原規規発第 2305241 号
令 和 5 年 5 月 24 日

国立大学法人京都大学
学長　湊　長博　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

核燃料物質等の工場又は事業所の外における運搬に係る核燃料輸送物設計承認及び容器承認等に関する申請手続ガイド（令和 2 年 2 月 26 日付け原規規発第 2002264 号）2.4.に基づき、令和 5 年 5 月 18 日付け 23 京大施環化第 19 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
[redacted]

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 KYOTO UNIVERSITY, that the package design described herein complies with the design requirements for a package containing [redacted], specified in the 2018 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: [redacted]

May/24/2023
Date

[redacted]
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 : [redacted]

2. Name of Package : [redacted]

3. Type of Package : Type B(U), Fissile Material

4. Specification of Package
   (1) Materials of Packaging :
      (i) Drum assembly: Stainless Steel, [redacted]
      (ii) Containment vessel (CV): Stainless Steel [redacted]
   (2) Total weight of Packaging : [redacted]
   (3) Outer Dimensions of Packaging
      (i) Outer Diameter : [redacted]
      (ii) Length : [redacted]
   (4) Total Weight of Package : [redacted]
   (5) Illustration of Package : See the attached Figure-1 (3-Dimensional Section View)

5. Specification of Radioactive Contents : See the attached Table-1, 2 and 3

6. Description of Containment System
   Containment system consists of CV body and Seal lid.
   [redacted] O-ring is used for the contact surface of Seal lid and CV body.

7. For Package containing Fissile Materials
   (1) Restrictions on Package
      (i) Restriction Number "N" : [redacted]
      (ii) Array of Package : [redacted]
      (iii) Criticality Safety Index (CSI) : [redacted]
   (2) Description of Confinement System
      Confinement system consists of a mass of the nuclar fuel contents, CV and Drum assembly of the [redacted] packaging.
   (3) Assumptions of Leakage of Water into Package
      This critical calculation considers the event of water leaking into CV.
   (4) Special Features in Criticality Assessment
      Not applicable

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

Not applicable

9. Assumed Ambient Conditions

(i) Ambient Temperature Range: -40°C ~38°C

(ii) Insolation Data : Table 12 of IAEA Regulation

10. Handling, Inspection and Maintenance

(1) Handling Instructions

[redacted]

(2) Inspections and Maintenance of Packaging

The following inspections should be performed not less than once a year (once for every ten times in a case where the packaging is used not less than ten times a year) and defect of packaging should be repaired, if any, in order to maintain the integrity of packaging.

(i) Visual Appearance Inspection (ii) Pressure Durability Inspection

(iii) Leakage Rate Measurement Inspection

(iv) Shielding Inspection (v) Subcriticality Inspection

(vi) Maintenance of O-ring Used for Containment System

(3) Actions prior to Shipment

The following inspections should be performed prior to shipment.

(i) Visual Appearance Inspection (ii) Leakage Rate Measurement Inspection

(iii) Radiation Dose Rate Inspection (iv) Subcriticality Inspection

(v) Weight Measurement Inspection (vi) Contents Specification Check Inspection

(vii) Surface Contamination Measurement Inspection

(4) Precautions for Loading of Package for Shipment

[redacted]

11. Issue Date and Expiry Date

(i) Issue Date : [redacted]

(ii) Expiry Date : [redacted]

However, if this certificate no longer meets the technical standards (limited to those related to the design of package) due to a revision of the regulations[*1,2], this certificate will be expired.

[*1] The NRA Ordinance on Off-Site Transportation of Nuclear Fuel Materials, etc. (Ministerial ordinance issued by the Prime Minister's Office No. 57 of 1978)

[*2] The Notification on Technical Details for Off-Site Transportation of Nuclear Fuel Materials, etc. (Notice issued by Science and Technology Agency No. 5 of 1990)

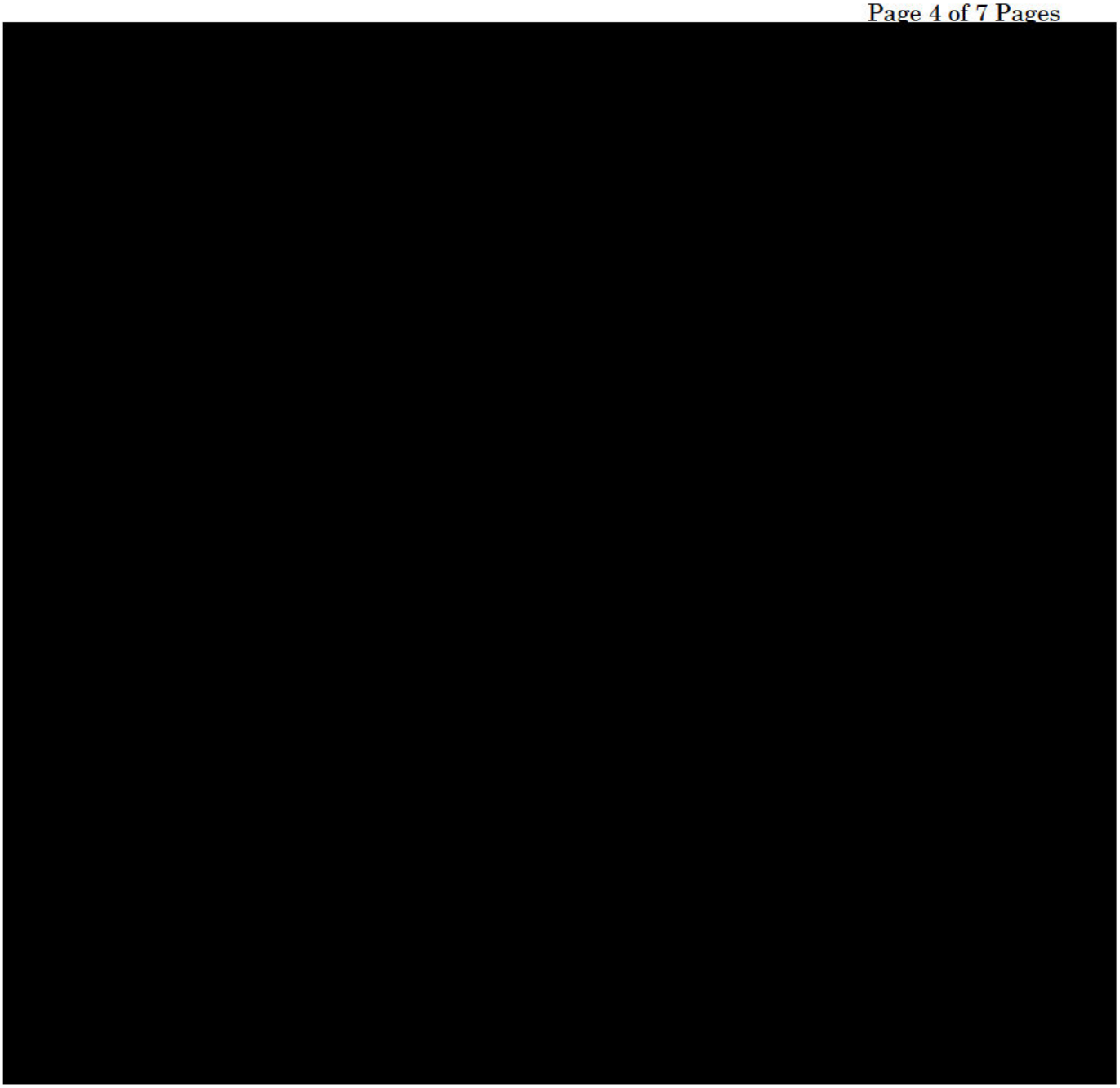

Figure-1 [redacted] packaging 3-Dimensional Section View

Table-1 Specification of Content [redacted]

			Specification
Material of Nuclear Fuel			[redacted]
Physical State			
Form			
[redacted] size (mm)			
Weight of fuel [redacted] (g)			
specification per package	Number of [redacted] (Item)		
	Weight	^{235}U (kg)	
	Activity	Total (Bq)	
		Principle Radionuclides (Bq)	
	Uranium Enrichment (wt %)		
	Heat Generation Rate (W)		
Burn up Rate (%)			
Cooling Time (days)			

[redacted]

- The absorbed dose rate to air at a position 1 m away from the surface of the package is 1 Gy/h or less.

Table-2 Specification of Content [redacted]

			Specification
Material of Nuclear Fuel			[redacted]
Physical State			
Form			
Weight of fuel (g)			
specification per package	Weight of fuel/package (g)		
	Weight	^{235}U (kg)	
	Activity	Total (Bq)	
		Principle Radionuclides (Bq)	
	Uranium Enrichment (wt %)		
	Heat Generation Rate (W)		
Burn up Rate (%)			
Cooling Time (days)			

[redacted]

- The absorbed dose rate to air at a position 1 m away from the surface of the package is 1 Gy/h or less.

Table-3 Specification of Content [redacted]

Reactor		[redacted]
Fuel Element		
Number of Fuel Elements (element/package)		
Fuel Type		
Materials of Nuclear Fuel		
Physical State		
Weight	^{235}U weight (g or less/package)	
	U weight (g or less/package)	
	^{235}U weight (g or less/element)	
	U weight (g or less/element)	
Enrichment (wt% or less)		
Activity of Contents	Total (GBq or less/package)	
	Principal Radionuclide (GBq or less/package)	
Burn-up (% or less)		
Total Heat Generation Rate (W or less/package)		
Cooling Time (days)		