

Portuguese Environment Agency



**Report on implementation of the amended Nuclear
Safety Directive (Directive 2009/71/EURATOM,
amended by Directive 2014/87/EURATOM)**

(July 2020)

Portuguese Environment Agency

**Report on implementation of the amended Nuclear Safety Directive
(Directive 2009/71/EURATOM, amended by Directive
2014/87/EURATOM)
(July 2020)**

Index:

Index:	2
A. Introduction	4
B. Summary	6
C. Reporting Article by Article.....	8
Article 4 – Legislative, regulatory and organizational framework	8
Article 5 - Competent regulatory authority	13
Article 6 – License holders.....	17
Article 7 – Expertise and skills in nuclear safety	17
Article 8 - Transparency.....	18
Article 8a - Nuclear safety objective for nuclear installations.....	19
Article 8b - Implementation of the nuclear safety objective for nuclear installations.....	20
Article 8c - Initial assessment and periodic safety reviews.....	21
Article 8d - On-site emergency preparedness and response	21
Article 8e - Peer reviews	25

Frequently used Acronyms

ANEPC	National Authority for Emergencies and Civil Protection (Autoridade Nacional para as Emergências e Proteção Civil)
APA	Portuguese Environment Agency (Agência Portuguesa do Ambiente)
ASN	National Health Authority (Autoridade de Saúde Nacional)
CNER	National Commission for Radiological Emergencies (Comissão Nacional para as Emergências Radiológicas)
DGEG	General Directorate of Energy and Geology (Direção-Geral de Energia e Geologia)
EC	European Commission
EU	European Union
HEU	High Enriched Uranium
IAEA	International Atomic Energy Agency
IGAMAOT	General Inspection of Agriculture, Sea, Environment and Spatial Planning (Inspeção-Geral da Agricultura, do Mar, do Ambiente e do Ordenamento do Território)
INEM	National Institute of Medical Emergency (Instituto Nacional de Emergência Médica)
IPMA	National Institute for the Sea and Atmosphere (Instituto Português do Mar e da Atmosfera)
IST	Instituto Superior Técnico
LEU	Low Enriched Uranium
MAAC	Ministry of Environment and Climate Action (Ministério do Ambiente e da Ação Climática)
ME	Ministry of Economy, previously Ministry of Economy and Innovation (Ministério da Economia)
MCTES	Ministry of Science, Technology and Higher Education (Ministério da Ciência, Tecnologia e Ensino Superior)
RPI	Portuguese Research Reactor (Reator Português de Investigação)

Report on implementation of the amended Nuclear Safety Directive (Directive 2009/71/EURATOM, amended by Directive 2014/87/EURATOM) (July 2020)

A. Introduction

This report gives an overview on the implementation of provisions from Directive 2009/71/EURATOM, as amended by Directive 2014/87/EURATOM.

Portugal has a single civilian nuclear installation, as defined in the Council Directive 2009/71/Euratom, article 3 (1)(a), a research reactor facility, the Reator Português de Investigação (RPI).

The regulatory framework for nuclear safety in Portugal consists of Decree-Law 30/2012, of February 9th, that created the regulatory body for this area, complemented by Decree-Law 262/2012, of December 17th, that establishes the obligations for the license holders. Both these legal documents were later amended by Decree-Law 135/2017, of October 20th, that updated those legal provisions in order to ensure compliance with Directive 2014/87/EURATOM. A further revision of these legal documents took place with the publication of Decree-Law 108/2018, of December 3rd, that transposed Directive 2013/59/EURATOM, from the Council, of December 5th and transferred all regulatory duties from the previous regulatory body to the Portuguese Environment Agency (APA), with the exception of inspection, which is carried out by the General Inspection of Agriculture, Sea, Environment and Spatial Planning (IGAMAOT).

The National Programme for the Management of Spent Fuel and Radioactive Waste was approved by the Council of Ministers Resolution 122/2017, from July 27th, after undergoing a Strategic Environmental Assessment procedure with public participation. A new version of the programme is being prepared by APA.

The RPI is a pool type research reactor (1 MW) operated until 2016 by the Instituto Superior Técnico (IST). IST is a Faculty of Engineering, which, since July 25th 2013, is

part of the University of Lisbon as a result of the merge of two major universities in Lisbon: the University of Lisbon and the Technical University of Lisbon. The new university is a public body under the Ministry of Science Technology and Higher Education (MCTES). In early 2019, under a bilateral agreement with the United States of America Department of Energy, all nuclear fuel was removed from the RPI and sent back to the United States for disposal. Therefore, no nuclear fuel or spent fuel exists in Portugal as of early 2019. The RPI is currently in transition to decommissioning, waiting the preparation of the decommissioning plan by IST and subsequent approval by APA.

In the sixties, Portugal underwent efforts to install a Nuclear Power Plant, but soon abandoned this project after strong opposition from the public in 1976. The Energy Plan revised in 1984 included a nuclear option that was never implemented. The Ministry of Environment and Climate Action (MAAC) does not operate any facilities subject to the NSD, nor has any attributions concerning the promotion of utilization of nuclear energy. It should be noted that Portugal has long made a commitment not to pursue the production of energy by nuclear means, which is clear in the National Energy and Climate Plan 2030 approved in the 21st of May 2020.

Although Portugal has no plans to build further nuclear installations, it agrees with the international principles aimed at enhancing the nuclear safety culture. For this reason, Portugal strongly supports nuclear safety and all the related international reporting activities.

B. Summary

Portugal completed the transposition of the Council Directive 2009/71/EURATOM, of June 25th 2009, which establishes a Community framework for the nuclear safety of nuclear installations, through the publication of two Decree-Laws (Decree-Law 30/2012 and Decree-Law 262/2012), and the appointment by the Prime Minister of the Commissioners responsible for the regulatory authority created at the time.

Decree-Law 30/2012 of February 9th created the Regulatory Commission for the Safety of Nuclear Installations (COMRSIN) as regulatory authority for nuclear safety and established its attributes and responsibilities.

Shortly afterwards, Decree-Law 262/2012, of December 17th, set out the obligations of the license holders for the operation of nuclear installations, including their duty to continuously improve safety under the supervision of the regulatory authority.

With these three important changes made in the regulatory and legal infrastructure mentioned above, Portugal complied with Directive 2009/71/EURATOM.

The subsequent publication of Directive 2014/87/EURATOM led to revisions of the legal framework for nuclear safety that took place when Decree-Law 135/2017, of October 20th, was published. This legal document updated the legal provisions in Decree-Law 30/2012 and 262/2012 in order to ensure compliance with the revised Directive.

A further revision to the legal framework took place with the publication of Decree-Law 108/2018, of December 3rd, that transposed Directive 2013/59/EURATOM, from the Council, of December 5th. This revision, while focusing on radiation safety, also led to the extinction of COMRSIN and transferred all its regulatory duties to the Portuguese Environment Agency (APA) and, on what's related to inspection and enforcement, to the General Inspection of Agriculture, Sea, Environment and Spatial Planning (IGAMAOT). APA is a public institute part of the indirect administration of the Government, with administrative and financial autonomy, under the Ministry of Environment and Climate Action. The Ministry of Environment and Climate Action does not operate any facilities subject to NSD, nor has any attributions concerning the promotion of utilization of nuclear energy or other uses of ionizing radiation, providing for effective independence of the regulatory body.

In 2013, Portugal transposed Council Directive 2011/70/EURATOM, which establishes a Community framework for the responsible and safe management of spent fuel and radioactive waste, into its legal framework through Decree-Law 156/2013, of November 5th. This Decree-Law was later amended by Decree-Law 108/2018, that assigned to APA the regulatory and licensing authority over the safe management, storage and transportation of spent fuel and radioactive waste into, through and out of Portugal. The National Programme for the Management of Spent Fuel and Radioactive Waste was approved by the Council of Ministers Resolution 122/2017, from July 27th, after undergoing a Strategic Environmental Assessment procedure with public participation. A new version of the programme is being prepared by APA.

As mentioned before, Portugal has a pool type research reactor, the RPI. In February 2016, the RPI underwent a safety assessment in the framework of an Integrated Nuclear Safety Assessment of the Research Reactor's mission run by the International Atomic Energy Agency. On May 11th 2016 the operation of the reactor was halted for the yearly maintenance. On September 14th, 2017, the operator informed the regulatory body that it was going to propose to the Government that the RPI be decommissioned; however, the decommissioning plan has not been prepared yet. Nevertheless, all the nuclear fuel was removed from the RPI in early 2019 and shipped to the United States of America, under a take back program sponsored by the Department of Energy of the USA.

The present report will avoid repeating what has been described in detail in the previous report, but it is designed to be a stand-alone, complete and transparent report. Emphasis will be made on the changes that have taken place and on the difficulties that are faced to implement requirements associated with good practices on nuclear safety in a way that is commensurable with the dimension of Portuguese nuclear program.

C. Reporting Article by Article

Article 4 – Legislative, regulatory and organizational framework

Portugal began updating its legislation on nuclear safety in order to comply with Directive 2009/71/EURATOM of June 25th 2009, which sets out the community framework for the safety of nuclear installations. This resulted in the publication of the two Decree-Laws described below.

Decree-Law 30/2012, of February 9th, created the Regulatory Commission for the Safety of Nuclear Installations (COMRSIN), as a regulatory body for nuclear safety, whose members were appointed for a five-year term by the Prime Minister. Its attributions and responsibilities were:

- Promote legislation and regulations on nuclear safety;
- Monitor and inspect nuclear installations in all phases of development from site choice to dismantling;
- Issue or revoke licensing at all stages, assuring a high level of nuclear safety and promoting and preserving the continuous improvement of nuclear safety;
- Authorize and inspect the safe transportation of fresh or irradiated fuel, radioactive sources and their corresponding waste when the source or the destination is a nuclear installation;
- Promote and participate in international cooperation;
- Supervise activities and installations subject to safeguards.

The second one, Decree-Law 262/2012, of December 17th, sets out the obligations of the license holders for the operation of nuclear installations, including their duty to continuously improve safety under the supervision of the regulatory authority. Further details are provided in Article 7 (2)(i).

With these two Decree-Laws, Portugal came into compliance with Directive 2009/71/EURATOM, of June 25th 2009.

Both these legal documents were later amended by Decree-Law 135/2017, of October 20th, that updated those legal provisions in order to ensure compliance with Directive 2014/87/EURATOM.

A further revision of these legal documents took place with the publication of Decree-Law 108/2018, of December 3rd, that transposed Directive 2013/59/EURATOM, from the Council, of December 5th and transferred all regulatory duties from the previous regulatory body to the Portuguese Environment Agency (APA), with the exception of inspection, which is carried out by the General Inspection of Agriculture, Sea, Environment and Spatial Planning (IGAMAOT).

It should also be pointed out, concerning the management of spent fuel and radioactive waste, that following the publication of Decree-Law 156/2013, of November 5th, transposing Directive 2011/70/EURATOM, COMRSIN was attributed regulatory and licensing authority over the management, storage and transportation of spent fuel and radioactive waste. This decree-law was also amended by Decree-Law 108/2018, transferring all the associated regulatory duties to APA, with the exception of inspection, which is carried out by the General Inspection of Agriculture, Sea, Environment and Spatial Planning (IGAMAOT).

The current regulatory framework has therefore consolidated all the regulatory duties that were assigned to multiple authorities in APA, with the exception of inspection, which is carried out by the General Inspection of Agriculture, Sea, Environment and Spatial Planning (IGAMAOT). Both authorities share pertinent information to their activities.

Under Decree-Law 262/2012, later amended by Decree-Law 135/2017 it is stated that:

- a) No nuclear installation may be operated without a license issued by the regulatory authority for all phases, from site choice to decommissioning (article 8(b) of Decree-Law 30/2012);
- b) The operator has the prime responsibility for the safety of the installation under the control of the regulatory authority; this responsibility cannot be delegated or transferred (article 12(1) of Decree-Law 30/2012 and article 4 (2) of Decree-Law 262/2012);
- c) The operator is responsible for the safe management of the fuel and of the radioactive waste, including the waste in storage or elimination facilities (article 5 of Decree-Law 262/2012);

- d) The operator has to have the human, material and financial resources that are adequate to the safe operation of the installation (article 12(5) of Decree-Law 30/2012 and article 23(1) of Decree-Law 262/2012);
- e) Principles such as transparency, defense in depth, priority to nuclear safety at all times, registration of all documents, classification of all structures, systems and components, including control software in terms of their importance for the safety of the installation are required from the operator (articles 6, 9, 12, 17, 18 and 29 of Decree-Law 262/2012);
- f) The operator is also required to have a safety policy, a safety management system that gives priority to nuclear safety at all times and where the decision making process is based on the graded approach (articles 16 to 18 of Decree-Law 262/2012);
- g) The operator has the prime responsibility for the periodic safety review of the installation and for the continuous improvement of safety (article 32 of Decree-Law 262/2012);
- h) Research Reactors shall have a “Safety Commission” that is independent from the management system (article 20 of Decree-Law);
- i) All nuclear installations must have a Safety Analysis Report (SAR) that is subject to approval by the regulatory body. In the SAR the operator has to show that the operation complies with the safety standards recommended by the IAEA and with the national requirements for nuclear safety and radiological control. The SAR has to include sufficient information on the nuclear installation, its operating conditions, its safety and waste management systems, its emergency plans and decommissioning procedures (article 30 of Decree-Law 262/2012);
- j) The operator is required to update the SAR whenever necessary or if requested by the regulatory body (article 30 (6) of Decree-Law 262/2012);
- k) Besides the SAR, each year the operator shall present an annual report to be assessed by the “Safety Commission” and subsequently submitted to the regulatory body, which has the right to inspect the facility at any time, announced or non-announced (article 31 of Decree-Law 262/2012);

- l) The operator has the duty of full cooperation with the regulatory authority, namely providing access to the installations and to any information that may be requested (article 7 (1)(2) of Decree-Law 262/2012);
- m) The operator has the duty of notifying the regulatory body of any modification or of any event occurred in the nuclear installation (article 7 (3) of Decree-Law 262/2012);
- n) A system of penalties is in place to respond to possible violations of the law (article 34 to 37 of Decree-Law 262/2012).

Concerning the safety of radioactive waste and spent fuel management, these are governed by Decree-Law 156/2013. The provisions in this decree-law address the requirements that public and private entities (health, research and industrial facilities) that use radioactive materials, have to comply with, including the need to obtain a license for managing and/or storing radioactive waste for more than 30 days.

The regulatory body may apply clearance and exclusion levels to radioactive materials as legally defined in the Ministerial Order 138/2019, of May 10th, and authorize the transportation of spent fuel and radioactive waste and spent fuel into, through and out of Portugal. The clearance and exclusion levels mentioned above are the same as in Table A of Annex VII of Council Directive 2013/59/EURATOM, of December 5th 2013.

All public and private entities that use radioactive materials are required to follow the procedures for the disposal of radioactive waste, and are subject to fines if they do not. Entities that store radioactive waste for more than 30 days need to apply for a license issued by APA, and have the prime responsibility that cannot be delegated or transferred for the waste they produce. Guidance was published by the regulatory body on the safe management of radioactive waste.

The current National Programme for the safe management of spent fuel and radioactive waste, as required by Council Directive 2011/71/EURATOM, has been approved by Resolution from the Council of Ministers 122/2017, after undergoing Strategic Environmental Evaluation as required by EU regulations. A new version of the programme is being prepared by APA.

The RPI, as the sole nuclear installation in Portugal, was first licensed in 2005 by the Ministry of Economy (ME) who granted the operating license on December 27th 2005, by Ministerial Order of the Directorate General of Energy and Geology (DGEG) of the ME, that had that regulatory competency at the time.

In 2017, the operator decided to propose to the government that it should be decommissioned. Following that decision, all the nuclear fuel was removed from the RPI in early 2019 and shipped to the United States of America, under a take back program sponsored by the Department of Energy. There is currently no nuclear fuel or spent fuel in Portugal, and there is no intention of resuming a nuclear programme at this time. The decommissioning plan for the RPI will have to be prepared by the operator and submitted to approval by APA.

Currently, there is no nuclear fuel or spent fuel stored in the reactor.

Nevertheless, until its decommissioning and termination of regulatory control occurs, the RPI still falls under the regulatory and licensing authority of APA, according to Decree-Law 30/2012, amended by Decree-Laws 135/2017 and 108/2018.

In the case of nuclear installations and on the management, storage and transportation of radioactive waste and spent fuel, APA is the sole entity for assessment and authorizations, with IGAMAOT in charge of inspections.

As of December 17th 2013, the RPI is subject to Decree-Law 262/2012 that follows IAEA safety criteria and foresees the obligations that are already mentioned above.

In the case of all nuclear installations as well as of the management, storage and transportation of spent fuel and radioactive waste, the regulatory body, comprising IGAMAOT and APA, accordingly, may take any of the following enforcement actions:

- Propose corrective measures.
- Suspend operations.
- Shut down of the installation, temporarily or definitely.
- Qualify detected faults and report them to the competent authorities so that the corresponding fines are applied; fines may be as high as 44.891,82€ due to limitations in the legal system under which Decree-Law 262/2012 was

adopted.

- Revoke or change the scope of the license following a fully transparent approach and well justified reasons based on a fair assessment of the safety of the installation.

Article 5 - Competent regulatory authority

Portugal recently underwent a revision of its regulatory framework for nuclear safety and for radiation protection, consolidating all regulatory duties in the Portuguese Environment Agency (APA), with inspection being carried out by the General Inspection of Agriculture, Sea, Environment and Spatial Planning (IGAMAOT). Both authorities share pertinent information to that effect.

APA is a public institute part of the indirect administration of the Government, with administrative and financial autonomy. This independence is also reinforced by article 12(3) of Decree-Law 108/2018, that transferred the competencies of the previous COMRSIN.

IGAMAOT is a central service of the direct administration of the State, endowed with administrative autonomy. According the Decree-Law 108/2018, the mission of the IGAMAOT in this matter, is to verify the compliance with the decree-law, independently, namely through the planning and implementation of actions ordinary or extraordinary inspections, order corrective actions and apply the necessary offenses in case of non-compliance with the decree-law.

The Ministry of Environment and Climate Action does not operate any facilities subject to the NSD, nor has any attributions concerning the promotion of utilization of nuclear energy – it should be noted that Portugal has long made a commitment not to pursue the production of energy by nuclear means, as discussed above.

At present, the competences of APA and IGAMAOT for inspection and enforcement actions under Decree-Laws 30/2012, 262/2012 and 156/2013 combined with Decree-Laws 135/2017 and 108/2018, that relate to nuclear safety:

- a) Promote the development of legislation and regulations in the field of nuclear safety, aiming the continuous improvement of instruments to regulate the activity.
- b) Assess and monitor the safety of nuclear installations in all phases, from site selection to design, construction, commissioning, operation or dismantling, issuing the corresponding licenses to perform the activity, according to a high standard high of nuclear safety, preserving and promoting continuous improvement of nuclear safety.
- c) Inspect, require demonstration of compliance with national requirements of nuclear safety and the terms of the respective license, and take enforcement action, if needed, including amendments in the license and operating conditions or procedures and order temporary or definitive closure of installations, imposing the required measures to protect workers, the population in general and the environment against the risks of exposure to ionizing radiation resulting from the construction, operation or shut down of nuclear facilities.
- d) Authorize and monitor the safety and security of the transportation of nuclear fuel, fresh or spent, and radiation sources from or to nuclear installations;
- e) Cooperate with the competent authorities in the preparation of plans for education and training of human resources of nuclear installations and of entities related with nuclear safety, to preserve and develop the required qualifications and skills in the field of nuclear safety.
- f) Promote and engage, in conjunction with competent authorities, cooperation with foreign counterpart institutions and with specialized international organizations and agencies, ensuring national representation in groups and committees of areas of its responsibilities and to elaborate reports whose submission results from external obligations assumed by the country.
- g) Participate in the preparation of international agreements and of scientific and technical cooperation in the field of their assignments, in articulation with competent authorities.

- h) Undertake surveillance and inspection of installations or activities subject to a safeguards regime and physical protection, under the Non-Proliferation Treaty Nuclear and the Additional Protocol;
- i) Licensing, evaluating, monitoring and inspecting facilities and activities relating to the management of spent fuel and radioactive waste (encompassing all phases, from initial choice of site to decommissioning);
- j) Authorizing and inspecting transports of spent fuel and radioactive waste in Portugal;
- k) Characterizing and classifying radioactive materials as radioactive waste;
- l) Applying exemption levels, on a case by case basis;
- m) Ordering the collection of radioactive waste for storage and disposal;
- n) Authorizing the elimination of radioactive waste;
- o) Imposing fines for infringements of rules relating to licensing or safety (through the relevant member of Government), suspending or canceling licenses and ordering provisional measures;
- p) Preparing and continuously updating an inventory of radioactive waste on national territory, as well as for radiation sources;
- q) Making available to workers and the general public the necessary information concerning the management of spent fuel and radioactive waste;
- r) Drafting and proposing to the Government legislation in this domain, as well as approving regulations whenever empowered to do so by law;
- s) Cooperating with the relevant authorities and international organizations, validating data relating to spent fuel and radioactive waste to be communicated to international organizations, taking part in the preparation of international agreements within this domain;
- t) Accompany the aspects of nuclear safety and radiation protection associated with risks of accident in facilities where fissile materials may be used;
- u) Maintain a continuous monitoring network to detect situations that may result in unusual increases in environmental radioactivity;

- v) Propose corrective measures to ensure the protection of the environment and the population in emergency or existing exposure situations, and coordinate the radiological aspects of remediation.

In addition to these, APA was assigned with further competencies that cover the area of radiation protection and that fall outside the scope of the NSD.

Provisions in Decree-Law 108/2018 (article 12(3)) specify that the competent authority must have dedicated financial resources to carry out its regulatory duties.

To this effect, APA includes in the yearly budget an amount to ensure its regulatory duties. This amount resulted from a previous feasibility study that was carried out, and will be reviewed periodically, based on experience gained in implementing its new regulatory duties.

On the other hand, IGAMAOT, also includes in its yearly budget an amount to ensure its obligations. This budget can be updated, taking into account attention the human and material resources mobilized.

Provisions in Decree-Law 108/2018 (articles 12 (3) and 181 (4)) specify that the competent authority and the inspection authority must have must have dedicated human resources to carry out its regulatory duties.

To this effect, APA has permission to recruit up to a maximum of 19 staff members in the near-term. This amount resulted from a previous feasibility study that was carried out, and will be reviewed periodically, based on experience gained in implementing its new regulatory duties. The recruitment process for 5 staff members is in progress.

As for IGAMAOT, a recruitment procedure for 12 inspectors was recently completed, according to current needs. This number may change in the future, according the experience gained in the implementation of the inspectorate team.

The general legislation concerning prevention and resolution of conflicts of interest applies to the activities of APA and IGAMAOT. Law 35/2014 and Law 2/2004 are specific examples concerning public workers and heads of offices that address such issues. Additionally, the mechanisms for resolution are governed by Decree-Law 4/2015, concerning administrative procedures.

Article 6 – License holders

Under article 12(1) of Decree-Law 30/2012, amended by Decree-Law 135/2017, the license holder for a nuclear facility has prime responsibility for safety and cannot delegate or transfer it. This includes responsibilities over the activities of contractors and subcontractors that may affect the safety of a nuclear facility.

As already mentioned above, the license holder regarding the RPI is IST. The license currently in force was issued in December of 2005 by DGEG of the ME and remained valid for the duration of the existing LEU fuel. With the removal of the nuclear fuel from the RPI in early 2019, the license holder will have to prepare a decommissioning plan and obtain a new license from APA for that phase of the life cycle of the facility.

APA has the legal power to suspend or revoke such license in case there is a compelling and a well-documented safety reason to do so, namely the non-compliance with the regulatory decisions.

The previous regulatory body issued a number of recommendations that were followed by the license holder, namely improving transparency *vis-à-vis* the public in general and supplying the Internal Emergency Plan to the National Authority for Emergencies and Civil Protection (ANEPC) so that an External Emergency Plan could be prepared in case a beyond design basis accident takes place at the RPI. The recent removal of the nuclear fuel from the RPI significantly altered the requirements for the External Emergency Plan being prepared by ANEPC.

Article 7 – Expertise and skills in nuclear safety

Article 24 of Decree-Law 262/2015 establishes requirements for education and training for the operator of a nuclear facility, where personnel is to be continuously trained according to a programme outlined by the operator.

However, it should be noted that Decree-Laws 30/2012 and 262/2012, both amended by Decree-Law 135/2017 do not specify concrete arrangements for education and training for the regulatory body, but only for the license holders.

The regulatory body was later reformed by Decree-Law 108/2018, which states, at article 12(3) that it must have the necessary human and technical resources to carry out its function. The implementation of the provisions on this Decree-Law require that

the regulatory body must develop arrangements for the education and training for their staff, to maintain and to further develop expertise and skills, including in nuclear safety and on-site emergency preparedness.

The recruitment process for the regulatory body takes into account the need to provide adequate training for its staff.

Article 8 - Transparency

The newly published Decree-Law 108/2018 establishes complementary provisions for communication with the public that address the transposition of this Directive as well. Specifically, articles 129 to 132 address these concerns, complementing the existing provisions already laid out in articles 9 and 15 of Decree-Law 262/2012, amended by Decree-Law 135/2017.

The operator informs the general public about the possible risks associated with radiation resulting from the operation of the nuclear installation or the conduct of an activity, according to a graded approach.

For the regulatory body, APA has established a communication policy and culture. For the persistent development of its communication culture, a serious commitment and participation of APA's managers and employees is both fostered and necessary.

The implementation of this Communication Policy has focused on:

- Identification of strategic (internal and external) audiences;
- Awareness of the need for inclusive interaction processes with strategic audiences;
- Diagnosis of available communication skills, with a view to meeting the demand and expectations of strategic partners, as well as institutional objectives (mission and vision);
- Thorough evaluation of existing relationship channels (and new forms of interaction);
- Maintaining qualified bodies (internal and external) available to the

Board of Directors to implement the process;

- Identification and implementation of actions, strategies and processes that qualify the relationship with strategic audiences and contribute to increase the visibility of APA;
- Recognition of special themes and situations that require planned actions and communication strategies (crisis).

APA Communication Policy is guided by Strategic Vectors:

- APA target audiences;
- Guidelines for interaction with the media;
- Communication with (between) internal audiences;
- Analysis and resizing of relationship channels;
- Management of APA's communication;
- Preservation of APA's memory;
- Communication in crisis situations;
- Optimizing presence on social media and networks;
- The strategic importance of events;
- Dissemination of specialized work / research carried out at APA;
- The evaluation of the communication effort.

It should also be noted that nuclear installations are subject to Environmental Impact Assessments, under Decree-Law 151-B/2013, revised by Decree-Laws 47/2014 and 179/2015. Public participation is part of this process.

Article 8a - Nuclear safety objective for nuclear installations

The specific requirements concerning the nuclear safety objective are found primarily in Decree-Law 262/2012, amended by Decree-Law 135/2017, namely articles 4(2) and 40(3). It is the national understanding that these provisions follow a graded approach, and therefore sufficiently cover the Directive's requirement, especially bearing in mind that no nuclear fuel exists in Portugal at the moment, and the only

nuclear facility is in transition to being decommissioned.

Furthermore, there are specific provisions in article 40(3) that take into account this national reality, making sure that the provisions in article 4 apply to the decommissioning operations.

Article 8b - Implementation of the nuclear safety objective for nuclear installations

As outlined in article 4 of Decree-Law 262/2012, amended by Decree-Law 135/2017, nuclear installations must be located, designed, built, put into service, operated and dismantled in order to prevent accidents and, in the event of an accident, to minimize the respective consequences and avoid:

- a) Early radioactive releases, which would require emergency measures outside the premises, without however enough time to put them into practice;
- b) Substantial radioactive releases, which would require protective measures that would not be possible to limit in time or space.

This safety objective is further detailed in article 12 of the same legal document, regarding defense in depth that must be considered and implemented aiming to guarantee the nuclear safety objective, in order to prevent or, in the event of impossibility of prevention, to limit radiation releases in and out of the installation. Defense in depth must therefore ensure that:

- a) The impact of extreme external hazards of natural or unintended human origin is minimized;
- b) Failures and malfunctions are avoided;
- c) Faults are detected and anomalies in operation are controlled;
- d) Reference accidents are controlled;
- e) Serious conditions are controlled, including the prevention of the progression of accidents and the mitigation of the consequences of serious accidents; and
- f) There are the organizational structures necessary to comply with the rules

regarding prevention and response to emergencies.

Articles 15 through 22 of Decree-Law 262/2012, amended by Decree-Law 135/2017 specify requirements for the management system of the operators in order to attain said safety objective.

Although these provisions are specific to the operator, and do not cover the regulatory body, it should be noted that Decree-Law 108/2018 completely reformulated the regulatory body. The new regulatory body is developing a management system compliant with the same provisions, with safety as a paramount concern. It is understood that such management system, when applied to the regulatory body, does not need to be specified in legal provisions, but is to be part of its internal structure and regulations, in accordance with international requirements.

Article 8c - Initial assessment and periodic safety reviews

Provisions regarding the initial and periodic safety reviews are reflected in articles 4 and 15 of Decree-Law 262/2012, amended by Decree-Law 135/2017. Under the provisions in these articles, the granting of a license for the construction or operation of a nuclear installation is based on an appropriate specific assessment of the site and the installations, including the nuclear safety demonstration with respect to the national nuclear safety requirements based on the safety objective.

Furthermore, it is also stipulated that the safety policy and its implementation are evaluated and reviewed in a systematic and regular manner by the operator, at least once every 10 years and whenever justified, or as indicated by the regulatory body, in order to guarantee respect for the current reference basis and to point out new improvements to be made in terms of safety, taking into account the problems related to aging, operational experience, the most recent research results and the evolution of international standards, taking as a reference the nuclear safety objective.

Article 8d - On-site emergency preparedness and response

The national hazard assessment has identified several other uses of radiation sources

that need emergency planning, namely:

- The Portuguese research reactor, currently in transition to decommissioning, and without any nuclear fuel or spent fuel.
- Industrial radiography and other uses of radioactive sources, including their transport.
- Industrial irradiation.
- Medical activities, namely, nuclear medicine and radiotherapy.
- Foreign nuclear installations, including visiting nuclear powered vessels.

The following laws constitute the current legal framework related to emergencies:

a) Decree 36/80, of May 30th

Ratifies a Portugal-Spain agreement specifically covering the matter, concerning nuclear installations near to the border between the two countries – in a strictly legal approach, however, it should be noted that there are no installations presently existing that fall under that category and to which, therefore, this agreement could be applied.

b) Decree-Law 108/2018, of December 3rd

Transposes EU Council Directive 2013/59/EURATOM, from the Council, from December 5th, laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/EURATOM, 90/641/EURATOM, 96/29/EURATOM, 97/43/EURATOM and 2003/122/EURATOM. This decree-law creates a new regulatory framework in Portugal, consolidating competencies on APA and IGAMAOT. Among its provisions, it sets up the system for managing radiological emergencies, including the information of the general public on applicable health protection measures and on actions to be taken in the case of a radiological emergency.

c) Technical Cooperation Protocol between APA, ANEPC, IST, of Portugal, and Consejo de Seguridad Nuclear, of Spain, on Radiological and Nuclear Emergencies

and environmental radiological monitoring, signed in 30 of July 2015.

The license holder for a nuclear for radiological facility has prime responsibility for onsite emergency preparedness and response and cannot delegate or transfer it.

In general, the responsibilities on offsite emergency preparedness and response are shared between the operator, the competent civil protection authorities (at national, regional and municipality levels) and APA, on the framework of the National Civil Protection Emergency Planning. On these situations ANEPC is responsible for the international notification.

APA is responsible for the emergency preparedness and response whenever the impact on the workers, public and the environment does not need the intervention of the civil protection authorities. On these situations APA is responsible for the international notification. APA is the national competent authority and contact point for receiving the notification of emergency situations occurring abroad. APA also guarantees the international exchange of information in case of potential or real nuclear or radiological emergencies occurring in Portugal and affecting neighboring countries or abroad with potential impacts in Portugal.

The decision support tool RODOS (Real Time On-Line Decision Support for Nuclear Off-site management) is available at APA to support the emergency management.

APA is responsible for providing decision support to the civil protection authorities relating the radiological aspects of the emergency, namely: providing the relevant radiological data; proposing adequate actions and provide support on their implementation; coordination of the radiological monitoring actions; supporting the preparation of public information and proposing the declaration of the end of the emergency and its transition to an existing or planned exposure situation.

In the framework of nuclear or radiological emergencies ANEPC is responsible for: defining the information needed and promoting the elaboration or elaboration of and testing of offsite emergency plans; promoting the information to the public and articulating with the European Civil Protection Mechanism.

The operator shall have an onsite emergency plan complying with the requirements of the Decree-Law 108/2018. In an emergency situation, the operator should

immediately notify APA and the entity responsible for the offsite emergency plan when applicable. The operator is responsible for the initial assessment of the emergency, identification of potential consequences and for taking mitigation actions.

The National Commission for Radiological Emergencies (CNER) has a general advisory role in the emergency planning and response. Under Decree-Law 108/2018, CNER is presided by ANPEC and includes representatives of APA, from the National Health Authority, from the Directorate-General for Energy and Geology, from the Ministry of Agriculture, from the National Institute of Medical Emergencies, from the National Institute for the Sea and Atmosphere, and from IST.

Moreover, CNER will join the Emergency Operations Centre of Civil Protection immediately, in an emergency situation that affects or may affect areas of the national territory, in order to monitor the situation and to collaborate in the preparation of the information to be communicated to the population.

According to Decree-Law 108/2018 all operators shall have an onsite emergency plan. Decree-Law 262/2012, amended by Decree-Law 135/2017 also includes specific provisions for onsite emergency plans for nuclear facilities. This plan is subject to approval by APA on the framework of the licensing procedure. Whenever offsite radiological impacts are foreseen, APA will forward the approved onsite emergency plan to ANEPC for evaluation on the need of having a complementary offsite emergency plan. The onsite emergency plans should be tested partially once a year and globally once every three years. APA and when offsite emergency plans exists also the competent civil protection authorities, are notified 10 days before the testing is performed.

Whenever APA identifies potential offsite radiological impacts to a facility, ANEPC will decide on the need of an offsite emergency plan for this facility, taking into account the opinion of CNER. This plan will be prepared, revised and tested by the competent civil protection authorities in accordance with the specific regulation issued by the National Civil Protection Commission. This plan can include several installations if deemed more appropriate.

The population shall be informed about the consequences of a nuclear accident and the actions that should be adopted in case of such an event. This obligation results from Decree-Law 108/2018 and from EU Council Directive 2013/59/EURATOM. With

respect to international emergencies, Portugal participates in the respective international activities of the Nuclear Energy Agency NEA (International Nuclear Emergency Exercises INEX), IAEA (such as Convention Exercises ConvEX) and EU.

Article 8e - Peer reviews

Article 16 of Decree-Law 30/2012 establishes that the regulatory body must at least once every 10 years, arrange for periodic self-assessments of the national framework and competent regulatory authorities and invite an international peer review of relevant segments of the national framework and competent regulatory authorities with the aim of continuously improving nuclear safety.

Outcomes of such peer reviews are to be reported to the Member States and the Commission, when available.

Under this provision, Portugal has requested the International Atomic Energy Agency for an Integrated Regulatory Review Service (IRRS) Mission. This mission was scheduled to be hosted in June 2020, with preparations fully under way. However, due to the situation regarding the COVID-19 pandemic, and related travel restrictions, a postponement of the mission had to be requested. While the new date is not yet formalized, it is planned to take place in the 2nd half of 2021.