawings show the same category for analogous components.

The material specification for the NITS items was changed from a specific grade of stainless steel to just "Stainless Steel." This will ease sourcing and fabrication.

The deleted painting specification provides requirements for painting of exposed surfaces. Painting the exposed surfaces is only necessary for corrosion control of carbon steel. All exposed surfaces of the impact limiter are stainless steel, which is resistant to corrosion without painting, so the treatment is not needed for corrosion control.

7.2.2 Changes to “TN-32B HBU Demonstration Cask General Assembly” drawing, number 19885-71-2

The original version of this drawing had specified an incorrect mean diameter for the Puncture Resistant Plate Assembly O-rings. This revision corrects the specified diameter.

7.2.3 Changes to “TN-32B HBU Demonstration Cask Lid Assembly and Parts List” drawing, number 19885-71-3

The original version of this drawing had an incorrect vendor part number for the metallic seal. This revision corrects the error.

7.2.4 Changes to “TN-32B HBU Demonstration Cask, Bottom Impact Limiter Assembly” drawing, number 19885-71-9

The original version of this drawing had specified nuts tack welded in place on the tie-rod weldments. The applicant’s development of the impact limiter assembly procedure has revealed that the welded nuts would interfere with the assembly. This change improves the assembly process.

7.2.5 Changes to “TN-32B Demonstration Cask, General Assembly, Impact Limiter” drawing, number 19885-71-8

Due to the change in the assembly procedure resulting from the change described in 7.2.4, above, the previously specified length of the tie-rods was too long, so the revision reduces this length. In addition, the assembly procedure development revealed a need for washers under tie-rod nuts to prevent damage to the coating on the tie-rod brackets. Elimination of the welded nuts required additional fasteners and an added torque specification for the new assembly nuts.

7.2.6 Evaluation of drawing changes

The staff notes that the level of detail in the new drawings, including the packaging design, construction, examination requirements and material specifications are consistent with the guidance in NUREG-2216, “subsection 7.4.1, “Drawings.” The staff reviewed the drawing content with respect to the guidance in NUREG/CR-5502, “Engineering Drawings for 10 CFR Part 71 Package Approvals,” and confirmed that the drawings provide an adequate description of the materials, fabrication, component dimensions and tolerances, and examination requirements. In addition, the staff determined that the applicant has provided sufficient information in the application to identify the codes and standards, materials, fabrication methods, welding criteria, and NDE requirements consistent with the guidance in NUREG-2216, Section 7.4.2, “Codes and Standards.” For the changes to the impact limiter drawings, staff verified that important to safety (ITS) components are identified with a quality category and a material specification. In addition, the staff determined that the changes to the impact limiter drawing notes were consistent with the applicant’s technical bases and acceptable for the component design, fabrication, and safety function. For the changes to the TN-32B high burnup (HBU) demonstration cask lid assembly drawing staff verified that the changes were limited to revision of a NITS O-ring material specification and confirmed that quality category information and material specifications are included for all ITS components. Therefore, the staff determined that the drawings, weld design, and inspection requirements submitted in the application for the TN-32B revision 1A change no. 4 and revision 1B change no. 1 are acceptable.

7.3 Evaluation Findings

Based on the statements and representations in the application, as supplemented, and the conditions listed in the following chapters, the staff concludes that the package meets the requirements of 10 CFR Part 71.

F7.1 The staff has reviewed the package and concludes that the applicant has met the requirements of 10 CFR 71.33. The applicant described the materials used in the transportation package in sufficient detail to support the staff's evaluation.

F7.2 The staff has reviewed the package and concludes that the applicant has met the requirements of 10 CFR 71.31(c). The applicant identified the applicable codes and standards for the design, fabrication, testing, and maintenance of the package and, in the absence of codes and standards, has adequately described controls for material qualification and fabrication.

Conclusions

The staff reviewed and evaluated the proposed changes and determined that the changes comply with applicable regulations and guidance. Based on the evaluations delineated above, the staff found that the applicant's proposed changes do not affect the ability of the package to meet 10 CFR Part 71 requirements.

References:

U.S. Nuclear Regulatory Commission. (2020). *Standard Review Plan for Transportation Packages for Spent Fuel and Radioactive Material: Final Report* (NUREG-2216). Office of Nuclear Material Safety and Safeguards. ML20234A651.

U.S. Nuclear Regulatory Commission. (1998). *Engineering Drawings for 10 CFR Part 71 Package Approvals* (NUREG/CR-5502). (UCRL-ID-130438). ML20248L098.

8.0 OPERATING PROCEDURES

The NRC staff reviewed the applicant's changes to the description of the TN-32B package operations in accordance with applicable guidance to ensure that it is operated, transported, received, and unloaded in a manner consistent with its approved design. This amendment to package operations descriptions is consistent with essential elements of operations for using the package.

The NRC staff has reviewed the description of the amended operating procedures and finds that the package will be prepared, loaded, transported, received, and unloaded in a manner consistent with its design and evaluation for approval.

The NRC staff has reviewed the description of special instructions needed to safely open a package and noted no changes from the previous approval, therefore concluding the requirements are in accordance with 10 CFR 71.89.

Based on this review of the representations in the application, the NRC staff finds that the operating procedures have been adequately described and meet the requirements of 10 CFR

Part 71. Alternates to sequences or operating instructions, as currently described in the SAR, will need to be reviewed by staff in an amendment request

CONDITIONS

- The following changes were made to the CoC: Condition No. 3(b) was revised to reflect the date of the consolidated SAR.
- Condition No. 5(a)(3) has been modified to include the new revisions of six of the licensing drawings.
- Condition No. 5(b)(1)(a) has been modified to clarify the definition of intact fuel assemblies.
- The References section of the certificate was revised to reference the consolidated SAR, revision No. 1, dated February 26, 2026.

CONCLUSION

Based on the statements and representations in the application, the staff finds that these changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71. Issued with CoC No. 9377, Revision No. 1.