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

ADVANCE COPY

ORDER

DOE 1540.2

9-30-86

SUBJECT: HAZARDOUS MATERIAL PACKAGING FOR TRANSPORT - ADMINISTRATIVE PROCEDURES

1. PURPOSE. To establish administrative procedures for the certification and use of radioactive and other hazardous materials packaging by the Department of Energy (DOE).

2. SCOPE. The provisions of this Order apply to all Departmental Elements and contractors performing work for the Department as provided by law and/or contract, and as implemented by the appropriate contracting officer.

3. APPLICABILITY. The provisions of this Order apply to DOE employees and management and operating contractors who are responsible for packaging, shipping, and transporting radioactive and other hazardous materials in off-site shipment operations.

4. EXCLUSIONS. Packaging for the shipment of complete nuclear explosives, components, and special assemblies is excluded from the certification and approval requirements of this Order. (See DOE 5610.1, PACKAGING AND TRANSPORTING OF NUCLEAR EXPLOSIVES, NUCLEAR COMPONENTS, AND SPECIAL ASSEMBLIES.)

5. REFERENCES.

   a. DOE 1540.1, MATERIALS TRANSPORTATION AND TRAFFIC MANAGEMENT, of 5-3-82, which establishes policies and procedures for the management of materials transportation activities, including traffic management.

   b. DOE 1900.1D, FEDERAL REGISTER MANAGEMENT, of 1-31-86, which outlines responsibilities for the administrative management of "Federal Register" documents, including approval, promulgation, and certification of all DOE proposed and final rules, regulations, orders, notices, and official documents.

   c. DOE 5480.3, SAFETY REQUIREMENTS FOR THE PACKAGING AND TRANSPORTATION OF HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES, AND HAZARDOUS WASTES, of 7-9-85, which establishes safety standards for hazardous materials packaging and transportation.

   d. DOE 5610.1, PACKAGING AND TRANSPORTING OF NUCLEAR EXPLOSIVES, NUCLEAR COMPONENTS, AND SPECIAL ASSEMBLIES, of 9-11-79, which establishes policy and procedures for packaging and transporting nuclear explosives, nuclear components, and special assemblies.

DISTRIBUTION:
All Departmental Elements

INITIATED BY:
Assistant Secretary for
Defense Programs

e. DOE 5632.1, PHYSICAL PROTECTION OF CLASSIFIED MATTER AND INFORMATION, of 7-18-79, which describes requirements for the handling of classified information and related matter.

f. DOE 5700.6A, QUALITY ASSURANCE, of 8-13-81, which establishes quality assurance standards for DOE operations.

g. "Department of Transportation Specification 7A Packaging Certification Document," of 7-1-85, which provides the certification documentation for the compliance of 7A packaging tested in accordance with the Department of Transportation (DOT) standards.

h. Title 10 Code of Federal Regulations, Part 71, "Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions," which establishes Nuclear Regulatory Commission (NRC) safety standards for radioactive material packaging.

i. Title 10 Code of Federal Regulations, Part 871, Air Transportation of Plutonium, which establishes DOE regulations for air shipments of plutonium.

j. Title 41 Code of Federal Regulations, Parts 109-40, Department of Energy, "Federal Property Management Regulations," which establishes regulations governing transportation and traffic management.

k. Title 49 Code of Federal Regulations, Parts 171-179, "Hazardous Material Regulations," which prescribe DOT requirements governing the transportation of hazardous materials in interstate and foreign commerce.

l. Army TB DOD 700-2, "Department of Defense Explosives Hazard Classification Procedures," which prescribes the Department of Defense (DOD) explosives safety requirements.

m. "DOE Explosives Safety Manual," which prescribes the safety procedures for handling and transporting explosives (available from EH-34).

n. International Atomic Energy Agency Safety Series No. 6, 1973 Revision As Amended, "Regulations For The Safe Transportation of Radioactive Materials," which prescribes the international regulations for the safe transportation of radioactive materials.

o. "International Civil Aviation Organization Technical Instructions," 1985 Edition, which prescribes the international requirements for the safe transport of hazardous materials by air.

p. "Dangerous Goods Regulations," International Air Transport Association, which prescribes safety requirements for the transport of hazardous goods.

6. DEFINITIONS. Definitions contained in DOE 1540.1 and DOE 5480.3 are incorporated by reference; also see 10 CFR 71 and 49 CFR 100-179 for additional related definitions.

a. Centralized Technical Review Office is a corps of specialists in the necessary engineering disciplines reporting to the Headquarters Certifying Official (herein after referred to as the Certifying Official) to perform technical reviews of DOE Safety Analysis Reports for Packaging (SARP's).

b. DOE and NRC Certificate of Compliance is a certificate issued by DOE or NRC, as appropriate, approving for use with specified limitations a specific packaging for quantities of radioactive materials exceeding A_1/A_2 quantities as defined in DOE and NRC regulations.

c. DOE Contractor is a contractor managing or operating a Government-owned or -leased facility on behalf of the Department of Energy.

d. DOE Alternative is an administrative relief from DOE regulations that meets and provides equivalent health and safety protection.

e. DOT Specification Packaging is general packaging designed to meet requirements established by DOT for hazardous materials.

f. Equivalent Protection are those alternate measures which will achieve a level of safety at least equal to that specified in the regulations from which the alternative is sought, will be consistent with the public intent, and will provide adequate protection against the risks to life and property.

g. Hazardous Materials is a substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated. These materials are listed in the Hazardous Materials Table, 49 CFR 172.101.

h. Hazardous Substance is a material, and its mixtures or solutions, that is identified by the letter "E" in column 1 of the Table to 49 CFR 172.101 when offered for transportation in one package, or in one transport vehicle if not packaged, and when the quantity of the material therein equals or exceeds the reportable quantity (RQ). This definition does not apply to petroleum products that are lubricants or fuels or to a mixture or solution containing a material identified by the letter "E" in column 1 of the Table to 49 CFR 172.101 if it is in a concentration less than that shown in Figure 1 based on the RQ specified for the materials in column 2 of the table in 172.101.

RQ Pounds	RQ kilograms	Concentration by weight Percent	Concentration by weight PPM
5000.....	2270	10	100,000
1000.....	454	2	20,000
100.....	45.4	0.2	2,000
10.....	4.54	0.02	200
1.....	0.45	0.002	20

Figure 1
Reportable Quantities

i. Hazardous Waste is any material that is subject to the hazardous waste manifest requirements of the Environmental Protection Agency (EPA) as specified in 40 CFR 262.

j. Certifying Official is the designated Headquarters official responsible for administering the DOE program for the design review of DOE packagings and issuance of a certificate of compliance upon approval.

k. Package means, for radioactive materials, the packaging together with its radioactive contents as presented for transport.

l. Packaging means, for radioactive materials, the assembly of components necessary to ensure compliance with the packaging requirements of Title 49 CFR, subpart I. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for cooling or absorbing mechanical shocks. The conveyance, tie-down system, and auxiliary equipment may sometimes be designated as part of the packaging.

m. Radioactive Material is any material having a specific activity greater than 0.002 microcuries per gram (Ci/g).

n. Safety Analysis Report for Packaging is a document that provides a comprehensive technical evaluation and review of the design, testing, operational procedures, maintenance procedures, and quality assurance program to demonstrate compliance with the NRC regulatory safety standards, or equivalent standards established by the DOE for approving packagings and issuing certificates of compliance.

7. BACKGROUND. This Order standardizes the current approval procedures to ensure that DOE packaging designs and transportation operations provide for public health and safety in accordance with regulations of the DOT and in accordance with standards that are equivalent to the standards prescribed by NRC.

8. POLICY. It is Departmental policy to ensure that all packagings approved for use in transporting radioactive and other hazardous materials meet all applicable safety requirements.

9. RESPONSIBILITIES.

   a. Assistant Secretary for Defense Programs (DP-1).

      (1) Through the Director of Security Evaluations (DP-4).

         (a) Serves as the Certifying Official responsible for administering the program for the review of DOE Safety Analysis Reports for Radioactive Material Packagings for compliance with safety standards and upon confirmation, issues DOE Certificates of Compliance.

         (b) Administers the program for DOT Specification 7A certifications.

         (c) Reviews applications for NRC Certificates of Compliance and forwards applications to NRC as appropriate.

         (d) Reviews requests for International Atomic Energy Agency (IAEA) Certificates of Competent Authority and forwards such requests to the DOT.

         (e) Maintains a central records system at Headquarters for DOE and NRC Certificates of Compliance and IAEA Certificates of Competent Authority.

         (f) Develops and promulgates DOE policies and procedures for DOE radioactive materials packaging certification.

         (g) Terminates the Certificate of Compliance for a specific packaging for any deficiency that warrants such action.

         (h) Provides a central point of coordination between DOE Office of Operational Safety (EH-34), DOT, NRC, and IAEA on the interpretation of standards.

         (i) Assists public affairs in responding to inquiries related to radioactive material packaging certification and serves as lead in representing and defending DOE before other agencies on

issues related to radioactive material packaging certification policies.

(j) Develops and coordinates a training program for packaging certifications.

(k) Distributes DOE, NRC, and IAEA certificates to Headquarters Elements and operations offices.

(l) Maintains the Directory of DOE Certificates of Compliance for Radioactive Material Packagings and the compliance documentation for DOT Specification 7A Type A packagings.

(2) Through the Director of Defense Waste and Transportation Management (DP-12).

(a) Provides a central point of coordination between DOE and operations offices with DOT, NRC, IAEA, and other Federal agencies concerning packaging operational matters.

(b) Develops and promulgates administrative procedures for hazardous material packagings for transport.

(c) Administers the classification and registration program for explosives including the registration program interface with DOT.

(d) Assists line program managers in interpreting standards and regulations (DOE, DOT, NRC, and IAEA) for purposes of clarification, including interfacing with these organizations; evaluating the need for new packaging requirements; and providing guidance in the preparation of SARP's.

(e) In conjunction with responsible line program managers, administers a program to ensure adequate documentation of procedures and implementation of regulations involving radioactive materials packagings; the explosives classification and registration program interface with DOT; and coordination of program packaging activities.

(f) Conducts appraisals involving packaging operational functions administered by the operations offices.

(g) Plans, develops, and manages the Department-wide program for transportation packaging operations to assure compliance with applicable Federal and international packaging regulations.

(h) Provides leadership, technical guidance, and advice to other offices of the Department regarding compliance with radioactive and hazardous materials technical packaging standards and regulatory requirements.

(i) Assists public affairs and DOE programs in responding to packaging and transportation-related public or media inquiries.

(3) Through the Director of Safeguards and Security (DP-34), provides assistance in ensuring that classified matter relating to the packaging and transportation operations is administered in accordance with applicable policy, Orders, and procedures.

b. Assistant Secretary for Environment, Safety and Health (EH-1) Through the Director of Operational Safety (EH-34).

(1) Develops and interprets standards for radioactive and other hazardous materials packaging.

(2) Ensures that adequate procedures consistent with applicable regulations, standards, and DOE Orders are developed for conducting independent packaging design reviews.

(3) Provides a safety and compliance overview for certification and compliance actions that includes a technical review and analysis of safety considerations for the packaging and transportation of hazardous materials, hazardous substances, and hazardous wastes.

(4) Approves or disapproves requests for alternatives to DOE packaging safety regulations as required by DOE 5480.3

(5) Reviews DOE requests for DOT exemptions, exemption renewals, and party-to-exemptions (PTE), for submittal to DOT.

(6) Participates in program planning activities, as requested.

(7) Conducts safety overviews covering the implementation of DOE packaging safety requirements, including NRC packaging actions; DOT exemptions, renewals, and PTE requests; IAEA packaging actions; independent technical reviews for packaging compliance and certification actions; DOT Type 7A packaging certifications; and special form materials certifications and related actions.

(8) Maintains central Headquarters records system for DOE alternative actions; specification packaging actions; and DOT exemptions, renewals, and PTE requests.

(9) Provides a central point of coordination with DOT, NRC, IAEA, and other Federal agencies concerning new or revised packaging and transportation safety standards.

(10) Has final authority to terminate the use of a specific packaging based on safety deficiencies.

c. Heads of Headquarters Elements.

(1) Provide program technical guidance and assistance and resources in ensuring that safe packaging systems are available for the transportation of radioactive materials, explosives, and other hazardous materials.

(2) Ensure that operations offices and their contractors are in compliance with DOE's transportation packaging policy, applicable Orders, and regulations.

d. Managers of Operations Offices.

(1) Formally implement this Order and assign staff responsibility as necessary to accomplish its objectives.

(2) Take actions necessary to assure themselves that each SARP supports the application for a DOE Certificate of Compliance, and so state in the operations office transmittal letter to the Certifying Official.

(3) Provide preliminary design information for a proposed new packaging design to Headquarters and other operations offices in order to give them an opportunity to assess the potential for their use.

(4) Recommend and provide complete and accurate documentation to designated Headquarters Elements in support of requests for the following approvals:

(a) Defense Programs (DP-4) or appropriate Headquarters program element if serving as the applicant:

1 DOE Certificates of Compliance;

2 NRC Certificates of Compliance; and

3 IAEA Competent Authority Certificates.

(b) Defense Programs (DP-12) with copies to EH-34: Explosives Classifications.

(c) Environment, Safety and Health (EH-34) with copies to DP-12: DOT Exemptions, Renewals, and PTE requests.

(5) Request EH-34 approval for alternatives to DOE regulations and procedures, and provide to EH-34 a detailed report of the reasons why the alternative should be granted.

(6) Provide documentation to DP-4 in support of DOT Specification Type 7A actions and special form materials activities, and ensure that DOE contractors comply with the applicable regulations governing these actions and activities.

(7) Ensure that contracts under their cognizance which involve the packaging and transportation of radioactive materials and other hazardous materials contain provisions that require compliance with this Order.

(8) Suspend the use of specific packagings, when directed by EH-34, DP-12, or DP-4, as appropriate.

(9) Ensure that contractors provide documentation to the responsible operations office verifying compliance with applicable DOT Specification Type 7A and Type B requirements, and compliance with applicable special form material requirements.

(10) Ensure that contractors maintain those master records of SARP's for packagings which the contractor submits for certification, and maintain on file copies of operating procedures for purposes of distribution to other DOE users upon request.

(11) Ensure that contractors maintain complete documentation files for each Specification Type 7A, Type B, and special form material actions for those packagings being used by the contractor.

e. Manager of Chicago Operations Office, in addition to the requirements in subparagraph 9d, above, contracts on behalf of the Certifying Official for establishing centralized technical support in the review and evaluation of SARP's for DOE.

f. Managers of Albuquerque and San Francisco Operations Offices, in addition to the requirements in subparagraph 9d, above:

(1) Examine, classify, and approve shipping descriptions and the hazard class for new explosives.

(2) Provide documentation to Headquarters (DP-12) verifying that explosive classifications conform to DOT guidelines.

g. General Counsel (GC-1) provides advice and assistance relating to Federal, State, and local laws and regulations.

h. Assistant Secretary for Nuclear Energy (NE-1) Through the Deputy Assistant Secretary for Naval Reactors (NE-60).

(1) Assume the responsibilities of operations office managers for the Naval Reactors program.

(2) Assume the responsibilities assigned to officials in subparagraph 9a through b, above, for the Naval Reactors program as delineated below:

(a) Administer a program for Naval Reactors (NE-60) packagings including the design review and issuance of DOE Certificates of Compliance, approval or disapproval of requests for alternatives, termination of the use of a specific packaging for any deficiency that warrants such action, and interaction with other Federal agencies as appropriate.

(b) Ensure adequate documentation of procedures, regulations, and requirements involving NE-60 packaging.

(c) Conduct appraisals and safety overviews and audits contractor performance in programs related to NE-60 packaging activities.

(d) Maintain a central records system for NE-60 packagings and provides copies of Naval Reactors DOE Certificates of Compliance to the Certifying Official (DP-4) for the Headquarters central records system.

i. Director of Civilian Radioactive Waste Management (RW-1) Through the Director of Transportation and Waste (RW-33).

(1) Administers a program to develop packagings certified by the NRC through RW contractors in accordance with Title 10 CFR Part 71 and the requirements of page I-2, paragraph 3b(2) of this Order.

(2) Administers a program to ensure adequate documentation of procedures and regulations involving RW-33 packagings.

(3) Provides technical guidance and assistance to operations offices for the development of packaging systems for RW-33.

(4) Develops and maintains a quality assurance program in compliance with Title 10 CFR Part 71, subpart H.

(5) Ensures that RW packaging design contractors have completed and documented objective and independent evaluations for SARP's prior to the contractor's submission to the NRC.

(6) Provides design information and briefings relative to the development of new RW packaging designs to Headquarters and operations offices; coordinates potential cask designs with other DOE requirements; and evaluates potential packaging applications by other operations offices.

(7) Maintains central records system for RW-33 packagings and provides copies of NRC Certificates of Compliance to the Certifying Official for the Headquarter's Central records system.

10. IMPLEMENTING ADMINISTRATIVE PROCEDURES AND INSTRUCTIONS.

a. Chapters I through XII provide detailed administrative procedures and instructions relating to hazardous materials packaging.

b. DOE 5480.3 includes the technical procedures applicable to the preparation of safety analysis reports for packaging (SARP's).

BY ORDER OF THE SECRETARY OF ENERGY:

HARRY L. PEEBLES
Director of Administration

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CHAPTER XII - RULEMAKING REQUESTS FOR HAZARDOUS MATERIAL PACKAGING

CHAPTER I

GENERAL

1. PURPOSE. The administrative procedures prescribed in Chapter II through Chapter XII of this Order summarize the actions associated with the review and approval of packagings for the transportion of radioactive and other hazardous materials.

2. APPLICABILITY.

   a. The provisions of this Order are applicable to packagings used for transporting radioactive and other hazardous materials. Specifically these procedures cover:

      (1) DOE Certificates of Compliance;

      (2) DOT exemptions;

      (3) DOE alternatives;

      (4) NRC Certificates of Compliance;

      (5) IAEA Certificates of Competent Authority;

      (6) DOT Specification 7A Packaging Certification;

      (7) DOT Type B Specification Packaging;

      (8) Special form certification;

      (9) Other hazardous materials packaging;

      (10) Explosives Classifications; and

      (11) Rulemaking requests.

   b. This Order also includes the procedures to be followed in performing reviews based on DOE safety evaluations and certificates of compliance. The Order details the review and approval procedure that provides a basis for DOE to continue to assure DOT, NRC, and others not only that DOE packaging designs meet the regulations, but that the certification process is equivalent to that of NRC.

3. USE OF DOE, NRC, AND DOT APPROVED PACKAGING

a. DOE-Approved Packaging. Operations offices and DOE contractors may use any packaging whose design has been certified by DOE, provided the user shall:

(1) Possess a copy of the latest DOE Certificate of Compliance;

(2) Possess a copy of the SARP or at a minimum a copy of the drawings and operating and maintenance instructions for the specific packaging;

(3) Comply with all actions and restrictions specified in the documents described above;

(4) Ensure that the organization is registered as a user of the packaging with the Certifying Official; and

(5) Ensure that a quality assurance program is established to meet the requirements of the packaging. All contractors must be required to establish and maintain an appropriate quality assurance and maintenance program to ensure that DOE-certified packagings in use continue to meet the provisions of the certification and SARP.

b. NRC-Approved Packaging.

(1) DOE contractors may use any NRC-certified packaging provided:

(a) The packaging is used in accordance with the limitations specified in the certificate of compliance.

(b) The use of the packaging is not prohibited by DOE 5480.3.

(c) The contractor complies with the requirements of page V-1, paragraph 2a.

(d) The DOE is registered as a user, and the contractor possesses a copy of the latest NRC Certificate of Compliance.

(2) All requests for NRC Certificates of Compliance by operations offices and/or their contractors shall be directed to DP-4 in accordance with Chapter V. If any of the above organizations contract with an outside contractor to develop and obtain an NRC-certified packaging, the request for the certificate of compliance need not be coordinated through DP-4 provided that the operations office or DOE contractor does not participate in obtaining the NRC certification. However, DP-4 should be furnished preliminary design information so as to avoid any duplication of effort and for distribution to other

Departmental Elements having a potential interest. All requests for the registering Departmental Elements as a user of a NRC-certified packaging must be through DP-4.

(3) Each operations office shall ensure that their contractors establish and maintain an appropriate quality assurance and maintenance program to ensure that NRC-certified packagings in use continue to meet the provisions of the certification and SARP. Each operations office will be evaluated on its contractor's transportation quality assurance and maintenance program as part of the Headquarters packaging and transportation appraisal.

c. DOT Specification Containers. Packaging designs which have been published in the DOT Hazardous Materials Regulations (Title 49 CFR, Parts 171-178) as specification packagings may be used by operations offices and contractors provided that all provisions of the DOT specification and applicable quality assurance requirements (equivalent to those defined in Title 49 CFR, Part 173) are met, and provided that use of the packaging is not prohibited by DOE 5480.3.

d. DOE Orders. DOE 1540.1 and 5480.3 require that all packaging systems meet safety standards that meet DOT packaging standards and are equivalent to the applicable NRC packaging standards. The administrative requirements in DOE 1540.1 and technical requirements in DOE 5480.3 will provide Departmental evaluators with a consistent policy, established safety standards, and interpretations consistent with applicable Orders; Title 49 CFR, Parts 171-199; and Title 10 CFR, Part 71.

CHAPTER II

DEPARTMENT OF ENERGY CERTIFICATES OF COMPLIANCE

1. PURPOSE. The following procedures are to be followed in issuing DOE Certificates of Compliance for packaging used to transport those radioactive materials for which packaging design approval is required by DOE regulations. DOE F 5822.1 "Certificate of Compliance" (Figure II-1) is the form used for certifying that a packaging design complies with applicable DOE requirements and packaging standards.

2. PROCEDURES. Prior to the issuance of a Certificate of Compliance, a SARP shall have been prepared by the packaging designer in the format described in the NRC Regulatory Guide 7.9 (Figure II-2). The following procedures apply to the preparation of the SARP, its submission to DOE for review and approval, and the preparation and distribution of the resulting certificate of compliance.

   a. Preparation of Safety Analysis Report for Packaging by Contractor.

      (1) All Type B and fissile material packaging designs certified by DOE must be supported by a SARP which demonstrates that the packaging design meets the packaging standards specified by DOE 5480.3.

      (2) The SARP must include a description of the proposed packaging in sufficient detail to identify the packaging accurately and provide the basis for evaluating the packaging.

      (3) Detailed instructions for operations and maintenance shall be included.

      (4) The SARP shall also:

         (a) Include a description of the quality assurance program for the design, fabrication, assembly, testing, maintenance, repair, modification, and use of the proposed packaging;

         (b) Identify established codes and standards proposed for use in package design, fabrication, assembly, testing, maintenance, and use. In the absence of any codes and standards, the applicant shall describe the basis and rationale used to formulate the packaging quality assurance program; and

         (c) Identify any specific provisions of the quality assurance program which are applicable to the particular packaging design under consideration, including a description of the leak test procedure.

DOE F 5822.1
(5-85)
(Formerly EV-618)

U.S. DEPARTMENT OF ENERGY
CERTIFICATE OF COMPLIANCE
For Radioactive Materials Packages

OMB Approval
No. 1910-2000

1a. Certificate Number	1b. Revision No.	1c. Package Identification No.	1d. Page No.	1e. Total No. Pages.
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2. PREAMBLE

2a. This certificate is issued under the authority of 49CFR Part 173.7 (d).

2b. The packaging and contents described in item 5 below, meets the safety standards set forth in subpart E, "Package Approval Standards" and subpart F, "Package and Special Form Tests" Title 10, Code of Federal Regulations, Part 71.

2c. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. This certificate is issued on the basis of a safety analysis report of the package design or application —

(1) Prepared by *(Name and address)*:	(2) Title and identification of report or application:	(3) Date:
DOE Operations Office (Address)	Safety Analysis Report for Packaging XYZ Company	Mo/Day/Year

4. CONDITIONS

This certificate is conditional upon the fulfilling of the applicable Operational and Quality Assurance requirements of 49CFR parts 100-199 and 10CFR Part 71, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References:

(a) Packaging
  (1) Model No.:
  (2) Description
  (3) Drawings

(b) Contents
  (1) Type and form of material
  (2) Maximum quantity of material per package

(c) Fissile Class

(d) Conditions
  (1) Limitations
  (2) Restrictions

REFERENCES

6a. Date of Issuance: Month/Day/Year	6b. Expiration Date: Month/Day/Year
FOR THE U.S. DEPARTMENT OF ENERGY	
7a. Address *(of DOE Issuing Office)*	7b. Signature, Name, and Title *(of DOE Approving Official)*
US Department of Energy Washington, DC 20545 Attention: DP-4	/s/ Headquarters Certifying Official

Figure II-1
DOE CERTIFICATE OF COMPLIANCE

INTRODUCTION

GENERAL INFORMATION

Introduction
Package Description

STRUCTURAL EVALUATION

Structural Design
Weights and Centers of Gravity
Mechanical Properties of Materials
General Standards for All Packages
Standards for Type B and Large Quantity Packaging
Normal Conditions of Transport
Hypothetical Accident Conditions
Special Form
Fuel Rods

THERMAL EVALUATION

Discussion
Summary of Thermal Properties of Materials
Technical Specifications of Components
Thermal Evaluation for Normal Conditions of Transport
Hypothetical Accident Thermal Evaluation

CONTAINMENT

Containment Boundary
Requirements for Normal Conditions of Transport
Containment Requirements for the Hypothetical Accident Conditions

SHIELDING EVALUATION

Discussion and Results
Source Specification
Model Specification
Shielding Evaluation

CRITICALITY EVALUATION

Discussion and Results
Package Fuel Loading
Model Specification
Criticality Calculation
Critical Benchmark Experiments
Fissile Class

OPERATING PROCEDURES

Procedures for Loading the Package
Procedures for Unloading the Package
Preparation of an Empty Package for Transport

ACCEPTANCE TESTS AND MAINTENANCE PROGRAM

Acceptance Tests
Maintenance Program

Figure II-2
SARP Format

b. Internal Review of SARP by Contractor.

(1) DOE contractors shall be required to conduct a formal internal review of the SARP prior to submission to the operations office.

(2) Each contractor may make use of outside consultants or other contractors as necessary for a SARP review. A report concerning the review participants, procedures and methods of review, comments and resolutions shall be prepared and available for audit by the responsible operations office.

c. Submittal of SARP to Operations Office.

(1) After the internal evaluation has been completed and necessary changes have been made to the SARP, the contractor shall be required to submit the final draft of the SARP along with the internal review report to the appropriate operations office.

(2) The operations office shall take all actions necessary to assure themselves that the SARP is complete and supports the application for a DOE Certificate of Compliance.

d. Submittal of SARP to DOE Headquarters. Eight copies of the SARP shall be submitted by the operations office or the Headquarters program element, as appropriate, to the Certifying Official (DP-4) with a supporting memorandum as to the completeness and adequacy of the SARP.

e. Review of SARP by the Certifying Official. The Certifying Official shall:

(1) Establish in advance, when necessary, procedures to witness any field performance tests on which the determination of packaging adequacy is based.

(2) Formally conduct centralized technical reviews of each SARP and ensure that all technical concerns have been addressed and that all corrections resulting from the review are made prior to final publication and distribution.

(3) Ensure that all fabrication inspections and procedures required by quality assurance plans are identified and include provisions that ensure they will be followed. Inspections during fabrication will be the responsibility of the contractor, and the documentation should be available for review by DOE. The vendor's quality assurance records will be subject to review, and the quality assurance plan shall be documented in the SARP.

(4) Ensure that the regulatory requirements are documented in adequate depth and clarity.

(5) At any time require additional information in order to determine if a certificate of compliance should be granted, denied, modified, suspended, or revoked.

(6) Maintain an auditable record of the review process, procedures used for review, definition of all issues raised, findings, and criteria by which the packaging design was evaluated.

f. Preparation and Issuance of Certificate of Compliance.

(1) Upon completion of a satisfactory DOE review of the SARP by the Certifying Official, the Official shall prepare and issue a DOE Certificate of Compliance using DOE F 5822.1 (Figure II-1). Each certificate shall be signed by the Certifying Official or a formally designated representative and shall contain at a minimum the information described below. To avoid administrative problems, the certificate should not reference any documents that contain classified information or other information that is not available to the public.

(a) Certificate Number (Block 1a). A four-digit number will be assigned for new certificates from the following blocks of numbers:

NRC:	9001-9500	NR:	9781-9840
AL:	9501-9560	NV:	9841-9850
CH:	9560-9595	OR:	9851-9900
GJ:	9596-9600	RL:	9901-9930
HQ:	9601-9760	SAN:	9931-9960
ID:	9761-9780	SR:	9961-9999

(b) Revision Number (Block 1b). Certificate revisions must be identified in block 1b. Revisions and revision numbers may be issued only by the Certifying Official. The revised portion shall be highlighted by a "change indicator" mark consisting of a bold vertical line drawn in the margin opposite the binding margin. The line shall be the same length as the portion actually changed.

(c) Package Identification (Block 1c). This is the symbol that is marked on the packaging and in the shipping papers in accordance with DOT regulations. The packaging does not need to be remarked for certificate revisions involving changes in authorized contents, expiration dates, reference documents, or other changes not involving packaging design changes. A

significant modification affecting the design and contents may require a revision marking on the packaging exterior. This number includes a prefix, a unique identification number, a type code, and a suffix:

1 Prefix. The letters "USA".

2 Identification Number. Identical to four-digit number in the block 1a.

3 Type Code. A single- or multi-letter designation of the type of proposed use of the package as follows:

a A - Type A package design. (Only used for Type A fissile packaging.)

b B(U) - Type B packaging design that fully complies with all regulatory requirements and IAEA regulations. The letter (U) is for IAEA use and means that only unilateral approval by the originating country is required.

c B(M) - Type B package design that contains some exceptions but meets type B(M) requirements. The letter (M) is for IAEA use and means that multilateral approval is required between the originating country and the receiving country as well as other countries that might be affected by shipments through their territory.

d F - Fissile materials package design.

e B( ) - Packaging for domestic use (usually older packagings) that have not been evaluated against B(U) or B(M) criteria.

4 Suffix. The certificate shall designate that it is for DOE use only.

5 Example. USA/9860/B(U)F (DOE).

(d) Page Number (Blocks 1d and 1e). The cover (signature) page is always page 1. The total number of pages in the certificate is noted in block 1e. All pages must be numbered, dated, and identified by the certificate of compliance number.

(e) SARP Identification (Block 3). This identifies the operations office responsible for submittal of the SARP and to whom the certificate should be issued.

(f) Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References (Block 5).

1 Packaging or Vehicle Containment System. A description of the materials of construction, gross weight, general external and internal dimensions, appearance, method of closing, and model number.

2 Authorized Contents. A brief description of the physical and chemical forms; the approximate quantities (including radionuclides, if appropriate), in curies; amounts, in grams (for fissile materials); criticality transport index number for fissile materials packages; expected heat removal capacity (in Btu/hr); and any restrictions on the contents that might not be obvious from the nature of the packaging. If appropriate, International System (SI) units may be provided parenthetically, in addition to English units. Additional pages may be added for additionally authorized contents. Comingling restrictions for contents should be identified if appropriate.

3 Limitations and Restrictions. This shall include:

a Any areas in which the packaging design is not fully in compliance with the DOE regulations; and

b Any restrictions on the use of the packaging with regard to modes of transport, types of vehicles, freight containers, or supplementary operational requirements. Such restrictions may require the issuance of a DOT exemption from some part of the DOT regulations.

4 Other References. Used as required.

(g) Dates (Block 6). These dates are the date of issue and the expiration date. The expiration date will be 5 years after approval or less if appropriate.

(h) Approval Signature (Block 7). This signature shall be the Certifying Official or the Deputy Assistant Secretary for Naval Reactors, as appropriate, or their designated representative.

(i) Appendices. Alternative package contents, other necessary technical data or information, and modifications and amendments shall be listed in an appendix. The above documents must also be available for adequate understanding of the limits and use of more complex packaging.

(2) The Certifying Official shall maintain a master packaging file for each certificate of compliance, containing as a minimum:

(a) The final SARP;

(b) The operations office application;

(c) The latest approved certificate of compliance;

(d) Reproducible drawings of packaging showing the general makeup of the packaging and an artist's concept;

(e) Applicable operations and maintenance instructions;

(f) Quality assurance plan; and

(g) Other pertinent information, as appropriate.

(3) Each master packaging file shall also contain:

(a) Any subsequent amendments or revisions to the SARP or certificate of compliance;

(b) Results of any subsequent reviews of any amendments or revisions;

(c) Updated list of users for the specific packaging; and

(d) Any subsequent modification to the packaging.

g. Distribution of Certificates of Compliance and Supporting Documents.

(1) The Certifying Official shall provide the following distribution:

(a) Assistant Secretary for Environment, Safety, and Health (EH-34). One copy of the certificate of compliance.

(b) Heads of Headquarters Organizations. One copy of the certificate of compliance.

(c) Operation Offices. One copy of the certificate of compliance.

(d) Naval Reactors. One copy of the certificate of compliance to the Pittsburgh Naval Reactors Office, and one copy to Schenectady Naval Reactors Office.

(2) The operations office to whom the certificate is issued shall, upon request by other users, be responsible for providing additional documentation (i.e., operations and maintenance procedures, and quality assurance plans).

(3) If an NRC Certificate of Compliance or an IAEA Certificate of Competent Authority is also required, the distribution requirements set forth in Chapters V and VI must be followed.

(4) Copies of the SARP or operating and maintenance and drawings normally will be distributed directly by the operations office to their contractors.

(5) Classified SARP's shall be forwarded through the cognizant operations office in accordance with applicable security procedures.

h. Expiration Date. An expiration date shall be assigned to each certificate of compliance. The expiration date shall provide no more than 5 years of validity and should be less if conditions warrant. A blank expiration date will invalidate the certificate. The Certifying Official will reissue within a prescribed period of time to be determined those active certificates of compliance which do not have an expiration date, and otherwise meet the provisions of this Order.

i. DOE Certificate of Compliance Processing Times. The application for a DOE Certificate of Compliance shall be made on a timely basis. A response to the applicant by the Certifying Official will be provided within 60-90 days from receipt. If additional information is required, timing will depend upon the applicant's response to the Certifying Official's request for information and to subsequent questions which may evolve.

j. Renewal of Certificates of Compliance.

(1) Ninety days prior to the expiration date of a certificate the contractor requesting the renewal shall submit documentation to the Certifying Official through the responsible operations office justifying renewal of the certificate. Such documentation shall include, but not be limited to:

(a) The necessity for renewing the certificate;

(b) That the SARP has been reviewed and complies with applicable requirements and standards; and

(c) A summary of the history of past usage.

(2) Upon review and approval by the Certifying Official a revised certificate with a new expiration date shall be issued. A copy of

the certificate shall be provided to EH-34, each operations office, and to each user of the certificate (see paragraph 2f(1)).

(3) Operations offices which do not intend to request renewal of a certificate issued to their organization should notify all other operations offices 120 days prior to the expiration date of the certificate. If another operations office requires the continued use of the packaging, that office may request a renewal from the Certifying Official. The request should follow the requirements set forth in subparagraph i(1) above, for renewal of DOE Certificates of Compliance. The new issuing office will be designated on the revised certificate.

k. Cancellation of Certificates of Compliance. The use of any certified packaging will be terminated when it is no longer approved by a valid certificate of compliance. Cancellation of DOE Certificates of Compliance shall be made only by the Certifying Official. Recommendations for cancellation may be made by any program or operations office. Notification of the reason(s) for cancellation must be provided to the Certifying Official (telephone immediately with follow-up in writing within 10 days). All DOE Elements will be given 60 days to show cause why the certificate should not be cancelled.

l. Packaging Documentation Revisions.

(1) Certificate Revisions. The issuance of a revised DOE certificate is required only for substantive changes to approved packaging designs. Changes in existing certificates of compliance can only be made by the Certifying Official. Requests for revisions may be made by operations offices who must submit the supporting documentation required for the Certifying Official to evaluate and to process any authorized revisions. Revisions to certificates shall be highlighted by vertical lines in the right hand margin.

(2) SARP Revisions. If changes are made to the approved packaging design, the SARP must be reviewed for possible modification prior to initiating changes to the DOE Certificate of Compliance. These revisions may be implemented through supplements, amendments, or in the case of extensive changes, complete revisions to the SARP. All modifications to the SARP require internal review by the contractor and DOE review. Issuance of a revised DOE certificate is required only for substantive changes to approved packaging designs.

m. Packaging Directory. DP-4 will maintain a directory of DOE Certificates of Compliance for radioactive material packagings.

CHAPTER III

DEPARTMENT OF TRANSPORTATION EXEMPTIONS

1. PURPOSE. The procedures set forth in this chapter are to be used in obtaining DOT exemptions, renewals, and party-to-exemptions (PTE) pursant to Title 49 CFR of the DOT Hazardous Materials Regulations.

2. PROCEDURES.

   a. Requirements for Use of DOT Exemptions. DOT exemptions may be used by DOE and its contractors provided the exemption is either issued to DOE or DOE is a party to an exemption. The user must possess a copy of the exemption. The user must provide usage data to the operations office responsible for maintaining the exemption.

   b. Requests for Exemptions, Renewals, and Party-to-Exemptions. All requests for DOT exemptions, renewals, and/or PTE's will be made by the originating operations office to EH-34 for review and submission to DOT with a copy to DP-12.

      (1) Exemption Requests. The conditions under which DOT will issue an exemption are set forth in Title 49 CFR Part 107 of the DOT Hazardous Materials Regulations. All requests for DOT exemptions will be submitted in the format required in Part 107. The format for sub-paragraphs a - d shown below must be used.

         (a) Submitted to: Office of Hazardous Materials
         U.S. Department of Transportation
         Washington, DC 20590
         ATTN: Exemptions Branch (DMT-231)

         (b) Regulation Affected: Title 49 CFR Part 173.206. This is a request for an exemption from the "packaging requirements of Title 49 CFR Part 173.206" which...

         (c) Applicant: U.S. Department of Energy
         Washington, DC 20545
         ATTN: Director of Transportation and Facility Safety, EH-34
         Contact: Packaging and Transportation Safety Program Manager, EH-34
         (Telephone Number)

         (d) Proposed Packaging: (a complete description of the proposed packaging)

(2) Renewal Requests. The conditions under which DOT will issue an exemption renewal is set forth in Title 49 CFR Part 107. Requests for renewals should be reviewed by users to determine if an exemption should be renewed. The operations office shall justify the continued need for an exemption.

(a) If the decision is made for renewal, a written summary of usage (number of shipments and shipping experience) will be obtained from all users. The information will be consolidated by the operations office and formatted for submission to EH-34.

(b) If an exemption is not to be renewed, written notification must be made to EH-34 and all registered users.

(3) Party-to-Exemptions Requests. The conditions under which an organization may request to be a party to an exemption are set forth in Title 49 CFR Part 107.

c. Expiration Date Requirements. Normally exemptions are issued for 2 years. If there is a continuing need for the exemption beyond the expiration date, a formal renewal of the exemption must be submitted to DOT through EH-34 at least 60 days prior to the expiration date. PTE's must be renewed every 2 years also.

d. Records. EH-34 maintains a master file of exemptions used by DOE. Each operations office maintains records of usage for each exemption for which they are responsible.

e. DOT Exemption Processing Times.

(1) DOE operations office processing: 30 days.

(2) DOE Headquarters processing: 30 days.

(3) DOT processing.

(a) New exemption: 120 days.

(b) Timely renewal: 60 days. (Timely renewal requires application to DOT at least 60 days prior to the expiration date.)

(c) Party-to-exemption: 30 days.

f. Make, Mark, and Manufacturer's Exemptions. These are DOT exemptions granted to packaging manufacturers and related to specific packagings and commodities.

(1) Anyone may use packagings covered under these exemptions; however, it may be necessary that a copy of the exemption accompany a shipment.

(2) Users should be alert to the specific restrictions outlined in the exemption.

(3) The administrative procedures for renewal of an exemption include publication in the Federal Register only. DOE users should contact the exemption holder or EH-34 to determine that the exemption is still valid. If the exemption to the manufacturer expires that packaging cannot be used.

CHAPTER IV

DEPARTMENT OF ENERGY ALTERNATIVES

1. PURPOSE. The procedures prescribed in this chapter are to be followed in granting alternatives to requirements set forth in DOE 5480.3 for shipments made via government-owned conveyances operated by DOE employees or authorized DOE contractor personnel.

2. PROCEDURES.

   a. Requirements for use of DOE Alternatives. The DOE alternative must be issued to the operations office applying for the alternative to support a shipment or series of shipments by designated DOE contractor(s). The user must have a copy of the DOE alternative.

   b. Requesting Offices. The operations office requesting an alternative is responsible for meeting the requirements set forth in DOE 5480.3. Such alternatives must provide for protection equivalent to those prescribed by DOT regulations.

   c. Submittal of Requests. All requests for new DOE alternatives must be submitted to EH-34 at least 120 days prior to the need date. Each request for an alternative must specify an expiration date not to exceed 2 years. If there is a need for the DOE alternative beyond the expiration date a formal renewal request must be submitted to EH-34 at least 90 days prior to the expiration date. EH-34 shall review the request and approve or disapprove an alternative. Upon approval the DOE alternative will be assigned a sequential identifying number and the requestor notified that the alternative is approved. A copy of the approval and backup data will be provided to DP-12. An alternative is considered under timely renewal and remains in effect provided the renewal request is received by EH-34 at least 60 days prior to the expiration date.

   d. Reports. Within 30 days after granting or denying an alternative, EH-34 shall provide in accordance with sub-paragraph a, above, a detailed report of the reasons for granting the alternative.

   e. Documentation Requirements. The DOE alternative shall:

      (1) Set forth the text or substance of the regulation from which the DOE alternative is sought.

      (2) State the name, address, and telephone number of the applicant.

      (3) Include a detailed description of the proposal, including when appropriate: drawings; plans; calculations; procedures; test results;

previous alternatives; approvals or permits; a list of specification containers; a list of modified specification containers to be used; a description of the modifications; and any other supporting information.

(4) State the chemical name, common name, hazard classification, form, quantity, properties, and characteristics of the material covered by the proposal, including composition and percentage (specified by volume or weight) of each chemical, if a solution or mixture.

(5) Describe all relevant shipping and accident experience.

(6) Specify the proposed mode of transportation, identify any increased risks that are likely to result if the DOE alternative is granted, and specify the safety control measures which the applicant considers necessary or appropriate to compensate for those increased risks.

(7) Specify the proposed duration or describe the proposed schedule of events for which the DOE alternative is sought.

(8) State why the applicant believes the proposal and safety control measures specified therein by the applicant will achieve a level of safety which:

(a) Is at least equal to that specified in the regulation from which the DOE alternative is sought; or

(b) If the regulations do not contain a specified level of safety, will be consistent with the public interest and will adequately protect against the risks to life and property which are inherent in the transportation of hazardous materials in commerce.

(9) The DOE alternative must contain the statement, "Shipments must be made via public vehicles or aircraft operated by DOE employees or authorized DOE contractor personnel."

CHAPTER V

NUCLEAR REGULATORY COMMISSION CERTIFICATES OF COMPLIANCE

1. PURPOSE. These procedures are to be followed by DOE in obtaining an NRC Certificate of Compliance for DOE packagings.

2. PROCEDURES.

   a. Requirements for Use of NRC-Certified Packagings. Packaging for which the NRC has issued a certificate of compliance may be used by DOE and DOE contractors without further review and certification, provided that the Department is registered as a user or the certificate is issued to DOE, and that all of the conditions of the NRC certificate are met, and the use of the packaging is not prohibited by DOE 5480.3. Specifically, the using contractor shall:

      (1) Possess a copy of the latest NRC Certificate of Compliance;

      (2) Possess a copy of the operating and maintenance instructions as specified in the license application for the packaging; and

      (3) Have an established quality assurance program equivalent to 10 CFR Part 71, subpart H.

   b. Requests for NRC Certificates of Compliance.

      (1) Applications for an NRC Certificate of Compliance shall comply with the requirements of Title 10 CFR, subpart D and be in the format described in the NRC Regulatory Guide 7.9.

      (2) Upon completion of the DOE packaging review and approval process, the request, eight copies of the SARP (in addition to the eight copies of the SARP required for DOE certification), DOE certificate of compliance, applicable drawings, and the DOE evaluation report, shall be forwarded to the Certifying Official for filing with the NRC.

      (3) All formal communications between operations offices or their contractors and NRC or DOT regarding certifications will be transmitted through DP-4.

      (4) Headquarters processing times for requests for NRC certificates range from 14 to 30 days, depending upon the complexity and the issues associated with the packaging. NRC processing times for new applications are 3 to 4 months to identify issues and 1 to 1 1/2 years for approval if there are issues to be resolved. Amendments require approximately 1 to 2 months to identify issues.

c. NRC Licensee Use of DOE-Certified Packagings. Traffic between NRC licensees and DOE contractors requires NRC certified packagings.

d. Requests for Renewal of NRC Certificates of Compliance.

(1) Applications for the renewal of NRC Certificates of Compliance issued to DOE or its contractors shall be sent to the Certifying Official 60 days prior to the expriration date. Several certificates issued to contractors that are currently valid will be revised when a renewal is requested. The applications should provide the same information as required for the renewal of DOE Certificates of Compliance (See page II-9, paragraph 2j). DOE cannot request the renewal of an NRC Certificate of Compliance issued to a non-DOE organization unless that organization provides to NRC in writing their intent to relinquish their responsibility as the organization to which the certificate was issued.

(2) NRC must receive renewal requests 30 days prior to the expiration date to ensure timely renewal.

CHAPTER VI

INTERNATIONAL ATOMIC ENERGY AGENCY CERTIFICATES OF COMPETENT AUTHORITY

1. PURPOSE. These procedures are to be used to obtain appropriate IAEA approvals for the export/import of radioactive materials shipments.

2. PROCEDURES.

   a. Requirements. Radioactive material packaging approved for use within the United States (DOE and NRC certificates, and DOT specification packagings) must receive additional approval in the form of a U.S. Competent Authority Certificate for shipments into foreign countries. Similarly, any foreign packaging requires an IAEA certificate and domestic revalidation by the U.S. Competent Authority for shipments into or from the United States. These approvals are in the form of IAEA Certificates of Competent Authority.

      (1) Degrees of Approval.

         (a) Multilateral Approval. Approval by both the appropriate competent authority of the country of origin and of each country through or into which the shipment is to be transported.

         (b) Unilateral Approval. Approval by the competent authority of the country of origin only.

      (2) Type B Packaging Categories.

         (a) Type B(M) Packaging. For international shipments, Type B(M) packaging requires multilateral approval of the packaging design and may require approval of the conditions of shipment. Type B(M) packagings are those Type B packaging designs that have a maximum normal operating pressure of more than 700 kPa (100 psi) guage or a relief device that would allow the release of material under accident conditions. Certain countries generally require multilateral approval of most Type B packagings.

         (b) Type B(U) Packaging. For international shipments, Type B(U) packaging requires unilateral approval only (by the country of origin) of the packaging design and of any stowage provisions that may be necessary for heat dissipation. The Type B(U) package destination will usually require that the packaging meets the IAEA regulations (Safety Series No. 6, 1973 Edition, as amended) in all respects.

(3) Types of Certificates.

(a) IAEA Certificate of Competent Authority is issued by national competent authorities to certify packaging suitability and compliance to other authorities.

(b) U.S. Certificate of Competent Authority is issued by the U.S. DOT (the competent authority for the United States) and used by domestic shippers to certify the suitability and compliance of domestic packaging to foreign competent authorities.

(c) Validation Certificate is the multilateral approval for accepting a packaging approved by a national competent authority. This generally takes the form of an endorsement on the original certificate or the issuance of a separate endorsement, annex, or supplement. A certificate is typically issued by DOT to certify acceptance of an IAEA certificate received from a foreign competent authority.

(4) Functions Requiring Certification.

(a) Packaging Design Approval. A copy of the current U.S. Competent Authority Certificate covering the approval of a packaging design is sent prior to shipment to the competent authority of each country into or through which the package will be transported (see Title 49 CFR Part 172).

(b) Export Shipment Approval and Notification. The approval and notification defines shipment dates and periods of time for which the aproval is sought, contents, identification, modes of transportation, type of conveyance, routes, and special controls in effect. This should be delivered to the foreign competent authorities at least 15 days before a shipment is dispatched. If it is a multilateral-approval packaging or one requiring special arrangements because the package does not comply with the IAEA regulations, foreign approvals shall be obtained before the shipment departs the point of origin.

b. Competent Authority Approvals. Requests for IAEA Certificates of Competent Authority should be forwarded to Headquarters (DP-4) with four copies of the supporting documentation 60 days prior to the effective date. (The DOT requires at least 45 days prior to the requested effective date to process the request.)

c. International Approvals. The DOT is the authorized agency to administer the issuance of international approvals. Foreign packaging of origin may only be used for import/export shipments provided that an IAEA certificate has been issued and a U.S. endorsement has been granted.

(1) General Import/Export Requirements. Import/Export Shipments, Domestic or Foreign Packaging (see Title 49 CFR Part 171). Any radioactive material scheduled for either import into the United States, or export from the United States in the course of being shipped between locations outside the United States may be transported in accordance with IAEA regulations if:

(a) U.S. regulations pertaining to shipping papers and placarding are followed;

(b) IAEA Competent Authority Certificates and necessary revalidations are obtained and the requirements of these certification documents are met (Type B and fissile packages);

(c) Type A packaging is limited to Type A (A_1 or A_2) quantities (see Title 49 CFR Part 173); and

(d) The country of origin has adopted current IAEA regulations, as amended, and the certificate of compliance states that the packaging meets these requirements.

(2) DOE Use of IAEA-Certified Packaging. Each DOE contractor using a packaging for export whose design has an IAEA certification shall be required to:

(a) Have a copy of the current U.S. Certificate of Competent Authority (for domestic packaging) or a copy of the U.S. Certification Revalidation (for foreign packaging);

(b) Have a copy of the drawings and operating and maintenance instructions for the specific packaging;

(c) Comply with the requirements and limitations in the subparagraphs above;

(d) Have the package marked with, and the shipping paper contain, the package identification marking indicated on the DOE and NRC approval, or as otherwise indicated by the IAEA certificate; and

(e) Prior to first use, ascertain that the DOE is a registered user of the certificate. If DOE is not registered as a user, the appropriate operations office should submit a request to DP-4 to register DOE as a user.

(3) IAEA Certificate Requirements.

(a) Design Approval - Export. Design Approval for Export of DOE/NRC Approved Packagings (see Title 49 CFR Part 173):

1. To become a user of an existing certificate, DOE shall register as a user of the U.S. Certificate of Competent Authority prior to the first export shipment. All requests will be forwarded through DOE Headquarters (DP-4) to DOT. This provision also applies to DOT specification containers for shipments of radioactive material.

2. Requests for a new U.S. Competent Authority Certificate shall be submitted at least 60 days in advance of a need for a certificate via the responsible operations office to Headquarters (DP-4). Requests shall include four copies of the applicable DOE/NRC Certificate of Compliance and reproducible drawings not larger than 8-1/2 x 11 inches that depict the make-up of the packaging. DP-4 shall forward two copies of the request to the DOT, in such time that it will be received 45 days prior to the effective date.

3. The consignor shall ensure that a copy of the U.S. Certificate of Competent Authority has been forwarded to the national competent authority for each country into or through which the Type B(M) package will be transported prior to dispatching the shipment.

(b) Design Approval - Import/Export. Design Approval for import/export shipments, including all foreign-made packaging (Type B and fissile materials) must have the IAEA Certificate of Competent Authority revalidated by the DOT before U.S. entry or export is permitted. This may be done at the request of the foreign competent authority for the country of origin or it may be at the request of a consignee receiving a foreign shipment. The DOE contractor must determine that DOE is registered as a user of a foreign competent authority certificate and the certificates revalidation prior to export. Normally, this registration will automatically occur with the initial request. Foreign packagings used for domestic shipments will require the issuance of either a DOE or NRC Certificate of Compliance prior to use. All correspondence should be routed via the responsible operations office to DP-4. Copies of the certificate and revalidation should be furnished to the carrier.

(c) Export Shipment Approvals for Type B Packagings. Any export shipment (domestic and/or foreign packaging) involving vented Type B(M); Type B(M) with highway route controlled quantities; Fissile Class III; or special shipping arrangements requires an application for shipping approval to be forwarded by DOE Headquarters (in cooperation with DOT) to the foreign competent authority. The notification of approval must be delivered prior to making a shipment. These requirements reflect the various independent requirements of the individual countries that may require additional documentation. The packaging and shipping approvals may be combined into a single approval. Each application for shipment approval shall include:

1. The period of time for which the approval is requested;

2. The description of contents, expected modes of transport, type of vehicle, and proposed route; and

3. The special procedures and administrative/operational controls being implemented in accordance with the design certificate.

(d) Export Shipment Notifications. Any export shipment of a domestic or foreign packaging involving Type B(U) packaging with highway route controlled quantities (see Title 49 CFR Part 173); Type B(M) packaging; Fissile Class III; or special arrangements, requires a notification of shipment initiation to the competent authority of each country involved. Notification must be delivered at least 15 days before a shipment starts. The packaging approval, shipping approval, and notification may be included in the same request. The shipper notification includes:

1. Information required for packaging identification; and

2. Date of shipment, expected date of arrival, and proposed routing.

(e) Special Form Certifications. Under the DOT regulations (see Title 49 CFR Part 173) and the IAEA regulations, radioactive material shipped as "special form" must have been first certified by a national competent authority as meeting the IAEA requirements for special form based on encapsulation or physical characteristics. This certification is not required for U.S. domestic shipments, but is required for import and export shipments. The DOT issues certificates upon request. Such requests must contain the information required by IAEA regulations and shall be submitted to DOT through the

appropriate operations office and Headquarters (DP-4). As a minimum, the request shall contain information as follows:

1. A detailed description of the material or, if a capsule, the contents. Particular reference must be made to both physical and chemical forms;

2. A detailed statement of the design of any capsule to be used, including complete engineering drawings and schedules of material and methods of construction; and

3. A statement of the tests that have been completed and their results, evidence based on calculative methods to show that the material is capable of meeting the tests, or other evidence that the special form radioactive material meets the requirements of Title 49 CFR Part 173.

CHAPTER VII

DEPARTMENT OF TRANSPORTATION SPECIFICATION 7A PACKAGING CERTIFICATIONS

1. PURPOSE. These procedures are to be followed in certifying that packagings used for Type A quantities of radioactive material meet DOT Specification 7A requirements.

2. PROCEDURES. Shippers using Type 7A packagings must maintain on file for at least 1 year after the last shipment, a complete documentation of tests, an engineering evaluation, or comparative data demonstrating that the construction methods, packaging design, and materials of construction comply with the specification. Procedures for the preparation of this documentation are as follows:

   a. Effective Dates. Type 7A packagings constructed in accordance with the requirements in effect 6-30-83 and prior to 7-1-85 may continue to be used. Packaging designed or constructed after 6-30-85 shall meet the requirements then in effect.

   b. Certification Documents. Compliance documentation for existing Type A packagings meeting DOT requirements shall be routinely maintained by DP-4 and published in the DOE Certification document for DOT Specification 7A packagings.

   c. Documentation for New DOT Specification 7A Packaging Procurements. It is the responsibility of the contractor to provide to DP-4, through the operations office, any new DOT Specification 7A packaging being developed. DP-4 will provide test results and required documentation for inclusion in the DOE Certification document for DOT Specification 7A packagings.

   d. Records. The complete documentation file for all Type A packagings, including quality control procedures and documentation shall be maintained by the responsible contractor. The Type A packaging records maintained by DOE operations offices shall include the DOE Certification document for DOT Specification 7A packagings and verification documentation from the supplier. This documentation shall be used as required to support requests for export/import approvals and exemptions.

CHAPTER VIII

DEPARTMENT OF TRANSPORTATION TYPE B SPECIFICATION PACKAGING

1. PURPOSE. These procedures are to be followed to assure that DOT Type B specification packagings authorized for Type B quantities of radioactive materials are approved for use by DOE and its contractors.

2. PROCEDURES

   a. Requirements. Users of Type B specification packagings must comply with the following provisions of Title 49 CFR:

      (1) Section 173.413, "Requirements for Type B packages."

      (2) Section 173.416, "Authorized Type B packages."

      (3) Section 173.417, "Authorized Package - Fissile (Type B quantities)."

      (4) Section 173.472, "Requirements for Exporting DOT Specification Type B and fissile Packages."

   b. Records. Appropriate procurement, use, and maintenance files must be maintained by DOE and its contractors who use Type B specification packagings under special conditions, such as:

      (1) DOT Specification 20WC;

      (2) DOT Specification 21WC; and

      (3) DOT Specification 6M.

   c. References. Title 49 CFR, Sections 173.413, 173.416, 173.417, 173.474, and 173.475 for Type B requirements, authorized packagings, and quality control requirements.

CHAPTER IX

SPECIAL FORM CERTIFICATION

1. PURPOSE. The following procedures are to be used in certifying that special form materials comply with the requirements set forth in Title 49 CFR Part 173, of the DOT regulations.

2. PROCEDURES.

   a. Requirements. Each shipper of special form radioactive material shall maintain on file for at least 1 year after the last shipment is made, a complete safety analysis, including documentation of any tests demonstrating the material meets the requirements for special form. In addition, prior to the first shipment of this material outside of the United States, a certificate of competent authority is required (see Chapter VI).

      (1) "Special Form" radioactive material, is defined in Title 49 CFR Part 173.

      (2) To qualify as a special form material:

         (a) The material must be a single solid piece or contained in a sealed capsule that can be opened only by destroying the capsule;

         (b) Have at least one dimension not less than 5 millimeters; and

         (c) It must meet applicable test requirements. (Title 49 CFR Part 173.)

   b. Preparation Procedures. Procedures for preparation of the required documentation are as follows:

      (1) Effective Dates. Special form encapsulations designed in accordance with 6-30-83 requirements and fabricated prior to 7-1-85 may continue to be used for each type. These encapsulations designed and/or fabricated after 6-30-85 must comply with the applicable requirements then in effect.

      (2) Dissemination of Documentation. It is the responsibility of the procuring contractor to ensure that procurements of special form materials and packagings (capsules) include adequate provisions for documentation of test results and engineering evaluations. All documentation should be readily available for use by any operations office or contractor.

(3) Compliance Certificate. Although this specific document is no longer required by DOT, the certificates for existing special form materials or encapsulations will continue to be used by DOE. Future encapsulation designs or materials to be used by operations offices or contractors must have a similar level of summary documentation to assist in the administration of applicable design records.

(4) Records. The master records for special form materials or encapsulations shall be maintained by the responsible contractor. Records required to support the administration of export/import activities shall be maintained by the responsible DOE operations office and available for overview by appropriate Headquarter's offices. A copy of each record shall be forwarded to the Certifying Official (DP-4).

CHAPTER X

PACKAGING FOR NON-RADIOACTIVE HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES, AND HAZARDOUS WASTES

1. PURPOSE. These procedures are to be followed in the selection and use of packaging approved by the Department of Transportation (Title 49 CFR Parts 100-179) for hazardous materials, including hazardous substances and wastes.

2. PROCEDURES.

   a. DOT Packaging Specifications. Packaging specifications approved and published by the DOT are authorized for use by Departmental Elements and contractors for transporting hazardous materials other than radioactive materials in accordance with applicable requirements. Procedures for the use of Type A and Type B specification packaging for radioactive materials are provided in Chapters VII and VIII of this Order.

   b. Requirements. Users shall ensure that packagings constructed in accordance with the DOT specifications meet the current requirements.

      (1) Packagings procured from commercial sources must be certified by the manufacturer that the packaging meets all applicable specifications.

      (2) It is the responsibility of the user to ensure that adequate documentation is developed and maintained for new specification packagings constructed for their use. All documentation should be available for audit.

CHAPTER XI

EXPLOSIVES CLASSIFICATIONS

1. PURPOSE. These procedures are to be followed in assigning DOT hazard classifications for DOE explosive materials, and subsequent DOT registration actions.

2. PROCEDURES.

   a. New Explosives Requirements. New explosives, including explosive compounds, mixtures, or devices (hereinafter referred to as explosives) may be transported if they have been examined, classified, and approved for shipment by DOE. This applies to new explosives made by or under the direction or supervision of DOE. A copy of the approval along with supporting documentation shall be provided to DP-12 for registration with DOT prior to making a shipment. A shipment may be made when the DOE classification has been filed (mailed to) with DOT. New explosives that have not been permanently classified may be shipped subject to the following conditions:

      (1) To a laboratory for examination, if the requirements of paragraph 2c, below, are met (see Title 49 CFR paragraph 173.86(d)).

      (2) To a testing facility if the requirements of paragraph 2d, below, are met (see Title 49 CFR paragraph 173.86(e)).

   b. Classification of a New Explosive. The procedure for approving new explosives or explosive items for transportation in interstate commerce shall be as follows:

      (1) Requests. A written request for a classification action must be prepared stating the proposed classification, method of packaging, marking, labeling, and mode of transportation, plus:

         (a) The request must include the results of the classification tests.

         (b) If the classification is by analogy, a statement must be included describing how the new explosive complies with the five conditions described under subparagraph b(2), below.

      (2) Criteria. Tests are to be conducted according to the Army DOD TB 700-2 (alternate tests may be used with justification) or may be analogous to a previously approved explosive. Analogy data must

clearly support that the new explosive or explosive item is at least as safe as the previously approved material or item. Specifically, the explosive and package must meet all of the following criteria:

(a) The new material does not significantly exceed the previous standard of sensitivity to heat, shock, and energy output;

(b) The total quantity is not greater than that contained in the previously classified explosive and is within 3 grams per item;

(c) There is no significant change in the configuration in terms of directional energy output or shaping effect, and length-to-diameter ratio is equal to or lower than the classified item;

(d) There is no reduction in the containment characteristics of the outer package, including the container, its latches, banding, and sharp edges;

(e) There is no significant decrease in the integrity of the packing material, baffles or separations, orientation, or separation distance, if more than one item is contained in a package; and

(f) In some cases the explosive may be shipped in a variety of specification packaging. If the packaging does not meet DOT specifications, it may be necessary to obtain a DOT exemption. (See Chapter III).

(3) Administrative Flow.

(a) The contractor shall submit the request for a classification action along with applicable supporting data to the responsible operations office (either Albuquerque or San Francisco) as appropriate.

(b) Upon review and determination that the request is proper and sufficient, the operations office shall issue a classification approval document to the requestor.

(c) The operations office shall transmit two copies of the classification approval document and supporting data to DP-12 for filing with DOT. DP-12 will advise the operations office when this filing has been performed via a copy of the transmittal to DOT. The operations office shall then notify the requestor and other affected parties.

c. Shipment of Laboratory Samples. A new explosive may be shipped via commercial carrier for the purpose of examination prior to permanent classification approval provided the following actions have been taken:

(1) Requests. A written request for tentative classification is prepared stating the proposed classification, method of packaging, quantity of material, marking, labeling, and mode of transportation. The request shall include test data or analogy data specified in paragraph 2b(2) above as available and, when not available, discuss and explain the safety measures to be taken for packaging and transportation.

(2) Criteria.

(a) A written request for a tentative classification (one copy) with supporting data has been submitted by the contractor to the responsible operations office.

(b) Upon review and determination that the request is proper and sufficient, the operation office will issue a tentative shipping description and classification in a memorandum to the requestor with a copy to DP-12.

d. Shipment of Materials for Testing. A new explosive or explosive item may be shipped via motor vehicle to a test facility prior to having been classified, as follows:

(1) Written Statement. A formal statement of tentative classification determination shall be prepared stating the proposed classification, method of packaging, quantity of material, labeling, mode of transportation, and escort provisions.

(2) Criteria.

(a) The new explosive is not a forbidden or initiating explosive.

(b) The new explosive is a compound or mixture. It must be described as a high explosive or high explosive liquid as appropriate (other than contained in a device), and packed, marked, labeled, and described on the shipping documents in accordance with applicable DOT regulations.

(c) The new explosive is a device. It must be assigned a tentative description and classification by the responsible contractor and packaged, marked, labeled, and described on the shipping documents as required for tentative descriptions and classifications by applicable DOT regulations.

(d) The new explosive is transported in a Government-owned motor vehicle operated by DOE or contractor personnel.

(e) The new explosive is accompanied by a person, in addition to the driver of the vehicle, who is qualified by training and experience to handle explosives.

(3) Administration. The written statement shall be prepared and maintained by the contractor and the responsible operations office.

CHAPTER XII

RULEMAKING REQUESTS FOR HAZARDOUS MATERIAL PACKAGING

1. PURPOSE. To provide for a DOE-coordinated position, these procedures are to be followed in:

   a. Commenting on Notices of Proposed Rulemaking published by the Department of Transportation (Title 49 CFR Part 106) and the Nuclear Regulatory Commission (Title 10 CFR Part 2); and the Department of Energy (Title 10 CFR, Chapter III);

   b. Commenting on proposed revisions to Safety Series No. 6 by the International Atomic Energy Agency; and

   c. Requesting changes to DOT, NRC, or IAEA hazardous material packaging regulations.

2. PROCEDURES.

   a. Changes Initiated Outside DOE.

      (1) DP-12 and EH-34 shall review the Federal Register for proposed rulemaking involving revisions to the hazardous material packaging regulations.

      (2) DP-12 shall distribute copies of the Notices of Proposed Rulemaking to the field for review and comment.

      (3) DP-12 will coordinate comments and forward to EH-34 for review and submission to DOT or NRC as appropriate.

      (4) DP-12 will coordinate the distribution of proposed IAEA revisions to Departmental Elements and the field for review and comment.

   b. Changes Initiated Within DOE.

      (1) The originator through the responsible operations office as appropriate shall submit a draft of the proposed rulemaking to DP-12 and the Directives and Federal Register Branch, MA-213.12.

      (2) DP-12 shall coordinate with DP-4 and other Departmental Elements as appropriate in reviewing the proposal.

      (3) DP-12 will submit the coordinated proposal to EH-34 for review and submission to DOT or NRC.

c. These procedures do not apply to Notices of Proposed Rulemaking by the Interstate Commerce Commission. See DOE 1540.1

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