



SIXTY YEARS' EXPERIENCE ON SAFE TRANSPORT OF RADIOACTIVE MATERIAL IN ARGENTINA

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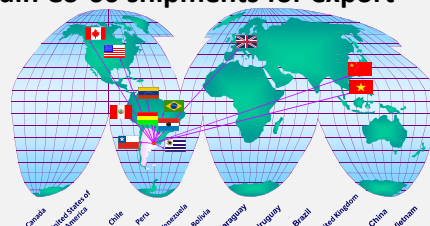
1 - Introduction

- In Argentina, the first activities related to nuclear technology began in the year 1946. Since that year, it means before the IAEA's first "Regulations for the safe transport of radioactive material", the transport of radioactive material (RAM) is performed safely in this country.
- The Nuclear Regulatory Authority (ARN) is the Competent Authority for regulating the transport of RAM in Argentina, which must be undertaken in accordance with the provisions set in Revision 2 of Standard AR 10.16.1 that concurs with the text of the 2009 Edition of the IAEA Regulations TS-R-1.
- The National Atomic Energy Commission (CNEA) has devoted to the study, development and application in all aspects related to the peaceful use of nuclear energy, becoming nowadays the promoter agency in this field in the country.

2 - Objective

Overview of the main activities related to the safe transport of RAM in Argentina over the last sixty years.

3 - Main Co-60 shipments for export



4 - Argentine package and special form radioactive material designs



CURRENT IDENTIFICATION MARK	FIRST ISSUE DATE	MODELS	RADIOACTIVE CONTENTS	DESIGNER
RA/0027/S	SEP 1986	FSM 60-02	Up to 400 TBq of Co-60. Discontinued.	CNEA
RA/0030/S-96	FEB 1987	FIS 60-04	Up to 650 TBq of Co-60.	CNEA / DIOXITEK SA
RA/0032/S-85	MAY 1987	FIS 60-05	Up to 650 TBq of Co-60. At present it is not renewed.	CNEA
RA/0033/B(U)F-96	FEB 1988	GURI 100	Up to 20% U-235; research reactors fuel elements. At present it is not renewed.	INVAP SE
RA/0040/S-96	OCT 1989	RM-10 and RM-19	Up to 4.44 of TBq of Ir-192.	POLYTEC RM SRL
RA/0042/S-96	MAY 1990	FIS 60-03	Up to 940 TBq of Co-60.	CNEA / DIOXITEK SA
RA/0043/S-96	JUN 1990	FSM 60-03	Up to 444 TBq of Co-60.	CNEA / DIOXITEK SA
RA/0045/S-96	SEP 1990	AC-345P and AC-345S	Up to 1.295 PBq of Co-60, to industrialize.	CNEA / DIOXITEK SA
RA/0051/IF-96	JAN 1991	CPC	Up to 20% U-235; fuel element plates.	CNEA
RA/0064/S-96	OCT 1992	COB-9-A	Up to 940 TBq of Co-60.	CNEA / DIOXITEK SA
RA/0068/AF-96	NOV 1993	TRPOL-1	Up to 20% U-235; U ₂ O ₅ powder.	CNEA
RA/0072/B(U)-96	OCT 1994	GURI 01	Up to 12,95 PBq of Co-60 (SFRAM).	INVAP SE / CNEA / DIOXITEK SA
RA/0074/B(U)-96	JUL 1995	CONTRAS	Up to 555 TBq of Co-60 (SFRAM).	INVAP SE
RA/0090/B(U)-85	DEC 2000	EMI-9	Up to 2.96 PBq of Co-60, FIS 60-03.	SINERCOM SA
RA/0092/IF-96	FEB 2003	UTNEC	Up to 0.95% U-235; fresh UO ₂ .	CONUAR SA
RA/0096/B(U)-96	AUG 2007	DRAGON	Up to 18.5 TBq or up to 37 TBq of Ir-192; flakes.	Asesoramiento Tec. SRL
RA/0097/S-96	AUG 2005	FIS 6007	Up to 590 TBq of Co-60.	DIOXITEK SA
RA/0098/S-96	JUN 2006	FIS 6008	Up to 740 TBq of Co-60.	DIOXITEK SA
RA/0099/B(U)F-96	APR 2008	MG1	Up to 20% U-235; research reactors fuel elements.	INVAP SE
RA/0100/B(U)F-96	Under licensing tasks	RLA4018	Up to 20% U-235; fresh or irradiated fuel elements	CNEA (with CNEN Brazil, under an IAEA Project)
RA/0101/B(U)-96	SEP 2011	BU-MAN	Up to 55.5 TBq of Mo-99, I-131, Ir-192.	CNEA
RA/0102/AF-96	DEC 2011	DALMA 25	Up to 20% U-235; liquid solutions.	CNEA
RA/0103/B(U)F-96	Under licensing tasks	LEUPA	Up to 20% U-235; different solid uranium compounds.	INVAP SE



5 - The ARN process related to safety in the transport of RAM obtained ISO 9001 certification in 2008. It has received and maintained: the Certificate for Management Systems given by the Argentine Normalization and Certification Institute (IRAM) and the International Certification Network (IQNet).

6 - Since about 40 years, ARN has provided training in safety during transport of RAM, conducting national and regional courses as well as developing the appropriate training material in Spanish for such courses.

7 - Argentina is member of the IAEA Transport Safety Standards Committee (TRANSSC). ARN experts have collaborated in the development of the IAEA Transport Regulations and others related support documents.

8 - Conclusions

- The transport of radioactive material is performed safely in this country due to the decision to maintain the **highest standards in the activity**.
- Argentina has a **wide-ranging experience and capacity in the design and licensing of packages and special form radioactive material**. Argentinean companies have designed several models of Type B(U) and B(U)F packages, and will continue developing new designs according to their necessities.
- Training is the key** to developing the transport industry in the country and in the region.
- It is necessary to keep the **continuous improvement tasks** related to Safety in Transport.
- It is important to **participate in the elaboration or modification of IAEA Transport documents**.

