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Project**

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**“REGULATORY APPROACH
ON DECOMMISSIONING OF NUCLEAR INSTALLATIONS
IN ARGENTINA”**

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1. INTRODUCTION

The Nuclear Regulatory Authority (ARN) is in charge of nuclear activity regulations and control, concerning radiological and nuclear safety, safeguards and physical protection. The ARN is an independent entity within the jurisdiction of the Presidency of the Nation, and has full legal power to act in the fields of public and private rights. The regulatory system applied in Argentina by ARN considers that the owner and operating organization, known as Responsible Organization, is fully responsible for the radiological and nuclear safety of the installation.

The regulatory standards are not prescriptive, but, on the contrary they are “performance based” standards, that is to say, they establish the fulfillment of safety objectives. The construction, commissioning, operation or decommissioning of a significant nuclear installation shall not start without the corresponding license issued by the Regulatory Authority.

2. LEGAL FRAMEWORK

During the period 1950 to 1994 the National Atomic Energy Commission (CNEA) had, among other areas of competence, the regulatory function in the field of radiological and nuclear safety, particularly on those aspects concerning the human health protection against the harmful effects of ionising radiation, the nuclear installations safety and the control of nuclear material use.

In 1994 the Executive Power transferred the Authority for regulation of nuclear activities from the Regulatory Branch of CNEA to the National Board on Nuclear Regulation (ENREN) through the Decree No 1540/94. This decree also created a state company (Nucleoeléctrica Argentina SA, NASA, owner of the nuclear power plants), with the aim of privatising their activities in the near future. The decree established that CNEA would even continue as a research and development institution. In April 1997, Act No 24804; “National Law of Nuclear Activity” [1] was passed, proclaiming (in its Article 7) the creation of the Nuclear Regulatory Authority (ARN). This authority is in charge of nuclear activity regulations and control concerning radiological and nuclear safety, safeguards and physical protection, giving, in addition, advice to the Executive Power on subjects of its competence.

The resources and technical personnel of ARN arose from from the former ENREN and from the regulatory branch of the National Commission of Atomic Energy, and its structure was adapted to the mandate. The Regulatory Authority has a highly competent technical personnel.

The Act N° 24804 establishes also that CNEA is responsible for determining the decommissioning of nuclear power plants and any significative radioactive facility.

3. REGULATORY FRAMEWORK

. Such concepts, are the following:

Basic criteria of radiological and nuclear safety.
Responsibility for safety.

4. LICENSING SYSTEM AND REGULATORY ACTIVITIES

The regulatory standards establish a Licensing System. One of its main requirements is that the construction, commissioning, operation or decommissioning of a significant nuclear installation shall not start without the corresponding licence, required by the Responsible Organisation and issued by the Regulatory Body.

- Routine inspections
- Non routine inspections
- Assessments
- Audits

5. APPLICABLE REGULATIONS TO THE DECOMMISSIONING STAGE

Four main standards issued by the Regulatory Authority are applicable to the decommissioning stage of nuclear installations in Argentina. One of them is specific and the other three have general requirements for the licensing of nuclear installations and for the radiological or waste safety. They are:

1. “Licensing of Relevant Nuclear Installations”¹, AR 0.0.1, Rev.1, 1997.

¹ In the Argentinean standards, Installations are considered as *relevant* and *non-relevant* (or minor) in function of the associated risk. Examples of relevant installations: nuclear reactors, large accelerators.

2. “Basic Standard for Radiological Safety”, AR 10.1.1, Rev.2, 1999.

3. “Decommissioning of Nuclear Power Plants”, AR 3.17.1, Rev.1, 1995.

4. “Radioactive waste management”, AR 10.12.1, Rev.0, 1999.

5.1 “Licensing of Relevant Nuclear Installations”

The basic concepts of this standard are:

A **licence** issued by the Regulatory Authority is required for the construction, operation and decommissioning stages of an installation life-cycle.

A **Responsible Organisation (RO)** must be identified for each stage of a relevant installation. This RO is responsible for the nuclear and radiological safety of the installation in each of its stages: design, construction, commissioning, operation and decommissioning.

The **RO** must identify a qualified staff member, called **Primary Responsible**, who is assigned with the direct responsibility for the nuclear and radiological safety of this installation.

The **Responsible Organisation** shall present to the Regulatory Authority, with the precedence that this decides, the technical documents required for the safety assessment, nuclear and radiological, of the installation stage whose licence is applied to.

5.2. "Basic Standard for Radiological Safety"

This standard provides the radiological criteria to be applied for the decommissioning of nuclear facilities. Although this applicability is not explicitly mentioned in the standard, the **decommissioning stage is considered a part of an installation life-cycle** (according to the AR.0.0.1. Standard, and other international recommendations).

5.3. "Decommissioning of Nuclear Power Plants", AR 3.17.1, Rev.1, 1995.

This standard establishes the general requirements for the decommissioning stage.

The main conditions are:

The **Responsible Organisation**, holder of the **Decommissioning Licence**, is responsible for the planning and provision of the required resources for the safe decommissioning of the nuclear power plant.

The **Decommissioning Programme** shall consider the necessary institutional arrangements and, anticipate the adequate radiological protection in each step.

A previous approval by Regulatory Authority is required to implement the Programme.

The **Decommissioning Programme** shall include all the necessary steps for ensuring the adequate radiological protection with the minimal surveillance after the decommissioning.

The **Responsible Organisation** may delegate to perform the decommissioning, either totally or partially, to third parties, but keeping all responsibilities. During the decommissioning process, the **Responsible Organisation** shall contemplate and put under Regulatory Authority consideration, the following:

- a) Management of the project
- b) Site management
- c) Role and responsibilities of the organisations involved and plants where radioactive materials are processed, used or stored and their inventory is about a given amount.
- d) Radiation protection
- e) Quality assurance
- f) Waste segregation, conditioning, transport and final disposal
- g) Surveillance after completion of partial stages of decommissioning
- h) Physical protection
- i) Safeguards and non-proliferation Commitments

If the dismantling is deferred for a significant period of time after the final shutdown decision, the **Responsible Organisation** shall provide the adequate storage for drawings, reports, data and all the relevant documents for the decommissioning. In this case, the **Responsible Organisation shall keep its responsibilities during this period, maintaining in operation all the safety systems required to keep the facility on safe conditions.**

By Decree 1390/98 , whose Annex I regulates said law, establish among other things, CNEAs liability as Responsible Organization for defining the manner in which nuclear power plants shall be decommissioned, and also the liability of the agency that operates such reactors

6. BACKGROUND

All along the nuclear activity in Argentina dismantling and decommissioning activities have been performed, namely:

- Dismantling of RA-2 Critical Facility at CNEA Constituyentes Atomic Center, 1984-1989. The building that housed the reactor is now open for unrestricted use.
- Dismantling of the internal parts of the tank, nuclear and conventional instrumentation of RA-3 radioisotope production reactor at CNEA Ezeiza Atomic Center, 1988-1990. These tasks were part of the program to increase the power of said reactor which is at present in operation.
- Removal and repair of internal parts of CNAI NNP due to the brackage of R06 fuel channel in 1998.
- Removing of components, pumps, valves as well as development and use of remote and cutting techniques.

