

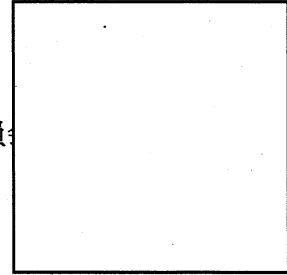
原規規発第 2003245 号

令和 2 年 3 月 24 日

三菱原子燃料株式会社

代表取締役社長 梅田 賢治 殿

原子力規制委員



核燃料輸送物設計承認英文証明書について

工場又は事業所の外において運搬される核燃料輸送物の確認等に関する事務手続について（平成 23 年 6 月 1 日付け平成 23・03・07 原院第 7 号）4.（3）に基づき、令和 2 年 3 月 13 日付け三原燃第 19-0409 号をもって申請のあった標記の件について、添付のとおり証明します。



IDENTIFICATION MARK

J/159/AF-96 (Rev. 3)

**COMPETENT AUTHORITY
OF
JAPAN**

**CERTIFICATE FOR APPROVAL OF
PACKAGE DESIGN
FOR THE TRANSPORT OF
RADIOACTIVE MATERIALS**

ISSUED BY

**NUCLEAR REGULATION AUTHORITY
1-9-9, ROPPOGI MINATO-KU
TOKYO, JAPAN**

**CERTIFICATE FOR APPROVAL OF PACKAGE DESIGN
FOR THE TRANSPORT OF RADIOACTIVE MATERIALS**

This is to certify, in response to the application by MITSUBISHI NUCLEAR FUEL CO., LTD., that the package design described herein complies with the design requirements for a package containing fissile uranium hexafluoride, specified in the 2012 Edition of the Regulations for the Safe Transport of Radioactive Material (International Atomic Energy Agency, Safety Standards Series No.SSR-6) and the Japanese rules based on the Act on Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.

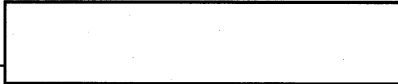
This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be transported.

COMPETENT AUTHORITY

IDENTIFICATION MARK: J/159/AF-96 (Rev. 3)

Mar. 24, 2020.

Date


Hasegawa Kiyomitsu

Director, Division of Licensing for
Nuclear Fuel Facilities

Secretariat of Nuclear Regulation Authority
Competent Authority of JAPAN
for Package Design Approval

1. The Competent Authority Identification Mark : J/159/AF-96 (Rev.3)
2. Name of Package : MST-30
3. Type of Package : Type A, Fissile Material and Uranium Hexafluoride Package
4. Specification of Package
 - (1) Materials of Packaging : See the attached Table-1
 - (2) Total Weight of Packaging : kg or less
 - (3) Outer Dimensions of Packaging :
 - (i) Length : Approximately m
 - (ii) Width : Approximately m
 - (iii) Height : Approximately m
 - (4) Total Weight of Package : kg or less
 - (5) Illustration of Package : See the attached Figure-1 (Bird's-eye view)
5. Specification of Radioactive Contents : See the attached Table-2
6. Description of Containment System

Containment system consists of 30B cylinder, valve and plug.
Teflon rubber is used for valve gaskets. The type of plug is limited to a socket head plug.
7. For Package containing Fissile Materials,
 - (1) Restrictions on Package
 - (i) Restriction Number "N" : No restriction
 - (ii) Array of Package : No restriction
 - (iii) Criticality Safety Index (CSI) : 0
 - (2) Description of Confinement System

Confinement system consists of a mass of uranium hexafluoride and 30B cylinder.
 - (3) Assumptions of Leakage of Water into Package

No water will leak into or out of any void spaces of 30B cylinder not only during routine transport but also under normal and accident conditions even if the protective overpack is fractured and deformed.
 - (4) Special Features in Criticality Assessment

Quality control of 30B cylinder including its valve and plug should be performed so as to prevent any leakage of water thereinto.

8. For Type B(M) Packages, a statement regarding prescriptions of Type B(U) Package that do not apply to this Package

This is not applicable to this type MST-30 package.

9. Assumed Ambient Conditions

(1) Ambient Temperature Range : $-20^{\circ}\text{C} \sim 38^{\circ}\text{C}$

(2) Insolation Data : Table 12 of IAEA Regulation

10. Handling, Inspection and Maintenance

Execute a handling, the periodic inspection and maintenance of the packaging used for the transportation of this package by the method indicated in safety analysis report of this package.

In particular, the acceptance criterion for the wall thickness of cylinder in the five year periodic inspection shall be mm or more, which is decided based on mm of the wall thickness required for subcriticality of this package and mm of the wall thickness reduction assumed for five years.

11. Issue Date and Expiry Date

(1) Issue Date : March 5, 2020

(2) Expiry Date : March 4, 2025

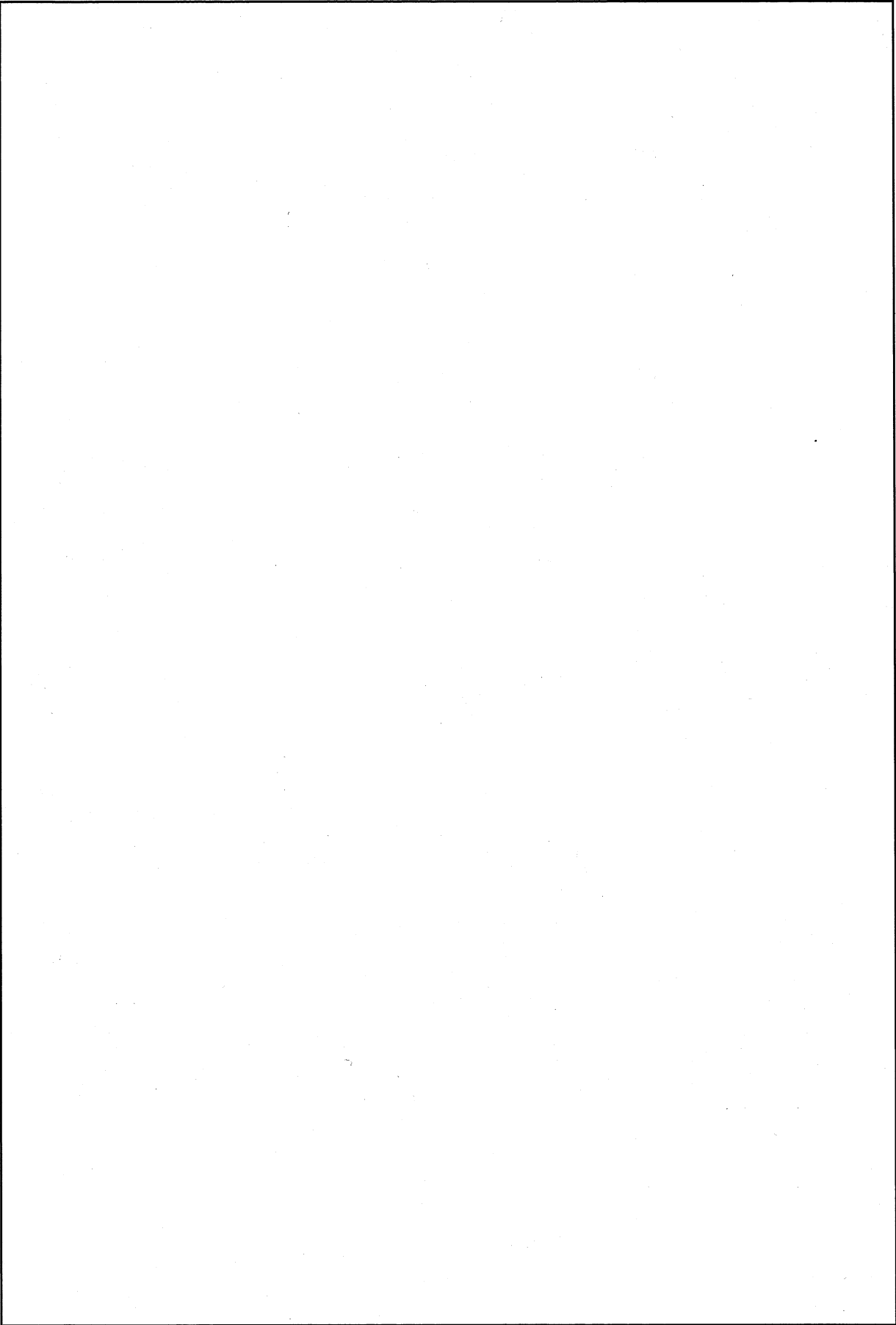


Figure-1 MST-30 Type Transport Package External Appearance

Table-1 Materials of Packaging

Construction		Material
Protective Packaging	External Shell	Stainless Steel ()
	Internal Shell	
	Heat Insulator	Phenolic Foam
	Support	Polyurethane Foam
	Pad	Neoprene and Neoprene Sponge
Cylinder	Shell	Pressure Vessel Plates, Carbon Steel, for Moderate-and Lower-Temperature Service (ASTM A516)
	Heads	
	Skirt	Pressure Vessel Plates, Carbon Steel, for Moderate-and Lower-Temperature Service (ASTM A516) or Structural Steel (ASTM A36)
	Valve	Aluminum Bronze (UNS C63600)
	Plug	Aluminum Bronze (ASTM B150 or ASTM B171)
Ring Plate		Stainless Steel ()

Table-2 Specification of Content

Material of Nuclear Fuel		Uranium Hexafluoride (UF ₆)				
Physical State		Solid (Block and Powder)				
Total Weight of Nuclear Fuel		2,277 kg -UF ₆ or less				
Activity (Bq/package)	Total	GBq or less				
	Principle Radionuclides (breakdown)	Isotope	Without progeny nuclides	With progeny nuclides		
		²³² U		Bq		Bq
		²³⁴ U		Bq		Bq
		²³⁵ U		Bq		Bq
		²³⁶ U		Bq		Bq
		²³⁸ U		Bq		Bq
		⁹⁹ Tc		Bq		Bq
		Total		Bq		Bq
Enrichment		5% or less				
Moderation Control, i.e. H/U Atomic Ratio		or less (The purity of UF ₆ shall be % or more.)				
Radionuclide Concentrations		²³² U	≤	μg/g U		
		²³⁴ U	≤	μg/g ²³⁵ U		
		²³⁶ U	≤	μg/g ²³⁵ U		
		⁹⁹ Tc	≤	μg/g U		
		If , then measurement of ²³² U and ⁹⁹ Tc is not required .				