

**U.S. Department of Energy**  
**Washington, D.C.**

**ORDER**

DOE 5610.1

9-11-79

SUBJECT: PACKAGING AND TRANSPORTING OF NUCLEAR EXPLOSIVES, NUCLEAR COMPONENTS, AND SPECIAL ASSEMBLIES

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1. PURPOSE. This order establishes Department of Energy (DOE) policy and assigns responsibilities and authorities for the packaging and transporting of nuclear explosives, nuclear components, and special assemblies.
2. CANCELLATION. This order replaces former Energy Research and Development Administration (ERDA) directive 0561, PACKAGING AND TRANSPORTING OF NUCLEAR EXPLOSIVES, NUCLEAR COMPONENTS, AND SPECIAL ASSEMBLIES, 9-15-75, previously canceled by ERDA Transmittal Notice No. 0500-25, 9-30-77.
3. SCOPE. The provisions of this order apply to all Departmental elements and all contractors and subcontractors performing work for or as a part of the Department's defense programs.
4. POLICY. Nuclear explosives, nuclear components, and special assemblies shall be packaged and transported in a manner which assures public safety and shall be packaged and transported with the highest level of safety practicable. Such level of safety shall meet or exceed that provided by the packaging and shipment, in accordance with applicable regulations, of other radioactive and explosive materials.
5. RESPONSIBILITIES AND AUTHORITIES.
  - a. Assistant Secretary for Defense Programs (DP-1), through the Director of Military Application:
    - (1) Establishes and provides overall direction of the program.
    - (2) Establishes the program safety policies and basic requirements for their implementation in consonance with DOE and other Federal regulations issued on safety, security, and transportation.

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INITIATED BY:  
Office of Military Application

- (3) Conducts periodic appraisals to review and approve field office implementation of this order.
  - (4) Renders the final determination on requests for exemptions or deviations from the requirements of this order.
  - (5) Serves as the Headquarters focal point for all matters related to the packaging and transporting of nuclear explosives, nuclear components, and special assemblies.
- b. Director of Safeguards and Security of DP-1, establishes security standards for the packaging and transportation of nuclear explosives, nuclear components, and special assemblies.
- c. Managers of Field Offices:
- (1) Implement the provisions of this order for their respective installations and activities.
  - (2) Conduct appraisals of appropriate operations to determine the adequacy of implementation not less than every 2 years.
  - (3) Assure that a formal safety review is performed on all containers and transportation systems (as defined in subparagraph 6d) employed and that these are reviewed and approved before use.
  - (4) Maintain a file of package designs, transportation system descriptions, and safety analyses (and the safety evaluations thereof) used for packaging and transporting nuclear explosives, nuclear components, and special assemblies.
  - (5) Review and approve emergency and one-time requests for temporary deviations from the provisions of this order.
  - (6) Transmit, through the Albuquerque Operations Office to the Office of Military Application for action, requests for continuing exemptions or deviations from this order.
- d. Manager of the Albuquerque Operations Office, in addition to subparagraph 5c:
- (1) Is responsible for the packaging and transporting of all nuclear explosives in DOE custody outside of DOE-controlled sites and for the safety criteria and procedures therefor except for nuclear explosives transported by the Manager of the Nevada Operations Office.

- (2) Maintains a directory of approved containers for use with nuclear explosives, nuclear components, and special assemblies to include appropriate specifications. The directory will consist of Part I--Nuclear Explosives, Part II--Nuclear Components, and Part III--Special Assemblies.
- (3) Issues the criteria and procedures for the safe packaging and transporting of nuclear components and special assemblies in coordination with other appropriate field office managers, and issues DOE Nuclear Weapon Program Packaging and Transportation Certificates for all containers used for these materials.
- (4) Issues written interim approval for undocumented packaging requiring expeditious handling upon receipt of a satisfactory interim safety analysis from another field office manager that packaging and transportation to be used meet appropriate safety requirements. (Note: Documentation for such packaging must be supplied to Albuquerque Operations Office within 60 days in order that a DOE Nuclear Weapon Program Packaging and Transportation Certificate may be issued.)
- (5) Provides a copy of safety analyses (DOE 5481.1, Safety Analysis and Review System, of 3-20-79), and a DOE Nuclear Weapon Program Packaging and Transportation Certificate to the Office of Military Application and appropriate field offices.

## 6. DEFINITIONS.

- a. Nuclear Components. Those nuclear explosive or device parts of subassemblies which contain fissile and/or radioactive and other materials.
- b. Nuclear Explosives. Any assembly or subassembly containing fissile and/or radioactive materials and high explosives, propellants, or other means capable of producing a nuclear detonation.
- c. Special Assemblies. Special assemblies are those major assemblies of nuclear weapon components which do not comprise a complete nuclear explosive or nuclear test device and, therefore, are not capable of producing a nuclear detonation.
- d. Transportation System. The vehicles, special equipment, safe packaging, procedures, routes, handling, and trained personnel involved in or having an effect on the safety of the operation.

- e. One-Point Safe Nuclear Explosives. Those nuclear explosives which in the event of a detonation initiated at any one point in the high explosive system presents no greater probability than 1 in  $10^6$  of achieving a nuclear detonation.
7. CRITERIA. The following are the minimum safety criteria which are mandatory for the packaging and transporting of nuclear explosives, nuclear components, and special assemblies outside of DOE-controlled sites.
- a. Transport of nuclear explosives, nuclear components, and special assemblies must be kept to a minimum consistent with operational or technical requirements. Continual reviews must be made by cognizant field offices to assure these operational requirements.
  - b. Nuclear explosives, nuclear components, and special assemblies must be packaged and transported to provide a level of safety at least comparable to that provided by the packaging and shipment, in accordance with applicable regulations, of other radioactive and explosive material. (References: Department of Transportation (DOT), Title 49, Code of Federal Regulations (CFR), Parts 100-179, Hazardous Materials Regulations; DOT, Title 49, CFR, Parts 390-397, Federal Motor Carrier Safety Regulation; DOE, Title 10, CFR, Part 871, Air Transportation of Plutonium; Nuclear Regulatory Commission, Title 10, CFR, Parts 20-71-73; Interim Management Directive 5001, Safety, Health, and Environmental Protection, of 9-29-77 to DOE 5481.1, Safety Analysis and Review Systems, of 3-20-78).
  - c. A DOE Nuclear Weapon Program Packaging and Transportation Certificate must be issued by Albuquerque Operations Office for all containers used to ship nuclear components or special assemblies. This certificate will be based upon information supplied by the appropriate contractor or field office. Use of written interim certifications based on the development of a satisfactory safety analysis report are authorized, providing documentation is provided to Albuquerque Operations Office within 60 days (subparagraph 5d(4)).
  - d. Only those procedures, equipment, vehicles, and packages meeting the requirements of this order and approved by the DOE may be used.

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- e. All personnel involved in the packaging and transporting of nuclear explosives, nuclear components, and special assemblies must be knowledgeable and proficient in their assigned duties. An appropriate training program approved by the responsible field office manager should be maintained or implemented to assure this knowledge and proficiency.
- f. A file of all relevant safety evaluations, appraisals, procedures, and operating records must be maintained by appropriate field offices for audit purposes in the appropriate field office. Contractors will maintain an active file of their procedures and operating records.
- g. Packaging and transportation operations together with their safety evaluations must be reviewed not less than every 2 years for accuracy and adequacy by managers of field offices.
- h. Nuclear explosives will not be mixed with any other cargo.
- i. Nuclear explosives not known to be one-point safe will not be transported offsite.
- j. Provisions will be made to assure continuing quality assurance in both transport vehicles and containers. (References cited in subparagraph 7b)

FOR THE SECRETARY OF ENERGY:



William S. Heffelfinger  
Director of Administration

