



DEFENSE THREAT REDUCTION AGENCY
AND
UNITED STATES STRATEGIC COMMAND CENTER
FOR COMBATING WEAPONS OF MASS DESTRUCTION
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JUN 10 2015

Director, Division of Spent Fuel Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Request approval to ship fissile material under general licensing requirements

1. This document provides a description of the DTRA/SCC-WMD Quality Assurance (QA) Program specifically for shipping special nuclear materials (fissile material) in Type A packaging as required by 10 CFR 71.22.

Primary oversight of the DTRA/SCC-WMD Quality Assurance Program for shipping fissile material in Type A packages is provided by the DTRA/SCC-WMD license manager. The license manager is responsible for approving programmatic radiation safety changes and Nuclear Regulatory Commission (NRC) license amendments. The DTRA/SCC-WMD RSO is primarily responsible for ensuring that Site-RSOs and Authorized Users of fissile material follow approved procedures, are properly trained, and comply with:

- a. Applicable Federal, DoD, State, local, host facility, and host nation regulations, standards, and instructions.
- b. Nuclear Regulatory Commission (NRC) Byproduct Materials License No. 45-25551-01.

Description of DTRA/SCC-WMD Owned Fissile Material:

Manufacturer/Distributor: United States Department of Energy National Nuclear Security Administration Y-12 National Security Complex/Oak Ridge National Lab (ORNL)

Details: Sources containing fissile materials being shipped in accordance with 10 CFR 71.22 are considered "sealed sources" and of special form. Fissile materials are of low strategic significance—Category III, weapons grade, encased in titanium, and cannot be readily separable from the source casing.

To provide reliability, each specific fissile material will be assigned to a corresponding packaging drum. Each drum will be clearly marked identifying the specific source dedicated to that packaging drum. Fissile material sources are categorized from the source manufacturer meeting the requirements in 10 CFR 71.22, Table 71-1, for fissile material mass mixed with moderating substances having an average hydrogen density less than or equal to H₂O.

Training Requirements:

Fissile materials are used for teaching and training purposes. Site-RSOs and Authorized Users are trained and must pass a written exam to certify as a technical specialist for the preparation and shipment of fissile packages. Experienced certified shippers located at each site provide oversight for the shipment of fissile materials for newly trained shippers in accordance with the following training courses/materials:

- a. Defense Transportation Regulations (DTR)
 - b. DTRA/SCC-WMD Transportation of Radioactive Materials training
 - c. Special Nuclear Material (SNM) Training for the control and safeguarding of SNM
 - d. Radiation Safety/NRC License (RSNL) Training (including Unclassified Nuclear Controlled Information)—Annual Refresher Training
 - e. DTRA/SCC-WMD Radiation Safety Program Manual
 - f. Special Nuclear Material SOP
2. As defined in 10 CFR 71.101, the DTRA/SCC-WMD QA program requirements apply to purchasing, handling, shipping, storing, inspection, testing, operation, maintenance, cleaning, and assembly that are important to safety. Requirements that do not apply are design, fabrication, repair, and modification of packaging or components.
 - a. PURCHASING. DTRA/SCC-WMD receives packages containing fissile materials directly from the radioactive source manufacturer. DTRA/SCC-WMD may engage in purchasing equivalent specification packaging to replace damaged or unserviceable packaging.
 - b. HANDLING. Site-RSOs are tasked to provide training and oversight to Authorized Users of SNM. Each Authorized User is responsible for establishing and working under an approved standard operating procedure for accomplishing pre-transportation functions associated with packaging of DTRA/SCC-WMD owned fissile materials.

- c. SHIPPING and STORAGE. Using approved instructions: Authorized Users shipping fissile materials in Type A packages will ensure all related pre-transportation, transportation, and post-delivery functions are safely completed. Fissile materials are primarily shipped by Commercial Air, Military Air (MILAIR), and Highway. Authorized Users may occasionally act as a carrier for the transportation of fissile materials. Authorized Users will ensure that the Criticality Safety Index (CSI) labeling is properly maintained on the packaging to designate the degree of control of accumulation of packages during the shipping process. Authorized Users of SNM shall arrange for the tracking of packages and provide confirmation to DTRA/SCC-WMD RSO that packages successfully arrive at each prescribed destination.

Prior to commencing shipment, Authorized Users will coordinate for safe and secure shipment of fissile materials to its final destination in accordance with 10 CFR Part 73, 74, and approved procedures. Prior to storing the fissile materials at a temporary storage location, Authorized Users must coordinate with the appropriate receiving installation authority for the segregation, security, and safeguarding of fissile materials.

Control measures related to criticality and critical mass for such packages will comply with requirements in 10 CFR 70.24 and 10 CFR 150.11. The Criticality Safety index (CSI) is assigned by the fissile material manufacturer and marked accordingly on the package CSI label.

When not in use, fissile materials may be removed from the package and stored in a secured container separated from other radiation sources, in a building that is either alarmed or under continuous surveillance. On occasion, sources may remain in the packaging and placed in secure temporary storage.

- d. INSPECTION. Authorized Users will inspect Type A packages for damage during the pre-transportation phase, and after delivery. Lids, rings, seals, hardware components, and packaging materials used to secure materials inside the package will be inspected in accordance with DTRA/SCC-WMD approved procedures.

Verification: The DTRA/SCC-WMD, J4EE Radiation Safety, will perform annual and periodic spot inspections to verify fissile material packaging procedures are followed as prescribed. Type A containers and component hardware, dedicated to the shipment of fissile materials, will be visually inspected to ensure serviceability and to identify defective materials. Site-RSOs are

required to provide proficiency training to Authorized Users on the functionality, condition, and serviceability of Type A containers, packaging moderators, and accompanying hardware.

Inspections are performed in accordance with written checklists by trained personnel. Inspection results are documented, reviewed, and follow-up actions are performed by management to correct deficiencies in a timely manner. In addition, inspection processes are designed to identify problems with quality, provide recommended solutions, and verify implementation of solutions.

- e. TESTING. Type A packaging containing fissile materials are manufactured by Packaging Specialties and are tested in accordance with CFR Title 49. A copy of the certificate of compliance was provided by the packaging manufacturer and a copy is kept on file.

<u>TEST REQUIREMENTS</u>	<u>REFERENCE</u>
Visual Examination	173.462(a)
Water Spray	173.465(b)
Stacking	173.465(d)
Penetration	173.465(c)
Internal Pressure Test	173.410(i)(3)
Free Drop Test	173.465(c)
Vibration	173.410(f)
Temperature Variation	173.412(c)

- f. MAINTENANCE, CLEANING, and REPAIR. Shipping containers will be maintained in clean, serviceable condition including maintenance of all packaging labeling and marking requirements. Damaged containers or damaged components will not be repaired but may be replaced using equivalent manufacturer specification parts.
- g. ASSEMBLY and OPERATION. Packages will be assembled in accordance with the instructions provided by the packaging manufacturer. Components such as radiation shielding, covers with gasket, closing ring, and the bolt and nut ring, will be inspected for serviceability before use to ensure the packaging operates as designed throughout the transportation process.

3. Records will be maintained in accordance with 10 CFR Parts 71, 73, 74 and 49 CFR Part 172. This includes the requirement to maintain documentation for the procurement of packaging for three years after disposal or transfer.

If there are any questions or additional information needed, please contact Mr. Michael Hinton at (703) 767-0295 or email him at michael.hinton@dtra.mil

Sincerely,

A handwritten signature in dark ink, reading "Sherry J. Davis". The signature is fluid and cursive, with the first name "Sherry" and last name "Davis" clearly legible.

Sherry J. Davis
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