ORDER

DOE O 461.1B

Approved: 12-16-2010

PACKAGING AND TRANSPORTATION FOR OFFSITE SHIPMENT OF MATERIALS OF NATIONAL SECURITY INTEREST

NATIONAL NUCLEAR SECURITY ADMINISTRATION

Office of Defense Programs

PACKAGING AND TRANSPORTATION FOR OFFSITE SHIPMENT OF MATERIALS OF NATIONAL SECURITY INTEREST

1. PURPOSE. The Department of Energy (DOE) has broad authority under the Atomic Energy Act of 1954, as amended (AEA), to regulate all aspects of activities involving radioactive materials that are undertaken by DOE or on its behalf, including the transportation of radioactive materials. DOE exercises this authority to regulate certain DOE shipments, such as shipments of materials of national security interest undertaken by governmental employees or shipments involving special circumstances. The National Nuclear Security Administration (NNSA) has been assigned the responsibility to manage and oversee the offsite shipments of materials of national security interest including the operation of the Transportation Safeguards System (TSS). Offsite shipments of hazardous materials made by or under the direction or supervision of DOE for the purpose of national security are not subject to the DOT regulations. However, the purpose of this Order is to make clear that the packaging and transportation of all offsite shipments of materials of national security interest for DOE must be conducted in accordance with DOT and Nuclear Regulatory Commission (NRC) regulations that would be applicable to comparable commercial shipments, except where an alternative course of action is identified in this Order. The requirements and responsibilities prescribed in this Order are intended to ensure NNSA resources including the Transportation Safeguards System (TSS) are used and managed in an efficient manner.

2. CANCELLATIONS. DOE O 461.1A, *Packaging and Transfer or Transportation of Materials of National Security Interest*. Cancellation of a directive does not, by itself, modify or otherwise affect any contractual or regulatory obligation to comply with the directive. Contractor Requirements Documents (CRDs) that have been incorporated into a contract remain in effect throughout the term of the contract unless and until the contract or regulatory commitment is modified to either eliminate requirements that are no longer applicable or substitute a new set of requirements. NOTE: Requirements and responsibilities for onsite transfers have been removed from this Order and are included in the new DOE O 461.2, *Packaging and Transportation for Onsite Transfer of Materials of National Security Interest*.

3. APPLICABILITY.

   a. Departmental Applicability. Except for the equivalencies and exemptions in paragraph 3.c, this Order applies to any of those Departmental elements that have responsibility for activities associated with offsite shipments of materials of national security interest. This Order complements DOE O 460.1C, *Packaging and Transportation Safety*, and DOE O 460.2A, *Departmental Materials Transportation and Packaging Management*, which apply to offsite shipments of radioactive and hazardous materials, other than materials of national security interest that are not subject to this Order.

      The Administrator of the National Nuclear Security Administration (NNSA) must assure that NNSA employees comply with their responsibilities under this directive. Nothing in this directive may be construed to interfere with the NNSA

Administrator's authority under section 3212(d) of Public Law (P.L.) 106-65 to establish Administration-specific policies, unless disapproved by the Secretary.

b. DOE Contractors.

(1) Except for the equivalencies and exemptions in paragraph 3.c, the Contractor Requirements Document (CRD) (Attachment 1) identifies the requirements of this Order that apply to contracts that include the CRD.

(2) The CRD must be included in contracts that involve activities associated with the packaging and transportation of materials of national security interest. The Field Organization Managers identified in paragraph 5.k. are responsible for notifying contracting officers when this Order applies to specific contracts. Once notified, contracting officers are responsible for incorporating the CRD into the affected contracts.

c. Equivalencies and Exemptions.

(1) Exemptions. Exemptions to this Order may be granted, provided the proposed exemptions are not prohibited by law and do not present an undue risk to security, public health and safety, workers, or the environment.

(a) Requests for exemptions received from contractors by the field organizations must be submitted in writing by the responsible DOE Field Organization to the Deputy Administrator for Defense Programs for review and submission to the Administrator, NNSA, for approval.

(b) Exemption decisions must be set forth in writing and must state the reasons for granting or denying the exemptions and, if granted, the action(s) requested in the exemption do not present an undue risk to security, public health and safety, workers, or the environment.

(2) Equivalency. In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at 50 USC sections 2406 and 2511, and to ensure consistency throughout the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this Order for activities under the Director's cognizance, as deemed appropriate.

4. REQUIREMENTS.

a. Regulatory Authority. Each entity subject to this Order must perform packaging and transportation of offsite shipments of materials of national security interest in accordance with DOT Hazardous Materials Regulations, 49 CFR Parts 171-180,

and with NRC packaging regulations in 10 CFR Part 71, except as otherwise specified in this Order.

b. United States Radioactive Material (RAM) Package Certifying and Approval Organizations. The U.S. DOT, NRC, DOE Headquarters Certifying Official (HCO), and the NNSA Certifying Official (NNSA CO) have the authority to certify and/or approve RAM packages. Packages approved by the DOT or certified by the NRC, DOE HCO, or the NNSA CO may be shipped via the TSS. Packages approved by the DOT or certified by the NRC or DOE HCO do not need to be reviewed by the NNSA CO.

c. NNSA Package Certification. Applicants requesting NNSA certification of Type A(F) and Type B packages must support the request with a Safety Analysis Report for Packaging (SARP) that demonstrates the proposed package meets the requirements of 10 CFR Part 71 and 49 CFR Parts 171-180. The SARP format and content must conform to the content and format specified in NRC Regulatory Guide 7.9 as amended by NNSA CO guidance. The NNSA CO will issue a Certificate of Compliance (CoC) or an Offsite Transportation Certificate (OTC) to certify a package based on the level of safeguards and security protection required for the package. Packages certified by an OTC must be transported via the TSS and packages certified by a CoC may be transported via an approved commercial carrier. The NNSA CO is responsible for defining the required content, format, and review procedures for the NNSA CoCs, OTCs, SARPs, and supporting documentation. The SARPs, CoCs, and OTCs have a 5-year recertification requirement.

d. Compliant Shipments. Offsite shipments in DOT approved or NRC, DOE HCO, or NNSA CO certified packages verified by the shipper as compliant should be evaluated for shipment via an approved commercial carrier unless security requirements dictate the use of the TSS. NNSA certified packages with a CoC may be transported via qualified commercial carriers provided that the Office of Secure Transportation (OST) ensures that the commercial carrier proposed, approved and used for the shipment complies with all additional requirements specified for the cargo.

e. Approval for non-Compliant DOE Authorized Offsite Shipments. DOE has broad authority under the AEA to regulate all aspects of activities involving radioactive materials that are undertaken by DOE or on its behalf, including the transportation of radioactive materials. Requests for approval/authorization to ship packages and/or shipping configurations which have not been certified by DOE HCO, NNSA CO or the NRC or which cannot be determined to be a compliant shipment but which must be shipped offsite in the interest of national security must be supported by the appropriate safety basis documents. The NNSA CO documents the approval of these DOE authorized shipments by issuance of an Offsite Transportation Authorization (OTA) or an Offsite Transportation Direction (OTD). The approval process requires the applicant to identify risks to public health and safety, workers, and the environment and to identify and implement

risk mitigation measures. These shipments should be evaluated for suitability for shipment by qualified commercial carriers provided that the Office of Secure Transportation (OST) ensures that the commercial carrier proposed, approved and used for the shipment complies with all additional requirements specified for the cargo. An OTA and OTD may be issued for a period not to exceed 5 years.

(1) Non-fissile less than Type B OTA Request and Approval: Approval of requests for shipping non-compliant packages and/or shipping configurations containing no or less than Type B quantities of non-fissile radioactive material must be supported by a Hazards Analysis Report (HAR). The NNSA CO is responsible for maintaining and communicating the process and procedures used for the submission, review, and approval of HARs and other supporting documents. The NNSA CO must document the HAR review in a Safety Evaluation Report (SER). The SER highlights whether or not the shipment of the packages and/or shipping configurations proposed in the HAR presents an undue risk to the health and safety of the public, workers, and/or the environment. The HARs which provide information supporting no undue risk may be approved by the NNSA CO and may be used as the safety basis for issuing an OTA to authorize the offsite shipment(s) of the package/shipping configuration documented in the approved HAR.

(2) Type A(F) or Type B OTD Request and Approval: Approval of requests for non-compliant shipping packages and/or shipping configurations containing Type A(F) or Type B quantities of radioactive material must be supported by a TSRA. The NNSA CO is responsible for maintaining and communicating the process and procedures used for the development and review of TSRAs and other supporting documents. Applications must be made to the Assistant Deputy Administrator for Nuclear Safety and Operations (ADANSO) in writing by the responsible Program or Field Office. The application must state that the shipments are for the purpose of national security and the reason(s) why a compliant shipment cannot be made. Copies of the application must be provided to the responsible Program Secretarial Officer or NNSA Deputy Administrator; the Director, NNSA Office of Safety; the NNSA Chief, Defense Nuclear Safety (CDNS); the NNSA CO; and the Defense Programs Packaging Program Manager. The NNSA CO must document the TSRA review in a SER. The Director, Office of Safety and the CDNS must review the request and advise the ADANSO on nuclear safety issues associated with the request. The ADANSO may approve the request provided that the request and associated analysis demonstrate that the shipments are in the interest of national security and cannot be shipped in a compliant package. The ADANSO's approval must be documented in writing and must state the national security purpose, the reason(s) for determining that there is no undue risk to the health and safety of the public, workers, and/or the environment and authorize transport within the TSS of the packages(s) or

shipping configuration defined in the OTD. In addition, the approval must include an ADANSO signed OTD form that may be used by the shippers, receivers, and the Office of Secure Transportation as their authorization to offer, make, and receive these shipments. An OTD is issued for a period up to, but not to exceed, five years.

f. OTC Recertification and OTA/OTD Reauthorization. The NNSA CO is responsible for defining the details of the recertification and reauthorization process.

(1) OTC or CoC Recertification: A revised SARP or change pages must be submitted to the NNSA CO for approval. The NNSA CO may recertify a package OTC or CoC as appropriate.

(2) OTA Package and/or Shipping Configuration Reauthorization: A revised HAR or change pages must be submitted to the NNSA CO for approval. The NNSA CO may reauthorize the OTA if appropriate.

(3) OTD Reauthorization: A revised TSRA, or page changes must be submitted to all reviewing authorities identified in 4.e.(2) for review, concurrence, or approval. The ADANSO may reauthorize the OTD if appropriate.

g. Packaging and Transportation Procedures Approval.

(1) Packaging Procedures for NNSA Certified Packages. Each site must prepare packaging procedures based on the requirements specified in the SARP and the associated OTC or CoC. The packaging procedures must be concurred in by the Site Office and submitted to the NNSA CO for review and approval before the site may be designated an Authorized User of a specific package. Revisions to the SARP and/or OTC or CoC may require packaging procedure changes. Once revisions to the SARP and/or OTC or CoC are approved the site is responsible for ensuring the applicable procedure(s) is updated and submitted to the NNSA CO for review and re-approval, as applicable.

(2) Packaging Procedures for NNSA Approved Packages. Packaging procedures for packages or shipping configurations approved through the OTA or OTD process are typically approved through the approval of supporting safety basis documents, HARs, or TSRAs, as applicable. A small number of these cases may require the prospective shipper to prepare and submit stand-alone site specific packaging procedures to the NNSA CO for review and approval. The packaging procedures for packages or shipping configurations approved through the OTA or OTD process are imposed through the requirements specified in the OTA or OTD, as applicable.

(3) Packaging Procedures for Non-NNSA Packages. Each site must use packaging procedures that meet the applicable requirements as stated in the package's CoC and associated Safety Analysis Report, SARP, or DOT specification.

(4) Transportation Procedures. The Assistant Deputy Administrator for Secure Transportation or his/her designee must approve transportation procedures used in the TSS and in contractor operated DOE owned or leased vehicles.

h. Quality Assurance Plan. Packaging and transportation activities for offsite shipment of materials of national security interest must be conducted in accordance with an approved Quality Assurance program. Field Organization Managers must review and concur with quality assurance plans prepared by their site contractors and submit the plans to the NNSA CO for review and approval. The Field Organization Manager must ensure that the Quality Assurance Plans comply with the applicable DOE orders and follow the regulations identified below:

(1) For Type B radioactive materials and Type A(F) fissile radioactive materials packages, the Quality Assurance Plan must follow the requirements of 10 CFR Part 71 Subpart H.

(2) For other radioactive and hazardous materials packages, the Quality Assurance Plan must be compliant with DOE O 414.1C, *Quality Assurance*.

(3) Deviations from applicable requirements must be reported in compliance with DOE O 231.1A Chg 1, *Environment, Safety and Health Reporting*. Deviations in the areas listed below must be reported within 10 days to the NNSA CO.

(a) Report any instance in which there is a reduction in the effectiveness of any approved Type B or fissile packaging during use.

(b) Report details of any defects with safety significance in Type B, or fissile, packaging after first used. The report must include details of actions taken by the organization having custody of the packaging at the time the defect was noted to mitigate the defect and prevent its recurrence. In addition to notifying the appropriate certification authority, the report must be provided concurrently to the packaging's design agency (usually the organization that prepared the SARP).

(c) Report instances in which the requirements specified in the SARP and/or OTC or CoC or the TSRA and OTD, or HAR and OTA as applicable, were not complied with in making a shipment.

i. Transport.

(1) Each shipment of materials of national security interest must be prepared and transported in accordance with the applicable hazardous materials regulations (49 CFR Parts 100–185).

(2) All transportation activities performed under the TSS must be conducted according to 10 CFR Part 830.

(3) Government or contractor vehicles (owned or leased) used to transport materials of national security interest offsite must be approved by the Office of Secure Transportation (OST) and must be operated in compliance with the applicable Federal Motor Carrier Safety Regulations (FMCSRs) (49 CFR Parts 350–399).

(4) Use of non-TSS shipment methods for classified or unclassified configurations of materials of national security interest shall be evaluated consistent with DOE M 470.4-2A, *Physical Protection*.

(5) In addition to the hazardous materials regulations for "Carriage by Aircraft" (49 CFR Part 175), all transportation operations by aircraft must follow the requirements of DOE O 440.2B Chg 1, *Aviation Management and Safety*.

(6) Transportation of nuclear explosives also falls under DOE O 452.1D, *Nuclear Explosive and Weapon Surety Program*, and DOE O 452.2D, *Nuclear Explosive Safety*.

j. Scheduling Transportation Safeguards System Shipments.

(1) Secure transportation shipping requirement forecasts must be developed by each Program Secretarial Officer and NNSA Deputy Administrator for the Assistant Deputy Administrator for Secure Transportation (ADAST) for analyses. The results of the analyses must be provided to the Secure Transportation and Packaging Steering Committee (STPSC) and the Secure Transportation Asset Advisory Board (STAAB) as required.

(a) The shipping forecast horizon, frequency, and information fields must be defined in the Shipment Forecast and Request Procedure (SFRP). The forecasts must be sufficient to meet both planning and operational needs. PSOs and NNSA Deputy Administrators or their designees shall provide information to the ADAST and STPSC as soon as possible (between submittals) concerning any new campaigns to allow time to integrate the new requirements into the current schedule.

(b) In the event of scheduling conflict, the STPSC may recommend priorities for shipments, subject to the review and approval of the STAAB.

(2) Each site must confirm their shipment needs with a Transportation Shipping Request (TSR), no less than 60 days prior to Material Availability Date, with updates before the 30 and 7 day submittal requirements, as indicated on OST TSR form 1540.5. The TSR content, format, and mechanism must be defined by OST, as addressed in the SFRP. Requests for significant variances to the TSS schedule (TSR requirements) must be submitted per the SFRP.

k. Training. All personnel who manage, supervise, support, and/or perform packaging and transportation operations must be appropriately trained and qualified.

(1) Training programs and procedures for the safe packaging and transportation of materials of national security interest must be developed and implemented.

(2) Training programs for employees classified as Hazmat employees must follow the applicable basic hazardous material training requirements of 49 CFR Part 172.704.

(3) Auditable training records must be maintained.

l. Documents/Records. Documents and records specified in this Order must be maintained according to DOE- and National Archives and Records Administration-approved records retention and disposition schedules.

(1) Packaging and Transportation Authorization Documents. Each organization involved in a packaging and/or shipment activity authorized by an OTC, OTA or OTD must maintain a copy of the OTC/OTA/OTD and the supporting documentation and retain these documents for three years beyond the date of last activity.

(2) Packaging Quality Assurance Records. Records must be kept for the life of the packaging plus three years (i.e. following decommissioning, downgrading, or disposal of the packaging).

5. RESPONSIBILITIES.

a. Administrator, NNSA.

(1) Ensures implementation and execution of requirements and responsibilities in accordance with this Order.

(2) Grants or denies requests for exemptions to this Order.

b. Central Technical Authority (CTA). Concurs on exemptions to this Order.

c. Chief, Defense Nuclear Safety (CDNS). Advises the CTA on nuclear safety issues related to requests for exemptions to this Order and on OTDs.

d. Program Secretarial Officers and Deputy Administrators, NNSA.

(1) Provide secure transportation shipment forecasts and updates as required in paragraph 4.j.(1) of this Order.

(2) Assign a representative to the STPSC and the STAAB.

(3) Provide information to the ADAST and STPSC concerning new shipping campaigns as early as possible.

(4) Submit Type A(F) or Type B OTD requests to the Assistant Deputy Administrator for Nuclear Safety and Operations.

e. Deputy Administrator for Defense Programs.

(1) Assigns line management responsibilities.

(2) Provides overall management and policy direction for NNSA packaging activities and conduct of TSS operations.

(3) Ensures oversight of packaging and transportation operations conducted under this Order is performed in accordance with DOE O 226.1A.

(4) Designates other special materials or items to receive the physical security protection provided by the TSS.

(5) Reviews Field Organization manager requests for exemptions to this Order and forwards with recommendation to the CTA for concurrence and to the Administrator, NNSA, for approval.

f. Principal Assistant Deputy Administrator for Military Application. Serves as the chairperson of the STAAB.

g. Assistant Deputy Administrator for Science, Engineering and Production Programs.

(1) Coordinates NNSA packaging needs for materials of national security interest with the Assistant Deputy Administrator for Nuclear Safety and Operations and the NNSA CO.

(2) Coordinates SARP, HAR, and TSRA development and revision needs with the NNSA CO and the Defense Programs Packaging Program Manager.

h. Assistant Deputy Administrator for Nuclear Safety and Operations.

(1) Appoints the Defense Programs Packaging Program Manager.

(2) Provides programmatic management of all NNSA nuclear packaging development and integration activities.

(3) Appoints the chairperson of the STPSC.

(4) Serves as the approving authority for OTDs.

i. Defense Programs Packaging Program Manager.

(1) Manages Defense Programs packaging resources to assure timely and cost effective offsite transport of nuclear materials of national security interest.

(2) Directs Defense Programs nuclear packaging development and integration activities.

(3) Coordinates SARP, HAR, and TSRA development and revision needs within Defense Programs.

(4) Coordinates with appropriate DOE organizations in the development of standards and directives for packaging and transportation.

(5) Coordinates with appropriate DOE organizations in the development of packagings to fulfill requirements for organizations outside of NNSA.

j. Director, Office of Safety. Advises the Deputy Administrator for Defense Programs on nuclear safety issues related to this Order including requests for OTDs.

k. Field Organization Managers.

(1) Submit SARPs and TSRAs, Type A(F) and Type B OTD requests as applicable to the NNSA CO at least 9 months before the first required shipment date.

(2) Submit HARs and less than Type B OTA requests to the NNSA CO at least 2 months before the first required shipment date.

(3) Provide support, as requested, to external organizations conducting oversight at DOE field organizations, and contractor sites/facilities.

(4) Maintain current copies of all CoCs, OTCs, OTAs, OTDs, and their respective SARPs for packaging operations performed at their sites and/or by contractors they manage. The documentation must be retained for three years beyond the date of last activity.

(5) Conduct oversight of packaging and transportation safety programs under their cognizance in accordance with DOE O 226.1A.

(6) Ensure that the site has DOE personnel assigned and trained to oversee compliance with the requirements of this Order, and that oversight is performed and documented.

(7) Review and concur in contractor packaging procedures and quality assurance plans that follow the requirements of 10 CFR Part 71, Subpart H, or DOE Order 414.1C, *Quality Assurance,* as appropriate, and forward a copy to the NNSA CO for review and approval.

(8) Notify contracting officers when this Order applies to specific contracts, and ensure that the CRD is incorporated, as appropriate.

(9) Review and forward contractor requests for exemptions from requirements of this Order to the Deputy Administrator for Defense Programs for approval by the NNSA Administrator.

(10) Submit initial TSRs to OST 60 days prior to requested mission week and submit the final TSRs 7 days prior to scheduled shipment date.

(11) Assign representatives to the STPSC.

l. Assistant Deputy Administrator for Secure Transportation.

(1) Manages and operates the TSS.

(2) Approves requests for variances to TSS scheduling requirements.

(3) Establishes TSR requirement and format.

(4) Defines the frequency and content of shipping requirement forecasts.

(5) Authorizes any Government or contractor vehicle (owned or leased) used in offsite transportation of materials of national security interest.

(6) Assigns a representative to serve on the STPSC and the STAAB.

m. Director, NNSA Service Center (NNSA CO).

(1) Serves as the NNSA Certifying Official for certification of radioactive packages for offsite shipments.

(2) Provides guidance to field organizations and contractors that prepare safety and/or risk analyses of requested transportation configurations.

(3) Convenes and appoints chairpersons of federally chaired Transportation Safety Review Panels to review applications for OTCs and OTAs and to document recommendations for approval/disapproval in a SER.

(4) Review and approve packaging procedures for NNSA packages and quality assurance plans to ensure they meet the requirements of 10 CFR Part 71 Subpart H or DOE Order 414.1C, *Quality Assurance*, as appropriate.

(5) Serves as the approving authority for OTCs and OTAs for packages used to ship materials of national security interest. Issues approved OTCs and OTAs.

(6) Maintains copies of all currently approved NNSA SARPs, TSRAs, HARs, SERs, OTCs, OTAs, OTDs and other supporting documentation.

(7) Authorizes users of NNSA certified Type B packages and revokes authorized user status when users fail to comply with OTC requirements.

(8) Defines the content, format and review procedures for SARPs (including recertification), HARs, TSRAs, reauthorizations and all related supporting documentation.

(9) Trains and qualifies all NNSA CO personnel that perform package certification, offsite transportation authorization, and packaging and transportation oversight functions.

(10) Provides support to DOE and NNSA organizations conducting oversight of packaging operations performed under this Order per DOE O 226.1A, *Implementation of Department of Energy Oversight Policy*.

(11) Coordinates with OST to ensure tie-down procedures are in place prior to OTC/OTA issuance.

(12) Provides a copy of the SER and other documentation which documents the analysis of a TSRA to the Assistant Deputy Administrator for Nuclear Safety and Operations for consideration in granting an OTD.

(13) Assigns a representative to serve on the STPSC and the STAAB.

(14) Conducts periodic oversight of packaging activities at NNSA user sites.

n. Deputy Administrator for Naval Reactors.

(1) Implements and oversees all policies and practices pertaining to this Order for activities under the cognizance of the Naval Reactors Program.

(2) Establishes and implements special arrangements for shipments of Category I and Category II quantities of SNM (as defined in DOE M 470.4-6 Chg 1, *Nuclear Material Control and Accountability*, to or from facilities of the Naval Reactors Program, including coordinating with OST for appropriate support of shipments.

(3) Assigns a representative to the STPSC and the STAAB.

6. DEFINITIONS. See Attachment 2.

7. REFERENCES.

a. Title XXXII of P.L. 106-65, National Nuclear Security Administration Act, as amended, which established a separately organized agency within the Department of Energy.

b. DOE O 226.1A, *Implementation of Department of Energy Oversight Policy*, dated 5-25-07.

c. DOE O 231.1A Chg 1, *Environment, Safety and Health Reporting*, dated 6-03-07.

d. DOE O 414.1C, *Quality Assurance*, dated 6-17-05.

e. DOE O 440.2B Chg. 1, *Aviation Management and Safety*, dated 11-19-06.

f. DOE O 452.1D, *Nuclear Explosive and Weapon Surety Program*, dated 4-14-09.

g. DOE O 452.2D, *Nuclear Explosive Safety*, dated 4-14-09.

h. DOE O 460.1C, *Packaging and Transportation Safety*, dated 5-14-10.

i. DOE O 460.2A, *Departmental Materials Transportation and Packaging Management*, dated 12-22-04.

j. DOE O 470.4A, *Safeguards and Security Programs*, dated 5-25-07.

k. DOE M 470.4-2A, *Physical Protection*, dated 7-23-09.

l. DOE M 470.4-6 Chg 1, *Nuclear Material Control and Accountability*, dated 8-26-05.

m. NRC Regulatory Guide 7.9, Standard Format and Content of Part 71 Applications for Approval of Packages for Radioactive Material.

n. Title 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

o. Title 10 CFR Part 830, "Nuclear Safety Management."

p. Title 49 CFR Parts 100–185, “Pipeline and Hazardous Materials Safety Administration, Department of Transportation.”

q. Title 49 CFR Parts 350–399, “Federal Motor Carrier Regulations.”

8. CONTACT. Questions concerning this Order should be addressed to the NNSA Office of Nuclear Safety and Operations at 505-845-4325.

BY ORDER OF THE SECRETARY OF ENERGY:

DANIEL B. PONEMAN
Deputy Secretary

CONTRACTOR REQUIREMENTS DOCUMENT
DOE O 461.1B*, PACKAGING AND OFFSITE TRANSPORTATION OF MATERIALS OF NATIONAL SECURITY INTEREST*

This contractor requirements document (CRD) establishes requirements for Department of Energy (DOE) site/facility management contractors, including National Nuclear Security Administration (NNSA) contractors. Contractors must comply with the requirements listed in the CRD to the extent set forth in their contracts. Definitions for key terms used in this CRD are provided in Attachment 2.

Regardless of the performer of the work, contractors are responsible for compliance with the requirements of this CRD. Contractors are responsible for flowing down the requirements of this CRD to subcontracts at any tier to the extent necessary to ensure the contractor's compliance with the requirements. In doing so, the contractor must not unnecessarily or imprudently flow down requirements to subcontracts. That is, the contractor must: (1) ensure that it and its subcontractors comply with the requirements of this CRD, and (2) incur only costs that would be incurred by a prudent person in the conduct of a competitive business.

1. Contractors who offer materials of national security interest for offsite shipment must package and prepare those shipments in accordance with the requirements specified in a NNSA Certifying Official (CO) issued Offsite Transportation Certificate (OTC), Certificate of Compliance (CoC), Offsite Transportation Authorization (OTA), Offsite Transportation Direction (OTD) or a DOE Headquarters Certifying Official (HCO) or Nuclear Regulatory Commission (NRC) issued Certificate of Compliance (CoC), as applicable. The contractor must be in possession of a current approved OTC, CoC, OTA or OTD prior to offsite shipment of any materials subject to these requirements.

    a. For certified Type A(F) or Type B packages, the contractor must comply with the requirements specified in a NNSA CO OTC or CoC, or DOE HCO or NRC CoC, as applicable. In addition, the contractor must be an authorized user of the package. Contractors must also perform activities in accordance with the requirements of 49 CFR Parts 171-180.

    b. For non-compliant packages and/or shipping configurations with Type A(F) or Type B content the contractor must comply with the requirements of a NNSA Assistant Deputy Administrator for Nuclear Safety and Operations issued Type A(F) or Type B OTD that specifically authorizes the use and offsite shipment of the package or special assembly. The contractor must also be an authorized user of the specific package.

    c. For non-compliant packages and/or shipping configurations that contain a Type A or less quantity of radioactive material or no radioactive material, but must be shipped via the Transportation Safeguards System (TSS), the contractor must comply with the requirements of the applicable NNSA CO issued OTA.

2. Contractor requests for Type A(F) or Type B package certification or recertification must be supported with a safety analysis report for packaging (SARP) that conforms to NRC

Regulatory Guide 7.9. The SARP must be submitted to the NNSA CO at least 9 months before the first required shipment date. All certification, recertification and reauthorization documentation must satisfy the requirements set forth by the NNSA CO.

3. Contractor requests for non-fissile less than Type B OTAs for non-compliant packages and/or shipping configurations containing hazardous materials and/or no more than Type A quantities of radioactive material must be supported by a Hazards Analysis Report (HAR) and must follow the process and procedures set forth by the NNSA CO for the submission, review and approval of HARs. The request must be submitted to the NNSA CO (OTA approving authority), and also must be accompanied by written confirmation that the shipments are for the purpose of national security. The NNSA CO must issue a Safety Evaluation Report (SER) after completion of the HAR review. HARs must be submitted to the NNSA CO at least 2 months prior to the first shipment date.

4. Contractor requests for authorization of offsite transportation configurations of Type A(F) or Type B quantities of radioactive material not meeting the applicable requirements of 10 CFR Part 71 and/or 49 CFR Parts 171-180 shall be supported with a Transportation System Risk Assessment (TSRA). Requests for Type A(F) or Type B OTAs for non-compliant packages and/or shipping configurations must be made through their responsible Federal management structure. TSRAs must follow the process and procedures set forth by the NNSA CO for the development and review of TSRAs and other supporting documents. The application must state that the shipments are for the purpose of national security and the reason(s) why a compliant shipment cannot be made. The completed TSRA and supporting documentation must be provided to the responsible Program or Field Office Manager who must then submit an application directly to the Assistant Deputy Administrator for Nuclear Safety and Operations (OTD approving authority) with copies of the application provided to the responsible Program Secretarial Officer or NNSA Deputy Administrator; the Director, NNSA Office of Safety; the NNSA Chief, Defense Nuclear Safety (CDNS); the NNSA CO; and the Defense Programs Packaging Program Manager. The TSRA and supporting documentation serves to identify the risks with the non-compliant shipments against the criteria of 10 CFR Part 71 and 49 CFR Parts 171-180. The NNSA CO must issue a SER documenting its review of the TSRA. The TSRA must be submitted to the reviewing and approval parties at least 9 months prior to the first shipment date.

5. Contractors must support requests for OTDs as required.

6. Contractors must maintain current copies of the NNSA CO OTCs and CoCs, DOE HCO and/or NRC CoCs, OTAs, OTDs and associated SERs, SARPs, TSRAs, HARs, and other supporting documents and exemptions applicable to their operations. The copies must be retained for three years beyond the last activity.

7. Contractors who must package a Type A(F) or Type B quantity of radioactive material in a certified package or a package and/or shipping configuration authorized by an OTD for offsite shipment must use packaging procedures that conform to the CoC, OTC, or OTD. In addition, the contractor must not be authorized to begin packaging or transportation

operations until it has been designated an authorized user of that package by the appropriate DOE certification authority.

8. Contractors must conduct Type B and other fissile radioactive materials packaging and transportation activities in accordance with a quality assurance plan that follows the requirements of 10 CFR Part 71 Subpart H. The quality assurance plan must be submitted through the contractor's responsible DOE field organization to the NNSA CO for review and approval. The contractor is not authorized to begin packaging or transportation operations until it has been designated an authorized user of that package by the NNSA CO, and the NNSA CO will not designate the contractor an authorized user of the package until the contractor's packaging procedures and quality assurance plan have been approved.

9. For other radioactive and hazardous materials packages, the Quality Assurance Plan must be compliant with the CRD to DOE O 414.1C, *Quality Assurance*.

10. Deviations from applicable quality assurance requirements must be reported promptly to the NNSA CO and as required per the CRD to DOE O 231.1A Chg 1, *Environment, Safety and Health Reporting*. Deviations in the following areas must be reported within 10 days to the NSNA CO: a) any instance in which there is a reduction in the effectiveness of any approved Type B or fissile packaging during use; b) details of any defects with safety significance in Type B or fissile packagings after first use including details of actions taken by the organization having custody of the packaging at the time of the defect to mitigate the defect and prevent its recurrence. This report must be provided concurrently to the packaging's design agency; c) instances in which the requirements specified in the SARP and/or OTC or CoC or the TSRA and OTD, as applicable, were not complied with in making a shipment.

11. Unless specifically directed by DOE, contractors preparing shipments of materials of national security interest for the TSS need not follow the placarding requirements of 49 CFR Part 172 Subpart F.

12. A contractor that is a State agency not otherwise subject to DOT jurisdiction and any other DOE contractor who operates a Government or contractor vehicle (owned or leased) offsite in performance of contract activities must ensure that the operations are done in accordance with applicable *Federal Motor Carrier Safety Regulations* (FMCSR) (49 CFR Parts 350–399).

13. For all transportation operations by aircraft, contractors must follow the hazardous materials regulations contained in 49 CFR Part 175, *Carriage by Aircraft*, and the CRD to DOE O 440.2B Chg 1, *Aviation Management and Safety*.

14. Contractors who must use Government-owned or leased vehicles to perform offsite transportation of material of national security interest must request approval from the Office of Secure Transportation (OST), and the approval must be granted before the contractor is authorized to use such vehicles for offsite operations. The requests must be supported by documentation that provides detailed information about the proposed

vehicle, including the tie-down system and how it will attach to the vehicle, the proposed tie-down procedures that will be used to secure the proposed cargo to the vehicle, the analysis that proves the adequacy of the proposed tie-down procedures, the hazards associated with the operations and how these hazards will be mitigated, and the risks associated with the operations and what will be done to reduce those risks. The requests and associated approvals may cover single vehicle or multiple vehicles, and/or a single use or multiple uses over a specified period of time.

15. Each contractor conducting offsite transportation activities that utilize TSS resources must operate within the safety and risk operating envelope determined by the OST Documented Safety Analysis (DSA) and must comply with 10 CFR Part 830 requirements and applicable DOE directives.

16. Contractors must train and qualify all personnel who support and/or perform packaging and transportation operations for materials of national security interest to perform their assigned functions. The training program must follow the applicable basic hazardous material training requirements of 49 CFR Part 172.704.

17. Contractors must maintain auditable training records.

18. Contractors must develop and implement a formal oversight program and perform and document oversight activities.

19. Contractors must ensure that their organizations perform annual self-assessments of activities covered by this CRD.

20. Contractors who propose items of national security interest for offsite shipment that do not have DOE approved tie-down procedures to secure the items to the transport vehicle must develop and analyze the proposed tie-down procedures and submit the proposed tie-down procedures and the associated analysis to OST for approval, with a copy to the NNSA CO.

21. Contractors must confirm their shipment needs with a Transportation Shipping Request (TSR), no less than 60 days prior to Material Availability Date, with updates before the 30 and 7 day submittal requirements, as indicated on OST TSR Form 1540.5.

22. Contractors must provide secure transportation shipment forecasts and updates to the responsible Program Secretarial Officer (PSO) or responsible NNSA Deputy Administrator as required. The forecasts must be sufficient to meet both the planning and operational needs of the Assistant Deputy Administrator for Secure Transportation as defined in the Shipment Forecast and Request Procedure. Contractors also must provide information to the responsible PSO or NNSA Deputy Administrator as soon as possible (between submittals) concerning any new campaigns to allow time to integrate the new requirements into the current schedule.

23. Contractors must, when requested, support DOE in its oversight of others.

24. Contractors who cannot meet the requirements of this CRD may apply for an exemption to the Administrator, NNSA, through their DOE field organization.

25. Contractors must comply with the requirements of the CRD to DOE O 452.1D, *Nuclear Explosive and Weapon Surety Program*, and the CRD to DOE O 452.2D, *Safety of Nuclear Explosive Operations,* for all offsite transport of all materials or assemblies subject to those Orders.

26. Contractors must comply with the safeguards and security requirements contained in the CRD to DOE O 470.4A, *Safeguards and Security Program*, for offsite transportation:

27. Contractors must submit an implementation plan detailing the actions required to comply with this CRD, the expected schedule for performance of those actions, an estimated time for achievement of compliance, and a cost estimate for implementing the plan. The plan must be submitted to the field organization manager (including operations office, site office, area office, project office, and service center managers) within 6 months of inclusion of this CRD in the contract.

DEFINITIONS

1. Campaign. A series of shipments made over a predetermined time period in support of a common objective that have similar cargos, packaging, tie-down configurations, and conveyances. The approval to conduct a campaign can further increase route restrictions or specify administrative measures to reduce or eliminate risks deemed acceptable in normal operations.

2. Category. A designation of the level of security (Category I, II, III, or IV) required for SNM, determined by both the quantity and type of SNM or for an SNM location based on the type and form of the SNM and the amount of SNM present. DOE M 470.4-6 Chg 1, *Nuclear Material Control and Accountability*, provides precise guidance for determining SNM categories.

3. Classified Assembly. An assembly, related to nuclear explosives, that contains no nuclear components. The assembly can be totally inert or may contain any combination of less than Type A(F) quantities of SNM, less than Type B quantities of other radioactive materials, explosives or other hazardous materials (e.g., some Nuclear Explosive Like Assemblies [NELA] or Joint Test Assemblies [JTA] with no nuclear component, a nuclear weapon trainer, or some subcritical test devices).

4. Compliant Packages. Packages that meet the relevant Department of Transportation (DOT) regulations of 49 CFR Parts 171-180 and Nuclear Regulatory Commission (NRC) regulations of 10 CFR Part 71, NRC and DOE Certificates of Compliance (CoCs, and/or NNSA Offsite Transportation Certificates (OTCs).

5. Compliant Shipments. Offsite transport of hazardous or radioactive material conducted in accordance with relevant DOT regulations of 49 CFR Parts 171-180 and NRC regulations of 10 CFR Part 71, NRC and DOE CoCs, and/or NNSA OTCs.

6. Exemption. A waiver of the need to comply with specific requirements defined in this Order. An exemption to provisions of this Order may be granted only by the Administrator, NNSA.

7. Hazards Analysis Report (HAR). A document that is submitted to the NNSA CO to support an applicant's request for an authorization for offsite transport of non-compliant packages and/or shipping configurations that contain less than a Type B quantity of radioactive material or no radioactive materials, but which contain regulated hazardous materials as defined in 49 CFR Parts 171-180. The HAR identifies the type and quantity of hazardous material, proposed packaging/handling gear, mode of transportation, shipment destinations, tie-down procedures, tests that will be performed on the unit, the post-test status of hazardous components and procedures to verify that the shipment can be conducted safely (if applicable).

8. Hazmat. Those materials defined as hazardous in 49 CFR Parts 171-180. Also known as "hazardous materials."

9. Materials of National Security Interest. A class of strategic materials used in the development, testing, production and maintenance of nuclear weapons and other materials that have been designated as critical to our national security. This designation is primarily for fissionable nuclear material known as SNM, but may include tritium. Items that contain these materials include nuclear explosives, nuclear components, special assemblies, classified assemblies, and miscellaneous SNM Parts and compounds. The Deputy Administrator for Defense Programs also may designate other special materials or items to receive the control and physical protection afforded this class of material.

10. Miscellaneous SNM Parts and Compounds. Piece parts of a nuclear component, U.S. Navy nuclear fuel elements, other specialized reactor fuel elements, subcritical experiment assemblies, criticality experiment machine parts, other nuclear device parts, broken piece parts, radioisotope thermoelectric generators, radioactive sources, and bulk materials in metallic or various chemical compounds that contain plutonium or enriched uranium.

11. Non-compliant Packages. Packages that do not meet the definition of "compliant packages" as defined herein.

12. Non-compliant Shipments. Offsite transport of hazardous or radioactive material that does not meet the definition of "compliant shipments" as defined herein.

13. Nuclear Component. Major subassembly of a nuclear explosive that contains SNM in quantities sufficient to fuel a nuclear explosion (e.g., pit or canned subassembly). Note that subassemblies containing tritium and no SNM are not nuclear components.

14. Nuclear Explosive. An assembly containing fissile and/or nuclear fusion materials and main charge high-explosive parts or propellants capable of producing a nuclear detonation (e.g., a nuclear warhead or nuclear explosive test device).

15. Office of Secure Transportation (OST). An NNSA organization under the supervision of the Assistant Deputy Administrator for Secure Transportation. It provides for the secure transportation for materials of national security interest with Federal Employees and Government owned equipment.

16. Offsite. Any area within or outside the boundaries and jurisdiction of a DOE facility to which the general public has free and uncontrolled access.

17. Offsite Transportation Authorization (OTA). An NNSA CO approval that details the transportation configuration, authorized contents, regulatory and emergency response hazards, and transportation restrictions. The OTA is issued for non-fissile less than Type B quantities of material. An OTA always stipulates specific conditions of operations, including required transporter and shipment configuration. An OTA may detail required positive measures, administrative controls, a declared maximum number of shipments per calendar year and a maximum number of units per trailer. An OTA may be issued for a one-time shipment or for a transportation campaign over a period of time not to exceed 5 years, at which time it must be re-authorized.

18. Offsite Transportation Certificate (OTC). An NNSA CO prepared document, analogous to an NRC or DOE HCO CoC that describes the compliant package configuration, authorized contents, and transportation restrictions. An OTC authorizes packages for shipment of radioactive materials within the TSS and for commercial carriers. An OTC can declare essential positive measures, administrative controls, and a maximum number of specified packages per transporter. Issuance of an OTC is demonstration of compliance with 10 CFR Part 71. It is issued for either a one-time use or multiple uses up to 5 years, at which point it must be renewed.

19. Offsite Transportation Direction (OTD). An NNSA approval that details the transportation configuration, authorized contents, regulatory and emergency response hazards, and transportation restrictions. The OTD is issued for Type A(F) or Type B quantities of material. An OTD always stipulates specific conditions of operations, including required transporter and shipment configuration. An OTD may detail required positive measures, administrative controls, a declared maximum number of shipments per calendar year and a maximum number of units per trailer. The OTD must state the national security purpose, the reason(s) why a compliant shipment cannot be made, and the reasons for determining that adequate safety has been achieved. An OTD may be issued for a one-time shipment or for a transportation campaign over a period of time not to exceed 5 years, at which time it must be re-authorized.

20. Package. Packaging plus its contents.

21. Packaging. A receptacle and any other components or materials necessary for the receptacle to perform its containment function in conformance with minimum packing requirements.

22. Program Secretarial Officer (PSO). The Assistant Secretary/Director, or Deputy Administrator who is responsible for the performance of a DOE or NNSA organization (e.g., Assistant Secretary for Environmental Management or Deputy Administrator for Defense Programs).

23. Safety Analysis Report for Packaging (SARP). A document that conforms to NRC Regulatory Guide 7.9 and provides a comprehensive technical evaluation of a package. The SARP consists of sections containing general information; structural, thermal, containment, shielding and criticality evaluations; operating procedures; acceptance tests, and maintenance and quality assurance programs. The purpose of the SARP is to demonstrate conformity with the applicable sections of 10 CFR Part 71 and 49 CFR Part 171-180.

24. Safety Evaluation Report (SER). A document that provides the results of the Transportation Safety Review Panel's safety evaluation, including its independent review of the HAR, SARP, and/or TSRA.

25. Secure Transportation Asset Advisory Board (STAAB). A senior management group chaired by the Principal Assistant Deputy Administrator for Defense Programs, with

membership from each participating PSO and NNSA Deputy Administrator, that provides a forum for integration of the needs of all participants.

26. Secure Transportation and Packaging Steering Committee (STPSC). A group chaired by the Defense Programs Packaging Program Manager, with membership from all sites and program offices that participate in transportation of materials of national security interest.

27. Shipping Configuration. Shipments of classified assemblies, nuclear components, nuclear explosives, special assemblies, or other configurations of materials of national security interest that are authorized by either an OTA or OTD for offsite shipment.

28. Source Material. Natural uranium, depleted uranium, and thorium.

29. Special Assembly. An assembly of one or more nuclear components that does not constitute a complete nuclear explosive and is not capable of producing a nuclear detonation (e.g., some NELAs, JTAs, or Laboratory Test Units [LTU].

30. Special Nuclear Material (SNM). Plutonium, uranium-233, uranium enriched in the isotope 235, and any other material which, pursuant to 42 U.S.C. 2071 (Section 51, as amended, of the Atomic Energy Act of 1954), has been determined to be special nuclear material; it also includes any material artificially enriched by any of the foregoing, not including source material.

31. Transportation Safeguards System (TSS). A DOE system managed and operated by the Office of Secure Transportation. It is used for the safe and secure movement of materials of national security interest and other cargo deemed appropriate by responsible program elements and approved by the Deputy Administrator for Defense Programs. Such operations are authorized under the Atomic Energy Act as amended.

32. Transportation Safety Review Panel. A committee chaired by a Federal employee and composed of persons with appropriate expertise that performs technical reviews to verify compliance with this Order and makes recommendations for offsite transportation certification or authorization.

33. Transportation Shipping Request (TSR). A document provided by the shipper to the Office of Secure Transportation and the receivers that includes the following information: shipment number, pickup and delivery points, delivery date, quantity and type of packages in shipment, security classification of shipment, the authorization basis, special handling requirements, hazardous material information, approved confirmations from both shipper and receiver, 24-hour emergency response telephone numbers, cargo tie-down restraint configurations, and name of the program office for which the shipment is being performed.

34. Transportation System Risk Assessment (TSRA). A document that is submitted to the Assistant Deputy Administrator for Nuclear Safety and Operations to support an applicant's request for an authorization for offsite transport of non-compliant packages and/or shipping configurations that contain a Type A(F) or Type B quantity of

radioactive material and may contain regulated hazardous materials as defined in 49 CFR Parts 171-180. The TSRA records the hazards, the assessment of the hazards, the analysis methods, and analysis and results used to determine the frequency and consequences of events that could pose risks to the workers, public, and/or the environment during the proposed offsite transportation of an uncertified package or a special assembly that contains a Type A(F) or Type B quantity of radioactive material in a prescribed transportation system and routes.

35. Variance. Authorization to engage in an act that does not conform to the required procedure.