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

原子力規制委員会

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, ROPPONGI 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

K. Hasegawa
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 : 1,893 kg or less
   (3) Outer Dimensions of Packaging :
      (i) Length : Approximately 2.4 m
      (ii) Width : Approximately 1.3 m
      (iii) Height : Approximately 1.4 m
   (4) Total Weight of Package : 4,170 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℃～38℃

(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 11.3 mm or more, which is decided based on 11 mm of the wall thickness required for subcriticality of this package and 0.3 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

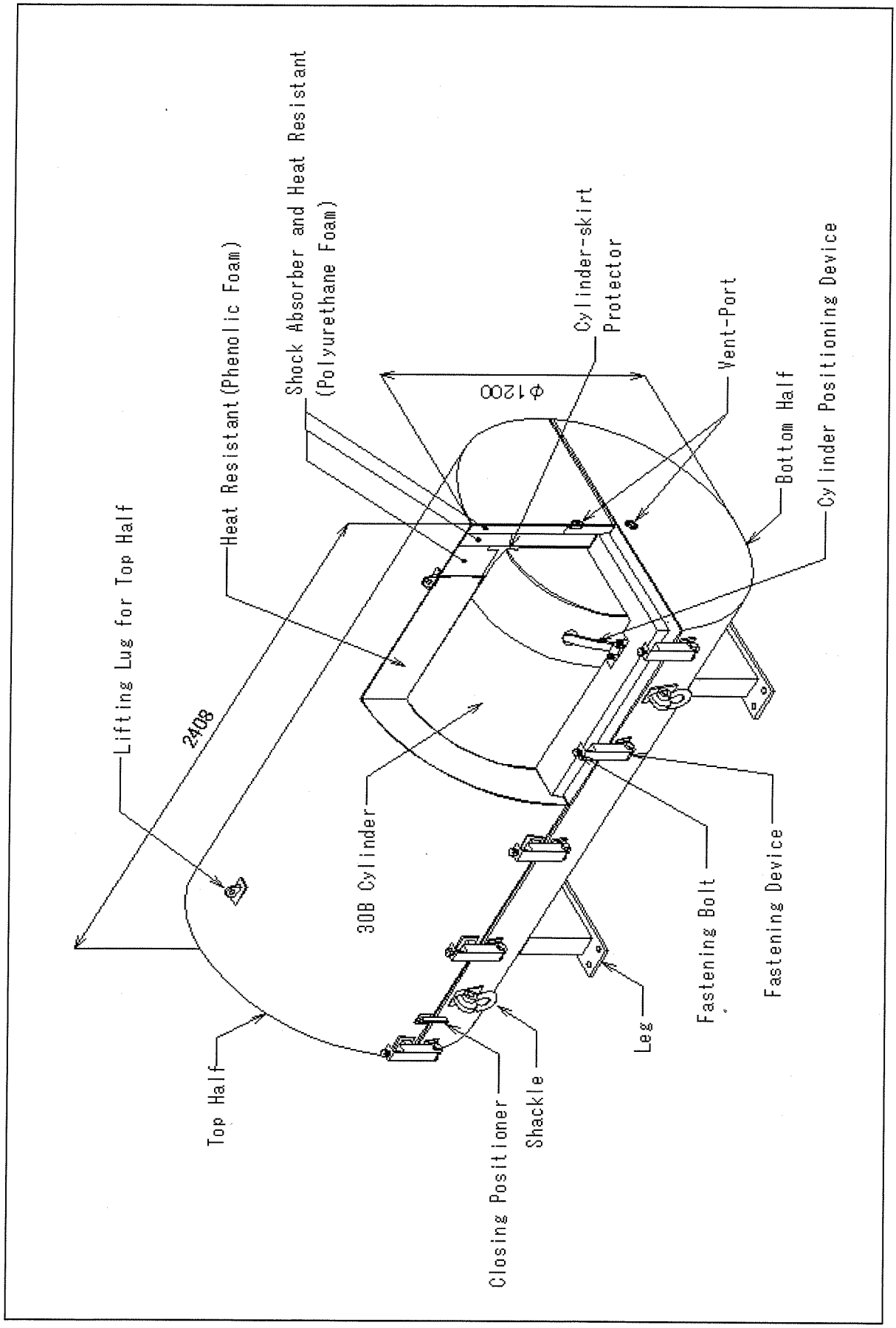

Figure-1 MST-30 Type Transport Package External Appearance

Table-1 Materials of Packaging

Construction		Material
Protective Packaging	External Shell	Stainless Steel (SUS304)
	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 (SUS304)

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	265 GBq or less		
	Principle Radionuclides (breakdown)	Isotope	Without progeny nuclides	With progeny nuclides
		^{232}U	1.22×10^{8} Bq	8.87×10^{8} Bq
		^{234}U	1.96×10^{11} Bq	1.96×10^{11} Bq
		^{235}U	6.16×10^{9} Bq	1.24×10^{10} Bq
		^{236}U	9.22×10^{8} Bq	9.22×10^{8} Bq
		^{238}U	1.82×10^{10} Bq	5.46×10^{10} Bq
		^{99}Tc	9.66×10^{6} Bq	9.66×10^{6} Bq
		Total	2.22×10^{11} Bq	2.65×10^{11} Bq
Enrichment		5% or less		
Moderation Control, i.e. H/U Atomic Ratio		0.088 or less (The purity of UF_6 shall be 99.5% or more.)		
Radionuclide Concentrations		^{232}U	≦ 0.0001 μg/g U	
		^{234}U	≦ 11.0×10^{3} μg/g ^{235}U	
		^{236}U	≦ 5,000 μg/g ^{235}U	
		^{99}Tc	≦ 0.01 μg/g U	
		If the ^{236}U measurement result is less than 125 μg/g U, then measurement of ^{232}U and ^{99}Tc is not required .		