Convention on Nuclear Safety
Sixth National Report by Portugal
(August 2013)

Regulatory Commission
for the Safety of Nuclear Installations

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Index:

Frequently used Acronyms

APA	Portuguese Environment Agency (Agência Portuguesa do Ambiente)
BSS	Basic Safety Standards
CIPRSN	Independent Commission for Nuclear Safety and Radiological Protection (Comissão Independente para a Protecção Radiológica e Segurança Nuclear)
CNS	Convention on Nuclear Safety
CTN	Centro Tecnológico e Nuclear
DGEG	General Directorate of Energy and Geology (Direcção Geral de Energia e Geologia)
DGS	General Directorate of Health (Direcção Geral da Saúde)
EC	European Commission
EU	European Union
HEU	High Enriched Uranium
IAEA	International Atomic Energy Agency
ITN	Nuclear and Technological Institute (Instituto Tecnológico e Nuclear)
IST	Instituto Superior Técnico
LEU	Low Enriched Uranium
MA	Ministry of Environment, Spatial Planning and Energy, previously Ministry of Environment, Spatial Planning and Regional Development (Ministério do Ambiente, do Ordenamento do Território e da Energia)
ME	Ministry of Economy , previously Ministry of Economy and Inovation (Ministério da Economia)
MS	Ministry of Health (Ministério da Saúde)
MEC	Ministry of Education and Science, previously Ministry of Science, Technology and Higher Education (Ministério da Educação e Ciência)
RPI	Portuguese Research Reactor (Reactor Português de Investigação)

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A. Introduction

This report gives an overview on the present Portuguese nuclear policy, legislation and new measures relating to Nuclear Safety and Radiation Protection.

Portugal has no nuclear installations, as defined in the Convention on Nuclear Safety (CNS), and all exploration of uranium ore was terminated in the year 2000. Consequently, only some of the obligations resulting from the CNS are relevant to the Portuguese National Report. That being said, and for the sake of transparency and international cooperation, the present report provides information on the present status of the national regulatory infrastructure related to Nuclear Safety and Radiation Protection, as well as on the only existing "nuclear" facility, the Portuguese Research Reactor (RPI), applying to it the CNS reporting requirements on the basis of comity since the RPI is not a nuclear installation as defined in the CNS.

The RPI is a swimming pool type research reactor (1 MW) operated, since February 2012, by the Instituto Superior Técnico (IST) when the previous operator, the State Laboratory "Instituto Tecnológico Nuclear" (ITN), became part of IST through Decree-Law 29/2012 of February 9th. The ex ITN is now denominated "Centro Tecnológico e Nuclear" (CTN) and constitutes the Sacavém Campus of IST. Throughout this report we use the acronym CTN/IST to denote the Sacavém Campus of IST.

The IST is the Faculty of Engineering that since July 25th 2013 is part of the University of Lisbon (ULisboa) as a result of the merge of two major universities in Lisbon: the University of Lisbon (UL), and the Technical University of Lisbon (UTL). The new university is a public body under direct control of the Ministry of Education and Science (MEC).

The President of IST reports directly to the Minister on issues relating to the RPI.

The CNS was signed by Portugal on the 3rd of October 1994. The Portuguese Parliament approved the CNS for ratification by Resolution 9/98, of January 22nd 1998, and the Presidential Decree 9/98, of March 19th 1998, ratified it. On May 20th 1998 the instrument of ratification was deposited, and the Convention entered into force on the 18th of August 1998. On the same date, the competency to meet the reporting requirements under Article 5 of the CNS were assigned to the ITN, due to the functions that had been attributed to this laboratory by legislation at that time (Portuguese IAEA focal point).

In 2005 the Decree-Law 139/2005, of August 17th, which revised Decree-Law 311/98, created the Independent Commission for Radiological Protection and Nuclear Safety (CIPRSN); under an agreement between CIPRSN and ITN, based on the interpretation at that time of the provisions of competency for the international representation the responsibility for drafting the CNS report was transferred from ITN to CIPRSN.

However, the situation changed drastically in 2012; under Decree-Law 30/2012, of February 9th, the Regulatory Commission for the Safety of Nuclear Installations (COMRSIN) was created leading, for the first time in Portugal, to the existence of an independent regulatory body for nuclear safety. The commissioners that are responsible for managing COMRSIN are nominated by the Prime Minister for a five year term. COMRSIN takes over from CIPRSN the responsibility for drafting the CNS report.

In the seventies, Portugal initiated efforts to install a Nuclear Power Plant (1976), but these were soon abandoned after strong opposition from the public. Since then, Portugal never again envisaged the production of electric energy by nuclear power generation. It should be noted, nonetheless, that in recent years there was more than one private attempt at starting a national debate on the arguments for and against nuclear power production. Portugal currently has no Government plans to build "nuclear installations" as defined in the CNS. However, Portugal agrees with the international principles aimed at enhancing the nuclear safety culture. For this reason, Portugal strongly supports the CNS and all the related international reporting activities.

In accordance with the CNS reporting guidelines, only activities concerning articles 7, 8 and 16 will be reported and information about the activities covered by articles 9, 10 and 15 will be provided. As mentioned before, on the basis of comity, a few lines on the RPI, article 6, are also included.

B. Summary

After the developments that were reported in the 5th review meeting, Portugal completed the transposition of the directive 2009/71/EURATOM, of June 25th 2009, through the publication of two Decree-Laws and the nomination by the Prime Ministers of the Commissioners that are responsible for the regulatory authority.

The Decree-Law 30/2012 of February 9th created the Regulatory Commission for the Safety of Nuclear Installations (COMRSIN) and establishes its attributes and responsibilities. On March 28th the Prime Minister appointed the three commissioners that were assigned the task to implement the COMRSIN modus operandi, compatible with the means that were made available by the government given the financial restrictions imposed on Portugal by the TROIKA (EU, ECB and IMF).

Also, among its responsibilities, COMRSIN had the incumbency to propose a legal diploma stating the obligations of the operators of any nuclear installation, including research reactors. This legislation was finally published in Decree-Law 262/2012, of December 17th, which sets up the obligations the license holders for the operation of nuclear installations have to comply to continuously improve their safety under the supervision of the regulatory authority.

With these three important changes Portugal is now in compliance with directive 2009/71/EURATOM.

The present report will avoid repeating what has been described in detail in previous reports, 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 at present to implement international requirements associated with good practices on nuclear safety in a way that is commensurable with the dimension of Portuguese nuclear program.

Currently, Portugal is preparing the transposition of the 2011/70/EURATOM directive, of July 19th 2011, which sets the community framework for the responsible and safe management of spent fuel and radioactive waste.

Reporting Article by Article

Article 6 – Existing nuclear installations

As mentioned in the introduction, Portugal has no nuclear installations as defined in the CNS. However, Portugal has a swimming pool type research reactor (1 MW), which is installed in the campus of CTN/IST, under the direct control of the President of IST, who reports directly to the Ministry of Education and Science (MEC). Fresh and spent fuel storage is included in the RPI facility.

Since the very beginning of the RPI operation, back in 1961, and up to now no incident has been ever detected or reported.

Article 7 – Legislative and Regulatory framework

Article 7 (1) – Establishing and maintaining a legislative and regulatory framework

Since the fifth review meeting Portugal has updated its legislation on nuclear safety in order to comply with the Directive 2009/71/EURATOM, of June 25th 2009, that sets the community framework for the safety of nuclear installations. This resulted in the publication of the two Decree-Laws described below.

The first one, Decree-Law 30/2012, of February 9th, creates the Regulatory Commission for the Safety of Nuclear Installations (COMRSIN), leading for the first time in Portugal to the existence of an independent regulatory body for nuclear safety, whose members are nominated for five years by the Prime Minister; details on the creation of COMRSIN, its attributes and responsibilities will be provided under Article 8.

The second one, Decree-Law 262/2012, of December 17th, sets up the obligations the license holders for the operation of nuclear installations have to comply to continuously improve their safety under the supervision of the regulatory authority.

With Decree-Law 30/2012 a number of previous Decree-Laws were fully or partially revoked:
a) Decree-Law 48 568 of September 4th 1968;
b) Decree-Law 49 398 of November 24th 1969;
c) Decree-Law 487/72 of December 5th;
d) Paragraph *a*) of article 13.º of Decree-Law 165/2002 of July 17th;
e) Ordinance 3527 of August 9th 1968, changed by Ordinance 512/70 of October 14th.

The Executive Order 10A/MCT/96, of March 13th 1996, containing the Safety Standards of the RPI established back in 1996 is revoked effectively one year after the publication of Decree-Law 262/2012.

With these two Decree-Laws, Portugal became in full compliance with the Directive 2009/71/EURATOM, of June 25th 2009, as recognized by the European Commission, and with the requirements of the CNS.

However, as mentioned in the fifth CNS report by Portugal, the updating of the Portuguese legislation in the sector of radiological protection and radioactive waste not directly associated with a nuclear installation, and in particular the transposition of the EU BSS Directive 96/29/Euratom and of EU Directive 97/43/Euratom, took place through partial revisions and tacit derogations. Hence, it remains cumbersome to have a clear picture of the specific legislation currently in force.

In addition, Decree-Law 165/2002 has distributed the usual competencies of a unique regulatory body between different Ministries. Furthermore, the new regulatory infrastructure created in 2002, with the partial transposition of Directives 96/29/Euratom and 97/43/Euratom, did not meet the international requirements of an Independent Regulatory Body. Consequently, the need for an improvement of the national regulatory structure was identified. This led initially to the creation of CIPRSIN in 2005 (Decree-Law 139/2005), but since this commission was not truly a regulatory authority and its modus operandi faced insurmountable political and administrative obstacles, it has been effectively deactivated. Yet, as mentioned above, the Independent Regulatory Body for the safety in nuclear installations, COMRSIN, was created in 2012 (Decree-Law 30/2012).

More details about national legislation, implementation of safety requirements and regulatory review shall be given under Article 7(2)(i) below.

Another relevant fact that is worth restating in the CNS forum is the ratification of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. The Decree of the Ministry of Foreign Affairs 12/2009, o April 21st, approved Portugal's accession to the Joint Convention. The Convention has entered into force for Portugal on the 13th of August 2009. Currently, Portugal is preparing the transposition of the 2011/70/EURATOM directive of July 19th 2011, which sets the community framework for the responsible and safe management of spent fuel and radioactive waste. COMRSIN is expected to absorb the regulatory attributes and responsibilities in this area.

Article 7(2)(i) – National safety requirements and regulations

A considerable part of the legislation directly or indirectly related to the content of the CNS that was adopted in recent years, in particular since the second review meeting of April 2002, was produced in the framework of the implementation of EU

legislation and requirements, mainly in the areas of:

- BSS (see section A below).
- "Specific Safety Legislation" in the area of nuclear safety and radiological protection: Safety of radioactive transports and transfers, safety of sealed sources and protection of the environment, etc. (see section B below).
- Creation of a new Supervisory Body (see section C below).

A) BSS and transposition of Directive 96/29/Euratom

The main legislation existing before 2002 in those areas that is still partially in force is the following:

a) Decree-Law 348/89, of October 12th
Establishes rules for protection against ionizing radiations and has been partially revoked by DL 165/2002.

b) Regulatory Decree 9/90, of April 19th
Regulates the provisions of Decree-Law 348/89 and has been partially revoked by DL 165/2002.

The main legislation produced since 2002 with respect to the transposition of EU directives is the following:

c) Decree-Law 165/2002, of July 17th
Revises partially Decree-Law 348/89 and establishes the new competencies of all authorities connected to radiological protection and nuclear safety, partially transposing Council Directive 96/29/Euratom, of May 13th1996. With this Decree-Law a new regulatory infrastructure is created, but the main regulatory competencies for safety in the public sector are attributed to the operators. In particular, any activity involving the use of ionizing radiation sources has to be authorized by DGS. However, for nuclear safety in nuclear installations, this Decree-Law has been revoked partially by the Decree-Law 30/2012 that created the regulatory authority for that sector, COMRSIN.

d) Decree-Law 167/2002, of July 18th
Regulates the licensing and functioning of service providers in the field of radiological protection, in particular in the areas related to measurement of exposure, dosimetry, consultancy and training, partially transposing Council Directive 96/29/Euratom.

e) Decree-Law 174/2002, of July 25th
Establishes the national measures for intervention in case of a radiological emergency, partially transposing Council Directive 96/29/Euratom, of 13 May 1996.

f) Decree-Law 180/2002, of August 8th, amended by Decree-Law 72/2011 of June 16th
Transposes Directive 97/43/Euratom on the application of ionizing radiation during medical exposures.

With the latter 4 Decree-Laws the European Directive 96/29/Euratom, however, had not been fully transposed. This was accomplished only with the production of further Decree-Laws in 2005 and 2008:

g) Decree-Law 140/2005, of August 17th 2005
Revises partially Decree 9/90 and partially transposes Directive 96/29/Euratom, specifically its provisions concerning exemption from prior authorization or reporting of activities. It does so by referring to the applicable provisions of the said Directive.

h) Decree-Law 222/2008, of November 17th 2008
This Decree-Law transposes, partially, Council Directive 96/29/Euratom, of May 13th 1996, on the BSS for the protection of the health of workers and the public against dangers arising from ionizing radiation.

i) Decree-Law 227/2008, of November 25th 2008
Transposes article 38 of Council Directive 96/29/Euratom, of May 13th 1996, which requires the establishment of a system of qualified experts and technicians. This Decree- Law also creates the "program for the training of qualified experts and qualified technicians".

This Decree-Law establishes a common basic training and education framework for all areas of activity, but does not exclude specific approaches in specific sectors of application of ionizing radiation: the medical or industrial sector, education and research:

> The new approach takes into account three levels of professional qualifications in radiological protection:

Level 1: Qualified Expert (QE);
Level 2: Qualified Technician (QT);
Level 3: Operator Technician (OT).

The QE establishes radiation protection and safety programs in accordance with the relevant national requirements. He also supervises radiation protection and safety within facilities.

The QT ensures that all work involving exposure to radiation is carried out in compliance with the established programs.

The OT must follow the instructions established in the radiation protection and safety program during its routine work.

It should, however, be highlighted that this Decree-Law does not set out the general conditions under which facilities are required to include QEs or QTs in their staff. Such requirements are defined in separate legislation, which essentially states that these requirements must be decided by the respective licensing authority on a case-by-case basis.

B) "Specific Safety Legislation"

a) Decree-Law 180/2002, of August 8th 2002, amended by Decree-Law 72/2011 of June 16th, (as mentioned above in paragraph A) transposes Directive 97/43/Euratom on the application of ionizing radiation during medical diagnosis and treatment This Decree-Law promotes special requirements for the radiotherapy, nuclear medicine facilities in order to be licensed.

b) Decree-Law 138/2005, of August 17th 2005
This Decree-Law establishes a national environmental monitoring system to measure the level of radioactivity in air, water and soil, in compliance with the monitoring and reporting requirements (under Articles 35 and 36 of the Euratom Treaty, and in accordance with the Recommendation of the European Commission of June 8th 2000 (COM/473/EURATOM)). The monitoring system is managed by the CTN/IST (ex ITN), which also prepares a respective annual report ("Relatório de Vigilância a Nível Nacional").

c) Decree-Law 197/2005, of November 8th 2005
Revises Decree-Law 69/2000, of May 3rd, which foresees the rules applicable to environmental impact assessments and transposed Directives 85/337/CE, 97/11/CE

and 2003/35/CE [see, *maxime*, ¤2(b) and 3 of Annex I, ¤2(d) and (e) and ¤3(g) of Annex II, and ¤4 of Annex III]. This Decree-Law requires a prior assessment of the environmental impact to be carried out before the eventual authorization of nuclear installations, as defined in the CNS.

d) Law 5/2006, of February 23rd 2006
Adopts a new legal regime for weapons and ammunition, including criminal liability for the acquisition, sale, possession and use of radioactive or nuclear weapons, or of components aimed at producing, maintaining or using such weapons.

e) Decree-Law 38/2007, of February 19th 2007
Revises Decree-Law 153/96, of August 30th, which foresees the protection of people and the environment against the risks arising from the utilization of sealed radioactive sources. This Decree-Law adopts a new legal regime for exposure of workers and the public to ionizing radiation arising from inadequate control of high-activity sealed radioactive sources and orphan sources and transposes Council Directive 2003/122/Euratom, of December 22nd 2003. The Decree-Law 38/2007 is not applicable to medical exposure, since there is a specific regime for such exposures: Decree-Law 180/2002, of August 8th, amended by Decree-Law 72/2011 of June 16th. Under the Decree-Law 38/2007 the holder must obtain from the CTN/IST (ex ITN) prior authorization for the possession of such a source.

f) Decree-Law 198/2009, of August 26th 2009
Transposes EU Council Directive 2006/117/Euratom, of November 20th 2006, on the transfer between member countries, third countries and member countries and transportation within Portugal of radioactive waste and spent fuel. This Decree-Law has been tacitly revoked in part by Decree-Law 30/20012, of February 9th, when the transportation takes place to or from a nuclear installation. In such case COMRSIN takes over from CTN/IST as the national authority for granting authorizations and for verification of the correct implementation of the directive.

g) Decree-Law DL 56/2012, of March 12th
Designates the APA (Portuguese Environment Agency) as the entity responsible for the continuous alert network of radioactivity in the environment.

h) Decree-Law 262/2002, of December 17th
Completes the transposition of Council Directive 2009/71/EURATOM, of June 25th and establishes the obligations the license holders for the operation of nuclear installations have to comply to continuously improve their safety under the supervision of the regulatory authority.

C) Creation of a Regulatory Body

Portugal has since 2012 an independent regulatory body for the safety of nuclear installations. With Decree-Law 30/2012 the Regulatory Commission for the Safety of Nuclear Installations (COMRSIN) was created. Its attributes and responsibilities are, among other things:

- 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 to 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.

See further details below, in reply to Article 8.

Article 7(2)(ii) – System of licensing

The Portuguese law related to Radiation Protection and Nuclear Safety for facilities and installations establishes a system of licensing based on four levels:
- "exemption from declaration";
- "declaration of practices";
- "authorization of practices";
- "licensing or approval procedure"[1].

The law specifies in which cases a declaration, authorization or licensing is needed, and who are the competent authorities for each of these cases.

1. Exemption of declaration:
Exempted practices, until August 2005, had been defined in Decree 9/90 (Art. 36 and Annex II). Article 2 of Decree-Law 140/2005, of August 17th, revises Decree 9/90, and refers directly to Articles 3 and 4 of Directive 96/29/Euratom.

2. Declaration:
Decree-Law 165/2002 foresees the existence of declarations of practices as a subsidiary category. Thus, whenever a practice is concerned with or may involve risks of exposure to ionizing radiation or radioactive contamination from an artificial source of radiation or a source of natural radiation (Article 8, paragraph 1), it must be declared, unless it an exempted practice, or a practice subject to authorization or

[1] For installations or facilities.

licensing.

3. Authorization:
Under article 8(1) of Decree-Law 165/2002, and Decree-Law 95/95, a prior authorization for the practices mentioned therein is mandatory.
An authorization for the detention, transportation and transfer of sealed sources is also required, pursuant to Decree-Law 38/2007, Article 4, and paragraph 1. The sale, lease, assignment or other transfer of sources or equipment that incorporates them requires prior approval by CTN/IST (ex ITN).

4. Licensing:

Licensing of facilities or services is mandatory:

a) Under Decree-Law 30/2012 for all nuclear installations from site choice do decommission. This includes nuclear power plants, research reactors, enrichment and reprocessing plants, nuclear fuel cycle facilities. The licensing authority is COMRSIN.

b) Under Decree-Law 165/2002 for facilities where activities of radioactive ore extraction. The licensing authority is the Directorate of Energy and Geology (DGEG) of the Ministry of Economy (ME). Portugal formerly had a system for licensing of uranium mines and ore processing. Parts of this legislation are still in force. Considering that all uranium mines have been shut down, the respective legislation is deemed to be obsolete and would have to be thoroughly revised in the hypothetical case of future applications for licenses in the area of the mining of radioactive ore extraction.

c) Under Decree-Law 167/2002 public and private entities providing services in the area of protection against ionizing radiation (e.g. training, dosymmetry, radiation measurements, safety assessments and inspections); the licensing authority is the Directorate General of Health (DGS) of the Ministry of Health (MS).

d) Under Decree-Law 337/2001 for installations for the irradiation of food; the licensing authority is DGS of the MS.

e) Under Decree-Law 165/2002 and Decree-Law 180/2002, amended by Decree-Law 72/2011 of June 16th, for every installation or equipment (with exception of a nuclear installation) that produces ionizing radiation must be licensed by DGS. The DGS homepage provides support and licensing forms (licensing forms for radio-diagnostics, dental radio-diagnostics, nuclear medicine,

radiotherapy, radioisotope laboratories, as well as for "industrial installations" in general).

f) Under Decree-Law 180/2002, amended by Decree-Law 72/2011, private health units and medical facilities where ionizing radiation occurs or is applied, require a separate license from DGS, in addition to the license mentioned under e).

The Portuguese law does not define clear and comprehensive procedures for renewal of existing authorizations and licenses. One of the cases in which a renewal of a license is established occurs in the field of medical exposures, where the operator, according to Decree-Law 180/2002, amended by Decree-Law 72/2011, shall apply for a renewal of the operating license after a period of five years following the first grant, and at any time if substantial changes to equipment and/or installations occur or are foreseen.

The same procedures for renewal of licenses are applied to service providers in the area of protection against ionizing radiation (Decree-Law 167/2002). Here also, a renewal of the license after a period of five years is foreseen. In the remaining cases, only occasional references exist to renewal procedures and their implementation.

In what concerns sealed sources, the Portuguese legislation is comprehensive and in conformity with the rules of the IAEA's "Code of Conduct For the Safe Use of Sealed Sources".

As for nuclear installations the licensing system, including renewal procedures, is well established in Decree-Law 262/2012. Therefore, this Decree-Law covers, since December 17th 2012, the RPI that is the only installation of the nuclear fuel cycle existing in Portugal

Licensing of the RPI

The RPI was first licensed in 2005. The ME granted the operating license on 27 December 2005, by Ministerial Order of the Directorate General of Energy and Geology (DGEG) of the ME.

As mentioned in the report for the 5th review meeting in 1999, in the context of international initiatives to enhance non-proliferation measures, safeguards and nuclear security, and to combat nuclear terrorism, Portugal declared its interest to participate in the "United States Foreign Research Reactor Spent Nuclear Fuel Acceptance Program" of the Department of Energy of the United States of America. A commitment was made to abandon the use of HEU by May 12th 2006 (deadline that shifted to May 31st2007) and to return the HEU fuel before the 12th of May 2009.

A project for the conversion of the core of RPI from HEU to LEU fuel was initiated, and an application for the authorization of core conversion was filed before the licensing authority.

The project was carried out in the framework of an agreement between the IAEA, the Portuguese Republic and the United States of America, with technical support from the IAEA and financial assistance from the United States of America. The agreement was adopted in Vienna, on December 20th 2006.

The license for the core conversion of the RPI from HEU to LEU was granted by ME, as an amendment to the initial operating license, on August 6th 2007.

The conversion was done by the operator of the RPI under IAEA's Technical Cooperation Project POR/4/016, with the assistance of an independent expert from France (IRSN) and a research center in the United States (Argonne National Laboratory ANL). In the framework of the core conversion and the reactor licensing, the RPI underwent a thorough safety analysis. A Safety Analysis Report was prepared, based on the IAEA safety recommendations (e.g. the Safety publication: Safety Series Nr. 35-G1, "Safety Assessment of Research Reactors and Preparation of the Safety Analysis Report", as well as the "IAEA Research Reactor Core Conversion Guidebook" Tec. Doc. 643). Additionally, the ex ITN prepared an analysis of the "site characteristics", including an estimation of the RPI's gaseous and liquid effluents, as well as a report on the radiological safety in the RPI.

The Safety Analysis Report for the core conversion of the RPI was accepted by the IAEA, which confirmed its support for the core conversion on the 27th of June 2007.

In this context, new discharge limits for effluents of the RPI were internally adopted and proposed, on July 27th 2007, by the "Reactor Safety Commission" of the RPI (see below the reply to article 7(2)(iii)). These limits were made official through the above mentioned amendment to the license of the RPI, granted by DGEG on August 6th2007.

The RPI received fresh LEU fuel on February 14th2007, from the French supplier AREVA.

In September 2007, the reactor was converted from high enriched to low enriched uranium (with less than 20% of U-235 – specifically, U3Si2-Al – and a uranium density of 4.8 g/cm3). The core conversion was completed in October 2007.

After that, the ex ITN prepared the shipment of the obsolete HEU fuel, and performed radiological shielding calculations for the optimization of spent fuel loading into the transport cask. The irradiated high-enriched uranium core (all fresh and spent HEU fuel) of the RPI was returned to the United States in August 2008, under strict security measures.

Thus, there exists currently no spent fuel or radioactive waste stored in the reactor.

As mentioned above, at present the RPI falls under the regulatory authority of COMRSIN under Decree-Law 30/2012. After the publication of Decree-Law 262/2012, the RPI was given one year to conform with the new legislation that sets the obligations license holders have to comply to continuously improve the safety of nuclear installations. In 2014 the RPI has to meet all the requirements under Decree-Law 262/2012 and prepare itself for an inspection by the regulatory authority.

Article 7 (2) (iii) – System of regulatory inspections and assessment

Under Portuguese Law, the competencies to verify the implementation of regulatory measures and terms of licenses (inspections and assessment of installations) were distributed between different ministries and other state entities. Only in some cases the certification entities are the same as the licensing authorities (see also response to article 7(2)(ii), nr. 4, above, and to article 8, below). Surveillance is carried out mainly by:

- The COMRSIN for all nuclear installations, under Decree-Laws 30/2012 and 262/2012.
- The Regional Health Authorities of the MS for the verification of health services, under Art. 12 of Decree-Law 165/2002; since May 2009, by Decree-Law 127/2009, this competence is also assigned to the regulatory authority of Health (see also response to article 8).
- The Regional Directorates of Economy of the ME for industrial applications, under Art. 20 of Decree-Law 165/2002.
- The DGS of the MS with respect to service providers and consultants in the domain of radiological protection (Art. 13 of Decree-Law 167/2002).
- The CTN/IST (ex ITN), within the MEC, in the area of universities and research centers, under Art. 14 of Decree-Law 165/2002, as well as for the inspection of sealed sources, under Art. 14 of Decree-Law 38/2007 and the transport of waste, under Art. 14 of Decree-Law 165/2002 and Art. 20 of Decree-Law 198/2009.

The inspection of mines and the system of exploration of radioactive ore is foreseen to be carried out jointly by DGS, APA (the Portuguese Environment Agency) of the Ministry of Environment, Spatial Planning and Regional Development (MA) and DGEG. Since the exploration of all uranium mines was terminated in the year 2000, the latter attribution for inspection is no longer relevant.

Assessment of the safety of the RPI

Until December 16th 2013, according to Decree-Law 262/2012, the safety of the activities of the RPI will continue to be provided for according to the "Regulation for the Exploration of the RPI", adopted by Ministerial Order no. 10A/MCT/96 as explained in the 5th National Report by Portugal. The correct application of this regulation and its review is supervised by a "Reactor Safety Commission", made up by experts in the field that report directly to the President of IST. This Commission includes and can be chaired by staff external to the IST, as it is currently the case. After the above date the RPI falls under the regulatory authority of COMRSIN, which has to assess if the RPI fully complies with all the obligations and guidelines stated in Decree-Law 262/2012. Nevertheless, during this *moratorium*, RPI has to comply with all notification and cooperation obligations vis-à-vis COMRSIN.

Decree-Law 262/2012 that enters into force December 17th 2013, follows IAEA safety criteria and foresees that:

- 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.

- The operator is responsible for the safe management of the fuel and of the radioactive waste, including the waste in storage or elimination facilities.

- The operator has to have the human, material and financial resources that are adequate to the safe operation of the installation.

- 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.

- 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 decision making processes are based on the graded approach, an emergency plan, a maintenance plan and a safety analyses report, all of which have to be submitted to the regulatory authority for approval.

- The operator has the prime responsibility for the periodic safety review of the installation and for the continuous improvement of safety.

- The RPI, in addition, has a "Safety Commission" that is independent from the management and operator teams.

- The RPI must have a Safety Analysis Report (SAR), which will be subject to validation by COMRSIN at the time of the first inspection after December 17th 2013. In the SAR the operator has to show that the operation complies with the

international good practices recommended by 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 dismantling procedures.

- The operator is required to update the SAR whenever necessary or if requested by COMRSIN.

- Besides the SAR, each year the RPI presents an annual report to be assessed by the "Safety Commission" and subsequently submitted to COMRSIN, which has the right to inspect the facility at any time, announced or non-announced.

- 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.

- The operator has the duty of notifying COMRSIN of any modification or of any event occurred in the nuclear installation.

Basic features of inspection program

COMRSIN is preparing and organizing the first inspection to RPI, which will take place after December 17th 2013.

Article 7(2)(iv) – Enforcement of applicable regulations and terms of licenses

The main entities with competencies relating to enforcement are:

a) COMRSIN
b) CTN/IST (ex ITN)
c) DGS
d) APA.

The above mentioned entities have the following competencies:

- To propose preventive measures to avoid harm or danger.
- To order the immediate suspension of the operation of equipment producing radiation.
- To order the suspension of all use of radioactive materials;.
- To seize material and equipment.
- To impose fines.

In the case of nuclear installations COMRSIN may take any of the following enforcing 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 the Decree-Law 262/2012 was elaborated.
- Revoke or change scope of the license following a fully transparent approach and for well justified reasons based on a fair assessment of the safety of the nuclear installation.

In the case of sealed sources and orphan sources, inspections are carried out by CTN/IST (ex ITN). After these inspections CTN may take the following enforcement actions:

- Undertake, where it seems relevant and justified, all the steps necessary to ensure compliance with the security and safety measures to protect against threats of radiation.
- Report to the authorities, through technical reports, all deficiencies or shortcomings.
- Propose to the competent authorities the adoption of the necessary corrective measures to comply with the provisions of security and protection against ionizing radiation in case of imminent danger.
- Determine the immediate and temporary suspension of the authorization in case of an emergency or imminent danger.

CTN/IST is also the competent authority to monitor safety and security conditions in the case of transport of radioactive materials whenever a nuclear installation is neither the source nor the destination, and take the following enforcement measures:

- Apply fines in case of transfer, return or transit of radioactive waste without authorization.
- Apply fines in case of refusal of the holder of the radioactive waste to take back radioactive waste after an attempt of transfer or return of this waste under conditions that did not respect the law.

According to Art. 21 of Decree-Law 198/2009, CTN is entitled to apply fines for irregularities related to transfer and transport of radioactive waste between 250 € and 30.000 €.

Article 8 – Regulatory body

Article 8(1) – <u>Establishment of the regulatory body</u>

Portugal has a complex regulatory framework characterized by the existence of various authorities, with competencies in the area of radiation protection and nuclear safety being allocated to different Ministries (as per Decree-Law 165/2002; see also response to Article 7(2)(i)), as well as to other state entities.

Except for COMRSIN, all the other licensing authorities are in some cases administratively connected to government bodies in charge for running the activities that are subject to regulation.

Licensing authorities:

The licensing authorities in the different areas of health, energy production and mining, industry and research are generally installed in the respective ministries. Therefore

a) COMRSIN uses the administrative support from MEC but is independent of the MEC chain of command since the Commissioners are, in effect, nominated by the Prime Minister for a fixed term. COMRSIN is responsible for the licensing of all nuclear installations from site choice to decommission as well as authorizing the transport of radioactive waste as well as fresh or irradiated fuel to and from nuclear installations.

b) DGS of the MS is responsible for licensing practices in the area of health as well as in the domains of industry and agriculture.

c) ME and its respective Regional Directorates are responsible for licensing the extraction and processing of radioactive ores.

d) CTN/IST of the MEC is responsible for authorizing the use of sealed sources and the transport of radioactive materials and waste whenever nuclear installations are not the source or the destination.

Independence

a) In nuclear safety

COMRSIN is the licensing authority for nuclear fuel cycle facilities. Portugal has only a research reactor, the RPI, which has been licensed by DGEG well before COMRSIN was created, as reported above.

As for inspection, the safety of the RPI will be supervised by COMRSIN as of December 17th 2013. At that time the RPI has to demonstrate it complies with Decree-Law 262/2012 as mentioned above. From that point on its safety is subject to the regulatory authority of COMRSIN through regular inspections.

The renewal of the license of the RPI in 2015 will be up to the COMRSIN to analyze and decide.

b) In radioprotection

In what concerns practices in the area of health, the MS is the only authority responsible for all the activities related to radioprotection.

In 2003, the Regulatory Authority of Health (ERS) was created. Its competencies have recently been widened (Decree-Law 127/2009).

Both the ERS and the Regional Directorates of the MS are responsible for verifying compliance of health installations and/or services.

In what concerns practices in the area of industry and agriculture, DGS is the licensing authority and is independent of the stakeholders of industry and agriculture. The same applies in the case of the CTN/IST (of the MEC), in what concerns the licensing of sealed sources that are used in industry.

c) Distribution of competencies

To resolve the absence of an independent regulatory body for nuclear safety and to comply with EU Directive 71/2009/EURATOM, COMRSIN was created in 2012 as an independent regulatory authority to supervise and regulate the security of nuclear installations, according to Decree-Laws 30/2012 and 262/2012. COMRSIN is managed by three commissioners appointed by the Prime Ministers for a five year term. Given the financial situation in Portugal, and the consequent limitations imposed by the TROIKA, COMRSIN does not have yet the financial, technical and legal resources that are needed to make it an effective regulatory body. Nevertheless, we expect this situation to change soon, because COMRSIN is expected to become as well the regulatory body for the safety of irradiated fuel and radioactive waste, as a result of the transposition of EU Directive 70/2011/EURATOM for the Portuguese legal system.

At present the competences of COMRSIN are:

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.

Most of the competencies of the MEC are awarded to the CTN/IST, the main ones being:

- Authorize possession, transport, import, sale and any other type of transfer of sealed radioactive sources or equipment with such sources, and keeping the respective registry.
- Authorize the transport of radioactive waste from and to installations other than nuclear installations, radiation sources and radioactive waste.
- Inspecting compliance with radiological protection and nuclear safety rules in facilities pursuing research and education purposes.
- Assist the competent authorities in the inspection of other facilities.
- Provide basic metrology and calibration services.
- Collect and temporarily store solid radioactive waste produced in Portugal, as well as discovered orphan sources.
- Keep the central registry of radiation doses received by workers;
- Carry out radioactivity measurements, except for the emergency network managed by APA of the MA.

Most of the competencies of the MS are assigned to DGS, the main ones being:

- Authorize "practices" and license facilities and equipments that produce ionizing radiations, except for facilities/equipments under the competence of other entities (nuclear fuel cycle facilities, uranium mines).
- License service-providers in the area of radiological protection, radiation measurement, dissymmetry and training services.
- Enforce radiological protection rules, including ensuring compliance with BSS of health protection of workers and of the general public.
- Approve and promote radiological protection training programs; etc.

The DGS is assisted in certain issues by an advisory body, the National Commission for Radiological Protection, made up of representatives from other institutions and Ministries.

Most of the competences of the MA are assigned to APA, the main ones being:

- Manage a network to permanently measure environmental radioactivity, as well as to detect abnormal increases.
- Manage Environmental Impact Assessments (e.g. prior to the construction of nuclear facilities).

While the ME holds directly the power to license mining concessions (e.g. for the extraction and processing of uranium), most of the competencies within this Ministry are assigned to DGEG, the main ones being:

- Authorize the transport of fresh nuclear fuel, except when it comes from or go to nuclear installations.
- Inspect industrial facilities

Article 9 – Responsibility of the license holder

As already mentioned under article 7(2)(iii) above, the license holder of the RPI is IST (CTN/IST). The license currently in force was issued in December of 2005 by DGEG of the ME.

The Safety Rules for the operation of the RPI were adopted by Ministerial Order 10A/MCT/96, of the Minister of Science and Technology. As mentioned above this Ministerial Order will be revoke on December 16th 2013 and COMRIN becomes the sole regulatory authority responsible for inspecting and regulating RPI. In the interim period RPI has to comply with the previous law and at the same time prepare itself to comply with the new laws, collaborate with COMRSIN on all issues pertaining to nuclear safety and notify COMRSIN of all incidents or accidents.

The rules in the Ministerial Order 10A/MCT/96 place the ultimate responsibility for the safety of the RPI with IST itself, and particularly its President, which has authority over the reactor's operating team. It is stated in the "Regulation for the Exploration of the RPI" that the President of IST has the "global and final responsibility for the safety of the RPI". The primary responsibility for security and safety in the case of RPI is thus clearly attributed to the operator (license holder).

The above mentioned Ministerial Order also establishes a Reactor Safety Commission of the RPI, whose members are appointed by the MEC, and which retain nominal independence over the reactor's operating team, supervising and advising on the enforcement of the Safety Rules. At the same time, they are hierarchically subject to the President of IST. Some members of the Commission are university professors which do not belong to CTN's staff.

In accordance to the reactor license, CTN/IST is obliged to inform DGEG in the following circumstances:

- Any accidents and incidents of the RPI that fulfill the categories provided by the IAEA
- Any changes to the safety operations standards.
- A long interruption of RPI's commissioning, as well as the verification program before re-initiating commissioning.

The second and the third information should include the opinion of the Reactor Safety Commission of the RPI.

However, since the publication of Decree-Law 262/2012, and in the spite of the interim period adaptation to the new legislation, RPI has also the obligation to notify the Regulatory Authority, COMRSIN, of any modification or event relevant to nuclear safety, namely:

- Any changes to the safety policy of the nuclear installation.
- Any changes to the provisions covered by the management system.
- Any changes to the hierarchical structure and operation team.
- Any change to the radiological safety and protection team.
- Any incidents, accidents or emergency situations.
- Any interruption of operation due to the failure of one security system leading to the violation of a safety limit.
- Any violation of the limits of radioactive radiation or effluents stipulated in the legislation (in this case the National Civil Protection Authority is notified as well).
- Any change of the Safety Analysis Report without relevance to nuclear safety; changes relevant to nuclear safety require prior authorization of the regulatory authority.

The terms of notification are well defined in the mentioned Decree-Law.

As of December 17th the operator of RPI, IST (CTN/IST), has to demonstrate to the new regulatory authority, COMRSIN, that it is able to comply with the new legislation and prepare itself for the renewal of its license in 2015.

With respect to "radiological" installations in the area of health, responsibility of the safe operation is clearly attributed to the head of the installation (Decree-Law 180/2002, amended by Decree-Law 72/2011).

In the case of sealed sources (Decree-Law 38/2007), the general responsibility for the sealed source is attributed to its holder/owner. However, in other cases (e.g. for accelerators in industrial installations), this responsibility is not expressively stated in the law and such a responsibility can only be concluded by legal interpretation.

With respect to uranium mines, the owner of the license of extraction, operator, has the obligation to follow specific radiological protection requirements (as defined in Regulatory Decree 34/92). In the case of closed and abandoned mines, the operator is responsible for its safety.

With respect to former mining areas and former areas where ore was treated, and that were deemed to need state intervention due to their potential high risk for human health or for the perseveration of the environment (according to Decree-Law

198-A/2001), an exclusive concession was given to company EXMIN (Companhia de Industria e Serviços Mineiros e Ambientais, S.A.), part of EDM Company, for the recuperation of the environment.

Article 10 – Priority to safety

The concept of "priority to safety" was not expressly mentioned in the Portuguese law prior to Decree-Law 262/2012 of December 17th.

However, in the case of the RPI, the "Regulation for the Exploration of the RPI", Executive Orders 10A/MCT/96 and 11A/MCT/96, gives priority to safety, as can be deduced by the following rules:

- A safety analysis has to be performed by the reactor operator, to be submitted to the "Reactor Safety Commission", *before* operation or modification of the reactor, and for all experiments to be carried out in the reactor.
- Regular tests and inspections have to be carried out by the operator or by somebody entitled by the operator, and the results have to be submitted *immediately* to the "Reactor Safety Commission".

With the new law "priority to safety" is reinforced and embedded in the principles of the law as well as in the safety management system that the operator, IST (CTN/IST), has to implement and submit do the regulatory authority.

Article 15 – Radiation Protection

As previously indicated under Article 7, Portugal is currently revising its legislation relating to radiological protection.

The following are the laws currently in force, including partial and tacit derogations of old provisions by new ones:

a) Decree-Law 348/89, of October 12th
   Establishes rules for protection against ionizing radiation.

b) Regulatory Decree 9/90, of April 19th
   Regulates the provisions of Decree-Law 348/89.

c) Regulatory Decree 29/97, July 29th
   Transposes Council Directive 90/641/Euratom, of 4 December, and regulates the protection of external workers intervening in areas requiring protection against ionizing radiation.

d) Decree-Law 165/2002, of July 17th

Establishes most of the competences of authorities connected to radiological protection, partially transposing Council Directive 96/29/Euratom, of May 13th 1996.

e) Decree-Law 167/2002, of July 18th
Regulates the licensing and functioning of service providers in the field of radiological protection, partially transposing Council Directive 96/29/Euratom, particularly relating to measurement of exposure and training.

f) Decree-Law 180/2002, of August 8th, amended by Decree-Law 72/2011 of June 16th
Transposes Directive 97/43/Euratom on the application of ionizing radiation during medical diagnosis and treatment.

g) Decree-Law DL 138/2005, of August 17th
Establishes a national environmental monitoring system to measure the level of radioactivity in air, water and soil, in compliance with the monitoring and reporting requirements (under Articles 35 and 36 of the Euratom Treaty, and in accordance with the Recommendation of the European Commission of June 8th 2000 (COM/473/EURATOM)).

h) Decree-Law 140/2005, of August 17th
Partially transposes Directive 96/29/Euratom, specifically its provisions concerning exemption from prior authorization or reporting of activities. It does so by referring to the applicable provisions of the said Directive.

i) Decree-Law 197/2005 of November 8th
Requires a prior assessment of the environmental impact to be carried out before the eventual authorization of nuclear installations, as defined in the CNS.

j) Decree-Law 38/2007 of February 19th
Adopts a new legal regime for exposure of workers and the public to ionizing radiation arising from inadequate control of high-activity sealed radioactive sources and orphan sources and transposes Council Directive 2003/122/Euratom, of December 22nd 2003.

k) Decree-Law 222/2008, of November 17th
By means of this Decree-Law, Portugal concluded the transposition of Council Directive 96/29/Euratom, of 13 May 1996, specifically the BSS for the protection of the health of workers and the general public against dangers arising from ionizing radiation.

l) Decree-Law DL 56/2012, of March 12th
Designates the APA (Portuguese Environment Agency) as the entity responsible for the continuous alert network of radioactivity in the environment.

This legal framework was entirely modeled on EC Directives. Its content and compliance with the requirements of the CNS is, therefore, easy to assess by comparison with the relevant provisions of EC Law.

Radiological Protection in the RPI

Radiological protection in the RPI is implemented until December 16th 2013, according to the "Regulation for the Exploration of the RPI", as per Ministerial Order no. 10A/MCT/96, by the "Occupational Health Unit", which is responsible for radiological protection of workers in the reactor, for the safety of all operations that involve a potential risk, for the control of radiation fields, for the control of radioactive contamination of the workplace and for the management and control of effluents and waste.

As for December 17th 2013 RPI and its operator CTN/IST have to comply with Decree-Law 262/2012 that raises the level of compliance with IAEA safety standards and EU regulations.

Article 16 – Emergency Preparedness

Article 16 (1) – Emergency plans and programs

Although no nuclear power plants exist in Portugal, there are other sources of concern that require emergency plans, such as accidents arising from:

- The research reactor.
- Industrial radiography.
- Industrial irradiation.
- Nuclear medicine, radiotherapy, etc.
- Foreign nuclear installations.

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 36/95, of February 14th
This Decree-Law transposes Directive 89/618/EURATOM concerning information of the general public on applicable health protection measures and on actions to be

taken in the case of a radiological emergency.

c) Decree-Law 165/2002, of July 17th
Establishes most of the competences of authorities connected to radiological protection, partially transposing Council Directive 96/29/Euratom, of 13 May 1996, but also pertains any intervention in radiological emergencies or prolonged exposures following a radiological emergency; it creates CNER, the National Radiological Emergency Commission.

d) Decree Law 174/2002, of July 25th
Regulates the procedures to be adopted in the case of radiological emergency, transposing Title IX of Directive 96/29/EURATOM.

The population should 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 36/95 and from Directive 89/618/EURATOM.

Most of the provisions regarding radiological emergency result from Decree-Laws 165/2002 and 174/2002 that state:

Whenever a radiological emergency occurs in Portugal, the holder of an installation where the accident occurs should notify the ANPC (National Civil Protection Authority, Autoridade Nacional de Protecção Civil).

If the nuclear accident occurs outside Portugal the competent entity for receiving notifications (contact point) is APA.

ANPC has the obligation of acting as a contact point for notifications regarding radiological emergencies occurring in the country or within territory under Portuguese jurisdiction, of ensuring the development and testing of external emergency plans for radiological emergencies or prolonged exposure and of providing information to the population according to the legislation applicable.

IST has the obligation of participating in the actions of intervention in radiological emergencies or prolonged exposure, in accordance with applicable laws in force;

APA has the obligation of proposing, if necessary, corrective measures to ensure the protection of environment and populations in the event of a radiological emergency or prolonged exposure to environmental contamination.

According to the above mentioned Decree-Laws, and depending on the circumstances, a Technical Intervention Authority (ATI) may be called in to intervene (by ANPC, in case of an accident in Portugal). The functions of this Authority are

assumed by:

a) DGS, in radiological emergencies within installations except those concerning mining activities and other installations in the nuclear fuel cycle.

b) APA, in radiological emergencies from which a risk to the general public or to the environment may arise (i.e. emergencies with potential or actual effects external to the installation), including risks deriving from the previous exercise of mining activities concerning radioactive material.

c) CTN/IST, in radiological emergencies taking place in the transport of radiological material or caused by the loss of sealed radioactive sources or by the discovery of orphan sources.

d) In all other cases the ATI will be nominated by the Ministry of Interior.

According to the recent Decree Law 30/2012, the functions of the ATI are assumed by COMRSIN in the case of nuclear and radiological emergencies taking place in nuclear installation;

Within the scope of its competences, the ATI is responsible for the coordination of interventions, from the notification of a radiological emergency to the end of the actions of all intervening entities.

However, it is up to ANPC to execute emergency plans, as mentioned above.

In order to prepare the above mentioned interventions, each facility must prepare internal emergency plans and periodically test them according to the conditions set out in the licenses of the respective facilities or installations. The tests are the responsibility of a Qualified Technician (QT), under the supervision of a Qualified Expert (QE), whenever facilities have been required to have such experts in their staff (in accordance with Decree-Law 227/2008 – see response to article 7(2)(i)A above). Whenever the emergency plans identify a risk of exposure or radiological contamination which may extend outside the perimeter of the installation, the APA must be given an opportunity to issue an opinion.
Regarding external emergency plans (outside of facilities), the ANPC has the power to prepare and to periodically test these plans.

The National Commission for Radiological Emergencies (CNER) and the National Commission for Civil Emergency Planning have a general advisory role in all these procedures. Moreover, CNER has the obligation of integrating immediately, in an emergency situation that affects or may affect areas of the national territory, the

Emergency Operations Centre of Civil Protection, in order to monitor the situation and to prepare the information to be communicated to the population.

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

Article 16(2) – Information of the public and neighboring States

Decree-Law 36/95 sets out the requirements for information of the public and other States in case of a radiological emergency, transposing in full the requirements of Directive 89/618/Euratom.

Decree-Law 36/95 distinguishes between information of the population prior to an emergency (prevention) and the information of the population actually affected by a radiological emergency, including special provisions on information as soon as an effect is foreseen. It also addresses information of persons who might be involved in an intervention. The specific requirements of the information to be provided are in line with those of Directive 89/618/Euratom.

The ANPC is the entity responsible for providing this information. The coordination of the intervention and the evaluation and register of the consequences of a radiological emergency, as well as the effective intervention, are also competences of the ANPC.

In all these proceedings, the ANPC is assisted by DGS, CNER and CNPR (National Commission for Radiation Protection).

In order to be able to give information according to the obligations under the Convention on Early Notification of a Nuclear Accident, of which Portugal is part, and also according to Council Decision no. 87/600/EURATOM, Portugal installed an environmental monitoring network, called RADNET, that is managed under supervision of the Portuguese Environment Agency APA. It has 13 stations (11 in the mainland, 1 in Madeira and 1 in the Azores), plus 3 mobile or portable units. Each station includes two Geiger-MŸller detectors, one for low levels of radiation (5 to 10 mGy/h) and another for higher values (0,5 to $5x10^{3}$ mGy/h), enabling a continuous detection of gamma radiation in the air.

Portugal has also a monitoring station installed in Spain, in Talavera La Rael near Badajoz and in “Penhas Douradas” (Serra de Estrela Mountains) is installed one fixed monitoring station of the Spanish monitoring network REVIRA. These stations are

used for data comparison and are operational since 1996.

This national detection system is connected to a communication network between the EC and the Member States, through the "European Community Urgent Radiological Information Exchange" ECURIE. Communication about radiological information is exchanged with ECURIE not continuously, but only in case of an emergency. Portugal participates also in the European platforms EURDEP (European Radiological Data Exchange Platform) and RODOS (Real Time On-Line Decision Support for Nuclear Off-site management).

Article 16(3) – Emergency preparedness for Contracting Parties without nuclear installations

Portugal has no nuclear installations as defined in the CNS. The nuclear installation located nearest to the Portuguese Border is the Almaraz Power Plant in Spain, at a distance of about 100 km from the border. There are no nuclear installations in the immediate vicinity of the border.

Decree 36/80, of May 30th, ratifies a Portugal-Spain agreement specifically covering the matter concerning nuclear installations near the border between the two countries – in a strictly legal approach, however, it should be noted that there are no installations presently that fall under that category and to which, therefore, this agreement could be applied.

The Portugal-Spain agreement reproduces essentially the obligations deriving from the Early Notification Convention.

D. Annexes
1. List of nuclear installations

Portugal only has a research reactor, the Portuguese Research Reactor "RPI".

2. Data on nuclear installations

The RPI is a 1MW swimming-pool type Material Testing research reactor. On 21 January 1957, the Portuguese Government gave green light for the acquisition of its equipment and the reactor went operational on 25 April 1961. In the period from 1961 up to now the reactor was almost always operational, with some reduced periods of shutdown. The reactor was formally licensed in 2005, was recently converted form HEU to LEU (2007) and currently is fully operational. The reactor is used for research, education and training. The RPI facility is integrated in the Centro Tecnológico Nuclear of Instituto Superior Técnico that is the Engineering School that

is part of the University of Lisbon (ULisboa). No incident has been ever detected and reported.

3. Reference to national laws and regulation

All relevant national laws and regulations were mentioned in the report.

4. References to official national reports

The following relevant reports have been mentioned throughout this Report, where appropriate:

- Safety Analysis Report for the core conversion of the RPI (2007).
- Safety Analysis Report of RPI.
- Annual RPI safety reports, SAR, (presented to the "Reactor Safety Commission" and subsequently submitted to the regulatory authority COMRSIN. Annual activity report of CTN/IST (including description of RPI safety activities).
- Annual report of CTN/IST on the activities related to the national monitoring system to measure the level of radioactivity in air, water and soil.

5. References to international review missions

There were no official international review missions.

In August 2002 an inspection was carried out by the European Commission to verify the compliance with the transposition of Directive 96/29/Euratom, also focusing on nuclear safety and emergency preparedness issues.

In November 2006, another inspection was carried out by the European Commission, assessing the implementation of prior safety recommendations (following the 2002 inspection) for the RPI and the conclusion of the licensing procedure of the RPI. The emergency measurement network, managed by APA, was also surveyed at this time.

E. Related Data

- Diplomatic Conference to adopt CNS: 14-17 June 1994
- Signature by Portugal: 3 October 1994
- National Ratification by Portugal: 19 March 1998
- Deposit of Ratification 20 May 1998
- Entry into force in Portugal 18 August 1998
- Accession of EURATOM 31 January 2000
- Entry into force for EURATOM 30 April 2000
- 1st organizational meeting: 29-30 September 1998
- 1st review meeting: 12-23 April 1999

- 2nd organizational meeting: 25-26 September 2001
- 2nd review meeting: 15-26 April 2002
- 3rd organizational meeting: 28-30 September 2004
- 3rd review meeting : 11-22 April 2005
- 4th organizational meeting: 24-26 September 2007
- 4th review meeting *: 14-25 April 2008
- 5th organizational meeting: 29-30 September 2009
- 5th review meeting: 4-15 April 2011

(*) Review meeting without participation of Portugal