TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
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JAN 17 1991

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of) Docket No. 71-6722
Tennessee Valley Authority)

CERTIFICATE OF COMPLIANCE (COC) NO. 6722

This is in response to Charles E. MacDonald's October 16, 1990, letter requesting additional information concerning renewal of TVA's COC No. 6722 for the Model No. BS-33-180 package. As requested by Mr. MacDonald, enclosed is TVA's operating procedure and maintenance program for the BS-33-180 package.

If you have any questions or if we can be of any assistance, please telephone P. J. Hammons of my staff at (615) 751-2736.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

Mary Bunzynski for
E. G. Wallace, Manager
Nuclear Licensing and
Regulatory Affairs

Enclosure
cc: See page 2

NTOI

U.S. Nuclear Regulatory Commission JAN 17 1991

cc (Enclosure)
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Note: This procedure generally describes the methodology for loading and unloading the TVA Low-level Cask. Detailed instructions may be developed and implemented at the sites that use this cask, as necessary.

I. Loading Procedure For Palletized Containers and Filled Liners/HICs

1. Remove the security seal, if present.

2. Using the appropriate tool, remove the 36 bolts (1.5-inch) that hold the cask lid to the cask body using a star pattern.

3. Remove the covers from the four lid lifting shackles and attach lifting slings tested to lift an 18,540-pound load (three times the 6,180-pound lid weight).

4. Using a crane, lift the lid and lay it down on a protected surface, treating the lid underside as potentially contaminated.

5. Remove any water, shoring material, paliets, or foreign material from inside the cask.

6. Visually inspect the cask cavity to verify integrity.

7. Inspect the cask sealing surfaces and the O-ring for wear.

8. Check the Package Status Log for the date of the last O-ring change. Replace the O-ring if worn or if twelve months have elapsed since the last change. Note the inspection/replacement in the Package Status Log.

9. If a problem is experienced in retaining the O-ring in the groove during installation or if the O-ring came out of the groove when the lid was removed, clean the O-ring groove and use an appropriate gasket cement, adhesive tape, or other fixative to install the O-ring. Ensure that the fixative does not interfere with the proper sealing of the cask.

10. Ensure through sampling, calculations, and comparison to 10 CFR 71 and 49 CFR that the material to be transported is in accordance with the package certificate of compliance and/or DOT regulations.

11. For palletized containers, load the pallet with radioactive material containers.

12. Using a crane and the attached sling or lifting ring, lift the pallet or liner/HIC and carefully lower it into the cask. Care should be taken not to damage the cask interior walls or the sealing surfaces.

13. As necessary, place dunnage between the container/pallet and the cask interior wall to ensure that there is no movement during transport.

14. Visually inspect the O-ring and sealing surfaces to ensure that the O-ring is in its groove and that the sealing surfaces are clean.

15. Using a crane and the appropriate slings, lift the cask lid onto the cask and position it by aligning the painted match marks and alignment plates.

16. Replace the 36 cask lid bolts and torque to 350 foot-pounds (±35 foot-pounds) using a star pattern.

17. Attach the rain shield to the top of the cask.

18. Attach a security seal either through the seal holes in the cask body and cask lid or through the rain shield to indicate tampering.

19. Ensure that the cask drain plug and other access plugs are in place and secure.

20. Ensure that cask tie-down bolts are in place and tight.

21. Perform a cask and vehicle survey and verify that the following requirements are met:

    A. Cask external radiation levels do not exceed 200 millirem per hour on the external surface of the package or vehicle, 10 millirem per hour at two meters, and 2 millirem per hour in the cab in accordance with 10 CFR 71.47 and 49 CFR 173.441.

    B. Cask external removable contamination does not exceed 22 disintegrations per square centimeter (dpm/sq cm) beta-gamma (2,200 dpm/100 sq cm beta-gamma) and 2.2 dpm/sq cm alpha (220 dpm/100 sq cm alpha) in accordance with 10 CFR 71.87 and 49 CFR 173.443.

22. Ensure that the requirements of the package certificate of compliance have been met.

II. Loading Procedure For Liners/HICs Filled In The Cask

1. Remove the security seal, if present.

2. Using the appropriate tool, remove the 36 bolts (1.5-inch) that hold the cask lid to the cask body using a star pattern.

3. Remove the covers from the four lid lifting shackles and attach lifting slings tested to lift an 18,540-pound load (three times the 6,180-pound lid weight).

4. Using a crane, lift the lid and lay it down on a protected surface, treating the lid underside as potentially contaminated.

5. Remove any water, shoring material, pallets, or foreign material from inside the cask.

6. Visually inspect the cask cavity to verify integrity.

7. Inspect the cask sealing surfaces and the O-ring for wear.

8. Check the Package Status Log for the date of the last O-ring change. Replace the O-ring if worn or if twelve months have elapsed since the last change. Note the inspection/replacement in the Package Status Log.

9. If a problem is experienced in retaining the O-ring in the groove during installation or if the O-ring came out of the groove when the lid was removed, clean the O-ring groove and use an appropriate gasket cement, adhesive tape or other fixative to install the O-ring. Ensure that the fixative does not interfere with the proper sealing of the cask.

10. Using a crane and the attached sling, lift the empty liner/HIC and carefully lower it into the cask. Care should be taken not to damage the cask interior walls or the sealing surfaces.

11. As necessary, place dunnage between the container and the cask interior wall to ensure that there is no movement during transport.

12. Ensure through sampling, calculations, and comparison to 10 CFR 71 and 49 CFR that the material to be transported is in accordance with the package certificate of compliance and/or DOT regulations.

13. Using appropriate personnel precautions and site operating instructions, fill and securely close the container.

14. Visually inspect the O-ring and sealing surfaces to ensure that the O-ring is in its groove and that the sealing surfaces are clean.

15. Using a crane and the appropriate slings, lift the cask lid onto the cask and position it by aligning the painted match marks and alignment plates.

16. Replace the 36 cask lid bolts and torque to 350 foot-pounds ($\pm$35 foot-pounds) using a star pattern.

17. Attach the rain shield to the top of the cask.

18. Attach a security seal either through the seal holes in the cask body and cask lid or through the rain shield to indicate tampering.

19. Ensure that the cask drain plug and other access plugs are in place and secure.

20. Ensure that cask tie-down bolts are in place and tight.

21. Perform a cask and vehicle survey and verify that the following requirements are met:

    A. Cask external radiation levels do not exceed 200 millirem per hour on the external surface of the package or vehicle, 10 millirem per hour at two meters, and 2 millirem per hour in the cab in accordance with 10 CFR 71.47 and 49 CFR 173.441.

    B. Cask external removable contamination does not exceed 22 disintegrations per square centimeter (dpm/sq cm) beta-gamma (2,200 dpm/100 sq cm beta-gamma) and 2.2 dpm/sq cm alpha (220 dpm/100 sq cm alpha) in accordance with 10 CFR 71.87 and 49 CFR 173.443.

22. Ensure that the requirements of the package certificate of compliance have been met.

III. Unloading Procedure

1. Upon receipt of the cask, perform a survey for radiation and removable contamination to ensure compliance with the applicable receipt requirements of 10 CFR 20.

2. Check the security seal to ensure that the package has not been opened in transit. Remove the security seal and discard.

3. Using the appropriate tool, remove the 36 bolts (1.5-inch) that hold the cask lid to the cask body using a star pattern.

4. Remove the covers from the four lid lifting shackles and attach lifting slings tested to lift an 18,540-pound load (three times the 6,180-pound lid weight).

5. Using a crane, lift the lid and lay it down on a protected surface, treating the lid underside as potentially contaminated.

6. Using a crane and the attached sling or lifting ring, remove the pallet or liner/HIC from the cask. Care should be taken not to damage the cask interior walls or the sealing surfaces.

7. Clean the cask interior as required and visually inspect the cask cavity for obvious problems.

8. Visually inspect the O-ring and sealing surfaces to ensure that the O-ring is in its groove and that the sealing surfaces are clean. If the O-ring came out of the groove when the lid was removed, clean the O-ring groove and use an appropriate gasket cement, adhesive tape or other fixative to reinstall the O-ring. Ensure that the fixative does not interfere with the proper sealing of the cask.

9. Using a crane and the appropriate slings, lift the cask lid onto the cask and position it by aligning the painted match marks and alignment plates.

10. Replace the 36 cask lid bolts and torque to 350 foot-pounds (±35 foot-pounds) using a star pattern.

11. Attach the rain shield to the top of the cask.

12. If the empty cask is being returned as a radioactive material shipment, attach a security seal either through the seal holes in the cask body and cask lid or through the rain shield to indicate tampering.

13. Ensure that the cask drain plug and other access plugs are in place and secure.

14. Ensure that cask tie-down bolts are in place and tight.

15. Perform a cask and vehicle survey and verify that the following requirements are met:

    A. If the cask is being shipped as "Empty" as defined by the Department of Transportation, ensure that the external radiation and removable contamination limits of 49 CFR 173.427 are met.
    B. If the cask is being shipped as a radioactive material shipment, ensure that:

        (1) The cask external radiation levels do not exceed 200 millirem per hour on the external surface of the package or vehicle, 10 millirem per hour at two meters, and 2 millirem per hour in the cab in accordance with 10 CFR 71.47 and 49 CFR 173.441.

        (2) The cask external removable contamination does not exceed 22 disintegrations per square centimeter (dpm/sq cm) beta-gamma (2,200 dpm/100 sq cm beta-gamma) and 2.2 dpm/sq cm alpha (220 dpm/100 sq cm alpha) in accordance with 10 CFR 71.87 and 49 CFR 173.443.

16. Ensure that the requirements of the package certificate of compliance have been met.

Tennessee Valley Authority is committed to an on-going preventative maintenance program for radioactive material shipping packages. The BS-33-180 package will be subjected to routine and periodic inspections and tests as outlined in this procedure and approved TVA procedures and instructions.

I. Structural Tests

Routine visual examinations will be performed to detect and correct damage and defects significant to the package condition. Exterior stencils, nameplates, and seals will be verified in place and in good condition. Painted surfaces will be inspected to ensure acceptability. Any refurbishment will be per approved TVA instructions and procedures. Prior to each actual shipment, cask lid alignment marks and alignment plates will be inspected and their placement verified.

II. O-ring Seal

The silicone O-ring will be inspected for damage and wear during every loaded shipment and replaced as necessary. Regardless of inspection results, the gaskets will be replaced every twelve months, if the cask is in use.

III. Lid Bolts and Threads

Prior to their installation, the cask lid bolts will be inspected for damage. The threaded inserts in the cask body will also be inspected to determine if the inserts need replacement. Repair of threaded inserts will be performed in accordance with an approved TVA procedure.

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