

CONVENTION ON NUCLEAR SAFETY

NATIONAL REPORT OF THE REPUBLIC OF CHILE

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A. GENERAL DISPOSITIONS

Chile doesn't have nuclear power installations in operation, closed neither foreseen, then there are not applicable the obligations of the country established in the Convention on Nuclear Safety.

The existing nuclear facilities in the country, all of investigation and in operation, are the following ones:

- (a) Two nuclear research reactors, of 5 and 2 MWt, respectively;
- (b) A fuel element (type MTR) production plant;
- (c) A conversion plant of UF₆ to U₃O₈

B. LEGISLATION AND REGULATION

Article 7. Legislative and Regulatory Framework

The legislative and regulatory framework applicable to the nuclear facilities in Chile is defined in the following Laws and Supreme Ordinances:

- (a) LAW N° 18.302 - LAW OF NUCLEAR SAFETY, published in the Official Gazette N° 31.860 of May 2 1984. This law consists of six titles, that is:
 - i) TITLE I - OF THE REGULATORY AUTHORITY, in which is defined the different regulatory bodies and their field of jurisdiction.
 - ii) TITLE II - DEFINITIONS
 - iii) TITLE III - OF THE NUCLEAR SAFETY, in which the general approach related with nuclear safety are settled down, including the different authorizations and their requirements, required to operate a nuclear installation.
 - iv) TITLE IV - OF THE INFRACTIONS TO THE LEGAL AND REGULATION REQUIREMENTS ON PROTECTION AND NUCLEAR SAFETY, establishes the sanctions that can be apply in case that of not compliance with the Law.
 - v) TITLE V - OF THE CIVIL RESPONSIBILITY FOR NUCLEAR DAMAGE, establishes the amount and the modes of insurance to cover nuclear damage.
 - vi) TITLE VI - OF THE RADIOACTIVE FACILITIES, establishes the competent authority for the control of the radioactive facilities and the responsibility for the preparation of the associated normative applicable to these facilities.

- (b) LAW N° 18.730 - MODIFIES THE LAW ON NUCLEAR SAFETY, published in the Official Gazette N°33.143 of August 10, 1988. This Law only modifies the Title VI of the previous Law, with regard to the competent authority for the control of the radioactive facilities. The Chilean Nuclear Energy Commission is incorporated as competent authority for the control of the facilities of the first category, as established in the Decree Law N° 133, indicated later on.
- (c) DECREE LAW N° 133/84 – REGULATIONS ON AUTHORIZATIONS FOR RADIOACTIVE FACILITIES OR IONIZING RADIATION GENERATING EQUIPMENTS, PERSONAL THAT WORKS IN THEM, OR OPERATE SUCH EQUIPMENTS AND OTHER RELATED ACTIVITIES, published in the Official Gazette N° 31.955 of August 23, 1984. This ordinance categorizes the different radioactive facilities, according to the risk associated to the practice, the required authorizations and the associate requirements, for facilities as workers; it includes the import, export and transport of radioactive materials. Includes the way to apply sanctions.
- (d) DECREE LAW N° 87/84 - REGULATION ON PHYSICAL PROTECTION OF MATERIALS AND NUCLEAR FACILITIES, published in the Official Gazette N° 32.117 of March 9, 1984. It is based on the document INFCIRC/225 of the IAEA.
- (e) DECREE LAW N° 3/85 - REGULATION ON RADIOLOGICAL PROTECTION OF RADIOACTIVE FACILITIES, published in the Official Gazette N° 32.153 of January 3, 1985. Basically it establishes the limits of acceptable dose (based on the ICRP N° 26) and the requirements for the Services of Personal Dosimetry that settle down in the country.
- (f) DECREE LAW N° 12/85 - REGULATION FOR THE SAFE TRANSPORT OF RADIOACTIVE MATERIALS, published in the Official Gazette N° 32.192 of June 10, 1985. It is a transcription of the version 1985 of the Safety Guide N° 6 of the IAEA – Regulations for the safe transport of radioactive material.
- (g) DECREE LAW N° 272/97, PROMULGATE THE CONVENTION ON NUCLEAR SAFETY, published in the Official Gazette N° 35.780 of June 3, 1997. This Decree adopts the approved text of the Convention on Nuclear Safety subscribed by the country.

Article 8. Regulatory body

The Law of Nuclear Safety (Law N° 18.302), in their Article 2° establishes that the regulation, the supervision, the control and the inspection of the activities related with the peaceful uses of the nuclear energy and with the facilities and the nuclear substances that are used in them correspond to the Chilean Nuclear Energy Commission and the Ministry of Mining in their case.

In the Article 4° of the same Law, it is indicated that for the siting, construction, commissioning, operation and decommissioning of the facilities, plants, centers, laboratories, establishments and nuclear equipment an authorization of the Chilean Nuclear Energy Commission will be needed and that for the nuclear power stations, enrichment plants, reprocessing plants and the permanent storage of radioactive waste will be authorized by supreme ordinance, through the Ministry of Mining.

According to the above-mentioned, of the two regulatory bodies for the nuclear facilities, the Ministry of Mining has the responsibility of licensing the facilities covered by the Convention on Nuclear Safety. This ministry depends directly of the Central Government and the Chilean Nuclear Energy Commission, is related with the Government through the Ministry of Mining.

In connection with the of promotion and use of the nuclear energy, the Law N° 16.319 that creates the Chilean Nuclear Energy Commission, settles down among its functions the one of fomenting, to carry out or to investigate the exploration, exploitation and the benefit of natural atomic materials, its trade and the production and use with peaceful aims of the nuclear energy in all its forms.

Article 9. Responsibility of the licensee

The main responsibilities of the licensee are the following:

- (a) To carry out only the acts or operations determined in the licenses
- (b) To assume the responsibility for the nuclear damages that occurs in the facilities under his control.
- (c) To have the number of people with authorization to work in each installation, plant, center, laboratory or nuclear equipment determines by the regulatory body.
- (d) To provide the necessary means for the treatment and definitive storage of the radioactive waste. The regulatory body won't authorize the storage of nuclear or radioactive waste in national territory, unless they take place or originate in it.
- (e) To prepare and to maintain emergency plans revised and approved by the regulatory body, for nuclear accidents that could happen in its installations.
- (f) To prevent the damages that could be derived from theft, robbery or loss of nuclear substances.
- (g) He cannot give up the licenses or authorizations in advance, unless he give, to satisfaction of the regulatory body, enough guarantees for the decommissioning and fulfill any requirement established in the regulation.

The form of verifying that the licensee assumes his primordial responsibility for the safety is through the establishment of license conditions, and his verification through inspections, in which it is also verified the execution of the requirements of the legislation.

C. SAFETY RELATED GENERAL CONSIDERATIONS

Article 10. Priority to safety

The Government of Chile, through the existent legal and normative structure in the country, has demonstrated his concern and interest in the matter, matter that has been ratified with the subscription and ratification of the following conventions:

- Convention on Early Notification of a Nuclear Accident (1986) (signed)
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986) (signed)
- Vienna Convention on Civil Responsibility for Nuclear Damage (1989) (ratified)
- Joint protocol related with the application of the Vienna Convention and the Convention of Paris on civil responsibility for nuclear damage (1989) (ratified)
- Treaty for the prohibition of nuclear weapons in Latin America (Tlatelolco Treaty) (1994) (signed)
- Convention on the Physical Protection of Nuclear Material (1994) (consent)
- Treaty on non proliferation of nuclear weapons (1995) (signed)
- Convention on Nuclear Safety (1996) (ratified)
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

Article 11. Financial and human resources

The national legislation doesn't demand the licensee to demonstrate that he has the financial resources to give support to the nuclear installation along its useful life. It only considered requirements for the human resources.

The national legislation doesn't consider requirements on financial resources for the decommissioning program and the administration of radioactive waste.

In Chile don't exist regulations on the qualification, training and personnel's retraining. The law establishes the necessity to qualify the personnel and of defining requirements of personal qualification to the workers.

Article 12. Human factors

Chilean regulations don't include a method to prevent, to detect and to correct human errors. It has been considered the application of the Guides of the IAEA in case that is required.

As part of the licensing of the research nuclear facilities of the CCHEN, a Risk Analysis tools have been used. It includes the consideration of human errors, settling down measures to detect and to correct these errors. Also, the CCHEN, as the regulatory body and as licensee of the research nuclear facilities of the country, has established programs of requalification of operators.

Article 13. Quality Assurance

Chilean regulations don't establish approaches of quality assurance. It has been considered the application of the Guides of the IAEA in case that is required.

For the upgrading of one of the nuclear reactors of investigation of the CCHEN, a formal program of quality assurance was applied, based on the American Norm ANSI.

Article 14. Evaluation and verification of safety

Chilean regulations don't establish a procedure to grant licenses and issue reports on safety in the different stages related with a nuclear installation project.

For the emission of reports on safety of the research reactors, internal regulations of the Chilean Nuclear Energy Commission are applied, which are in revision process.

Article 15. Radiological protection

The main legal body that contains requirements on radiological protection is the Supreme Ordinance N° 3 that defines the dose limits and establishes general conditions of radiological protection, as well as the requirements to be recognized as dosimetría service.

The Chilean Nuclear Energy Commission (CCHEN), in the operation of the existent nuclear research facilities in the country, has established programs of radiological protection guided to watch over the doses of the occupationally exposed workers.

The country has a system of environmental radiological surveillance that covers the research nuclear centers, with the purpose of watching over the emissions of the facilities of the CCHEN and at country level, to evaluate the depositions of radioactive material coming from transnational activities.

Article 16. Emergency preparedness

The law of nuclear safety demands that each licensee should have an emergency plan that covers the whole spectrum of possible emergencies in a given installation.

To this respect, the CCHEN has prepared emergency plans for its two nuclear research centers that consider emergencies that involve areas outside of the site. It has not been made exercises or drills, CCHEN has not coordinated with external organisms neither has taken measures to inform the public about the preparation for emergencies in the vicinities of the nuclear installation.

CCHEN is preparing a National System for Radiological Emergencies, in which is included to the two existent nuclear research centers investigation in the country. In this same system will be inserted the specific plans that should be prepared for the future Nuclear Power Plants.

D. SAFETY OF FACILITIES

Article 17. Siting

Chilean regulations don't establish a procedure to grant licenses, except for the mention in the Law of Nuclear Safety that the nuclear facilities require a siting license. It has been considered the application of the Guides of the OIEA in case that is required.

For the realization of siting studies for nuclear research facilities, internal norms of the Chilean Nuclear Energy Commission are applied, which are in revision process.

Article 18. Design and construction

Chilean regulations don't establish a procedure to grant licenses, except for the mention in the Law of Nuclear Safety that the nuclear facilities require a construction license. It has been considered the application of the Guides of the OIEA in case that is required.

For the nuclear facilities of investigation internal norms of the Chilean Commission of Nuclear Energy are applied, which are in revision process.

Article 19. Operation

An established procedure doesn't exist to grant licenses, except for the mention in the Law of Nuclear Safety that the nuclear facilities require an operation license. It has been considered the application of the Guides of the OIEA in case that is required.

For the nuclear research facilities, internal norms of the Chilean Nuclear Energy Commission are applied, which are in revision process.

E. ACTIVITIES TO IMPROVE SAFETY

The main concern of the country in this area is to update the legislation that has relation with the control of the existent nuclear and radioactive facilities and those that will be build in the future.

With this aim, the whole effective legal framework is under revision, beginning with the Law of Nuclear Safety. In parallel, there are ready new versions of the following DECREE LAW:

- ✧ N° 133, with the purpose of including all the possible practices,
- ✧ N° 3, to incorporate the approaches of the ICRP 60 and the Guide of Safety N° 115 of the OIEA, and
- ✧ N° 12, to incorporate the requirements of Safety Guide ST-1 of the OIEA.

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