Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
National Report
NIGER

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NIGER

Explanation the abbreviation used:
CNRP (Centre National de Radioprotection), the Old Regulatory Body
ARSN(Autorité de Régulation et de Sûreté Nucléaire), the New Regulatory Body
HANEA (Haute Autorité Nigérienne à l'Energie Atomique)

Section A: Introduction

NIGER is among the latest countries that has signed and ratified the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management. This Joint Convention was entered into force on June 2007.
Since then, NIGER has made an important effort to state institutional framework and general legislation governing all aspects of the implementation of the joint convention and its obligations.
This report, which is the first national report, is written in accordance with article 32 of the Joint Convention and presents the measures taken by NIGER to meet each of the obligations set out in the Convention ; it is structured according to the guidelines concerning the form and structure of national reports, "IAEA Information Circular INFCIRC/604 Rev.3 of January 2015".
NIGER is a signatory to a number of international conventions relating to nuclear and radioactivity matters.
- Nuclear Treaty of Non Proliferation Weapons (NPT)
- Convention on the Physical Protection of Nuclear Material and Amendment (CPPMN)
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Resolution 1540
- Code of Conduct

This report deals with the following topics :
• Section A: Introduction;
• Section B: Policy and practices in the field of the Convention;
• Section C: Scope of application;
• Section D: Inventories and lists ;
• Section E: Legislative and regulatory framework ;
• Section F: Other general safety provisions;
• Section G: Safety of spent fuel management;

• Section H: Safety of radioactive waste management;
• Section I: Transboundary movements;
• Section J: Disused sealed sources;
• Section K: Planned activities to improve safety.

Section B : Policy and practices

• Law 2018-17 of 27 April 2018 wearing security, safety and peaceful use of atomic energy, Chapter VII: Provisions relating to radioactive waste and spent fuel:

ARTICLE 70: These provisions apply to the management of radioactive waste resulting from civil applications in Niger but does not apply to waste that contain only natural radioactive materials and which do not come from the nuclear fuel cycle. unless than the ARSN decides otherwise.

The provisions of this chapter also apply to the management of spent fuel resulting from the operation of civilian nuclear reactors in Niger.

Article 71: A national policy and strategy for the safe and sustainable management of radioactive waste and spent fuel, including final storage are developed and formalized by the High Nigerian Authority at Atomic Energy (HANEA), in collaboration with the ARSN and the other structures concerned.

They are adopted by decree taken in the Council of Ministers.

The national strategy provides for the implementation of research and studies on the management of radioactive waste and spent fuel.

Section C: Scope of application

1. This Convention shall apply to the safety of spent fuel management when the spent fuel results from the operation of civilian nuclear reactors. Spent fuel held at reprocessing facilities as part of a reprocessing activity is not covered in the scope of this Convention unless the Contracting Party declares reprocessing to be part of spent fuel management.

2. This Convention shall also apply to the safety of radioactive waste management when the radioactive waste results from civilian applications. However, this Convention shall not apply to waste that contains only naturally occurring radioactive materials and that does not originate from the nuclear fuel cycle, unless it constitutes a disused sealed source or it is declared as radioactive waste for the purposes of this Convention by the Contracting Party.

3. This Convention shall not apply to the safety of management of spent fuel or radioactive waste within military or defence programs, unless declared as spent fuel or radioactive waste for the purposes of this Convention by the Contracting Party. However, this Convention shall apply to the safety of management of spent fuel and radioactive waste from military or defence

programs if and when such materials are transferred permanently to and managed within exclusively civilian programs.
4. This Convention shall also apply to discharges.

Section D: Inventories and lists

Inventory of waste

The Purpose of the Source and Waste Inventory radioactive means having a database (register) to ensure the necessary controls of radioactive sources and waste in order to protect people, property and the environment against the dangers of ionizing radiation.

For this, Niger has a:

- Manual register
- RAIS software (Regulatory Authority Information system)… RAIS Web 3.3

The types of waste produced in Niger are among others:

- Waste sources;
- Orphan sources;
- Sources from nuclear medicine activities (unsealed radioactive sources: P-32, I-125, Tc-99m);
- Mining waste (scrap metal and various contaminated materials, industrial water; ore processing residues, etc.);
- Natural radioactive materials (NORMs);
- etc.

However, storage of these sources poses a big security problem because the national center for radioactive waste management and storage is not yet in place, even if this option is part of the priority countries. For now, the radioactive waste is stored in each user's storage rooms waiting for the creation of National Centre for Storage.

Table 1. : Inventory of Radioactive Waste in NIGER

1. sources scellées usées en stockage de la SOMAIR

Radionucléide ou élément	Numéro de série ou code	Activité en Bq ou cps/s	Date d'acquisition	Localisation de la source	Fabricant
Cs-137	AY	$3.7\ 10^4$	Inconnue	Local d'entreposage des sources	GmbH ,CO KG Ludwig-Krohne Strabe 5W-4100 duiburg 1Amsterdam (05307206)

					2060(05307)206237
Cs-137	68466	$1.85\ 10^{9}$	Inconnue		THEMART CORP CINCINNATI – OHIO USA Made USA PTN°38-84-226-C
Cs-137	68467	$1.85\ 10^{9}$	Inconnue		THEMART CORP CINCINNATI – OHIO USA Made USA PTN°38-84-226-C
Cs-137	68469	$1.85\ 10^{9}$	Inconnue		THEMART CORP CINCINNATI – OHIO USA Made USA PTN°38-84-226-C
Cs-137	7805	$9.5\ 10^{4}$	Inconnue	Château1-local entreposage des sources	SAPHYMO – STEL 27-29 AVENUE CARNOT - 91301 MASSY FRANCE
Inconnue	(Tirette béta) inconnue	110	17/10/2003	Château 2-local entreposage des sources	
Inconnue	(Tirette béta) inconnu	100	17/10/2003		

	e				
Ni	Inconnue	650	17/10/2003		
U-235	inconnue	indéterminée	inconnue		
U/Th	2	$5.50\ 10^{3}$	inconnue	Château 3-local entreposage des sources	
U/Th	3	$3.60\ 10^{3}$			
U/Th	4	$1.20\ 10^{4}$			
U/Th	5	$7.50\ 10^{3}$			
U/Th	6	$1.25\ 10^{4}$			
U/Th	7A01	$6.00\ 10^{3}$			
U/Th	Inconnue	$1.20\ 10^{4}$			
U/Th	31ST222T	$9.50\ 10^{3}$			
U/Th	33ST222T	$1.00\ 10^{3}$	14/10/2003		
Cs-137	GTM 3T 7809	$39.59\ 10^{4}$	16/12/1980		CEA BNM LMRI (Fournisseur)
Cs-137	GTM 3T 7810	$9.50\ 10^{3}$	inconnue		
Cs-137	GTM 3T 7802	$9.00\ 10^{3}$	inconnue		SAPHYMO-STEL27-29 AVENUE CARNOT-91301 MASSY

					FRANCE
Cs-137	7229	8.00 10^3	inconnue		
Cs-137	GTM 3T 7204	9.00 10^3	inconnue		
Cs-137	GTM 3T 7202	9.00 10^3	inconnue		
Cs-137	GTM 3T 7201	8.00 10^3	inconnue		
Cs-137	GTM 3T 5345	9.00 10^3	inconnue		
Cs-137	5312	9.00 10^3	inconnue		
Cs-137	GTM 3T 4054	8.50 10^3	inconnue		
Cs-137	GTM 3T 3562	8.00 10^3	inconnue		
Cs-137	GTM 3T 3498	8.00 10^3	inconnue		
Cs-137	GTM 3T 264	8.00 10^3	inconnue		
Cs-137	Réf.SPP 2	370	inconnue		
Cs-137	02	1.50 10^4	inconnue		
Sr-90/Y-90	Réf. Babyline	750	inconnue		
Am-241		0.9 µCi	inconnue	Armoire – Local d'entreposage	

2. Sources radioactives entreposées dans le local des sources radioactives de l'ICRISAT.

Radionucléide	Activité	Modèle	N° Série	Marque	Fabricant	Etat
Am-241/Be	10 mCi	----------	45-693	Troxler	Troxler Electronic Laboratories USA	Hors service
Am-241/Be	1.85 GBq	IH III	----------	Didcot	Wallingford Didcot Instrument Co.LTD OXON England	Hors service
Am-241/Be	10 mCi	3322 Gauge	45-5097	Troxler	Troxler Electronic Laboratories USA	Hors service
Am-241/Be	10 mCi	3322 Gauge	57-1033	Troxler	Troxler Electronic Laboratories USA	Hors service
Am-241/Be	10 mCi	3222 Gauge	45-5048	Troxler	Troxler Electronic Laboratories USA	Hors service
Am-241/Be	10 mCi	3322	57-	Troxler	Troxler	Hors service

		Gauge	1222		Electronic Laboratories USA	
Am-241/Be	10 mCi	3332 Gauge	45-5438	Troxler	Troxler Electronic Laboratories USA	Hors service
Am-241/Be	1,48 GBq	--------	C1774 No102	Solo 25S	Nardeux Humsol Avenue d'Isla	Hors service
Am-241/Be	1,85 GBq	IH III	4428 NK	Didcot	Wallingford Didcot Instrument Co.LTD OXON England	Hors service
Am-241/ Be	10 mCi	3322 Gauge	45-5764	Troxler	Troxler Electronic Laboratories USA	Hors service
Am-241/ Be	10 mCi	3222 Gauge	----------	Troxler	Troxler Electronic Laboratories USA	Hors service
Am-241/ Be	1,11 GBq	---------	E1774 No 08	Solo 25S	Nardeux Humsol Avenue d'Isla	Hors service
						Hors service

Am-241/ Be	1,11 GBq	----------	E1774 No 09	Solo 25S	Nardeux Humsol Avenue d'Isla	
Am-241/ Be	1,85 GBq	--------	2872 Nk	Solo 25S	Nardeux Humsol Avenue d'Isla	Hors service
Trois (3) cylindres contenant des sources usées	----------	--------	----------	----------	----------	Hors service
Am-241/ Be	1,11 GBq	----------	E1774 No 07	Solo 25S	Nardeux Humsol Avenue d'Isla	Hors service
Am-241/ Be	1,11 GBq	----------	----------	Solo 25S	Nardeux Humsol Avenue d'Isla	Hors service

3. Sources of OFEDES

OFEDES	Am-241/Be (recupérée et stockée dans un local du MMDI)	3 GBq	IV	20

4. Sources of Institut de Radio-Isotopes (IRI)

Sources	Nombre	Activités	Date de fabrication	Département
Co-60	1	3.7 MBq	1/02/2007 usé	DMN

Co-57	1	221.38 MBq	1/02/2007 usé	DMN
Co-57	1	185 MBq	01/04/2018	DMN
Co-57	1	3.7 MBq	01/04/2018	DMN
Ba-133	1	9.21 MBq	1/02/2007	DMN
Cs-137	1	7.67 MBq	1/02/2007	DMN
Générateurs de ^{99m}Tc	106	20 GBq	usés	DMN
Sonde à Neutron	26	1.7 GBq	usés	Radio-Agronomie

NB : DMN (Département de Médecine Nucléaire)

Section E: Legislative and regulatory system

Since 1998, the users' structures of radiation sources are subject to regulation:

• Law n ° 98-011 of 07 May 1998 establishing a public administrative institution called "National Center for Radiation Protection", as amended by Law No. 2006-18 of 21 June 2006

• Law 2006- 18 of 21 June 2006 amending Law No. 98-011 of 7 May 1998 establishing an administrative public institution called National Radiation Protection Center (CNRP).

• Decree of application of the law 2006- 18 of 21 June 2006, n ° 2007-531 / PRN / MSP of December 13, 2007 on the approvals of the statutes of the National Radiation Protection Center (CNRP)

• Law n ° 2006-17 of 21 June 2006 with nuclear safety and security and protection against the dangers of ionizing radiation

• Decree No. 2007- 532 / PRN / MSP laying down the implementing rules of the law n ° 2006-17 of 21 June 2006 with nuclear safety and safety and protection against the dangers of ionizing radiation

• Law No. 2016-45 of December 06, 2016 establishing, mission, assignments, organization and functioning of a "regulatory and nuclear security authority" abstract (ARSN).

• Law 2018-19 of 27 April 2018 wearing security, security and peaceful use of atomic energy.

• Law 2006-17 of 21 June 2006,

- Article 12: Any natural or legal person whose activities generate radioactive waste is responsible for the waste it produces. It must provide management in accordance with the modalities for managing radioactive waste defined by regulation.

- In the current state, each authorization holder is required to put in place a system to manage the waste he has produced pending the creation of a national organization responsible for the management of radioactive waste and spent fuel
- Appropriate premises are used to manage worn radioactive sources
- Orphan sources are managed by the regulatory authority waiting for the creation of a national organization responsible for the management of radioactive waste and spent fuel.
- The regulatory authority identifies and finds appropriate premises to manage orphan sources in a safe and secure manner (Article 81: CNRP ensures the control of the management and protection of radioactive sources. It establishes the national strategy for the management of Orphan sources in relation to the national organization responsible for radioactive waste management).
- Article 14: A national radioactive waste management body will be created by decree taken in the Council of Ministers.
- Article 8: The primary responsibility for the safety and security of an activity or practice referred to in this Act shall be the holder of the corresponding authorization.
- Article 9: The holder of an authorization shall ensure the safety and security of the activities, practices or sources of ionizing radiation, including facilities he is responsible and:
- (a) applies the terms and conditions specified in the authorization;
- (b) applies the detailed requirements set out by the Act and the regulations in force;
- (c) applies the relevant requirements set out in the standards.

• Decree 2007-532 of 13 December 2007,

- Article 76: In the event of a final termination of use of a sealed source, its alteration and before the expiry of the obligatory recovery contract established by the purchase, the holder is required to restore it to the supplier.
- Article 77: Unsealed sources must be stored in suitable containers and stored in a specially designed, key and isolated enclosure of permanent workplaces. The employer defines the conditions of access to this enclosure in accordance with the regulations in force.

• Law 2018-17 of 27 April 2018 wearing security, safety and peaceful use of atomic energy,

- Art.71 (Development of a national radioactive waste management policy and spent fuel)
- Art.72 (The principles of national radioactive waste management and spent fuel management)
- Art.73 (creation of a central radioactive waste management facility)
- Art.74 (authorization to operate a central radioactive waste management facility or spent fuel)
- Art.75 (development of waste management requirements
- Art.76 (Declaration of production or waste detention)
- Art.77 (Funding mechanism for costs related to the management of radioactive waste or spent fuel)
- Art.78, 79, 80 (export of waste)

• Law 2018- 21 of 27 April 2018,

- Article 31: The primary responsibility for the safety and security of radiation sources is the responsibility of the natural or legal person holding an authorization concerning such sources.
- Art.73 (creation of a central radioactive waste management facility)

Radioactive sources

- For worn radioactive sources, suitable key closed premises are constructed by authorization holders and surrounded by nets also closed and under daily surveillance. The management of used sources is also on the spot, under the same conditions as sources in use, pending the creation of the National Center for the Management of Radioactive Waste and the spent fuel.

Presently Each waste producer ensures its management

Mining

- With respect, mainly residues from uranium mines, it is planned for the creation of a substance, funded by operating companies, which will be used for their management on site. Already a management project has been put in place by the Cominak in accordance with Article 41 of Decree 003 / Ms / DM of 8/01/01.

But this is not considered as Waste. So his management are not the same than others radioactive sources.

Section F: Other general safety provisions

Niger has already a nuclear law which take account the radioactive waste management (Law 2018-19 of 27 April 2018 wearing security, security and peaceful use of atomic energy.) :

Following this law, some regulations will be adopted. Among which include

- the specifical Decree on the basic principles of radioactive waste management.
- These regulations will shortly be complemented by prescriptions and guides. If necessary, they will be updated to be consistent with GSR Part 3.
- The Joint Convention (1997) on the Safety of Fuel Management and the Security of Radioactive Waste Management is the main treaty for the management of radioactive waste. Process of ratification in progress ...;
- The Convention on the Physical Protection of Nuclear Material (CPPMN, 1980: ratified by Niger on 19/08/2004), amended in 2005, deals with the physical protection of nuclear material (including radioactive waste). Ratified by Niger on 28/05/2009;
- Generalized guarantee agreements (AGG) (signed by Niger on 11/06/2002) and their additional protocols (signed by Niger on 11/06/2004);
- The Vienna Convention on Civil Liability for Nuclear Damage (1963), the Protocol of Amendment of the Vienna Convention on Civil Liability for Nuclear Damage (1997) and the Convention on Supplementary Repair of Nuclear damage (1997). Process of ratification in progress ...;
- The Bamako Convention (1991). Niger is party;
- The Convention on Nuclear Safety (1994).
- The Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency Situation (1987). Signed by Niger on 26/09/2015, process of ratification in progress ...;
- Code of Conduct on the Safety and Security of Radioactive Sources published by the IAEA in 2003, legally non-binding. Niger supports the code.

Legislative and Regulatory Framework

• Law n ° 98-011 of 07 May 1998 establishing a public administrative institution called "National Center for Radiation Protection", as amended by Law No. 2006-18 of 21 June 2006

• Law 2006- 18 of 21 June 2006 amending Law No. 98-011 of 7 May 1998 establishing an administrative public institution called National Radiation Protection Center (CNRP).

• Decree of application of the law 2006- 18 of 21 June 2006, n ° 2007-531 / PRN / MSP of December 13, 2007 on the approvals of the statutes of the National Radiation Protection Center (CNRP)
• Law n ° 2006-17 of 21 June 2006 with nuclear safety and security and protection against the dangers of ionizing radiation
• Decree No. 2007- 532 / PRN / MSP laying down the implementing rules of the law n ° 2006-17 of 21 June 2006 with nuclear safety and safety and protection against the dangers of ionizing radiation
• Law No. 2016-45 of December 06, 2016 establishing, mission, assignments, organization and functioning of a "regulatory and nuclear security authority" abstract (ARSN).
• Law 2018-19 of 27 April 2018 wearing security, security and peaceful use of atomic energy.

- The Joint Convention (1997) on the Safety of Fuel Management and the Security of Radioactive Waste Management is the main treaty for the management of radioactive waste. Process of ratification in progress ...;
- The Convention on the Physical Protection of Nuclear Material (CPPMN, 1980: ratified by Niger on 19/08/2004), amended in 2005, deals with the physical protection of nuclear material (including radioactive waste). Ratified by Niger on 28/05/2009;
- Generalized guarantee agreements (AGG) (signed by Niger on 11/06/2002) and their additional protocols (signed by Niger on 11/06/2004);
- The Vienna Convention on Civil Liability for Nuclear Damage (1963), the Protocol of Amendment of the Vienna Convention on Civil Liability for Nuclear Damage (1997) and the Convention on Supplementary Repair of Nuclear damage (1997). Process of ratification in progress ...;
- The Bamako Convention (1991). Niger is party;
- The Convention on Nuclear Safety (1994).
- The Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency Situation (1987). Signed by Niger on 26/09/2015, process of ratification in progress ...;
- Code of Conduct on the Safety and Security of Radioactive Sources published by the IAEA in 2003, legally non-binding. Niger supports the code.

The Regulatory Body

The Regulatory Authority (CNRP) was created by Law 2006-18 of June 21, 2006. This identifies and finds appropriate premises to manage orphan sources in a safe and secure manner (Article 81: The CNRP ensures the control management and protection of radioactive sources. It establishes

the national strategy for the management of orphan sources in relation to the national body in charge of radioactive waste management).
Law 2006-18 of June 21, 2006 Article 2 (new): The National Radioprotection Center is responsible for regulate throughout the national territory the activities and practices related to
the use of nuclear substances and materials as well as sources of ionizing radiation in all economic and social sectors, public and private.
The Regulatory Body centralize all statistical data and documentation of interest to ionizing radiation and its use and establish a database concerning sources of ionizing radiation and radioactive waste
The new Regulatory Body created by the law the Loi N° 2016-45 du 06 décembre 2016 portant création, missions, attributions, organisation et fonctionnement d'une « Autorité de Régulation et de Sûreté Nucléaires» en abrégé (ARSN), under responsability of the Prime Minister, is the supreme administrative authority for protection against the harmful effects of ionizing radiation and radioactive waste management in Niger.

Law 2018-19 of 27 April 2018 Screening, Safety and Pacific Use of Atomic Energy which take account:
- practices or activities involving to the exposure to ionizing radiation;
- transport of radioactive materials or radioactive waste;
- production and management of radioactive waste;
- releases or eliminations of liquid or gaseous radioactive waste of any origin.
- ….

Responsibility of the license holder

• Law 2018- 21 of April 27, 2018 relating to the safety, security and peaceful use of Atomic Energy:
- Title chapter II,

- Art.71 (development of a national policy for the management of radioactive waste and spent fuel)
- Art.72 (the principles of national management of radioactive waste and spent fuel management)
- Art.73 (creation of a central radioactive waste management facility)
- Art.74 (Authorization to operate a central radioactive waste or spent fuel management facility)
- Art.75 (development of prescriptions relating to waste management)
- Art.76 (declaration of production or detention of waste)
- Art.77 (mechanism for financing costs relating to the management of radioactive waste or spent fuel).

Section G: Safety of spent fuel management

The regulatory framework must be consistent with the relevant international principles and agreements to which our country has subscribed.

The legally binding and non-binding international instruments governing waste management focus on nuclear safety, nuclear safety, guarantees and civil liability for nuclear damage:

- The Joint Convention (1997) on the Safety of Fuel Management and the Security of Radioactive Waste Management is the main treaty for the management of radioactive waste. Process of ratification in progress ...;
- The Convention on the Physical Protection of Nuclear Material (CPPMN, 1980: ratified by Niger on 19/08/2004), amended in 2005, deals with the physical protection of nuclear material (including radioactive waste). Ratified by Niger on 28/05/2009;
- Generalized guarantee agreements (AGG) (signed by Niger on 11/06/2002) and their additional protocols (signed by Niger on 11/06/2004);
- The Vienna Convention on Civil Liability for Nuclear Damage (1963), the Protocol of Amendment of the Vienna Convention on Civil Liability for Nuclear Damage (1997) and the Convention on Supplementary Repair of Nuclear damage (1997). Process of ratification in progress ...;
- The Bamako Convention (1991). Niger is party;
- The Convention on Nuclear Safety (1994).
- The Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency Situation (1987). Signed by Niger on 26/09/2015, process of ratification in progress ...;
- Code of Conduct on the Safety and Security of Radioactive Sources published by the IAEA in 2003, legally non-binding. Niger supports the code.

Section H: Safety of radioactive waste management

• Law 2006-17 of June 21, 2006, Title II, Chapter I,

- Article 8: The primary responsibility for the safety and security of an activity or practice covered by this law rests with the holder of the corresponding authorization.

- Article 9: The license holder ensures the safety and security of activities, practices or sources of ionizing radiation, including the facilities for which he is responsible and:

a) apply the terms and conditions specified in the authorization;

b) apply the detailed requirements set out by law and regulation in force ;

c) apply the relevant requirements set out in the Norms

The security measures imposed by the authority are those of the code of conduct and the nuclear security collection of the IAEA NSS-9: Security of the transport of radioactive materials in accordance with article 15 of law 2006-17 of 21 June 2006.
This article states: '' Any transport aimed at the import, export and transit of nuclear materials or sources of ionizing radiation cannot take place without the prior authorization of the CNRP and must be carried out in accordance with this law, regulations for the transport of radioactive materials of the International Atomic Energy Agency (IAEA) and its Code of Conduct on the safety and security of radioactive sources ''.

1. Mining waste
Mining waste consists of:
- residues from the uranium processing chain containing lifelong elements of the uranium family
- waste rock from digging, excavation, stripping, etc ...
- Certain materials used during operations.
Law 2018-27 of 27 April 2018, Article 66: The ARSN establishes requirements relating to the management of radioactive mining residues, in conjunction with the other structures concerned.
In collaboration with the ministries concerned, the ARSN establishes requirements relating to the restoration of sites.

2. Waste in nuclear medicine

- Sources from nuclear medicine activities are sorted and managed by radioactive decay. They are thrown into the environment once the decay time is equal to 10 times the period of the radioelement.
- Solid waste:

They are stored in melted seamable trashs and the period of the radionuclide used (until decay: 10 periods, controlled and treated as ordinary waste).

- Liquid effluents:
  Nuclear medicine services are equipped with tubing system to contain liquid effluents: alternation filling / decline
- Gaseous effluents:

Radioactive products are handled in dedicated leaded speakers, their ventilation circuit is connected to activated carbon filters that avoid atmospheric contamination.

3. Radioactive waste safety

• Law 2006-17 of 21 June 2006, Title II, Chapter I,
- Article 8: The primary responsibility for the safety and security of an activity or practice referred to in this Act shall be the holder of the corresponding authorization.
- Article 9: The holder of an authorization shall ensure the safety and security of the activities, practices or sources of ionizing radiation, including facilities he is responsible and:
(a) applies the terms and conditions specified in the authorization;
(b) applies the detailed requirements set out by law and regulation
in force ;
(c) Applied the relevant requirements set out in the NORMs
The security measures imposed by the Authority are those of the Code of Conduct and the IAEA NSS-9 Nuclear Safety Collection: Security of the Transport of Radioactive Materials in accordance with Article 15 of Law 2006-17 of 21 June 2006.
This article states: '' Any transport aimed at importing, exporting and transiting nuclear material or sources of ionizing radiation can not take place without the prior authorization of the CNRP and must be carried out in accordance with this Act. Royalty Relates to the International Atomic Energy Agency (IAEA) and the Code of Conduct on the Safety and Security of Radioactive Sources ''.

Section I: Transboundary movement
• Law 2006- 17 of 21 June 2006,
- Article 15: Any transport aimed at importing, exporting and transiting nuclear material or sources of ionizing radiation can not take place

Without the prior authorization of the CNRP and must be carried out in accordance with this Act, the Radioactive Tax Transportation Regulations of the International Atomic Energy Agency (IAEA) and the Code of Conduct thereof.
on the safety and security of radioactive sources.
CNRP establishes the import regulations and the export of nuclear material and sources of ionizing radiation in collaboration with the ministries and institutions concerned.
• Law 2018-27 of 27 April 2018 Screening, Safety and Pacific Use of Atomic Energy
- Art. 67 (relating to the prescriptions on the transport of radioactive materials (MR)
- Art. 68 (obtaining an authorization for the transport of Radioactive Materials)
- Art.69 (relating to the emergency plan for the transport of Radioactive Materials)

Section J: Disused sealed sources

Law 2018-27 of 27 April 2018 Screening, Safety and Pacific Use of Atomic Energy, CHAPTER II: SOURCES OF RADIATION

Article 30: The ARSN establishes a system for controlling radiation sources to ensure that they are managed in a safe and secure manner during their useful life and at the end of it.

Based on international guidance, ARSN adopts a categorization of radioactive sources based on the potential harm to people and the environment that could result from the sources not being managed in a safe or secure manner.

Applicants for an authorization for a high activity source, as defined in the regulations, are required to develop mechanisms for the management of used sources

Article 31: The primary responsibility for the safety and security of radiation sources rests with the natural or legal person holding an authorization for such sources.

Article 32: The ARSN develops the requirements relating to the safety and security of facilities in which radiation sources are used, including, where applicable, requirements on the decommissioning of such facilities.

Article 33: The ARSN establishes and maintains a national register of radiation sources. It defines the categories of radiation sources to be entered in the national register.

It adopts measures to protect the information contained in the national registry in order to ensure the safety and security of these sources.

Article 73: The State creates a central facility responsible for the safe management of radioactive waste. It provides it with sufficient means for its operation

Article 74: Any natural or legal person who plans to operate a radioactive waste or spent fuel management facility must apply for and obtain an authorization from the ARSN.

Article 75: The ARSN develops the regulatory requirements relating to the management of radioactive waste including, where applicable, classification, pre-treatment, treatment, conditioning, packaging, storage and final disposal, as well as regulatory requirements relating to the management of spent fuel.

The ARSN ensures the continuity of regulatory control over radioactive waste from production to final disposal, including institutional controls.

Article 76: Any producer or holder of radioactive waste is required to declare it.

Any producer of radioactive waste or spent fuel is responsible for safety and security, until the transfer of responsibility to the central radioactive

waste management facility, or to another entity holding an appropriate authorization.
The holder of a radioactive waste or spent fuel management license is responsible for the safety and security of radioactive waste or spent fuel.
Responsibility for the safety and security of radioactive waste for which no person or entity can be designated as the license holder rests with the central radioactive waste management facility.
All disused radioactive sources are stored at the user's storage room*. (See SECTION D: Inventories and lists).*

Section K: Planned activities to improve safety .
Niger is preparing to complete the legislation and regulation covering all aspects of radiation protection, nuclear safety and nuclear security.