Plurinational State of Bolivia

SECOND NATIONAL REPORT

JOINT CONVENTION ON THE SAFETY OF SPENT FUEL MANAGEMENT AND ON THE SAFETY OF RADIOACTIVE WASTE MANAGEMENT

August, 2024

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On September 16, 2019, during the 61st Session of the IAEA General Conference, Bolivia deposited the legal instrument that ratifies the adherence to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, agreed in Vienna in the course of the Diplomatic Conference held on September 5, 1997. The Plurinational Assembly of Bolivia approved Law No. 1167 on April 11, 2019, ratifying the adherence of the Plurinational State of Bolivia to the terms of the Joint Convention, which it became effective on December 15, 2019.

This National Report has been prepared in accordance with the provisions of Article 32 of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, for its presentation as stipulated in Article 30 of the cited Convention.

The Report has been drawn up taking into account the IAEA informative circular INFCIRC / 604 “Guidelines regarding the form and structure of national reports” adopted by the Contracting Parties, it is in accordance with the provisions of said document and the content has been adjusted to the indicated guidelines as far as possible.

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ABBREVIATIONS

ABEN	Bolivian Nuclear Energy Agency
AE	Authority for the Supervision and Social Control of Electricity
AETN	Electricity and Nuclear Technology Supervision Authority
ARIS	Regulatory Information System
ATC	Centralized Temporary Warehouse
CIAN	Center for Nuclear Research and Applications
CIDTN	Center for Research and Development in Nuclear Technology
DGEN	General Directorate of Nuclear Energy
IBTEN	Bolivian Institute of Nuclear Science and Technology
MEN	Ministry of Energy, currently the Ministry of Energy has been merged with that of Hydrocarbons and is called the Ministry of Hydrocarbons and Energies according to Supreme Decree 4393 of November 13, 2020
NORM	Naturally Occurring Radioactive Material
IAEA	International Atomic Energy Agency
PNB	Bolivian Nuclear Program
RAIS	Information System for Regulatory Authorities
VMATE	Vice Ministry of High Energy Technologies

DEFINITIONS

For the purposes of this Convention, we take the definitions established in the document of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management and some additional definitions to standardize the information:

a) "Practices" are understood to be the production, storage, use, commercialization, import and export of nuclear material and radiation sources; the transport of radioactive materials; radioactive waste management, including its transitory and final disposal and site rehabilitation; the construction, start-up, operation, dismantling and decommissioning of the nuclear facility or radiological facility; and any other that generates exposure to ionizing radiation.

b) "Closure" means the termination of all operations at some point after the spent fuel or radioactive waste is placed in a facility for final disposal. This includes the final engineering or other work required to leave the facility in a safe long-term condition;

c) "Decommissioning" refers to all stages leading to the release from regulatory control of a nuclear facility that is not a facility for the final disposal of radioactive waste. These stages include the decontamination and dismantling processes;

d) "Discharges" are understood to be the planned and controlled emissions to the environment, as a legitimate practice, within the limits authorized by the regulatory body, of liquid or gaseous radioactive materials that come from regulated nuclear facilities, during their normal operation;

e) "Final disposal" means the placing of spent fuel or radioactive waste in a suitable facility without the intention of recovering it;

f) "License" means any authorization, permit or certification granted by a regulatory body to carry out any activity related to the management of spent fuel or radioactive waste;

g) "Nuclear facility" means a civil facility and related land, buildings and equipment, where radioactive materials are produced, processed, used, handled, stored or disposed of on such a scale that safety must be taken into account;

h) "Operational life" means the period during which a spent fuel or radioactive waste management facility is used for the purposes for which it was designed. In the case of a disposal facility, the period begins when the spent fuel or radioactive waste is first placed in the facility and ends when the facility is closed;

i) "Radioactive waste" means radioactive materials in gaseous, liquid or solid form for which the Contracting Party or a natural or legal person whose decision is accepted by the Contracting Party does not foresee any further use and which the regulatory body controls as radioactive waste according to the legislative and regulatory framework of the Contracting Party;

j) "Radioactive waste management" means all activities, including decommissioning activities, which relate to the handling, pre-treatment, treatment, conditioning, storage or final disposal of radioactive waste, excluding transport off-site. You can also understand downloads;

k) "Radioactive waste management facility" means any unit or facility whose main purpose is the management of radioactive waste, including nuclear facilities in the process of decommissioning only if they are designated by the Contracting Party as waste management facilities. radioactive;

l) "Regulatory body" means any body or bodies endowed by the Contracting Party with legal powers to regulate any aspect of safety in the management of spent fuel or radioactive waste, including the granting of licenses;

m) "Reprocessing" means a process or operation for the purpose of extracting radioactive isotopes from spent fuel for further use;

n) "Sealed source" means radioactive material permanently sealed in a capsule or intimately co-linked and in solid form, excluding the fuel elements of the reactor;

o) "Spent fuel" means nuclear fuel that is irradiated and permanently removed from the core of a reactor;

p) "Spent fuel management" means all activities related to the handling or storage of spent fuel, excluding off-site transportation. You can also understand downloads;

q) "Spent fuel management facility" means any unit or facility whose main purpose is spent fuel management;

r) "State of destination" means a State to which a transboundary movement is planned or takes place;

s) "State of origin" means a State from which a transboundary movement is expected to begin or begins;

t) "State of transit" means any State other than a State of origin or a State of destination through whose territory a transboundary movement is anticipated or occurs;

u) "Storage" means the placement of spent fuel or radioactive waste in a facility prepared for its containment, with the intention of recovering it;

v) "Transboundary movement" means any shipment of spent fuel or radioactive waste from a State of origin to a State of destination.

w) “Authorization holder” means the entity that requests authorization, or that is authorized, to operate an authorized facility and is responsible for its technological security.

x) “International nuclear transport” is understood to be the conduction of the consignment of nuclear materials in any means of transport that will leave the territory of the State in which the shipment originates, from the moment of departure from the facility of the sender in said State until the time of arrival at the recipient's facility in the State of final destination.

It should be clarified that the term waste and residue for the purposes of this report and for Bolivian regulations have the same meaning.

SECOND NATIONAL REPORT

JOINT CONVENTION ON THE SAFETY OF SPENT FUEL MANAGEMENT AND ON THE SAFETY OF RADIOACTIVE WASTE MANAGEMENT

SECTION A

GENERAL GUIDELINES

A.1. INTRODUCTION

This document is the second national report of the Plurinational State of Bolivia generated to comply with the provisions established by the Joint Convention on the Safety of Spent Nuclear Fuel Management and on the Safety of Radioactive Waste Management, said convention entered into force for our country on December 15, 2019.

The preparation of this report is in charge of the Authority of Control of Electricity and Nuclear Technology (AETN) that is in charge of the regulation, inspection, supervision and control of the safe use of practices and facilities framed by current regulations, ensuring the protection of people and the environment nationwide. For the preparation of this document, the guidelines established in the informative circular INFCIRC /604/Rev.3 (2015) on guidelines for the form and structure of national reports of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

The data in this report correspond to what is available as of 31 January 2024.

It should be noted that our country does not currently have any nuclear facilities in operation; however, there is a 200 kW Research Reactor, under construction and duly licensed by the Regulatory Authority, which is under the responsibility of the Bolivian Nuclear Energy Agency (ABEN), the state-owned operating entity. For this reason, the report will focus solely on radiological facilities and the safety of radioactive waste management at these facilities. The management and safety of spent nuclear fuel will be addressed in subsequent reports with the operation of a 200 kW research reactor in our country.

In June 2016, the Bolivian Institute of Nuclear Science and Technology (IBTEN), former Regulatory Authority, approved the issuance of the institutional license for the radioactive waste management facility “Centralized Temporary Storage - CIAN” Category 4 and 5, which became the responsibility of ABEN, the state operating entity, since May 2019.

This report contains a description of compliance with the situation addressed, plans, corrective measures and references to annexes of the following sections:

a) Introduction - This section refers to the elaboration of the present report, guidelines taken, data used, information overview of the situation in the country and the security of spent nuclear fuel management and waste management radioactive and a brief summary of the content of the report;

b) Policies and Practices - This section focuses on policies (normative national) in the management of spent nuclear fuel as well as the management of radioactive waste, the practices associated with the management of radioactive waste and spent nuclear fuel and describes the criteria used in the classification of radioactive waste.

c) Scope of Application - This section clarifies the subject of the reprocessing, NORM materials, disused sealed sources and information about military or defense programs.

d) Inventory and lists - The data regarding the inventories of spent nuclear fuel management facilities, radioactive waste and on nuclear facilities in the process of closure.

e) Legislation and regulation system - The implementation of measures to carry out control according to national regulations (Constitution, Laws, Regulations and Specific Regulatory Standards), system legislative body for the approval of the Joint Convention and the Regulatory Authority of the country are described.

f) Other general provisions relating to safety - Describes the responsibility of the Authorization Holder, security of disposal of human and financial resources, the quality assurance program, operational radiation protection,

emergency preparedness, the closure of practices, international agreements and other instruments non-binding adopted in our country.

g) Safety in spent nuclear fuel management - This section is dedicated to general safety requirements necessary throughout the useful life of the spent nuclear fuel management facility.

h) Safety in radioactive waste management - This section is dedicated to general safety requirements necessary throughout the useful life of the radioactive waste management facility.

i) Cross-Border Movements - Focuses on the process established in our country in the case of radioactive waste movements, as well as spent nuclear fuel.

j) Disused Sealed Sources; Addresses the legislative and regulatory system in relation to disused sealed sources and the country's situation regarding control of these sources,

k) General efforts to improve safety- Measures are described present, future and challenges regarding compliance with the Joint Convention.

l) Annexes - Two annexes are established, one referring to the inventory of the Centralized Temporary Warehouse located in the community of Viacha in the department of La Paz and the other on the inventory of unused sources returned under technical cooperation in 2014.

The main focus of the document is the compliance of our country towards the guidelines established in the Joint Convention.

A.2. THE MANAGEMENT OF SPENT FUEL AND WASTE RADIOACTIVES

Currently the Plurinational State of Bolivia does not have any reactor of power or research or some kind of nuclear facility from which it may precede spent nuclear fuel; However, there is a 200 kW Research Reactor under construction, duly licensed by the Regulatory Authority, which is under the responsibility of the Bolivian Nuclear Energy Agency (ABEN), the state-owned operating entity.

Radioactive waste in Bolivia mainly comes from the 2,000 facilities authorized in the country (data as of January 31, 2024) for practices involving the use of

radioactive material.

According to the Bolivian Nuclear Program (PNB) it is planned to implement a reactor of research in the following years, this project is currently in the siting phase.

Radioactive waste in Bolivia mainly comes from the 2000 authorized facilities in the country (data as of September 30, 2020) for practices involving the use of radioactive material.

The ATC as a radioactive waste management facility currently stores disused radioactive sources and radioactive waste; said facility is being regulated by the AETN.

Regarding radioactive waste generated by authorized institutions, they must have specific containers for medium and low activity; the institutions from which this radioactive waste comes are responsible for safe management so that it can then be released into the environment as conventional waste and no longer be subject to regulatory control.

Regarding the entry of radioactive material into our country, the AETN does not allow the importation of said material without first ensuring that the institutions operators deliver a commitment from the provider so that in the end of the useful life of the radioactive material, the return of the sources of ionizing radiation.

Regarding the entry of radioactive sources into our country, the AETN does not allow the importation of said radioactive sources without first ensuring that the operating institutions present a commitment from the supplier so that at the end of the useful life or the activity carried out, they can be returned to the supplier or manufacturer.

A.3. SAFETY IN THE MANAGEMENT OF SPENT FUEL AND RADIOACTIVE WASTE

The requirements requested from operating institutions for licensing in practices related to the management of ionizing radiation are established in specific regulatory standards. These requirements are associated with radiological risk of each activity and each licensed institution takes responsibility for radiological and

physical safety measures according to its established activity.

According to Law No. 1205, in article 47, radioactive waste does not can enter the country in any way, in this sense, currently there is no authorizes the entry of any type of radioactive waste or spent fuel to the country.

In this Second Report, reference is made to compliance with the safety of radioactive waste, since our regulatory framework (Specific Regulatory Regulations of the Regulatory Authority in the industrial, medical and investigation) limits the issuance of operating licenses to institutions that have sufficient conditions to process waste radioactive through established procedures and which the regulatory authority controls in all licensing stages. In addition, it should be noted that authorizations for the entry of new radioactive material are thoroughly evaluated ensuring the proper handling of them and their processing so that at the end of the shelf life are returned to the supplying country.

Likewise, the entry of radioactive material is only authorized to Institutions with an Operating License for a specific activity.

As indicated in previous paragraphs, there is currently no facilities that emit spent nuclear fuel, therefore, the safety issue for spent fuel is not considered in this second.

Based on the foregoing, it is concluded that the obligations of the General Guidelines section of the Convention are fully satisfied.

SECTION B

POLICIES AND PRACTICES

B.1. SPENT NUCLEAR FUEL MANAGEMENT POLICIES

The policies related to the management of spent nuclear fuel are established in the following documents:

a) The Political Constitution of the State;

b) Law No. 1205 “Law for the Peaceful Applications of Technology Nuclear ”of August 1, 2019;

c) The Regulations currently in force and the regulations in the revision and approval that would regulate Law 1205, within this set of regulations to be approved there is a specific regulation on the “Management of Radioactive Waste, Disused Sealed Sources and Management of Spent Nuclear Fuel ”, take into account that this new set of regulations that will regulate Law 1205, will replace the regulations of the defunct Law N ° 19172 “Law of Security and Protection Radiológica ”, September 1982;

d) The Bolivian Nuclear Program

These documents are briefly described below:

a) In the Political Constitution of the State, it is established:

- Article 344, the manufacture and use of chemical weapons is prohibited, biological and nuclear in the Bolivian territory, as well as the admission, transit and deposit of nuclear waste and waste toxic.

b) In Law No. 1205, it is declared regarding fuel management spent nuclear:

- Article 8 establishes that all the activities of the phases of the cycle nuclear fuel are the exclusive competence of the central level of the State;

Article 40, provides that the civil liability of the holder of the authorization for nuclear damage is objective and will be subject to rules contained in the Vienna Convention on Liability Civil for Nuclear Damage of May 21, 1963 and other agreements and treaties ratified by the State;

- Article 44, the regulatory authority will approve guidelines and directives for the safe management of radioactive waste and spent nuclear fuel, within the framework of current regulations;

- Article 45, the Regulatory Authority will establish the requirements for the spent nuclear fuel management;

- Article 46, I. The Authorization Holder will have primary responsibility for the technological safety and physical security of the management of spent nuclear fuel;

  II. The Authorization Holder will submit to the Regulatory Authority for approval and subsequent implementation, a management plan for radioactive waste or spent nuclear fuel, depending on corresponds.

c) In the Radioactive Waste Management Regulation, Sealed Sources Disused and Management of Spent Nuclear Fuel, currently in Review and Approval process:

- The objective is to establish the provisions that regulate the management of radioactive waste, disused sealed sources, and nuclear fuel spent in the Plurinational State of Bolivia to in order to guarantee the safety and protection of people, goods and the environment from the harmful effects of radiation ionizing agents, ensuring that future generations do not suffer the improper presence of these materials.

- The scope of application covers:

  I. Any natural or legal person, public or private, that generate and carry out activities related to radioactive waste management,

sealed sources disused and spent nuclear fuel management;

II. The criteria and guidelines for the final disposal of waste radioactive substances will be established by the Control

Authority of Electricity and Nuclear Technology (AETN) in correspondence with the regulations in force; III. It does not apply to materials with content of radionuclides of natural origin - NORM.

d) According to the guidelines established in the Bolivian Nuclear Program (PNB) (September 2014, 1st edition):

- “Adequate measures will be taken to solve waste nuclear product of the establishment of nuclear technologies provided in it, especially those that come from the nuclear plant ".

B.2. RADIOACTIVE WASTE MANAGEMENT POLICIES

Policies regarding radioactive waste management are established in the Law No. 1205, the current regulation of "Treatment Radioactive Waste "and in the proposed regulation, which are described briefly below:

a) In Law No. 1205, it is declared regarding waste management radioactive:

- Article 46, II. The Authorization Holder will submit to the Authority Regulatory plan for approval and subsequent implementation, a plan management of radioactive waste or nuclear fuel spent, as appropriate incorporating the precepts established in current regulations and technical, economic criteria and environmental, considering good international practices;

- Article 47, The importation of radioactive waste to the National territory;

- Article 48, I. The Regulatory Authority is responsible for the control of disused radioactive sources, for which it will establish the national register of disused radioactive sources. II. The Authorization Holder of a radioactive source that has been imported into the country, it must take the necessary measures that ensure your return to the supplier once you meet your goal or its useful life.

b) In the current Regulation of "Radioactive Waste Treatment", Decree Law N° 19172 “Radiological Protection and Safety Law”, in force by the Second transitory provision of Law No. 1205, there is:

- Art. 1. Radioactive waste is considered to be all waste from of nuclear power generation, as well as the use of radionuclides in research, medicine, industry, or agriculture.

- Art. 2. According to the magnitude and characteristics of the waste generated by an installation, a system of treatment of the same which must be submitted for approval by the Competent National Authority, the Bolivian Institute of Nuclear Science and Technology, and the Competent Environmental Authority.

- Art. 3. All systems for the retention, treatment and disposal of waste shall take into account the principle that radioactive material will return to the environment, decayed as a function of the estimated delay for reentry to the environment and the period half-life of the nuclide.

- Art. 4. Solid radioactive waste must be kept isolated of the biosphere the time necessary for it to have decayed sufficiently, using geological barriers when necessary and engineering with degrees of independence and redundancy adequate, to the satisfaction of the Competent National Authority and the Competent Environmental Authority.

c) In the new Radioactive Waste Management Regulations, Sources Disused Sealed and Spent Nuclear Fuel Management, establishes the provisions that regulate the management of radioactive waste, disused sealed sources and spent nuclear fuel in the State Plurinational of Bolivia.

B.3. RADIOACTIVE WASTE MANAGEMENT PRACTICES AND SPENT FUEL

a) Regarding the practices associated with the management of radioactive waste:

- At present there is a Temporary Storage facility Centralized (ATC) Category 4 and 5 for the protection of radioactive waste and

Disused sealed sources currently belonging to the Bolivian Nuclear

- Energy Agency (ABEN) state operating entity. These sources come from practices related to industry, medicine and research (oncological, ophthalmological treatments, practices in oil prospecting, mining, cement, breweries, scientific research and others) collected from the cities of Cochabamba, Santa Cruz, Sucre, Potosí, Oruro and La Paz, under the supervision of the Vice Ministry of Citizen Security.

b) Regarding radioactive waste generated by medical practices nuclear, these are managed in the same facilities. These facilities have environments equipped for the storage of radioactive calibration sources and radioactive waste for decay so that they can be processed as conventional waste and released into the environment;

c) Regarding spent nuclear fuel management practices:

- There are currently no practices associated with the management of spent nuclear fuel, since, as mentioned in previous paragraphs, the facilities are in the construction phase, duly licensed by the Regulatory Authority, to house a 200 kW Research Reactor, which is under the responsibility of the Bolivian Nuclear Energy Agency (ABEN), the state-owned operating entity. This point will be addressed in subsequent reports, once the nuclear fuel is received and it is operational.

B.4. CRITERIA FOR DEFINING AND CLASSIFYING RADIOACTIVE WASTE

In Law No. 1205 radioactive waste is defined as:

- Radioactive Waste: Materials, whatever their physical form, that remain as residues of Practices or interventions and for which no further use is foreseen due to:

  I. Containing or contaminated by radioactive substances and have an activity or activity concentration higher than level of exemption from regulatory requirements, and

II. Exposure to which is not excluded according to specific regulation.

Current regulations do not establish a specific classification referring to radioactive waste, however, since the approval of Law No. 1205, has been working on the development of new regulations, which have been prepared by the Regulatory Authority. These new regulations are are under review with the technical collaboration of the IAEA and in which find the regulation referring to the subject in question called "Regulation of Management of Radioactive Waste.

Disused Sealed Sources and Management of Spent Nuclear Fuel", this regulation makes the classification of radioactive waste dividing them into six classes that are listed below

a) Exempt waste - DE;

b) Very short half-life wastes - DVMMC;

c) Very low level waste - DAMB;

d) Low activity wastes - DAB;

e) Waste of intermediate activity - DAI;

f) High activity waste - DAA.

Based on the foregoing, it is concluded that the obligations of the Policies and Practices section of the Convention are fully satisfied.

SECTION C

AREA OF APPLICATION

C.1. REPROCESSING SPENT NUCLEAR FUEL

As previously mentioned, activites related to phases of the Nuclear Fuel Cycle including reprocessing of the spent fuel are the exclusive competence of the

Central State level, for Therefore, in subsequent years our country may decide the situation of the reprocessing or exporting spent nuclear fuel with any country that provides this service.

C.2. NATURAL RADIOACTIVE MATERIALS AND SOURCES SEALED IN DISUSE

The current regulation of Radioactive Waste Treatment does not have provisions regarding disused sources or radioactive materials natural.

According to the new regulation in the approval phase “Management Regulation of Radioactive Waste, Disused Sealed Sources and Fuel Management Spent Nuclear” the clarification is made in which the NORM materials (Materials containing radionuclides of natural origin) are not considered in said regulation for which they are not considered waste radioactive.

For the purposes of this convention, the management of disused sealed sources is considered radioactive waste.

C.3. RADIOACTIVE WASTE OR SPENT FUEL FROM MILITARY OR DEFENSE PROGRAMS

Currently, our country does not have military or defense programs in which spent fuel or radioactive waste is generated.

Based on the foregoing, it is concluded that the obligations of the Scope of Application section of the Convention are fully satisfied.

SECTION D

INVENTORIES AND

LISTS

D.1. SPENT FUEL MANAGEMENT FACILITIES

Currently in our country there is no facility for the management of spent nuclear fuel that may be regulated by this convention, however, the facilities to house a 200 kW Research Reactor are in the construction stage, duly licensed by the Regulatory Authority, which is under the responsibility of the Bolivian Nuclear

Energy Agency (ABEN), the state operating entity.

D.2. INVENTORY OF SPENT NUCLEAR FUEL

By not having any activity that generates spent nuclear fuel, it is not has an inventory referred to this, however, it is expected to have a system national accounting and control system for all material pertaining to the nuclear fuel in the future (according Art. 34, Law No. 1205). The regulatory authority will establish and maintain the national accounting and control system for nuclear materials that records, accounts for and monitors nuclear material, in order to control and verify that said material is not diverted for non-peaceful purposes.

D.3. RADIOACTIVE WASTE MANAGEMENT FACILITIES

Currently in our country there is only one (1) facility for the management of radioactive waste that is regulated by the Regulatory Authority and its objective is the temporary storage of radioactive waste (Warehouse Centralized Temporary "ATC" Category 4 and 5 under the responsibility of ABEN, the state operating entity). According to Law No. 1205 establishes that in the event that the Regulatory Authority certifies that the merchandise is not suitable for use or consumption: "Nuclear Material, Radioactive Material and Radiation Sources must be delivered to ABEN for disposal, according to regulations".

According to the aforementioned, currently the bunker belonging to ABEN the state operating entity, the which is located in the town of Viacha contains disused sources that come from industrial, medical, and research practices, tritium targets generated from the operation of a neutron generator owned by Ex-IBTEN that is currently dismantled, and orphan radioactive sources found in an abandoned situation. This bunker currently serves as temporary storage and it is planned to take steps to have these sources leave the country under international agreements.

D.4. INVENTORY OF RADIOACTIVE WASTE

According to the current regulation "Radioactive Waste Treatment", it is

established: "Depending on the magnitude and characteristics of the waste generated by a facility, a treatment system will be designed."

In the regulation under review and approval "Waste Management Radioactive, Disused Sealed Sources and Nuclear Fuel Management Spent", disused sealed sources are considered waste radioactive.

An inventory of disused sources and wastes is shown in Annex A stored in facilities of the extinct IBTEN (Center for Research and Nuclear Applications "CIAN") currently belonging to ABEN state operating entity, located in the community of Viacha in the department of La Paz.

Annex B shows in general the accounting of sources in disuse (collected by the extinct IBTEN in coordination with the Vice-Ministry Citizen Security under the Ministry of Government) that could be exported definitively through Supreme Decree No. 1862 of 8 January 2014.

D.5. NUCLEAR FACILITIES IN THE CLOSING PROCESS

At the moment this point does not apply.

Based on the foregoing, it is concluded that the obligations of the Inventories and Lists section of the Convention are fully satisfied.

SECTION E

LEGISLATION AND REGULATION FRAMEWORK

E.1. IMPLEMENTATION OF MEASURES

The management of radioactive waste in our country is controlled according to national regulations (the Political Constitution of the State, Law No. 1205), the Current rules (Radioactive Waste Treatment Regulations) and the Specific Regulatory Standards that are or are projected to have for each facility and activity that works with ionizing radiation.

In Law No. 1205 it defines the country's position regarding radioactive waste and spent nuclear fuel.

In the current regulation, guidelines are established for the treatment of radioactive waste.

In the regulation in the review and approval stage "Radioactive Waste Management, Disused Sealed Sources and Spent Nuclear Fuel Management", specifies the conditions and requirements that must be met when having waste radioactive and in the same regulation it is indicated that a standard specific regulatory framework for the issue of spent nuclear fuel.

Likewise, work has been done on the regulation of Law No. 1205 and a series of rules has been envisaged, including the first regulation refers to radiological protection and technological safety for the use of ionizing radiation. The third regulation specifies the licenses, certifications, registrations and other authorizations that may be granted to this type of facilities.

Funding for the management of radioactive waste and the spent fuel, giving full responsibility to the Authorization Holder, carrying out the control of all radioactive and nuclear material in use or disuse in the country committing the institutions to return said material (through contracts and commitments) to the technology provider.

Currently, work is being done on the implementation of the "Regulation of Management of Radioactive Waste, Disused Sealed Sources and Management of Spent Nuclear Fuel", which is in the approval phase.

For the following year it is planned to have the specific regulatory standard of spent nuclear fuel, which has been planned to work with the IAEA technical cooperation, through national projects or extrabudgetary.

E.2. LEGISLATIVE AND REGULATORY FRAMEWORK

The legislative and regulatory framework under which the principles and commitments derived from the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, is based

on the Political Constitution of the Bolivian Plurinational State (in hereinafter referred to as "the Constitution"), from which a series of Laws, Regulations, Specific Regulatory Standards and Regulatory Guides.

In accordance with paragraph 14 of Paragraph I of Article 158 of the Constitution, and Paragraph I of Article 35 of Law No. 401 of September 18, 2013, on the Celebration of Treaties, in accordance with Paragraph II of Article 15 of Supreme Decree No. 2476 of August 5, 2015, Regulation to Law No. 401 on the Celebration of Treaties, is ratified through Law No. 1167 of April 11, 2019, the “Joint Convention on Security in Spent Fuel Management and Radioactive Waste Management Safety”.

In paragraph 1 of article 103 of the Constitution, it is determined that the State will guarantee the development of science and scientific, technical and technological benefit of the general interest.

In Article 145 of the Constitution, it is stated that the Legislative Assembly Plurinational (composed of two chambers, the Chamber of Deputies and the Chamber Senators), is the only one with the power to approve and sanction laws that they apply to the entire Bolivian territory.

The Constitution in its Articles 342 and 344 indicates that it is the duty of the State conserve, protect, prohibit the manufacture of nuclear weapons, internment, transit and deposit of radioactive waste and regulate the admission, production, commercialization of substances that affect health and the environment.

Articles 347 and 379 of the Constitution establish that the State and the society will promote the mitigation of harmful effects on the environment, and of environmental passives that affect the country and the use of new forms of production of alternative energies, compatible with the conservation of the environment respectively.

Through Supreme Decree No. 2654 of 2015, national priority is given to Bolivian Nuclear Program (PNB), considered as an instrument through which

the State affirms its intention to promote the peaceful use of technology nuclear.

The Government of the Plurinational State of Bolivia in the 2016 year subscribes

2 cooperation agreements with the Federative Republic of Russia, with the purpose to develop nuclear technology for peaceful purposes, and to build, implement and operate the Center for Research and Development in Technology Nuclear (CIDTN), the same that contemplates a Multipurpose Plant of Gamma Irradiation, a Gamma Shielded Irradiator, a Cyclotron Complex Radiopharmacy, Complex, Research Laboratories and a 200 kW Nuclear Research Reactor.

The Ministry of Energy (MEN) was created on January 22, 2017, by Decree Supreme N ° 3058, whose competencies in the nuclear sector are: Propose and implement policies and programs for the development of research and application of nuclear energy for peaceful purposes in all those sectors that require their use, supervise, control and supervise companies and institutions under his tutelage.

The competencies of the Ministry of Energy (MEN) are expanded by Law No. 1003, of December 12, 2017, which establishes that the nuclear sector is exclusive competence of the Central level of the Plurinational State of Bolivia.

Currently the Ministry of Hydrocarbons and Energy through the Vice Ministry of High Energy Technologies (VMATE) and the General Directorate of Nuclear Energy (DGEN), is in charge of executing research programs and projects and application of the nuclear energy in all those sectors that require the use of nuclear techniques and fulfill the functions of official national counterpart for all conventions and international relations in the nuclear field at the same time to supervise national projects, and those carried out within the framework of the Technical Cooperation program with the OIEA.

In 2019, Law No. 1205 is enacted, which establishes in Title II the institutional structure of the Bolivian Nuclear sector that is made up of a central level, which is the Ministry of Energy (MEN), the Regulatory Authority that constitutes the AETN, and the state operating entity, which is the Agency Boliviana of Nuclear Energy (ABEN).

Article 10 of Law No. 1205 defines the powers of the Authority Regulatory. This authority is in charge of the function of regulation and control of nuclear activity in all matters relating to radiological safety and nuclear protection, safeguards and physical protection, and should also advise the National Executive in matters within its competence.

Article 1 of Law No. 1205, in subsection (b) establishes the legal framework for:

Regulate, control and supervise all the facilities and practices that involve the peaceful applications of nuclear technology, within the framework of safety technological and physical, to ensure the protection of present generations and future, as well as the environment, against the risks inherent to ionizing radiation.

In its article 4 of Law No. 1205 on definitions, the difference between a nuclear and a radioactive installation is made. The first is defined as "the one in which fuel or nuclear material is manufactured, processed, used, stored," and the second as "the one" where practices involving the use of Ionizing Radiation sources are carried out.

Law No. 1205 establishes the following transitory provisions:

a) First. The Executive Branch shall regulate this Law within a period of up to one hundred and eighty (180) calendar days from its promulgation;

b) Second. The regulations of the Radiological Protection law approved by Supreme Decree No. 24483, of January 29, 1997, remain in forcé until the publication of the Regulations cited in the provision preceding;

c) Third. Within one (1) year, it will be approved by Supreme Decree the referred regulation of this law.

Through Supreme Decree No. 0071 of April 9, 2009, the Authority of Fiscalization and Social Control of Electricity (AE) was created, establishing in the article 4 that the attributions, competences, rights and obligations of the

extinct Sectorial Superintendencies will be assumed by the Authorities of Supervision and Social Control, in what does not contravene the provisions of the State Constitution.

Supreme Decree No. 3892 of May 1, 2019, which modifies paragraph II of article 51 of Supreme Decree No. 0071 of April 9, 2009, establishes the powers of the AETN for the nuclear technology sector, among the which are the following:

d) Regulate, control, supervise, inspect and monitor all Activities and Facilities involving the peaceful application of nuclear technology and compliance with its obligations established in current regulations, ensuring Technological, Physical Security and Safeguards;

e) Formulate and approve Guidelines, Procedures and Guides in the areas of your competition;

Paragraph k) of article 53 of Supreme Decree No. 0071 of April 9, 2009, amended by Supreme Decree No. 3892 of May 1, 2019, establishes that within the powers of the Executive Director of the AETN have: k) Control, supervise and regulate, throughout the national territory, the application of Nuclear Technology, within the framework of current legal regulations.

E.3. REGULATORY BODY

Supreme Decree No. 3892 supports from an administrative point of view, to create the Electricity and Nuclear Technology Supervision Authority "AETN" (hereinafter referred to as "the Regulatory Authority"), under the supervision of the Ministry of Hydrocarbons and Energy (MHE), serves as the Regulatory Body responsible for monitoring the nuclear, radiological safety and physical security, as well as safeguards within National territory. Ministry of Hydrocarbons and Energy

Following Decree No. 3892, the AETN was established as the Regulatory Authority for radiological and nuclear safety, safeguards and physical security, with jurisdiction throughout the national territory, exercising all the functions of

oversight and regulation of nuclear activity that until May 2019 was the responsibility of the Bolivian Institute of Nuclear Science and Technology (IBTEN).

In paragraph I. article 10 of Nuclear Law No. 1205, it is established that the Regulatory Authority is a technical and operational public institution, with legal personality and own assets, technical and administrative independence, financial and legal, under the supervision of the Ministry of Hydrocarbons and Energy (MHE), head of the sector and is in charge of the regulation, inspection, supervision and control of safe use of the practices and facilities framed in the current regulations, ensuring the protection of people and the environment.

As established in Article 44 of Law No. 1205, on the Management of Radioactive Waste and Spent Nuclear Fuel, Regulatory Authority will approve guidelines and directives for the safe management of Waste Radioactive and Spent Nuclear Fuel, within the framework of the regulations valid.

Based on the foregoing, it is concluded that the obligations of the Legislation and Regulation System section of the Convention are fully satisfied.

SECTION F

OTHER GENERAL PROVISIONS RELATING TO SAFETY

F.2. LIABILITY OF THE LICENSE HOLDER

In Article 46 of Law No. 1205, it is established that the holder of the authorization has the primary responsibility of ensuring Technological Safety and Physical Security of Radioactive Waste and Fuel Management spent nuclear.

In accordance with the provisions of the Joint Convention, Bolivia ensures that the primary responsibility for the safety of spent fuel or radioactive waste management lies with the Authorization Holder.

F.3. HUMAN AND FINANCIAL RESOURCES

Law No. 1205 in its article 44, establishes that the regulatory authority approve guidelines and directives for the safe management of waste radioactive substances and spent nuclear fuel, within the framework of current regulations.

In this sense, the regulatory authority through regulations and standards specific regulations will ensure that the Authorization Holder's staff is qualified for operation throughout its operational life cycle of the spent nuclear fuel and radioactive waste management facilities.

The national regulatory framework (Law No. 1205, Paragraph II, Article 46), it is established that the Authorization Holder will submit to the Authority Regulatory, for approval and subsequent implementation, a Management plan of Radioactive Waste or Spent Nuclear Fuel, according to appropriate, that incorporate the precepts established in current regulations and technical, economic and environmental criteria considering the good international practices, that is, the Authorization Holder must have sufficient financial resources to maintain the safety of spent fuel and radioactive waste management facilities during its operational life and for decommissioning.

The national regulatory framework (Law No. 1205, Article 21), establishes that the Holder of the Authorization is responsible for developing and implementing a Program of Radiation Protection to achieve Radiation Protection and safety in activities and facilities, people and the environment, ensuring their compliance within the framework of the regulations, that is, it must comply with regulatory requirements for appropriate radiation surveillance in the period that the regulatory authority sees fit for export, or final disposal of radioactive waste.

F.4. QUALITY GUARANTEE

As established in article 46 of Law No. 1205, the management plan for radioactive waste or spent nuclear fuel should incorpórate technical, economic and environmental criteria to achieve good practices international.

In the previous paragraph, the regulatory authority by specific regulations and regulatory rules provides that the necessary measures are taken to ensure security programs apply appropriate quality to each specific practice.

F.5. OPERATIONAL RADIOLOGICAL PROTECTION

Law No. 1205 in Article 22 establishes that the Authorization Holder is responsible for compliance with dose limits and optimization of protection, ensuring the worker's protection against exposure occupational, having to keep a monitoring and record of exposure, compliance with current regulations.
Law No. 1205 in Article 24 establishes that the Authorization Holder take all necessary measures to comply with the limits of dose and optimization of protection, ensuring protection of the public exposure, in accordance with current regulations and rules.
It should be noted that the specific regulatory standard “Dosimetry External Personnel”, in which the general guidelines are defined for the licensing of external personal dosimetry service facilities and In addition, guidelines are established for users or facilities that require the service. In regulation No. 1 “Security and Radiation protection” in approval phase, the dose limits are established, in addition to emphasis on occupational radiation protection.

As mentioned above, the Authorization Holder must adopt adequate measures to ensure radiation exposure of workers and the public for this type of facility.

F.6. PREPARING FOR EMERGENCY CASES

Law No. 1205 in Article 51 establishes that the Authorization Holder as part of the authorization process, must develop an Emergency Plan that considers preparedness and response to any emergency, as well as the prevention of incidents or accidents in each of the practices that are intends to carry out, in addition, said Plan must be updated and tested periodically by the Authorization Holder.

The Authorization Holder must submit appropriate emergency plans and that are applicable on-site or off-site, these plans they must be to the satisfaction of the Regulatory Authority.

F.7. CLOSURE

Law No. 1205 in its Article 62 establishes that the Authorization Holder is responsible for the cessation of activity in accordance with the provisions of the regulatory authority. Regarding this point, it is clarified that the requirements of Safety for the closure and decommissioning of a radiological or nuclear facility is defined in general rules and specific regulatory standards for each facility and activity.

F.8. INTERNATIONAL AGREEMENTS

Bolivia as a member of the IAEA has ratified the following Conventions and International Agreements sponsored by the IAEA:

a) IAEA Statutes ratified by Bolivia through Law No. 197 of 28 November 1962.

b) Agreement on Privileges and Immunities of the IAEA ratified by Bolivia through Law No. 362 of December 11, 1967.

c) Convention on Civil Liability for Nuclear Damages signed in Vienna ratified by Bolivia through the same Law No. 362 of 11 December 1967.

d) Safeguards Agreement signed with the IAEA within the framework of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the Treaty for the Prohibition of Nuclear Weapons in Latin America, ratified by Bolivia through Law No. 1581 of August 3, 1994.

e) Convention on the Physical Protection of Nuclear Materials ratified by Bolivia through Law No. 2288 of December 4, 2001.

f) Convention on Assistance in case of Nuclear Accident or Radiological Emergency Bolivia ratified by Law No. 2430 of November 28, 2002.

g) Convention on the Early Notification of Nuclear Accidents ratified by Bolivia by Law No. 2431 of November 28, 2002.

h) Amendment to the Convention on the Physical Protection of Nuclear Material Bolivia ratified by Law No. 905 of February 22, 2017.

i) Nuclear Safety Convention ratified by Bolivia through Law No. 1166 of April 11, 2019.

j) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management ratified by Bolivia through Law No. 1167 of April 11, 2019.

k) Additional Protocol to the Safeguards Agreement signed with the IAEA, In September 2019, this Protocol was signed.

l) For its validity, steps are being taken for its ratification to through the Law of the Plurinational Legislative Assembly of Bolivia.

F.9. NON-BINDING INSTRUMENTS

Likewise, it is important to point out other non-binding instruments sponsored by the IAEA that have been adopted by Bolivia:

a) Code of Conduct on the safety and Security of Radioactive Sources commitment Application submitted to the IAEA on April 2, 2004.

b) Code on the Safety of Research Reactors, commitment Application submitted of Conduct to the IAEA on March 21, 2019.

c) Guidelines for the Import and Export of Radioactive Sources, implementation commitment Application submitted to the IAEA on March 21, 2019.

Based on the foregoing, it is concluded that the obligations of the Other General Provisions section of the Convention are fully satisfied.

SECTION G

SAFETY IN THE MANAGEMENT OF SPENT NUCLEAR FUEL

G.1. GENERAL SAFETY REQUIREMENTS

Law No. 1205, in its Article 27, paragraph I, provides that the authority Regulatory shall establish the technological safety requirements for the authorization of activities or facilities, in accordance with regulations; and the paragraph II. According to regulations, in the case of safety technology in nuclear practices or facilities, authorization will be required for each of its stages, which, among others, must include: a) Location; b) Building; c) Start-up; d) Operation and e) Closure and decommissioning.

The basic criteria on which radiological and nuclear safety is based are consistent with the recommendations of the International Commission on Radiological Protection (ICRP) and with IAEA safety standards.

Based on the above, the technological safety of the facilities is consolidates with a strict control of regulations and standards that is supervised by the regulatory authority, this control is carried out by regulatory inspections of facilities.

G.2. EXISTING FACILITIES

Currently there are no spent fuel management facilities.

G.3. LOCATION OF THE PROJECTED INSTALLATIONS

In the event that the Bolivian State decides to carry out fuel management nuclear spent in national territory, the Regulatory Authority is empowered to issue all the necessary regulations.

G.4. FACILITY LICENSING PROCESS

The Authorization Holder will ensure that throughout the life cycle of the facilities adequate measures are established to limit the posible radiological consequences on people and the environment, including uncontrolled discharges and emissions.

G.5. INSTALLATION SAFETY ASSESSMENT

For the purpose of verifying that nuclear facilities meet the framework regulatory standards, the regulatory authority will conduct assessments multiple and diverse regulatory inspections and audits with the frequency that deems necessary at the different stages of licensing a facility spent nuclear fuel management.

Law No. 1205 empowers the regulatory authority to carry out various types of inspections of facilities and activities such as planned inspections, unplanned, announced and unannounced.

G.6. OPERATION OF THE FACILITIES

For the operation of the facilities, the Authorization Holder must comply with all regulatory requirements established by the Regulatory Authority. He The Holder of the Authorization may not start the siting, construction, start-up, operation or closure and decommissioning without a prior Site, Construction License, Commissioning, Operation and / or Closure and decommissioning, as appropriate, requested by the Holder of the Authorization and granted by the Regulatory Authority.

G.7. FINAL DISPOSAL OF SPENT FUEL

At the moment this point does not apply.

Based on the foregoing, it is concluded that the obligations of the Safety section in the Management of Spent Fuel of the Convention are fully satisfied.

SECTION H

SAFETY IN RADIOACTIVE WASTE MANAGEMENT

H.1. GENERAL SAFETY REQUIREMENTS

According to the current regulation of Radioactive Waste Treatment, the Solid radioactive waste must be kept isolated from the biosphere over time necessary for it to have sufficiently decayed, using when necessary geological and engineering barriers with degrees of independence and adequate redundancy, to the satisfaction of the Competent National Authority and the Competent Environmental Authority.

According to Law 755 “Law of Comprehensive Waste Management” in its article 31, prohibits the introduction, deposit and transit through national territory, of waste toxic, dangerous, radioactive or other generated in foreign countries, which by their characteristics constitute a danger to the health of the population and the environment. Illegal traffic in hazardous waste will be sanctioned compliance with the penalties established by Law. "

Much of the waste generated in the Plurinational State of Bolivia is of very low, low and medium activity, which is why it is stored for decay by the same licensed institutions and safeguarded until it is released into the environment and is outside of regulatory control and can be managed as conventional waste or managed as disused sources.

In the case of disused sources, the Authorization Holder must perform the return management process to their country of origin through agreements between the parts. These mechanisms were established years ago to minimize generation of radioactive waste from the activities established in our country. It should be mentioned that the country has a facility for the Centralized Temporary Storage category 4 and 5 where several sources are housed in disuse; ABEN state operating entity will manage their departure from the country in compliance with the regulatory standards established in the country.

The regulation of Radioactive Waste Management, Sealed Sources in Disuse and Management of Spent Nuclear Fuel in the approval phase has planned interdependence for the management stages.

A biological, chemical and other risk associated with the management of radioactive waste is considered in the proposed regulation "Regulation of Radioactive Waste Management, Disused Sealed Sources and Management of Fuel” in the approval phase.

In order to prevent current technologies in use for the management of radioactive waste poses a potential risk for generation’s future, all licensing stages will be controlled and fiscalizated through the regulatory authority also emphasizes responsibility for safety of these facilities to the Authorization Holder.

H.2. EXISTING FACILITIES

Currently there is a radioactive waste management facility referred to storage, called Centralized Temporary Storage "ATC" category 4 and 5, which houses around 135 wastes and of which ABEN state operating entity must carry out the process of leaving the country.

In 2023, an inspection was carried out at the facility to review specific aspects of technological safety and physical security, and specifically the inventory of disused radioactive sources and radioactive waste. The inspection carried out will serve to improve the conditions of technological safety and physical security, which the operator must follow to manage the return of disused radioactive sources. This facility corresponds to the transition of powers and competences established by Supreme Decree No. 3892 of May 1, 2019, which transfers the facilities of the Nuclear Research and Applications Center (including the storage bunker) that belonged to the defunct IBTEN to ABEN.

H.3. LOCATION OF PLANNED FACILITIES

At present, the country has no projected incorporation of radioactive waste management facilities, however, when perform the location of these facilities will take into account the safety measures to establish security procedures, repercussions and safety consequences to be considered.

H.4. INSTALLATION SAFETY ASSESSMENT

Currently in our country, the management of low and medium activity waste is located in the same facilities that generate this waste, which are responsible for managing the waste until its release as conventional waste, complying with a series of requirements established by the Regulatory Authority.

The general requirements to start its operation are detailed in the regulation inapproval phase "Regulation for the Management of Radioactive Waste, Disused Sealed Sources and Fuel Management”and in the specific regulatory standards for each facility and activity.

As mentioned above for spent nuclear fuel management the decision will be made later by the Bolivian state.

Based on the foregoing, it is concluded that the obligations of the Safety in Radioactive Waste Management section of the Convention are fully satisfied.

SECTION I

TRANSBOUNDARY MOVEMENTS

I.1. INTRODUCTION

According to the current regulations for the Transport of Radioactive Materials, the transport of radioactive material in the country will comply with the "Regulations for the safe transport of radioactive materials" of the International Atomic Energy Agency, publication No. 6 of the Safety Collection, in the version that is current.

According to the Specific Regulatory Standard AETN-CL-I, II-0.06.01 Safe Transport of Radioactive Materials, for the Transport of Radioactive Materials the Authorization Holder must present to the AETN the commitment or contract of the supplier to manage the radioactive sources within its borders once they are no longer in use, the presentation of the technical administrative documentation by the Authorization Holder constitutes for the Regulatory Authority as a sworn declaration on the part of the Authorization Holder.

According to the Regulation “Management of Radioactive Waste, Sealed Sources in Disuse and Management of Spent Fuel ”, in approval phase, the facilities and activities of radioactive waste management will be conceived, designed and carried out considering, where applicable, transboundary effects potentials. In no case should a facility or activity of radioactive waste management, which may generate radiological risks in the health of people or the environment in the national territory, as well as beyond national borders.

According to article 47 of Law No. 1205, the importation of radioactive waste into the national territory is prohibited.

Regarding the transboundary movements of disused raioactivite sources, the regulations national complies with international treaties related to safe transport of radioactive materials.

Regarding the transboundary movements of spent nuclear fuel or waste radioactive, currently our country has not been a transit of this type of packages and according to the Constitution, the internment or transport of waste is prohibited nuclear and toxic waste in national territory.

Through Law No. 905 of February 22, 2017, the "Amendment to the Convention on Physical Protection of Nuclear Materials", approved on July 8, 2005, at the Conference in charge of examining and approving the Proposed Amendments to the Convention on the Physical Protection of Nuclear Materials, held from July 4 to 8 of the same year in Vienna, Republic of Austria, at the headquarters of the International Atomic Energy Agency (IAEA). In this convention the scope is specified mainly in the protection of nuclear materials during international nuclear transport in its use, storage and national transport.

The Bolivian state has adopted the Code of Conduct on Safety and Security of Radioactive Sources in its national regulation.

Based on the foregoing, it is concluded that the obligations of the transboundary Movements section of the Convention are fully satisfied.

SECTION J

DISUSED SEALED SOURCES

J.1. LEGISLATIVE AND REGULATORY FRAMEWORK

On June 26, 2014, the technical teams of the Los Alamos Laboratory (LANS), the subcontractor Qal Tech and the defunct IBTEN carry out the efforts for the repatriation of eight containers with 323 sources sealed in disused (sources are from the USA) that were in the Centralized temporary warehouse of the Center for Research and Applications Nuclear (CIAN), left for the United States. Annex B details some specifications of the sources transported.

Law No. 1205 in its article 48, establishes with respect to radioactive sources in disuse:

a) The Regulatory Authority is responsible for controlling the sources radioactive substances in disuse, for which the National Registry of Disused Radioactive Sources;

b) The holder of the Authorization of a Radioactive Source that has been imported into the country, you must take the necessary measures to ensure its return to supplier once it reaches its goal or its useful life.

Whenever an institution intends to import, export or re-export radioactive material from or to the country, it must request express authorization from the Regulatory Authority according to the requirements established in the specific regulatory regulations. In addition, the aforementioned authorizations will be issued only to institutions duly licensed by the Regulatory Authority.

The national regulatory framework establishes that for the importation of sealed sources, the Authorization Holder must present in a manner would mandate the Regulatory Authority to have an agreement with the supplier of the radioactive sources, so that it accepts them once they become in disuse.

In this sense, the regulatory authority has established various processes and procedures aimed at carrying out an adequate inspection of the radioactive sources in our country, for this it currently has the system of ARIS regulatory information, it is projected that in the 2021 management regulatory authority will carry out an integration of all its processes and regulatory procedures through the use of the RAIS computer system (Information System for Regulatory Authorities) the use of this IT tool will help the AETN to manage its control programs regulations in accordance with national regulations and standards and IAEA safety guidelines, with the implementation of the RAIS the Authority Regulatory will take a technological leap in terms of the control of radioactive and nuclear materials in the country.

Radioactive waste and unused sealed radioactive sources in the country come from activities carried out in medicine, industry, research and others; the regulatory authority has identified that both ABEN as the state operating entity

and industrial companies (industrial gammagraphy, oil prospecting, industrial measurement) concentrate the largest amount of unused radioactive sources in the country. Currently, there are records of the ATC (belonging to ABEN) and of oil prospecting activities.

The Regulatory Authority has planned that until management 2021 these institutions carry out the respective returns to the supplier country in 70% of your inventory from disused radiative sources.

Based on the above, it is concluded that the Obligations of the Disused Sealed Sources section of the Convention are fully satisfied.

SECTION K

GENERAL EFFORTS TO IMPROVE SAFETY

K.1. MEASURES IN THE PRESENT

The Bolivian state through the Regulatory Authority is building the entire normative regulatory framework for the licensing of management of radioactive waste and spent nuclear fuel.

The national regulatory framework is divided into two levels: General regulations and those of a specific nature, such as specific regulatory standards for each facility or activity. The intent of the specific regulatory standards is to establish requirements for nuclear, radiological and physical safety for each facility and activity.

The set of criteria set out in the specific regulatory standards represents the tool that used the Regulatory Authority in its safety assessments, and the consequent proposition license.

The National Regulatory Normative Framework is not prescriptive but, on the contrary, performance, that is to say that the fulfillment of safety; the way to achieve these objectives is based on the good judgment of engineering, in the qualification of designers, builders and operators and in the appropriate decision-making by the Authorization Holder. The owner of the Authorization must demonstrate and convince the AETN that the installation or activity will be carried out safely.

In general, specific regulations and regulatory standards are based on the international regulations proposed by the International Energy Agency Atomic (IAEA) and the International Commission on Radiological Protection (ICRP) available for nuclear facilities or radioactive facilities.

K.2. MEASURES FOR THE FUTURE

The national legal and regulatory framework to be developed will provide for the establishment of:

a) The applicable national requirements and provisions regarding safety.

b) A licensing system for these types of facilities, as well as the prohibition of the operation without a license.

c) A system of regulatory inspection and evaluation of facilities to verify compliance with the provisions applicable and what is stipulated in the licenses.

d) Measures to ensure compliance with the provisions applicable and the provisions of the licenses, including measures of suspension, modification or revocation.

K.3. SUGGESTIONS AND CHALLENGES

Since the beginning of regulatory activities in the country, it was considered that the effective performance of these functions required having sufficient scientific-technological knowledge as to judge with real independence the design, construction, operation and final closure of the facilities subject to control.

The Regulatory Authority is challenged to create a project to manage the regulatory knowledge that must be flexible and inserted in the control of the uses of nuclear technology in the country. In that sense, with a projection five years to manage knowledge, the vision that has been projected is that the Regulatory Authority, after those years, should have several mechanisms that identify, capture, reuse, share and créate knowledge. The image that is projected is that of an institution that has revalued the knowledge of its staff and the safeguarding of culture institutional, as well as that of an institution creating new knowledge.

That image that is projected in the future includes the operation specialized work groups and constant practice spaces that value the maintenance of historical knowledge and the creation of new knowledge depending on the circumstances. A plan is also displayed career of inspectors that works effectively, training and motivating active personnel, as well as defining the complete life cycle of the inspectors. The systematization of personnel training is projected for the creation and evaluation of regulatory standards. The project has the vision that staff training works in an integrated manner to all sectors of the institution and that the socialization of staff youth is related to the needs of each sector. Finally I know visualize young people training with experts and creating new knowledge jointly.

K.4. COMPLIANCE WITH OBLIGATIONS IMPOSED BY THE JOINT CONVENTION

A comparison of the content of Law No. 1205 and the Specific Regulatory Standard that is in the process of being drafted “Radioactive Waste Management, Disused Sealed Sources and Spent Nuclear Fuel Management” and the text of the Joint Convention on Safety in Spent Fuel Management and on Safety in Radioactive Waste Management results in the fact that the country, when the aforementioned standard is approved, will basically comply with the requirements of the Joint Convention on Safety in Spent Fuel Management and on Safety in Radioactive Waste Management.

REFERENCES

CONSTITUTION

- Political Constitution of the State (CPE), February 7, 2009.

LAWS

- Law N ° 2431 “On the approval and ratification of the accession of Bolivia to the Convention on the Prompt Notification of Nuclear Accidents, opened for signature in Vienna, on September 26, 1986 and in force as of October 27, 1986. 1986. ”, of November 28, 2002;

- Law No. 2439 “On the approval and ratification of Bolivia's accession to the Convention on Assistance in the event of a Nuclear Accident or Radiological Emergency, open for signature in Vienna, on September 26, 1986 and effective as of September 16 February 1987. ”, dated November 28, 2002;

- Law No. 2288 “On the approval of the accession of Bolivia to the“ Convention on the Physical Protection of Nuclear Materials ”, and its Annexes I and II, opened for signature in Vienna on March 3, 1980 and in force at as of February 8, 1987 for the States Parties ”, of December 4, 2001;

- Law No. 905 “On the Signing of Treaties, the“ Amendment to the Convention on Physical Protection of Nuclear Materials ”, approved on July 8, 2005, at the Conference in Charge of Examining and Approving the Proposed Amendments to the Convention is ratified on the Physical Protection of Nuclear Materials, held from July 4 to 8 of the same year in Vienna, Republic of Austria, at the headquarters of the International Atomic Energy Agency (IAEA). ”, of February 22, 2017;

- Law No. 755 "Law of Comprehensive Waste Management", October 28, 2015;

- Law No. 362 "on Privileges and Immunities of the International Atomic Energy Agency and Adherence to the Convention on Civil Liability for Nuclear Damage, signed in Vienna on May 30, 1967 by His Excellency Vice President of the Republic of Bolivia." 1967 Dec 11;

- Law No. 1581 “On the approval and ratification of the Safeguards Agreement, which Bolivia signed in 1974, as a State Party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the Treaty for the Prohibition of Nuclear Weapons in America Latin. ”, Of August 3, 1994;

- Law No. 19172 "Law of Safety and Radiological Protection", of September 1982;

- Law No. 1166 “That ratifies the“ Convention on Nuclear Safety ”, approved on June 17, 1994 in a Diplomatic Conference convened by the International Atomic Energy Agency, held at its Headquarters, Vienna, Republic of Austria”, of 11 April 2019;

- Law No. 1167 “Ratifies the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, Approved on September 5, 1997, at its Headquarters in Vienna, Republic of Austria.”, 11 of April 2019;

- Law No. 1205, “Law for the Peaceful Applications of Nuclear Technology”, August 1, 2019;

- Law No. 401, “Law on the Celebration of Treaties”, September 18, 2013;

- Law No. 1003 “Assigns the Competence of Nuclear Technology for peaceful purposes to the central level of the state; and establishes the conditions for the construction of Infrastructure and implementation of the Center for Research and Development in Nuclear Technology - CIDTN”.

SUPREME DECREES

- Supreme Decree No. 2654, January 20, 2016;

- Supreme Decree No. 3058, January 24, 2017;

- Supreme Decree No. 071, April 9, 2009;

- Supreme Decree No. 3892, May 02, 2019;

- Supreme Decree No. 2476, August 5, 2015;

- Supreme Decree No. 24483, January 29, 1997.

- Supreme Decree No. 1862, January 8, 2014.

ACTIVE REGULATIONS

- Regulation N ° 1 - Regulation of Radiation Sources;
- Regulation N ° 2 - Basic Norms of Radiological Protection;
- Regulation N ° 3 - General Provisions Licenses and Authorizations;
- Regulation N ° 4 - Inspections;
- Regulation N ° 5 - Transport of radioactive materials;
- Regulation N ° 6 - Radiation Safety Standards in the facilities;
- Regulation N ° 7 - Decontamination of Surfaces;
- Regulation N ° 8 - Treatment of Radioactive Waste;
- Regulation N ° 9 - Medical Control of Personnel exposed to Ionizing Radiations;
- Regulation No. 10 - Personnel Dosimetry;
- Regulation N ° 11 - Sanctions.

REGULATION IN THE PROCESS OF APPROVAL TO REGULATE LAW N ° 1205

- Regulation N ° 1 - Regulation of Safety and Radiological Protection;
- Regulation No. 2 - Licensing and Authorization Regulation;
- Regulation N ° 3 - Safety Regulation of Radiological Facilities;
- Regulation N ° 4 - Safety Regulation in Nuclear facilities;
- Regulation No. 5 – Regulation on Radioactive Waste Management, Disused Sealed Sources and Spent Nuclear Fuel Management (It will be treated as a Specific Regulatory Standard and approved by the Regulatory Authority.);
- Regulation N ° 6 - Regulation for the Safe Transport of Radioactive Materials;
- Regulation N ° 7 - Inspection Regulation;

- Regulation N ° 8 - Regulation of Preparedness and Response to Nuclear and Radiological Emergencies;
- Regulation N ° 9 - Regulation of Physical Security of Nuclear and Radiological Installations, Nuclear Materials and Radioactive Sources.

ANNEX A

Disused Sealed Sources Housed in the Centralized Temporary Storage Facilities "ATC"

Community of Viacha, Department of La Paz

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
1	V-03	V-03	Am-241 Be	1 Ci	NED	3796 MRC	NED	A-1	National Project BOL 9004, from the company Schlumberger Surenco.
2	V-75	V-75	Uranio	NED	NED	NED	NED	A-1	NED
3	V-79	V-79	Am-241 Be	NED	NED	NED	NED	A-1	From the Institut de Recherche pour le developpement - IRD
4	V-92	V-92	Cs-237	8,8 mCi	13/12/1978	CC-3005	NED	A-1	Coming from Santa Cruz, found on 08/19/2015, it is found in a piece of equipment (nuclear density meter), located in ATC on 10/07/2015.
5	V-93	V-93	Am-241 Be	40 mCi	13/12/1978	CAA-2081	NED	A-1	Coming from Santa Cruz, found on 08/19/2015, it is found in a piece of equipment (nuclear density meter), located in ATC on 10/07/2015.
6	V-49	V-49	Am-241	NED	NED	NED	NED	A-2	Contaminated Disc
7	V-80	V-80	Am-241	NED	NED	NED	NED	A-2	NED
8	V-81	V-81	Am-241	NED	NED	NED	NED	A-2	NED
9	Packaging	V-28	Ra-226	NED	NED	NED	NED	A-3	The source must be characterized

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
10	Embalaje	V-29	Ra-226	NED	NED	NED	NED	A-3	It has the shape of a ring welded to a pipe (Characterize the source)
11	Embalaje	V-30	Ra-226	NED	NED	NED	NED	A-3	Various small parts (Characterize)
12	CV-03	V-86	Am-241	NED	NED	21489	NED	A-3	1 of 6 lightning rods; PRRCL model.
13	CV-03	V-87	Am-241	NED	NED	21489	NED	A-3	1 of 6 lightning rods; PRRCL model.
14	CV-03	V-88	Am-241	NED	NED	21489		A-3	1 of 6 lightning rods; PRRCL model.
15	CV-03	V-89	Am-241	NED	NED	21489		A-3	1 of 6 lightning rods; PRRCL model.
16	CV-03	V-90	Am-241	NED	NED	21489		A-3	1 of 6 lightning rods; PRRCL model.
17	CV-03	V-91	Am-241	NED	NED	21489		A-3	1 of 6 lightning rods; PRRCL model.
18	V-52	V-52	Co-60	1850 MBq	07/11/2001	L459	A3810	B-1	Type A package, radioactive III, IT 2,9
19	CV-01	V-12	Co-60	NED	NED	M-445	NED	B-2	USNC(manufacturer)
20	CV-01	V-13	Co-60	NED	NED	N-300	NED	B-2	USNC(manufacturer)
21	CV-01	V-14	Co-60	0,27 mCi	NED	R-111	NED	B-2	BN(manufacturer)
22	V-15	V-15	Cs-237	1 µCi	27/11/1985		NED	B-2	Contaminated source
23	V-46	V.46.1	Na-22	285 µCi	NED	4486	NED	B-2	French industry, Centre Detudes Nucleaires, Na-22 KIT.
24	V-46	V.46.2	Na-22	1 µCi	NED	6774	NED	B-2	French industry, Centre Detudes

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
									Nucleaires, Na-22 KIT.
25	V-46	V.46.3	Co-60	0,122 µCi	NED	8433	NED	B-2	French industry, Centre Detudes Nucleaires, Co-60 KIT.
26	V-46	V.46.4	Cr-51	10 µCi	NED	6074	NED	B-2	French industry, Centre Detudes Nucleaires, Cr-51 case.
27	V-46	V.46.5	Y-88	0,138 µCi	NED	8877	NED	B-2	French industry, Centre Detudes Nucleaires, Y-88 KIT.
28	V-46	V.46.6	Cs-137	0,110 µCi	NED	4544	NED	B-2	French industry, Centre Detudes Nucleaires, Cs-137(1/2) KIT.
29	V-46	V.46.7	Cs-137	0,214 µCi	NED	5185	NED	B-2	French industry, Centre Detudes Nucleaires, Cs-137(2/2) KIT.
30	V-47	V-47.1	Mn-54	12,5 µCi	NED	7280	NED	B-2	Cr-51, Cr-144, Ru-106, Mn-54(x3), Co-60 (KIT)
31	V-47	V-47.2	Mn-54	0,17 µCi	NED	5717	NED	B-2	Cr-51, Cr-144, Ru-106, Mn-54(x3), Co-60 (KIT)
32	V-47	V-47.3	Mn-54	0,15 µCi	NED	5033	NED	B-2	Cr-51, Cr-144, Ru-106, Mn-54(x3), Co-60 (KIT)
33	V-47	V-47.4	Co-60	NED	NED	3203	NED	B-2	Cr-51, Cr-144, Ru-106, Mn-54(x3), Co-60 (KIT)
34	V-47	V-47.5	Ru-106	0,126 µCi	NED	9069	NED	B-2	Cr-51, Cr-144, Ru-106, Mn-54(x3), Co-60 (KIT)
35	V-47	V-47.6	Cr-144	0,082 µCi	NED	4225	NED	B-2	Cr-51, Cr-144, Ru-106, Mn-54(x3), Co-60 (KIT)
36	V-47	V-47.7	Kr-51	0,902 µCi	NED	4641	NED	B-2	Cr-51, Cr-144, Ru-106, Mn-54(x3), Co-60 (KIT)
37	V-48	V-48.1	Y-88	0,201 µCi	NED	5639	NED	B-2	3 Calibration sources (KIT)
38	V-48	V-48.2	Y-88	12,1 µCi	NED	7292	NED	B-2	3 Calibration sources (KIT)

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
39	V-48	V-48.3	Y-88	0,193 µCi	NED	5149	NED	B-2	3 Calibration sources (KIT)
40	V-54	V-54	Ir-192	NED	NED	K0307	NED	B-2	Source from IBNORCA
41	V-55	V-55	Eu-152 y Co-60	NED	NED	NED	NED	B-2	Source from Aduana (Characterize)
42	V-65	V-65.1	Mn-54	0,551 µCi	jul-64	NED	NED	B-2	Set of 5 well fountains Picker (USA) (KIT)
43	V-65	V-65.2	Cs-137	0,102 µCi	jul-67	NED	NED	B-2	Set of 5 well fountains Picker (USA) (KIT)
44	V-65	V-65.3	Co-60	0,105 µCi	jul-67	NED	NED	B-2	Set of 5 well fountains Picker (USA) (KIT)
45	V-65	V-65.4	Na-22	0,158 µCi	jun-63	NED	NED	B-2	Set of 5 well fountains Picker (USA) (KIT)
46	V-65	V-65.5	SIN I-131	0,100 µCi	jul-67	NED	NED	B-2	Set of 5 well fountains Picker (USA) (KIT)
47	V-66	V-66	Cd-109	25 mCi	NED	NED	NED	B-2	Amersham (UK), Ring font
48	V-67	V-67	Mn-54	4,190 KBq	NED	NED	NED	B-2	LMRI Calibration Source Set (France), Acrylic Boxes
49	V-68	V-68	Co-57	4,192 KBq	NED	NED	NED	B-2	LMRI Calibration Source Set (France), Acrylic Boxes
50	V-69	V-69	Co-60	4,799 KBq	NED	NED	NED	B-2	LMRI Calibration Source Set (France), Acrylic Boxes
51	V-71	V-71	Fe-55	10mCi	01/09/1997	NED	K25122	B-2	Ring font
52	V-72	V-72	Cd-109	25 mCi	NED	NED	NED	B-2	Cylinder
53	V-82	V-82.1	Bi-210	1,15E-08 Ci	NED	658-224	NED	B-2	Silver disc, Picker, Physics career. Reg 1-025, box 6 series 192

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
54	V-82	V-82.2	C-14	8,00E-09 Ci	NED	25-1321	NED	B-2	Silver disc, Picker, Physics career.Reg 1-025, caja 6 serie 192
55	V-82	V-82.3	Co-60	0 Ci	NED	658-352	NED	B-2	Silver disc, Picker, Physics career.Reg 1-025, caja 6 serie 192
56	V-82	V-82.4	Pa-234	0 Ci	NED	658-1325	NED	B-2	Silver disc, Picker, Physics career.Reg 1-025, caja 6 serie 192
57	V-82	V-82.5	Tl-214	1,00E-08 Ci	NED	658-223	NED	B-2	Silver disc, Picker, Physics career.Reg 1-025, caja 6 serie 192
58	V-83	V-83.1	Bi-210	0 Ci	NED	25-1324	NED	B-2	Silver disc, Picker, Physics career.Reg 1-025, caja 6 serie 192
59	V-83	V-83.2	C-14	1,65E-07 Ci	NED	658-221	NED	B-2	Box No. 5 Serie 658350, silver disc, picker, physics career
60	V-83	V-83.3	Co-60	1,53E-08 Ci	NED	658-222	NED	B-2	Box No. 5 Serie 658350, silver disc, picker, physics career
61	V-83	V-83.4	Pa-234	0 Ci	NED	658-225	NED	B-2	Box No. 6 Serie 192, silver disc, picker, physics career
62	V-83	V-83.5	Tl-204	0 Ci	NED	658-353	NED	B-2	Box No. 5 Serie 658350, silver disc, picker, physics career
63	V-84	V-84.1	Am-241	4,89E-06 Ci	NED	5156	NED	B-2	Coin, deteriorated golden center, LMR, Physics Career
64	V-84	V-84.2	Am-241	1,70E-06 Ci	NED	4572	NED	B-2	Coin, gold center, picker, Physics Career
65	V-84	V-84.3	Ba-133	0 Ci	NED	658-311	NED	B-2	Black disc, picker, physics career

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
66	V-84	V-84.4	C-14	0 Ci	NED	71206-401865	NED	B-2	Lithium battery, Cenco, physics career
67	V-84	V-84.5	C-14	0 Ci	NED	71206-401868	NED	B-2	Lithium battery, Cenco, physics career
68	V-84	V-84.6	Ce-144	0 Ci	NED	3470	NED	B-2	Coin with gold center, LMR, physics career
69	V-84	V-84.7	Co-57	4,06E-07 Ci	NED	4311	NED	B-2	Silver Ring, LMR, Physics Race
70	V-84	V-84.8	Co-57	1,23E-07 Ci	NED	4740	NED	B-2	Silver Ring, LMR, Physics Race
71	V-84	V-84.9	Co-60	0 Ci	NED		NED	B-2	Orange disc, physics race
72	V-84	V-84.10	Cs-137	9,0E-06 Ci	NED	184431	NED	B-2	Circular gray blue, The nuclear Chicago, physics career
73	V-84	V-84.11	Cs-137	1,0E-06 Ci	NED	658-194	NED	B-2	Cyl green sediment, physics race, placed in paper envelope (V-84.11 and V-84.12)
74	V-84	V-84.12	Cs-137	1,0E-06 Ci	NED	658-194	NED	B-2	Cyl green sediment, physics race, placed in paper envelope (V-84.11 and V-84.12)
75	V-84	V-84.13	Mn-54	0 Ci	NED	658-312	NED	B-2	White disc, picker, physics career
76	V-84	V-84.14	Po-210	NED	NED	NED	NED	B-2	Red disc, The nuclear, physics career
77	V-84	V-84.15	Tl-204	8,0E-06 Ci	NED	184441	NED	B-2	Yellow disc, The nuclear Chicago, physics major
78	V-08	V-08	Co-60	20,5 mCi	NED	NED	NED	C-1	It was measured at 1 m distance
79	V-25	V-25	Co-60	NED	202	NED	NED	C-1	Russian container KIZ-54M

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
80	V-53	V-53	Co-60	1110 MBq	07/11/2001	L426	A3809	D-1	Type A package, radioactive III, IT 2.0
81	V-70	V-70	Cs-137	NED	NED	NED	NED	D-1	Test tube in well Pb
82	V-73	V-73	Cs-137	NED	NED	NED	NED	D-1	Berthold (Container)
83	V-74	V-74	Cs-137	NED	NED	NED	NED	D-1	Berthold (Container)
84	V-76	V-76	Sr-90	NED	NED	NED	NED	D-1	Hospital Obrero No. 1 - Betatherapy - CNS
85	V-23	V-23	Ra-226	0,1 mCi	NED	GSR-E 1222	NED	E-1	It is a device that houses the two sources (V-23, V-24), from the Schlumberger company
86	V-24	V-24	Co-60	0,270 mCi	1237	NED	NED	E-1	It is a device that houses the two sources (V-23, V-24), from the Schlumberger company
87	caja	V-77	Ra-226	NED	NED	NED	NED	E-1	Yellow metal box, Physics Race
88	caja	V-78	Ra-226	1,3 µCi	NED	NED	NED	E-1	Yellow metal box, Physics Race
89	V-85	V-85	Ra-226	NED	NED	NED	NED	E-1	NED
90	V-18	V-18	Thorium nitrate	NED	NED	NED	NED	E-2	4 Cans each of 50 g
91	V-18	V-18	Thorium nitrate	NED	NED	NED	NED	E-2	A small bottle with 5 g
92	V-17	V-17	NO_3U_2	NED	NED	NED	NED	E-3	A tube with 5 ml of Uranil Nitrate
93	V-17	V-17	NO_3U_2	NED	NED	NED	NED	E-3	A small jar
94	V-17	V-17	Uranio	NED	NED	NED	NED	E-3	One 80g bottle

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
95	V-17	V-17	NO_3U_2	NED	NED	NED	NED	E-3	One 30g bottle
96	V-17	V-17	NO_3U_2	NED	NED	NED	NED	E-3	A small bottle with 20 g of uranyl nitrate
97	V-17	V-17	NO_3U_2	NED	NED	NED	NED	E-3	A small bottle with 20 g of uranyl nitrate
98	V-17	V-17	NO_3U_2	NED	NED	NED	NED	E-3	A small bottle with 1 g of uranyl nitrate
99	V-17	V-17	Uranil Acetate	NED	NED	NED	NED	E-3	A small bottle with 2 g
100	V-17	V-17	Uranil Acetate	NED	NED	NED	NED	E-3	A small bottle with 15 g
101	V-17	V-17	Uranium	NED	NED	NED	NED	E-3	Small jars with 50 g
102	V-17	V-17	Uranium	NED	NED	NED	NED	E-3	A small bottle with 25 g
103	V-19	V-19	Uranium	NED	NED	NED	NED	E-3	Solid waste
104	CV-02	V-20	Tritium White	2,50 Ci	NED	NED	NED	E-3	A sealed can
105	CV-02	V-21	Tritium White	NED	NED	NED	NED	E-3	An open can with three blanks each in an envelope
106	V-22	V-22	H-3	NED	NED	NED	NED	E-3	An open can with tritium
107	Embalaje	V-44	Tantalum soil samples	NED	NED	NED	NED	E-2	4 packages each of 183 g + L75
108	V-94	V-94	Tritium	0,256 TBq	01/01/1983	NED	NED	E-2	On 04/12/2017, material found during the dismantling of the neutron generator

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
109	V-95	V-95	Tritium	0,22 TBq	NED	NED	NED	E-2	On 04/12/2017, material found during the dismantling of the neutron generator
110	V-96	V-96	Tritium White	NED	NED	NED	NED	E-2	On 04/12/2017, material found during the dismantling of the neutron generator
111	CV-04	V-31	Tritium White	4 Ci	13/09/1990	NED	NED	E-3	English industry
112	CV-04	V-32	Tritium White	NED	01/09/1989	NED	NED	E-3	French industry
113	CV-04	V-33	Tritium White	NED	11/03/1988	268	NED	E-3	NED
114	CV-04	V-34	Tritium White	NED	21/04/1989	NED	NED	E-3	NED
115	CV-04	V-35	Tritium White	NED	23/03/1988	NED	NED	E-3	indicates 8 hours of activation
116	CV-04	V-36	Tritium White	NED	NED	NED	NED	E-3	New Polish - unused
117	CV-04	V-37	Tritium White	NED	NED	NED	NED	E-3	No data
118	CV-04	V-38	Tritium White	NED	16/09/1989	NED	NED	E-3	No data
119	CV-04	V-39	Tritium White	NED	01/09/1988	NED	NED	E-3	NED
120	CV-04	V-40	Tritium White	NED	20/04/1988	NED	NED	E-3	NED
121	CV-04	V-41	Tritium White	NED	NED	NED	NED	E-3	11 fonts without features

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
122	CV-04	V-42	Tritium White	NED	15/12/1988	TO5.2	NED	E-3	NED
123	CV-04	V-43	Tritium White	NED	NED	NED	NED	E-3	Solid waste
124	CV-04	V-45	Tritium White		20/08/1992	NED	NED	E-3	NED
125	V-50-I	V-50-I	C-14	NED	NED	NED	NED	E-3	4 liter drum (Liquid)
126	V-50-II	V-50-II	C-14	NED	NED	NED	NED	E-3	4 liter drum (Liquid)
127	V-51	V-51	Ra-226, Cs-137	NED	NED	NED	NED	E-3	Contaminated solid waste
128	V-97-A	V-97-A	radioactive waste	NED	NED	NED	NED	F-1	Radioactive waste generated from June 02 to 05, 2014, product of the dismantling and conditioning of the disused radioactive sources of CIAN-VIACHA
129	V-97-B	V-97-B	radioactive waste	NED	NED	NED	NED	F-1	Radioactive waste generated from June 02 to 05, 2014, product of dismantling and conditioning of disused radioactive sources at CIAN-Viacha
130	V-97-C	V-97-C	radioactive waste	NED	NED	NED	NED	F-1	Radioactive waste generated from June 02 to 05, 2014, product of dismantling and conditioning of disused radioactive sources at CIAN-Viacha

N.°	Container	Source code	Source	activity	Initial Activity Date	Source Series	Container Series	Location (*)	Observations
131	V-98	V-98	I-125	3,05 mCi	27/10/1987	NED	NED	F-1	Liquid radioactive source
132	V-99	V-99	NED	NED	NED	NED	NED	F-2	Container without identification
133	V-100	V-100	NED	NED	NED	NED	NED	F-1	Container contaminated with Ra-226, product of the dismantling of radioactive sources in disuse at CIAN-VIACHA (Dates 02 to 05 June 2014)
134	V-101	V-101	NED	NED	NED	NED	NED	F-1	Container contaminated with Ra-226, product of the dismantling of radioactive sources in disuse at CIAN-Viacha (Dates 02 to 05 June 2014)
135	V-102	V-102	Trimmers de uranio	NED	NED	NED	NED	F-1	Uranium trimmers, uranium blocks, from Sucre

NED – No Data

* It refers to the location of the material described in the warehouse. There are columns divided from A to F and sectioned rows from the top "1" to the bottom "3".

ANNEX B

Disused Sealed Sources exported under International Cooperation

N.°	Radionuclide	Quantity	Code	Container	Packaging Data		
					IT	Category	activity
1	Ra-226	180	UN 3332	0512-3249 (1221-575-Cs) SFC II-1-615	4.4	Yellow III	17,1 GBq
2	Co-60	10	UN 2915	0512-3237 (SC1014G)	0,1	Yellow II	0,11 MBq
3	Cs-137	18	UN 2915	0512-3252 (1221-575-CS-0)	0,5	Yellow II	163,0 GBq
4	Cs-137	88	UN 2915	0512-3250 (1221-575-CS-0)	2,8	Yellow II	57,3 GBq
5	Am-241 (10); Am241Be (1); Am241Be Cs-137 (2)	13	UN 3332	PSI OSR-055(IBTEN#1)	1,8	Yellow III	31 GBq
6	Co-60	4	UN 2915	0809(S100)	0,1	Yellow II	4,0 GBq
7	Am241 Be(2)	2	UN 3332	00935(S100)	2,9	Yellow III	344GBq
8	Cs-137 (6); Ir- 192(1); Sr-90 (1)	8	UN 2915	IBTEN#2	0,4	Yellow II	13,3 MBq
TOTAL		323 Disused sealed sources					