



Public Service
Company of Colorado

16805 WCR 19 1/2; Platteville, Colorado 80651

June 2, 1994
Fort St. Vrain
ISFSI
P-94053

Mr. Cass R. Chappell, Section Leader
Cask Certification Section
Storage and Transport Systems Branch
Division of Industrial and
Medical Nuclear Safety, NMSS
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docket No. 71-9253

SUBJECT: Revisions to the Safety Analysis Report for the Model No.
TN-FSV Packaging, Related to Pressure Rise Leakage Tests

REFERENCE: PSC Letter, Warembourg to MacDonald, dated March
31, 1993 (P-93033)

Dear Mr. Chappell:

Public Service Company of Colorado (PSC) submitted an application for Certification of a New Irradiated Fuel Transport Package for Fort St. Vrain, Model No. TN-FSV, in the referenced letter. This application included the Safety Analysis Report (SAR) for the TN-FSV Packaging. In a phone conversation between Ms. Nancy Osgood (NRC) and Mr. Mike Holmes (PSC), dated June 2, 1994, the NRC requested that PSC clarify Section 7.1.2 of the SAR for the TN-FSV Packaging to identify the required sensitivity of the pressure rise leakage tests described in this section and to delete reference to possible use of a bubble leak test, which is not considered to have adequate sensitivity.

The changes requested by the NRC have been incorporated in the SAR for the TN-FSV Packaging. The Attachment to this letter contains the revised SAR pages.

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Should you have any questions on this information, please contact Mr. M. H. Holmes at (303) 620-1701.

Sincerely,


D. W. Warembourg
Decommissioning Program Director
and ISFSI Manager

DWW/JRJ

Attachment

cc: Regional Administrator, Region IV

Mr. Robert M. Quillin, Director
Radiation Control Division
Colorado Department of Health

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Attachment

**REVISED PAGES TO THE SAFETY ANALYSIS REPORT FOR THE
TN-FSV IRRADIATED FUEL SHIPPING PACKAGING**

- 7.1.2.1 Install the lid lifting attachments.
- 7.1.2.2 Remove and visually inspect for damage the twelve (12) socket bolts that hold the lid in place. Replace any bolt found to have stripped or galled threads or any visible deformation of the head or shank. Minor nicks, scrapes or upsets from normal wrench contact are not cause for replacement.
- 7.1.2.3 Lift the lid from the cask and store.
- 7.1.2.4 Examine the sealing surface.
- 7.1.2.5 Visually inspect the cavity of the inner container for any damage or debris. If any is noted, evaluate and take corrective action if necessary.
- 7.1.2.6 Load the canister with six (6) spent fuel elements into the cask. Record the contents on the cask loading report.
- 7.1.2.7 Inspect the o-rings in the lid for damage and replace if defects are noted. Record inspection results on the cask loading report.
- 7.1.2.8 Transfer the lid to a position directly over the cask cavity. Establish correct lid orientation using the orientation marks and lower the lid until fully seated. Visually verify the lid for proper installation.
- 7.1.2.9 Inspect the lid bolts. Replace defective bolts and note any defect indications on the cask loading report. Apply a light coating of Nuclear Grade Neolube to bolt threads and install all 12 lid bolts. Tighten to hand tight. Torque all lid bolts to 130 ft-lbs. in several stages. Follow an approved torquing sequence. Remove the lid o-ring port plug.

7.1.2.10 Install the Leak Test System (LTS) to the lid gasket port and evacuate the lid gasket interspace until the pressure is reduced to 10, +2, -0 mbar.

7.1.2.11 Perform a pressure rise leakage test for assembly verification of the cask lid. The leakage rate is calculated by

$$L_r = \frac{V \times \Delta P \times 298}{t \times 1013 \times T}$$

where V = test volume (cc)

ΔP = measured pressure difference (mbar)

t = elapsed time for the test (sec)

and T = temperature of test ($^{\circ}K$)

It is assumed that over the relatively short duration of the test (1-2 minutes), the change in temperature is insignificant.

The test must have a sensitivity of at least 1×10^{-3} std cm³/sec.

The acceptance criteria is a leakage rate no greater than 1×10^{-3} std-cm³/sec. Replace the lid o-ring port plug.

7.1.2.12 Remove the Vent cover, and evacuate the cask using the leak test system. Back fill with dry air.

7.1.2.13 Inspect the vent cover, seal and bolts for damage and replace if defects are noted. Record inspection results on the cask loading report.

7.1.2.14 Install the Vent port cover and bolts. Torque the bolts to 20 in-lbs.

7.1.2.15 Place the test bell over the Vent cover and use the LTS to reduce the pressure between the Vent port O-ring and the O-ring on the test bell to 7-10 mbar. Isolate the vacuum pump and perform a pressure rise leakage rate test of the vent port cover. The acceptance criteria is a leakage rate no greater than 1×10^{-3} std-cm³/sec. The test must have a sensitivity of at least 1×10^{-3} std cm³/sec.

- 7.1.2.16 If the sum of the leakage rates from both tests is greater than the allowable rate, the leakage area shall be identified, repaired as needed and the test repeated until the acceptance criteria is satisfied.
- 7.1.2.17 Remove the lid lifting attachments.
- 7.1.2.18 Engage the cask lifting apparatus in the recessed lifting sockets. Use the handcrank to lock the balls in the sockets.
- 7.1.2.19 Remove the restraint from the bottom of the cask.
- 7.1.2.20 Open the sliding hatch above the truck bay.
- 7.1.2.21 Lift the cask from the fuel loading port, and lower it into the truck bay.
- 7.1.2.22 Align the trunnions of the cask with the support pedestals on the trailer.
- 7.1.2.23 Place trunnions on transport vehicle rear trunnion supports and rotate cask from the vertical to horizontal position.
- 7.1.2.24 Install and torque the rear trunnion tie-downs and the front saddle tie-downs.
- 7.1.2.25 Install the front and rear impact limiters and torque attachment bolts diametrically to 40 ft-lbs. Repeat torquing sequence to 80 ft-lbs.

- 7.1.2.26 Install security seal on the front impact limiter.
- 7.1.2.27 Perform final radiation and contamination surveys to assure compliance with 10CFR71.47 and 71.87.
- 7.1.2.28 Apply appropriate labels to the cask and placards to the vehicle in accordance with 49CFR172.
- 7.1.2.29 Install Personnel Barrier.
- 7.1.2.30 Prepare final shipping documentation.
- 7.1.2.31 Release the loaded cask for shipment.

7.2 PROCEDURES FOR UNLOADING PACKAGE

7.2.1 Receipt of Loaded Package

- 7.2.1.1 Upon arrival of the loaded cask at the receiving site, perform receipt inspection. Inspect for damage, verify security seals are intact and perform radiation survey.
- 7.2.1.2 Verify that placards, labels and shipping papers are in place and correct.
- 7.2.1.3 Inspect and clean the tractor, trailer and cask as required
- 7.2.1.4 Remove the personnel barrier.
- 7.2.1.5 Remove the security seal from the front impact limiter.
- 7.2.1.6 Remove the impact limiter attachment bolts and remove the front and rear impact limiters using a suitable crane and three legged sling.
- 7.2.1.7 Release the front saddle and rear trunnion tie-downs.