



REPUBLIC OF CYPRUS

**7TH REVIEW MEETING OF THE CONVENTION
ON NUCLEAR SAFETY
VIENNA, AUSTRIA, 27 MARCH - 7 APRIL 2017**

**IMPLEMENTATION BY THE REPUBLIC OF CYPRUS
OF THE OBLIGATIONS UNDER THE CONVENTION
ON NUCLEAR SAFETY**

6th Report in accordance with Article 5 of the Convention

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ACRONYMS

BSS	Basic Safety Standards
CNS	Convention on Nuclear Safety
CoC	Code of Conduct (IAEA)
DLI	Department of Labour Inspection
ECURIE	European Community Urgent Radiological Information Exchange
ENSREG	The European Nuclear Safety Regulators Group
EU	European Union
EURATOM	The European Atomic Energy Community (and Treaty establishing the EURATOM)
EURDEP	European Radiological Data Exchange Platform
GAEC	Greek Atomic Energy Commission
HERCA	The Heads of European Radiological Protection Competent Authorities
IAEA	International Atomic Energy Agency
ICAO	The International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods (The Code of)
IRRS	Integrated Regulatory Review Service (IAEA)
ITDB	Incident and Trafficking Data Bank (of IAEA)
MLWSI	Ministry (or Minister) of Labour, Welfare and Social Insurance
NSG	Nuclear Suppliers Group
QA	Quality Assurance
RA	Regulatory Authority
RICS	Radiation Inspection and Control Service
SGL	State General Laboratory
SSDL	Secondary Standard Dosimetry Laboratory
TLC	Technical Licensing Committee
TSO	Technical Support Organization
UNSC	United Nations Security Council
UPU	The Universal Postal Union
USIE	Unified System for Information Exchange (in incidents and emergencies-IAEA)

INTRODUCTION

General Introduction

This is the sixth report of the Republic of Cyprus issued in compliance with Article 5 of the Convention on Nuclear Safety (CNS) [1] and submitted to the 7th Review Meeting of the Convention in Vienna, Austria, 27 March - 7 April 2017.

The report submitted to the 6th Review Meeting of the Convention on Nuclear Safety is fully replaced by this report.

Cyprus signed the Convention on Nuclear Safety on 20.9.1994 and ratified it with the enactment of the ratification Law L. 20(III)/1998 published in the Official Journal of the Republic No. 3287 of 11.12.1998 [2]. The Convention was entered into force on 15 June 1999.

Cyprus is a full member of the International Atomic Energy Agency (IAEA) since 1965 and joined the European Union (EU) as a full member on 1st May 2004.

Nuclear activities in Cyprus

Cyprus does not operate or plan to operate in the medium term nuclear power plants, research reactors or other nuclear installations or uranium and/or thorium mines. Ionizing radiation in Cyprus is mainly used in medicine, either for diagnostic or for therapeutic purposes. There are also some applications of ionizing radiation in industry and research.

Thus, the interest of Cyprus in the safety of nuclear installations relates to the protection of human health and the environment from risks arising from the operation of such installations in neighbouring countries.

SUMMARY

Cyprus ratified the Convention on Nuclear Safety in 1998 and participates in a number of other relevant conventions, agreements and treaties. Cyprus is also a full member of the IAEA since 1965 and joined the European Union (EU) as a full member on 1st May 2004.

Cyprus has established a comprehensive system for radiation protection and nuclear safety. The legislative framework for radiation protection and nuclear safety is fully in line with the IAEA standards and the EU Acquis. The existing legislation will soon be amended to transpose the Euratom directives 2014/87/EURATOM amending Directive 2009/71/EURATOM establishing a Community framework for the nuclear safety of nuclear installations [3, 4] and 2013/59/EURATOM laying down basic safety standards for protection against the dangers arising from exposure to ionizing radiation (BSS) [5].

Cyprus does not operate any nuclear installations or uranium or thorium mines. The main use of ionizing radiation is in medicine with some applications in industry and research. A graded approach is reflected in the implementation of the national policy and strategy for safety, taking into account the magnitude of the radiation risks associated with facilities and activities.

The Minister of Labour, Welfare and Social Insurance (MLWSI), acting through the Radiation Inspection and Control Service (RICS) of the Department of Labour Inspection (DLI), is the RA in Cyprus on radiation protection and nuclear safety and has the responsibility for the administration of relevant legislation and authorization of all sources and practices involving exposure to ionizing radiation. RICS was established in 2002 within DLI, in the framework of the implementation of the Protection from Ionizing Radiation and Nuclear Safety Laws of 2002 to 2011 [6], aiming at the protection of individuals and the environment against risks due to the exposure to ionizing radiation or dispersion of radioactive substances or radioactive contamination.

The necessary legal authority has been provided to the RA to fulfill its statutory obligations for the regulatory control of facilities and activities. RA is also functionally separate from any other body/organization/entity having interests or responsibilities that could unduly influence regulatory decision making, such as the promotion or utilization of nuclear energy and ionizing radiation in general, and effectively independent from any use and/or promotion of ionizing radiation. The RA cooperates with other governmental departments, institutions and local authorities for the efficient and effective implementation of the legislation.

The RA is presently staffed with one Senior Labour Inspection Officer as Head and four Labour Inspection Officers, all qualified in engineering or science fields and well trained on radiation protection and nuclear safety matters.

The manufacture, possession, import, export, transport, handling, use etc. of ionizing radiation sources and all practices involving possible exposure to ionizing radiation, including the construction and operation of nuclear installations, need prior authorization. The RA conducts inspection and enforcement activities, on a regular and systematic manner, for all sources and practices in the country.

The capabilities of the RA and the supporting laboratories have been strengthened with the necessary radioactivity monitoring and analysis equipment and their personnel has been trained on relevant matters. A comprehensive environmental radioactivity monitoring system is operated by the RA, which comprises a fully automatic telemetric monitoring network of ambient air gamma dose rate, connected online to the European Radiological Data Exchange Platform (EURDEP) (also the early warning system of the country), a network of low and high volume samplers for monitoring radioactivity in aerosols and a monitoring programme for foodstuff, feedingstuff, soil, water, marine environment, construction material and consumer goods.

The RA, in collaboration with the Civil Defense Administration and other stakeholders has established a fully operational emergency preparedness and response system in case of radiological or nuclear accidents/incidents. The national plan for radiological or nuclear emergencies was approved by the MLWSI and fully implemented in September 2015.

Since the previous review meeting, Cyprus has taken all necessary steps to further improve radiation protection and nuclear safety and security in the country. Cyprus complies fully with its obligations as a contracting party to the Convention on Nuclear Safety.

The Regulatory Authority (RA) of Cyprus has signed a bi-lateral agreement with the Greek Atomic Energy Commission (GAEC) which covers all issues of cooperation concerning ionizing radiation, including nuclear safety.

REPORTING ARTICLE BY ARTICLE

Article 6: Existing installations

Each Contracting Party shall take the appropriate steps to ensure that the safety of nuclear installations existing at the time the Convention enters into force for that Contracting Party is reviewed as soon as possible. When necessary in the context of this Convention, the Contracting Party shall ensure that all reasonably practicable improvements are made as a matter of urgency to upgrade the safety of the nuclear installation. If such upgrading cannot be achieved, plans should be implemented to shut down the nuclear installation as soon as practically possible. The timing of the shut-down may take into account the whole energy context and possible alternatives as well as the social, environmental and economic impact.

The Republic of Cyprus does not operate nuclear power plants for energy, research reactors or any other nuclear installations (e.g. waste treatment or disposal facilities etc.) or uranium or thorium mines. The main use of ionizing radiation in Cyprus is in medicine, with also some applications in industry (industrial radiography, industrial gauges etc.), constructions and education/research.

Article 7: Legislative and regulatory framework.

1. *Each Contracting Party shall establish and maintain a legislative and regulatory framework to govern the safety of nuclear installations.*
2. *The legislative and regulatory framework shall provide for:*
 - i) *the establishment of applicable national safety requirements and regulations;*
 - ii) *a system of licensing with regard to nuclear installations and the prohibition of the operation of a nuclear installation without a license;*
 - iii) *a system of regulatory inspection and assessment of nuclear installations to ascertain compliance with applicable regulations and the terms of licenses;*
 - iv) *the enforcement of applicable regulations and of the terms of licenses, including suspension, modification or revocation.*

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

The legislative basis for radiation protection and nuclear safety in Cyprus is the Protection from Ionizing Radiation Law of 2002, which was enacted on 12 July 2002, as amended in 2009 and in 2011 [6], and various sets of Regulations, issued under the law [7, 8, 9, 10, 11, 12, 13].

The above legislation is fully in line with the IAEA standards and recommendations and the EURATOM Acquis. In addition, the EURATOM Treaty and all relevant European regulations and decisions, Conventions or other instruments ratified or signed by the EU apply in Cyprus as a full member of the EU [14, 15].

Furthermore, Cyprus has ratified, signed or participates in a number of International Conventions, Protocols, Agreements and other Instruments in the area of nuclear energy and ionizing radiation, namely:

- (i) The Conventions on Early Warning and Assistance in the case of Nuclear Accident [16].
- (ii) The Convention on Nuclear Safety [17].
- (iii) The Convention on Physical Protection of Nuclear Material [18], including its amendment of 2005 [19].
- (iv) The Comprehensive Nuclear Test Ban Treaty [20].
- (v) The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management [21].
- (vi) The Treaty on the Non-Proliferation of Nuclear Weapons [22].

- (vii) The Safeguards Agreement between Cyprus and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons [23].
- (viii) The Protocol Additional to the Safeguards Agreement [24].
- (ix) The Agreement between the European Atomic Energy Community, and the Member States without nuclear weapons and the International Atomic Energy Agency, in application of Annexes 1 and 4 of Article III of the Treaty on the Non-Proliferation of Nuclear Weapons and its Additional Protocol [25].
- (x) The Convention for the Suppression of Acts of Nuclear Terrorism [26].
- (xi) The UNSC Resolution 1540 [27].

Cyprus is also member of the Nuclear Suppliers Group (NSG) and the Australia Group and applies the relevant international standards for transport of radioactive materials, namely:

- (i) The IAEA Safety Standards for Transport of Radioactive Materials [28].
- (ii) The IAEA Code of Conduct (CoC) and its Guidance [29].
- (iii) The United Nations Recommendations on the Transport of Dangerous Goods [30].
- (iv) The International Maritime Dangerous Goods (IMDG) Code [31].
- (v) The International Civil Aviation Organization (ICAO) Technical Instructions on the Safe Transport of Dangerous Goods [32], and
- (vi) The Universal Postal Union (UPU) Convention [33].

MLWSI is responsible for the administration of the radiation protection and nuclear safety legislation in Cyprus, through RICS, established for this purpose within DLI. RICS cooperates with other governmental departments and institutions for the efficient and effective implementation of the legislation.

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

The above legislation applies both for natural and artificial radiation sources and covers all aspects of ionizing radiation risk management and control, radiation protection and nuclear safety, such as:

- (i) occupational exposure, including outside workers,
- (ii) public exposure,
- (iii) medical exposure,
- (iv) shipments of radioactive material,
- (v) radioactive waste management,
- (vi) illicit trafficking,
- (vii) nuclear safety and security, and
- (viii) emergency preparedness and response.

The above legislation provides, inter alia, for:

- (i) the establishment of the RA,
- (ii) the establishment of a Technical Licensing Committee (TLC) (advisory to the MLWSI on authorization matters),
- (iii) the establishment of a Radiation Protection and Nuclear Safety Board (advisory to the MLWSI),
- (iv) the authorization of practices and sources in relation to custody, use, manufacture, supply, handling, distribution, storage, import, export, disposal, recycling, commissioning, decommissioning etc.,
- (v) the justification, optimization and dose limitation of all practices,
- (vi) appeals,
- (vii) obligations of employers and licensees,

- (viii) appointment and powers of a chief inspector and inspectors,
- (ix) enforcement actions, offences and penalties,
- (x) the design, erection, commissioning and decommissioning of nuclear installations,
- (xi) the storage, shipment and disposal of radioactive waste, radioactive discharges and spent or disused sources,
- (xii) the categorization of workplaces and workers,
- (xiii) individual and area monitoring,
- (xiv) health surveillance of the workers,
- (xv) environmental radioactivity monitoring,
- (xvi) radiological/nuclear emergency preparedness and response,
- (xvii) transport or shipment of radioactive materials, and
- (xviii) the power of the Council of Ministers to issue Regulations.

The process of establishing and revising legislation in Cyprus comprises the following steps:

- (i) drafting of the legislation by the RA,
- (ii) consultation with all interested parties and the public,
- (iii) approval by the Radiation Protection and Nuclear Safety Board,
- (iv) legal vetting by the Legal Service (Attorney General),
- (v) approval by the Council of Ministers,
- (vi) approval by the House of Representatives, and
- (vii) publication in the Official Journal of the Republic and bringing into force.

Article 7 (2) (ii) System of licensing

The existing legislation provides that, no person shall

- (i) use in any manner, handle, possess, produce, store, convey, cause to be conveyed, supply, transport, import, export, recycle, reuse or dispose any radioactive substance or radioactive waste,
- (ii) manufacture, use, store, import, export, recycle, reuse or dispose any irradiating apparatus,
- (iii) erect, construct, use, dismantle, or demolish any nuclear installation or any premise,
- (iv) carry out any activities or practice involving radioactive substances,
- (v) carry out any activity or practice involving irradiating apparatuses,
- (vi) exploit or close down uranium mines,

unless this person has a licence granted to him/her by the MLWSI, after application in writing.

A standard form is used for the notification or the application for a license. All applications are examined by the RA inspectors who draft the license certificate and the conditions of the license. The draft license and the conditions are then discussed and agreed at the TLC before authorisation is granted or refused by the MLWSI. TLC is an advisory committee to the MLWSI, where six interested ministries are represented as members and the interested local authorities participate as observers. The Chair of the TLC is the representative of the RA.

Moreover, the Technical Support Organizations (TSO), such as radiation protection and nuclear safety experts, dosimetry services, radiation protection and nuclear safety training experts, radioactivity monitoring laboratories etc. need to be approved by the RA, after application in writing.

Article 7 (2) (iii) System of regulatory inspection and assessment

The Protection from Ionizing Radiation and Nuclear Safety Laws of 2002 to 2011 provide for inspection and enforcement, in a graded approach. This legislation also provides that the MLWSI has the responsibility for the administration of the legislation and he may appoint a chief inspector and

inspectors or other persons for the enforcement of the legislation. The powers and duties of the inspectors are specified in the legislation;

The inspectors of RICS are empowered, for the purposes of the legislation in force, to enter freely and without prior notice any place, at any reasonable time, or in a situation which in his opinion may cause imminent risk of serious health detriment, serious degradation of the environment, or serious loss of use of property and to make such examinations, tests, investigations, inspections and surveys, as may be necessary, in order to verify compliance with the provisions of this law, and to issue, where necessary, improvement or prohibition notices. They are also empowered to make such examinations, tests, investigations, inspections and surveys, as may be necessary, in order to verify compliance with the provisions of the laws, to make arrangements for the conductance, by any person, of tests, inspections and measurements as deemed necessary, to require the production of any register, certificate, notice, or document and to require any person to give information relevant to any inspection.

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

A license granted to a licensee may at any time be revoked by MLWSI. Also, the MLWSI may amend the conditions set out at any time he deems appropriate, by adding new or amending existing conditions or by revoking or cancelling the license.

Any person who fails to comply with any duty imposed on him under these Laws or regulations issued under the Laws, shall be guilty of an offence and shall be liable to a fine not exceeding twenty thousand pounds (about thirty-four thousand euro) or to imprisonment not exceeding two years or to both such penalties. The same penalties apply for any person who contravenes an Order of the Court, or a condition of a license or document issued under the Laws, or a condition specified by the RA, or approval under the Laws, or any obligation or prohibition imposed with an improvement or prohibition notice, including any notice modified after an appeal, or any requirement of an Inspector as specified in the Laws.

The same penalties also apply for any person who intentionally obstructs or delays an Inspector in the exercise of his powers, prevents any other person from appearing to an Inspector or answering any question to which an Inspector, may require an answer, or intentionally makes a false statement, or intentionally signs or makes a false entry in any register, or forges any document required, or pretends to be an Inspector, etc.

In addition, the inspectors have the power to serve improvement or prohibition notices where they deem necessary.

Article 8: Regulatory Body

1. *Each Contracting Party shall establish or designate a regulatory body entrusted with the implementation of the legislative and regulatory framework referred to in Article 7, and provided with adequate authority, competence and financial and human resources to fulfill its assigned responsibilities.*
2. *Each Contracting Party shall take the appropriate steps to ensure an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy.*

Article 8 (1) Establishment of the regulatory body

The MLWSI, acting through RICS of DLI, is the RA in Cyprus on radiation protection and nuclear safety and has the responsibility for the administration of relevant legislation and authorization of all sources and practices involving exposure to ionizing radiation.

RICS was established within DLI of the MLWSI, under Section 4 of the Protection from Ionizing Radiation and Nuclear Safety Laws of 2002 to 2011. The aim of RICS is to protect individuals and the

environment against risks of ionizing radiation during the use of sources or during exposure to ionizing radiation at work and from risks due to dispersion of radioactive substances.

The RA is presently staffed with one Senior Labour Inspection Officer as Head and four Labour Inspection Officers, all qualified in engineering or science fields and well trained on radiation protection and nuclear safety matters. The operating cost for RICS is covered through the annual budget of the Department of Labour Inspection (Government).

RICS, among others:

- (a) recommends the prescription of safety and health standards for practices which may cause health detriment arising from exposure to ionizing radiation or may cause harm to the environment or may give rise to loss of use of property due to dispersion of radioactive substances, or due to radioactive contamination,
- (b) inspects, for the purposes of compliance with the legislation in force, any practices or installations in which activities are carried on that may cause health detriment arising from exposure to ionizing radiation or may cause harm to the environment or may give rise to loss of use of property due to dispersion of radioactive substances, or due to radioactive contamination,
- (c) coordinates or ensures the existence of educational, scientific or other type of organizations for the purpose of providing of instructions for, or the education or training of apprenticeship or of other relevant services in respect of protection against risks from radiation,
- (d) coordinates or ensures, in collaboration with other Services when necessary, that a national system and plans for the prevention of or response to radiological accidents and radiological emergencies are established,
- (e) keeps appropriate registers, including inventories of sources of ionizing radiation, of premises, of practices and of the exposed workers and the doses received,
- (f) recommend the establishment of national framework for nuclear safety and its improvement when appropriate, taking into account operating experience, insights gained from safety analyses for operating nuclear installations, development of technology and results of safety research, when available and relevant,
- (g) has in place an appropriate radioactivity environmental monitoring programme and takes all appropriate measures, where necessary.

Article 8 (2) Status of the regulatory body

The MLWSI, acting through RICS of DLI, is the regulatory RA in Cyprus on radiation protection and nuclear safety and has the responsibility for the administration of relevant legislation and authorization of all sources and practices involving exposure to ionizing radiation.

The RA has been provided with the necessary legal authority to fulfill its statutory obligations for the regulatory control of facilities and activities. RA is also functionally separate from any other body/organisation/entity having interests or responsibilities that could unduly influence regulatory decision making, such as the promotion or utilization of nuclear energy and ionizing radiation in general, and effectively independent from any use and/or promotion of ionizing radiation.

The RA is also empowered to make independent regulatory judgments and decisions, free from any undue influences that might compromise safety, such as pressures associated with changing political circumstances or economic conditions, or pressures from government departments or from other organizations. It is able to give independent advice to government departments and governmental bodies

on matters relating to the safety of facilities and activities and does not have responsibilities that might compromise or conflict with its discharging of its responsibility for regulating the safety of facilities and activities.

Article 9: Responsibility of the license holder

Each Contracting Party shall ensure that prime responsibility for the safety of a nuclear installation rests with the holder of the relevant license and shall take the appropriate steps to ensure that each such license holder meets its responsibility.

Under the legislation in force, the licensee/employer has the prime responsibility to carry out his activities in a safe way and to ensure the safety and security of the sources and installations covered by the license, as well as all the necessary technical and administrative measures for securing safety and health of any individual and for protecting the use or property of any person and the environment. He is obliged to apply the principles of justification, optimization and dose limitation and take all appropriate and necessary measures in order to protect the workers, the patients, the public and the environment from risks arising from the use of ionizing radiation. The obligations of the licensees are specified in detail in the legislation and the conditions of the license.

In order to comply with the legislation, the licensees must hire advisory services of qualified radiation protection or nuclear safety experts from the private sector if they do not have such services available within their enterprises. However, the license holder shall retain the responsibility for such actions, tasks or omissions himself and has the overall responsibility for the radiation protection and nuclear safety.

The RA verifies compliance with the requirements of the legislation and the conditions of the license by announced or unannounced inspections.

Article 10: Priority to safety

Each Contracting Party shall take the appropriate steps to ensure that all organizations engaged in activities directly related to nuclear installations shall establish policies that give due priority to nuclear safety.

Cyprus does not operate nuclear installations. The provisions of the existing legislation cover the requirements of this article. The licensees are obliged to carry out risk assessment, update it regularly, keep records and submit a safety report to the RA. They shall also seek advice from internal or external advisory services and qualified radiation protection and nuclear safety experts and take all appropriate measures to protect the health and safety of the workers, the public and the environment.

Article 11: Financial and human resources

1. *Each Contracting Party shall take the appropriate steps to ensure that adequate financial resources are available to support the safety of each nuclear installation throughout its life.*
2. *Each Contracting Party shall take the appropriate steps to ensure that sufficient numbers of qualified staff with appropriate education, training and retraining are available for all safety-related activities in or for each nuclear installation, throughout its life.*

Article 11 (1) Financial resources

The availability of adequate financial resources by the licensee or the applicant is an obligation under the existing legislation and is also a condition of the license for the operation of any nuclear facility, which is verified by the RA during the licensing procedure or during inspections. Such information shall also be included in the periodic reports.

Article 11 (2) Human resources

Cyprus does not operate nuclear installations. The human resources available in the country in relation to the current applications of ionizing radiation are considered adequate. The existing legislation covers the provisions of this article. All staff involved in the use of ionizing radiation or exposed to it must have the necessary qualifications and receive appropriate information and training.

Article 12: Human factors

Each Contracting Party shall take the appropriate steps to ensure that the capabilities and limitations of human performance are taken into account throughout the life of a nuclear installation.

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. Under the existing legislation the licensees are obliged to consider human factors during the design and operation of their facilities, take corrective actions which are verified by the RA during inspections and evaluation of safety reports.

Article 13: Quality assurance

Each Contracting Party shall take the appropriate steps to ensure that quality assurance programmes are established and implemented with a view to providing confidence that specified requirements for all activities important to nuclear safety are satisfied throughout the life of a nuclear installation.

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees are obliged to establish QA programmes guaranteed on a continuous basis and have in place appropriate, efficient and effective management systems verified by the RA. They shall also seek advice from internal or external advisory services and qualified radiation protection and nuclear safety experts.

Article 14: Assessment and verification of safety

Each Contracting Party shall take the appropriate steps to ensure that:

- i) comprehensive and systematic safety assessments are carried out before the construction and commissioning of a nuclear installation and throughout its life. Such assessments shall be well documented, subsequently updated in the light of operating experience and significant new safety information, and reviewed under the authority of the regulatory body;*
- ii) verification by analysis, surveillance, testing and inspection is carried out to ensure that the physical state and the operation of a nuclear installation continue to be in accordance with its design, applicable national safety requirements, and operational limits and conditions.*

Article 14 (1) Assessment of safety

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees shall make and update from time to time or when necessary safety assessments which shall be communicated to the RA.

The RA conducts regular verification of compliance and enforcement activities during the year targeting all relevant practices and sources. It also checks for safety during the licensing procedure.

Article 14 (2) Verification of safety

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees are obliged to establish programmes for continuous safety verification and have in writing an updated risk assessment which has to be presented during inspections. The RA conducts

regular verification of compliance and enforcement activities during the year, targeting all relevant practices and sources. It also checks for safety during the licensing procedure.

Article 15: Radiation protection

Each Contracting Party shall take the appropriate steps to ensure that in all operational states the radiation exposure to the workers and the public caused by a nuclear installation shall be kept as low as reasonably achievable and that no individual shall be exposed to radiation doses which exceed prescribed national dose limits.

The text under Articles 7 and 8 above is relevant. Dose limits are in line with those set in the EU and by IAEA Basic Safety Standards and have been incorporated in the national legislation mentioned previously.

According to the existing legislation, the prime responsibility for radiation protection and nuclear safety lies with the license holder. The licensee or the employer is obliged to take all necessary and appropriate measures for the safety and security of radioactive sources and to conduct his practice in a safe manner. The users are obliged to implement the principles of justification, optimization and dose limitation in their activities and take all necessary and appropriate measures for radiation protection and nuclear safety. The users are also obliged to keep records, limit the doses to their staff, provide individual monitoring to the radiation workers, monitor the radioactivity levels in their premises and inform regularly the RA. Doses to the public and target groups of the population have to be kept below the limits established and as low as reasonably achievable. Users shall also seek advice from internal or external advisory services and qualified radiation protection and nuclear safety experts.

Article 16: Emergency Preparedness

1. *Each Contracting Party shall take the appropriate steps to ensure that there are on-site and off-site emergency plans that are routinely tested for nuclear installations and cover the activities to be carried out in the event of an emergency.
For any new nuclear installation, such plans shall be prepared and tested before it commences operation above a low power level agreed by the regulatory body.*
2. *Each Contracting Party shall take the appropriate steps to ensure that, insofar as they are likely to be affected by a radiological emergency, its own population and the competent authorities of the States in the vicinity of the nuclear installation are provided with appropriate information for emergency planning and response.*
3. *Contracting Parties which do not have a nuclear installation on their territory, insofar as they are likely to be affected in the event of a radiological emergency at a nuclear installation in the vicinity, shall take the appropriate steps for the preparation and testing of emergency plans for their territory that cover the activities to be carried out in the event of such an emergency.*

Article 16 (1) Emergency plans and programmes

The legislation for protection against risks due to the use of ionizing radiation provides for emergency preparedness and response (EPR) to a nuclear or radiological emergency. The above Laws apply in all cases where exposure occurs or there is potential exposure and, among others, include any intervention in cases of radiological emergency or in cases of lasting exposure resulting from the after-effects of a radiological emergency or a past or old practice or work activity.

License holders are obliged under the existing legislation, to have in place onsite emergency plans, which must be regularly updated and tested, and to regularly conduct drills and exercises. The emergency plans and the assessment of the effectiveness of protective measures applied by the licensees, in relation to sources of ionizing radiation, shall be made at different stages, including the decision for locating, design, manufacture, construction assembly, commissioning, operation, maintenance, decommissioning or demolition, as appropriate. The scope of these plans and of the assessment is to identify the potential

ways of exposure of individuals to ionizing radiation and to estimate the magnitude of these exposures, to identify the way in which loss of use of property occurs or could occur or in which the environment is or could be adversely affected, and to assess the quality and effectiveness of protective measures and safe operation of sources. Onsite emergency plans shall be compatible and coordinated with the National emergency plan ELECTRA.

RICS shall, among others, coordinate or ensure, in collaboration with other services when necessary, that a national system and plans for the prevention of or response to radiological accidents and radiological emergencies are established. RICS, in collaboration with the Civil Defense Administration and other Ministries and organizations, has established a system and an action plan for such cases. The National EPR plan ELECTRA was approved by the MLWSI in 2015 and is fully operational.

Cyprus has appointed the Competent Authorities and the National Warning Point under the IAEA Convention on Early Warning in case of a Nuclear Accident and participates in the IAEA Emergency Preparedness and Response Network. An emergency operations centre, has been established within the Civil Defense Administration which is the 24h Warning Point of the country in case of a nuclear or radiological emergency. The RA in collaboration with the above Administration and other authorities and institutions involved is reviewing and updating the National Action Plan in case of Radiological Emergencies.

A modern early warning system for γ -dose rate in air and a monitoring network for sampling and analysis of aerosols, rain, sea water, soil, foodstuff and other environmental variables, to cover the whole of the country, has been established. Moreover, Cyprus participates in the ECURIE system and the EURDEP Platform of the EU. The DLI is also the Competent Authority for the ECURIE.

Article 16 (2) Information of the public and neighboring states

Information to the public is regulated by special regulations transposing the relevant directive of the EU [8].

Cyprus, as member of the EU and a contracting party to the early warning and assistance conventions, participates in the ECURIE system and the IAEA Unified System for Information Exchange (USIE) for urgent information exchange in case of radiological or nuclear emergencies and incidents. The Cyprus radioactivity in air monitoring network is connected to the EURDEP Platform of the EU and transmits data online every hour.

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

As mentioned in paragraph 16(1) above Cyprus has established an emergency system which is fully operational. The national emergency preparedness and response plan in case of radiological events has been updated recently.

Article 17: Siting

Each Contracting Party shall take the appropriate steps to ensure that appropriate procedures are established and implemented:

- i. for evaluating all relevant site-related factors likely to affect the safety of a nuclear installation for its projected lifetime;*
- ii. for evaluating the likely safety impact of a proposed nuclear installation on individuals, society and the environment;*
- iii. for re-evaluating as necessary all relevant factors referred to in sub-paragraphs (i) and (ii) so as to ensure the continued safety acceptability of the nuclear installation;*
- iv. for consulting Contracting Parties in the vicinity of a proposed nuclear installation, insofar as they are likely to be affected by that installation and, upon request providing the necessary*

information to such Contracting Parties, in order to enable them to evaluate and make their own assessment of the likely safety impact on their own territory of the nuclear installation.

Article 17 (1) Evaluation of site related factors

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. During the licensing procedure the siting of installations is also considered and all interested parties and ministries are involved, including the Town Planning Department, Local Authorities, Department of the Environment, Ministry of Interior etc.

Article 17 (2) Impact of the installation on individuals, society and environment

The applicants and licensees are obliged to prepare and submit to the RA a safety report and an environmental impact assessment concerning their installations and activities.

Article 17 (3) Re-evaluation of site related factors

The applicants and licensees are obliged to prepare and submit to the RA a safety report and an environmental impact assessment concerning their installations and activities, which shall be regularly updated and presented to the RA.

Article 17 (4) Consultation with other Contracting Parties likely to be affected by the installation

Cyprus does not operate nuclear installations which may affect neighbouring contracting parties. The RA has agreements with other countries (e.g. Greece), and is also a contracting party to various relevant international conventions, agreements etc. and a full member of the EU.

Article 18: Design and construction

Each Contracting Party shall take the appropriate steps to ensure that:

- i. the design and construction of a nuclear installation provides for several reliable levels and methods of protection (defense in depth) against the release of radioactive materials, with a view to preventing the occurrence of accidents and to mitigating their radiological consequences should they occur;*
- ii. the technologies incorporated in the design and construction of a nuclear installation are proven by experience or qualified by testing or analysis;*
- iii. the design of a nuclear installation allows for reliable, stable and easily manageable operation, with specific consideration of human factors and the man-machine interface.*

Article 18 (1) Implementation of defense in depth

Cyprus does not operate nuclear installations. The existing legislation, as mentioned above covers all issues in relation to the use of ionizing radiation, including the defense in depth concept.

Article 18 (2) Incorporation of proven technologies

Cyprus does not operate nuclear installations. The existing legislation, as mentioned above covers all issues in relation to the use of ionizing radiation, including the obligation of the applicants and licensees to use proven technologies and new knowledge. The RA verifies the fulfillment of this obligation during licensing and inspections and has the power to revoke the license at any time if deemed necessary.

Article 18 (3) Design for reliable, stable and manageable operation

Cyprus does not operate nuclear installations. The existing legislation, as mentioned above, covers all issues related to the use of ionizing radiation, including the obligation of the applicants and licensees for reliable design, stable and manageable operation. The RA verifies this obligation of the licensees during licensing and inspections and has the power to revoke the license at any time if deemed necessary.

Article 19: Operation

Each Contracting Party shall take the appropriate steps to ensure that:

- i. the initial authorization to operate a nuclear installation is based upon an appropriate safety analysis and a commissioning programme demonstrating that the installation, as constructed, is consistent with design and safety requirements;*
- ii. operational limits and conditions derived from the safety analysis, tests and operational experience are defined and revised as necessary for identifying safe boundaries for operation;*
- iii. operation, maintenance, inspection and testing of a nuclear installation are conducted in accordance with approved procedures;*
- iv. procedures are established for responding to anticipated operational occurrences and to accidents;*
- v. necessary engineering and technical support in all safety-related fields is available throughout the lifetime of a nuclear installation;*
- vi. incidents significant to safety are reported in a timely manner by the holder of the relevant license to the regulatory body;*
- vii. programmes to collect and analyze operating experience are established, the results obtained and the conclusions drawn are acted upon and that existing mechanisms are used to share important experience with international bodies and with other operating organizations and regulatory bodies;*
- viii. the generation of radioactive waste resulting from the operation of a nuclear installation is kept to the minimum practicable for the process concerned, both in activity and in volume, and any necessary treatment and storage of spent fuel and waste directly related to the operation and on the same site as that of the nuclear installation take into consideration conditioning and disposal.*

Article 19 (1) Initial authorization

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees shall take all necessary and appropriate measures and precautions in order to operate their installations and conduct their activities safely and they shall inform the RA regularly. The RA may impose certain conditions in the licence and verify compliance with the legislation and licensing conditions during inspections and has the power to revoke the license at any time if deemed necessary.

Article 19 (2) Operational limits and conditions

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees shall take all necessary and appropriate measures and precautions in order to operate their installations and conduct their activities safely and they shall inform the RA regularly. The RA may impose certain conditions in the licence and verify compliance with the legislation and licensing conditions during inspections. The RA has the power to revoke the license at any time if deemed necessary.

Article 19 (3) Procedures for operation, maintenance, inspection and testing

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees shall take all necessary and appropriate measures and precautions in order to operate their installations and conduct their activities safely and they shall inform the RA regularly. The RA may impose certain conditions in the license and verify compliance with the legislation and licensing conditions during inspections. The RA has the power to revoke the license at any time if deemed necessary.

Article 19 (4) Procedures for responding to operational occurrences and accidents

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees shall take all necessary and appropriate measures and precautions in order to operate their installations and conduct their activities safely and they shall inform the RA regularly. The

licensees are obliged to prepare an appropriate internal plan and establish a system for responding to incidents and accidents which is approved by the RA. The RA may impose certain conditions in the license and verify compliance with the legislation and licensing conditions during inspections. The RA has the power to revoke the license at any time if deemed necessary.

Article 19 (5) Engineering and technical support

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees shall take all necessary and appropriate measures and precautions in order to operate their installations and conduct their activities safely and they shall inform the RA regularly. Licensees are obliged to consult experts and hire advisory services from outside in case these services are not available internally within their enterprises. The RA may impose certain conditions in the license and verify compliance with the legislation and licensing conditions during inspections. The RA has the power to revoke the license at any time if deemed necessary.

Article 19 (6) Reporting of incidents significant to safety

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees shall take all necessary and appropriate measures and precautions in order to operate their installations and conduct their activities safely and they shall inform the RA regularly. The licensees are obliged to investigate and report to the RA any incident or accident and keep records. The RA may impose certain conditions in the license and verify compliance with the legislation and licensing conditions during inspections. The RA has the power to revoke the license at any time if deemed necessary.

Article 19 (7) Operational experience feedback

Cyprus does not operate nuclear installations. The existing legislation covers the provisions of this article. The licensees shall take all necessary and appropriate measures and precautions in order to operate their installations and conduct their activities safely and they shall inform the RA regularly. The RA may impose certain conditions in the license and verify compliance with the legislation and licensing conditions during inspections. The RA has the power to revoke the license at any time if deemed necessary.

Article 19 (8) Management of spent fuel and radioactive waste on the site

Cyprus does not operate nuclear installations and does not possess spent fuel. The existing legislation covers the provisions of this article. Cyprus, as member to the EU, approved a set of Regulations [12], under the radiation protection and nuclear safety laws of 2002 to 2011, for the transposition of the directive 2011/71/EURATOM on responsible and safe management of spent fuel and radioactive waste. The licensees shall take all necessary and appropriate measures and precautions in order to operate their installations and conduct their activities safely and they shall inform the RA regularly. The RA may impose conditions in the license, concerning radioactive waste on the site, and verify compliance with the legislation and licensing conditions during inspections. The RA has also the power to revoke the license at any time if deemed necessary.

CONCLUSIONS

Cyprus does not operate any nuclear facilities.

Cyprus has made every effort to strengthen its capabilities and infrastructure concerning radiation protection and nuclear safety.

The level of radiation protection and nuclear safety in the country is adequate and complies with the European and international standards.

Cyprus has made significant progress since the previous review meeting and complies fully with its obligations as a contracting party to the Nuclear Safety Convention.

ANNEX

References to national, European or international legal instruments

- [1] Convention on Nuclear Safety, IAEA-INFCIRC/449, 5 July 1994.
- [2] The Convention on Nuclear Safety (Ratification) Law of 1998, L.20(III)/1998.
- [3] Council Directive 2009/71/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations.
- [4] Council Directive 2014/87/Euratom of 8 July 2014 amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations.
- [5] Council Directive 2013/59/Euratom of 5 December 2013 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.
- [6] The Protection from Ionizing Radiation and Nuclear Safety Laws of 2002 to 2011, L.115(I)/2002, L.8(I)/2009 and L.127(I)/2011.
- [7] The Protection from Ionizing Radiation and Nuclear Safety (Basic Principles) Regulations of 2002, P.I. 494/2002.
- [8] The Protection from Ionizing Radiation and Nuclear Safety (Information to the Public on Applicable Measures in case of Emergency) Regulations of 2002, P.I. 495/2002.
- [9] The Protection from Ionizing Radiation and Nuclear Safety (Medical Exposure) Regulations of 2002, P.I. 497/2002.
- [10] The Protection from Ionizing Radiation and Nuclear Safety (Control of High Activity Sealed Radioactive Sources and Orphan Sources) Regulations of 2006, P.I. 30/2006.
- [11] The Protection from Ionizing Radiation and Nuclear Safety (Supervision and Control of Shipments of Radioactive Waste and Spent Fuel) Regulations of 2009, P.I. 86/2009.
- [12] The Protection from Ionizing Radiation and Nuclear Safety (Responsible and Safe Management of Spent Fuel and Radioactive Waste) Regulations of 2014, P.I. 178/2014.
- [13] The Protection from Ionizing Radiation and Nuclear Safety (Protection of the Health of the General Public with regard to Radioactive Substances in Water Intended for Human Consumption) Regulations of 2016, P.I. 54/2016.
- [14] The EURATOM Treaty and relevant Regulations and Decisions.
- [15] Conventions, Agreements and Other International Instruments signed or ratified by EURATOM.
- [16] The Convention on Early Warning and Assistance in the case of Nuclear Accident Ratification Law, L.164/1988.
- [17] The Convention on Nuclear Safety (Ratification) Law of 1998 (L.20(III)/1998). The Convention on Physical Protection of Nuclear Material Ratification Law of 1998, L.3(III)/1998.
- [18] The Convention on Physical Protection of Nuclear Material (Amendment) (Ratification) Law of 2012, L.38 (III)/2012.
- [19] The Comprehensive Nuclear Test Ban Treaty Ratification Law, L.32(III)/2003.
- [20] The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (ratification) Law of 2009, L.13(III)/2009.
- [21] The Treaty on the Non-Proliferation of Nuclear Weapons Ratification Law, L.8/1970.
- [22] The Safeguards Agreement between Cyprus and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons Ratification Law, L.3/1973.
- [23] The Protocol Additional to the Agreement between Cyprus and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons Ratification Law, L.27(III)/2002.
- [24] The Agreement between the European Atomic Energy Community, and the Member States without nuclear weapons and the International Atomic Energy Agency, in application of Annexes 1 and 4 of Article III of the Treaty on the Non-Proliferation of Nuclear Weapons and its Additional Protocol (Ratification) Law of 2007, L.37(III)/2007.
- [25] The International Convention for the Suppression of Acts of Nuclear Terrorism (Ratification) Law of 2007, N.44(III)/2007.
- [26] The UNSC Resolution 1540 (2004).
- [27] The IAEA Standards for Transport of Radioactive Materials.

- [28] The IAEA Code of Conduct (CoC) on the Safety and Security of Radioactive Sources and the supplementary Guidance on the Import and Export of Radioactive Sources.
- [29] The United Nations Recommendations on the Transport of Dangerous Goods.
- [30] The International Maritime Dangerous Goods Code (IMDG).
- [31] The International Civil Aviation Organisation (ICAO) Technical Instructions on the Safe Transport of Dangerous Goods.
- [32] The Universal Postal Union (UPU) Convention.

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