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STÁTNÍ ÚŘAD PRO JADERNOU BEZPEČNOST
[STATE OFFICE FOR NUCLEAR SAFETY]

*State Office for Nuclear Safety
Senovážné nám. 9, 110 00 Praha
I Nuclear Safety Department*

Prague, 7 July 2015

Ref.: SÚJB/ONRV/14459/2015

File No.: SÚJB/POD/11365/2015

RAW and Spent Fuel Management Division

Contact: Ing. Vlastimil Ducháček, CSc.

DECISION

Based on application No. 1020/07/15 dated 19 May 2015, submitted by UJP PRAHA a.s., registered office: Nad Kamínkou 1345, 15610 Prague-Zbraslav, Company ID 60193247, file ref. No. 114448 (party to the procedure pursuant to Article 27(1a) of Act No. 500/2004 – Code of Administrative Procedure) and requesting repeated issue of a decision granting type approval to a packaging for the transport of radioactive materials, the State Office for Nuclear Safety (SÚJB) as the administrative authority competent according to Article 3(3c) of Act No. 18/1997 on peaceful uses of nuclear energy and ionizing radiation (Atomic Act) and on the amendment of some acts (as amended), initiated appropriate administrative procedure pursuant to Article 44(1) of the Code of Administrative Procedure on 13 May 2015 and ultimately decided as follows:

Pursuant to Article 67(1) of the Code of Administrative Procedure and Article 23(2) of Act No. 18/1997, as amended, the State Office for Nuclear Safety

grants type approval

to the design type of the ZKI 4x150 packaging as Type B(U) packaging for the transport of radioactive materials specified in Requirement 1 herein, assigns to said packaging, manufactured to the documentation assessed, the identification symbol

CZ/053/B(U)-96,

and for the purposes of international identification assigns to this Decision on Type Approval of the ZKI 4x150 Packaging the code

CZ/053/B(U)-96 (Rev. 2).

The ZKI 4x150 packaging for the transport of radioactive materials complies with the requirements of Act No. 18/1997 (as amended), related implemented regulations and International Atomic Energy Agency recommendations “IAEA Safety Standards Series No. TS-R-1, Regulations for the Safe Transport of Radioactive Material, 2005 Edition, Safety Requirements, International Atomic Energy Agency, Vienna, 2005”, and of international transport regulations which refer to the above International Atomic Energy Agency rules.

Description of the ZKI 4x150 packaging

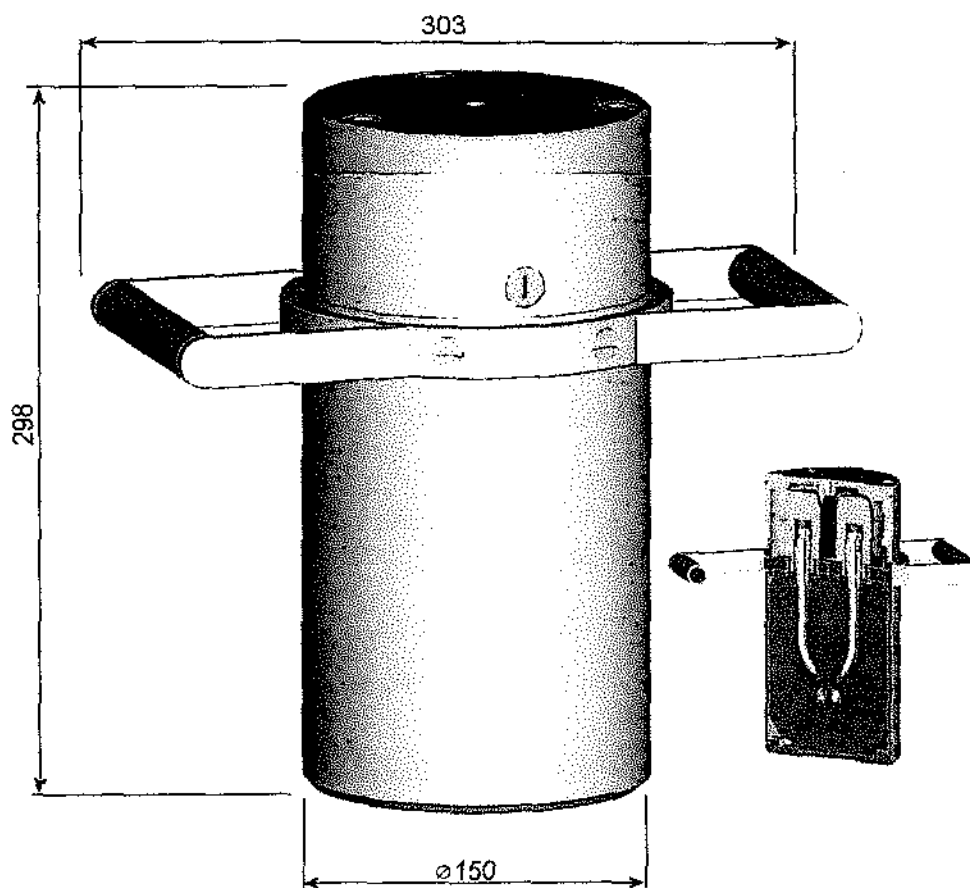
Model ZKI 4x150 Type B(U) packaging consists of 2 parts: a shielding container and a transport cylinder, the latter existing in 2 different versions. The 2 parts form an integral unit, and together with the radioactive contents constitute a radioactive consignment.

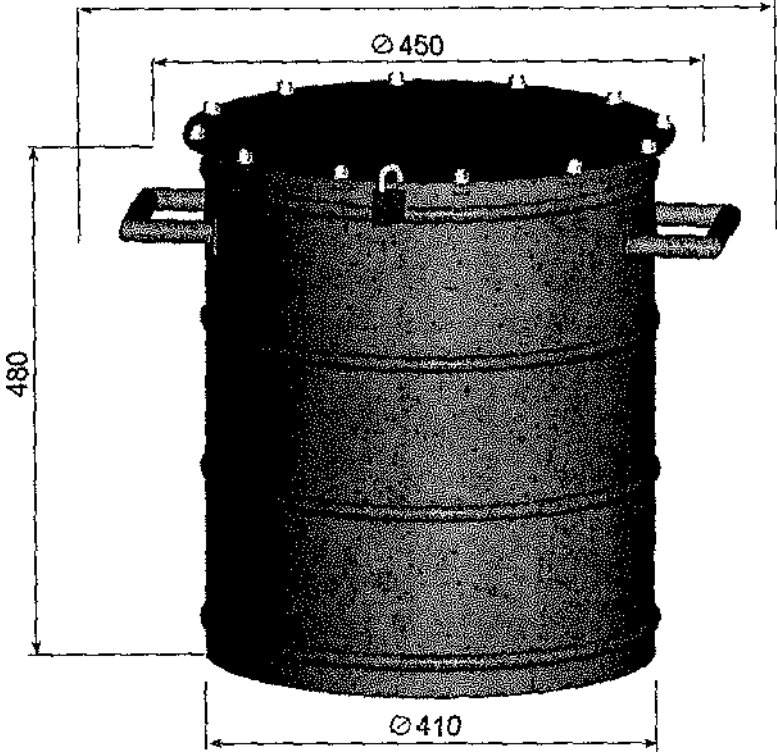
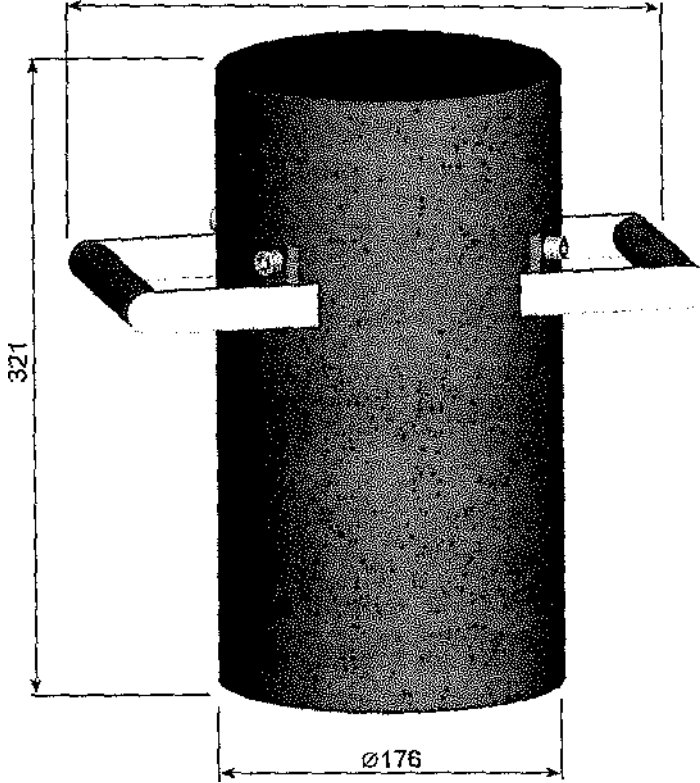
The cylindrical shielding container has 4 curved channels for the radioactive material. The shielding container consists of a body and lid, 4 caps, handles and a lifting eye. The lid is attached to the body by means of 3 screws M10 size and fitted with an insertion lock to protect the assembly against tampering. The shielding material is depleted uranium, hermetically encased in a stainless steel/tungsten jacket. The caps which close the channel openings are made of tungsten.

The transport cylinder, serving to protect the shielding container from mechanical damage, is made of steel and consists of a body and lid. The lid is attached to the body by means of M8 screws. The screw heads are provided with lead seals against tampering (Version I) or else the flange is modified to allow locking with a padlock or sealing with a lead seal (Version II). The empty Version II transport cylinder may be transported as an exempt consignment

The packaging is manufactured by UJP PRAHA a.s.. Nad Kamínkou 1345,156 10 Praha 5 - Zbraslav.

Pictures of the ZKI 4x150 packaging





ZKI 4x150 packaging parameters

Parameter	Shielding container	Transport cylinder	
		Version I	Version II
Diameter (mm)	150	176	450
Height (mm)	298	321	480
Weight (kg)	65	9	12
Weight of the full package (kg)		≤74	≤77

Requirements for the use of the packaging

The type-approved ZKI 4x150 packaging, identification symbol CZ/053/B(U)-96, may be used to transport radioactive materials provided that the following requirements are met:

1. Permitted radioactive contents

Model ZKI 4x150 Type B (U) packaging is designed for the transport or storage of up to 4 flexible unshielded holders with radioactive sources of 4 inserting devices with point sources for gamma radiation testing or other applications..

The radioactive sources are sealed radionuclide sources approved as special form radioactive materials. The shielding container with curved channels is designed to accommodate flexible unshielded source holders with source casing size up to a diameter of 6.4 x 25 mm and total source holder length between 170 and 190 mm. The packaging can also be used for the transport of point sources, which are inserted into the curved channels by means of a flexible inserting device.

- a) Radionuclides permitted for transport in the Model ZKI 4x150 Type B(U) packaging and their permitted activity levels per channel are included in the table below:

Radionuclide	Maximum activity	Radionuclide	Maximum activity
¹⁹² Ir	5,55 TBq	³² P	25 GBq
⁶⁰ Co	1.4 GBq	⁷⁵ Se	75 TBq
¹³⁷ Cs	2.93 TBq	¹⁶⁹ Yb	100 TBq
²²⁶ Ra	0.87 GBq	¹⁷⁰ Tm	150 TBq
⁹⁰ Sr	30 TBq		

- a) Radioactive materials not included in the above table, up to the A1, A2 level specified in Table 1 in Annex 3 to Regulation 317/2002 on type approval of packaging for the transport, storage and disposal on nuclear material and radioactive substances, on type approval of ionizing radiation sources and on the transport of nuclear materials and specific radioactive substance (“Regulation on type approval and transport”). Radionuclides permitted for transport in the Model ZKI 4x150 Type B(U) packaging and their permitted activity levels per channel are included in the table below:

2. Handling, maintenance, inspections

The packaging must be handled, maintained and inspected in compliance with the requirements specified in the document “ZKI 4x150 packaging – Instructions for Use and Maintenance”, archiving symbol: code040Cv03m02. Inspections performed in accordance with the above document must be formally recorded and the records must be stored for the entire service life of the packaging. The packaging condition and performance must be inspected prior to each use and a formal record of the inspection must be prepared.

3. Quality assurance

Each Model ZKI 4x150 Type B(U) packaging unit, having the identification symbol CZ/053/B(U)-96 and its specific serial number, must be manufactured to drawing No.1-1044-00 00 000 developed by the manufacturer, UJP PRAHA a.s. A packaging to be used for the transport of radioactive material must conform to the approved type, which fact must be demonstrated by a Declaration of Conformity issued in compliance with Article 6 of Regulation No. 317/2002. For any newly manufactured packaging, the Declaration of Conformity for the subsequent serial numbers must be sent to the State Office for Nuclear Safety no later than prior to the first use of the packaging.

4. Appropriate closing of the package and dosimetric inspection prior to transport

Once packed, the package must be inspected to make sure that it has been closed safely and complies with applicable dosimetric requirements, and a formal record of the inspection must be prepared. Based on provisions of Article 20(1b) of Act No. 18/1997 (as amended) and of Article 9(f) of Regulation No. 317/2002 on type approval and transport, in conjunction with points 30 to 32 of Annex 4 to Regulation No. 317/2002 on type approval and transport, the dose equivalent rate on the package surface and at a distance of 1 m from the surface must not exceed 2 mSv/hr and 0.1 mSv/hr, respectively, i.e. the transport index (TI) must not exceed 10, unless the transport proceeds in exclusive use conditions. If the transport proceeds in exclusive use conditions, the dose equivalent rate on the package surface must not exceed 10 mSv/hr.

In addition, based on recital 8 of Annex 4 to Regulation No. 317/2002 on type approval and transport, non-fixed packaging surface contamination must not exceed the levels of:

- 4.0 Bq/cm² for gamma and beta nuclides
- 4.0 Bq/cm² for low-toxic alpha nuclides
- 0.4 Bq/cm² for the remaining alpha nuclides

Also, a package with radioactivity inside must comply with the provisions of Article 20(1)(b) of Act No. 18/1997 and of paragraphs 58, 59 and 68 of Section I, Annex 1 to Regulation No. 317/2002 on type approval and transport, requiring that the maximum temperature on any part of the accessible surface of a radioactive package shall not exceed 85° C, and if it exceeds 50°C, the transport shall occur in exclusive use conditions.

5. Packaging labelling

For transport, the packaging must be labelled and provided with stickers in compliance with paragraphs 34 to 36, 38, 39, and 41 to 43 of Annex 4 to Regulation No. 317/2002 on type approval and transport, viz.:

- a) The outer surface of the package must display the following information, which must be clear, legible and durable:
 - Identification of the carrier and/or the consignee
 - UN number and proper shipping name of the radioactive goods
 - Maximum weight of the packaging with radioactivity inside, i.e. 74 kg (Version I) or 77 kg (Version II)
 - Identification symbol assigned by the State Office for Nuclear Safety, i.e. CZ/053/B(U)-96
 - Packaging serial number
 - Packaging model and type, i.e. ZKI 4x150 and B(U), respectively
 - Radioactivity symbol, resistant to fire and water.

- b) Two opposite sides of the outer package surface must be provided with stickers conforming to the appropriate design in Figs 2, 3 and 4 of Annex 4 to Regulation No. 317/2002 on type approval and transport, with information regarding the contents, radioactivity and transport index filled out (refer to paragraph 43 of Annex 4 to Regulation No. 317/2002).

6. Accident reporting

If the ZKI 4x150 packaging, identification symbol CZ/053/B(U)-96, suffered damage or was involved in an accident; in particular, if it has dropped or tipped over, the packaging shall be temporarily put out of use without unnecessary delay while meeting all radiation protection requirements. The use of such packaging may only be resumed after inspection and, if required, repair. In addition, an accident report must be developed and must be sent by the carrier to the State Office for Nuclear Safety within 2 weeks of the event.

7. Scope of this Decision

- a) This Decision on packaging type approval does not substitute any other licence/permit normally issued by the State Office for Nuclear Safety pursuant to Article 9(1) of Act No. 18/1997 (as amended) or any other licence or permission normally issued by other governmental authorities pursuant to special regulations.
- b) This Decision on packaging type approval does not relieve the carrier of the obligation to comply with any other requirement(s) stipulated by other transport authorities, nor does it relieve the carrier of the obligation to comply with any requirement(s) applicable in any country to which or through which the package containing radioactivity is shipped.
- c) This Decision supersedes State Office for Nuclear Safety Decision No. 20876/2010 of 8 September 2010.

This Decision expires 30 July 2025.

Grounds:

This Decision is being issued based on request submitted by UJP PRAHA a.s., document ref. 1020/07/15 of 19 May 2015, and following review of relevant documentation submitted to the State Office for Nuclear Safety in compliance with Article 23 of Act No. 18/1997 (as amended) and also with Articles 3 and 4 of Regulation No. 317/2002 on type approval and transport.

The applicant submitted this request for renewed decision on ZKI 4x150 packaging type approval, previous decisions having been issued several times before, most recently as document No. 20876/2010 of 8 September 2010, valid till 31 August 2015. Hence, the currently valid decision expires soon.

Therefore, the request was accompanied by the following documents only:

- Authenticated copy of the extract from the Companies Registry for UJP PRAHA a.s. dated 17 April 2015
- Copies of certificates for UJP PRAHA a.s. as per ISO 9001:2008 and ISO 14001:2004 of 14 June 2013 and NS-EN-ISO 13485:2012 of 3 July 2013
- “ZKI 4x150 packaging, instructions for use and maintenance”, UJP PRAHA a.s., code040Cv03m01, July 2015
- “ZKI 4x150 packaging, packaging temperature determination”, UJP PRAHA a.s., code042Cv02m01, April 2015
- “Record from the calculation of the ZKI 4x150 packaging's shielding capacity” prepared by Ing. Soňa Konopásková, CSc., on 16 April 2015.

The State Office for Nuclear Safety also took into account the fact that the previous requests based on which the above ZKI 4x150 packaging type approval decisions were issued, contained annexes with safety documents meeting all of the requirements of the applicable provisions of Act No. 18/1997, Atomic Act (as amended), and Regulation No. 317/2002 on type approval and transport (as amended).

The State Office for Nuclear Safety concludes that the above safety documentation complies with applicable provisions of Act No. 18/1997, Atomic Act (as amended) and with the relevant provisions of Regulation No. 317/2002 on type approval and transport (as amended) and demonstrates suitability of the ZKI 4x150 packaging for transport of radioactive materials specified in Requirement 1 herein in compliance with the other requirements and conditions specified herein.

Administrative fee of CZK 1000 pursuant to Act No. 634/2004 on administrative fees, item 107(e) in the Annex to said Act, has been paid.

On the above grounds the State Office for Nuclear Safety decided as stated above.

Appeal:

Appeal against this Decision can be lodged with the Chair of the State Office for Nuclear Safety through the Nuclear Safety Department, State Office for Nuclear Safety, Senovážné náměstí 9, 110 00 Prague, within 15 days of the delivery of this Decision.

L.S.

[Signed by:]

RNDr. Peter Lietava

Head,

RAW and Spent Fuel Management Division

Distribution list:

Applicant

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File