Republic of Latvia National Report on the implementation of the obligations under the Convention on Nuclear Safety

for the 8th Review Meeting of the Contracting Parties

Radiation Safety Centre of the State Environmental Service

August 2019

TABLE OF CONTENT

A. INTRODUCTION

The Republic of Latvia accessed the Convention on Nuclear Safety (hereinafter: the Convention or CNS) on 25 October 1996 (entry in force 23 January 1997).

The Republic of Latvia (hereinafter: Latvia) does not possess nuclear installations as defined in Article 2(i) of the Convention and there are no plans to build any nuclear installations in Latvia. There are no changes in national policy regarding nuclear activities in energy sector.

Latvia owns only one research reactor at Salaspils, which is permanently closed down and currently is in stage of decommissioning. The spent nuclear fuel has been returned to the country of origin in May 2008.

The National Report has been prepared by Latvia to meet the requirement of Article 5 of the Convention and demonstrates how Latvia meets the main objective of the Convention to achieve and maintain high level of nuclear safety worldwide by enhancing national measures and international cooperation. It also shows how Latvia meets the obligations of the applicable articles established by the CNS and provides an update on previous Review meeting of CNS.

The National Report is structured according to the "Guidelines regarding national reports under the Convention on Nuclear Safety" (INFCIRC/572/Rev.6). Based on this Guidelines only the Articles 7, 8 and 16 of CNS are applicable to Latvia. Additionally, the report includes information regarding the Articles 6, 9, 10 and 15 of CNS.

Taking into account the current nuclear framework in Latvia, the National Report is mostly oriented to the issues related to radiation safety and emergency preparedness. Other aspects from CNS are also covered, but to a limited degree, because many of the requirements relevant to the nuclear power are not explicitly introduced by the legal framework, thus main principles and requirements for any practice with the sources of ionizing radiation are applied. Latvia's legal system will be further developed should any new nuclear facility be envisaged.

Main attention has been paid to reflect the changes which took place since last Review Meeting, the questions which are identified as challenges and the lessons learned from 7th Review Meeting. The National Report provides only some aspects regarding the decommissioning of Salaspils Research Reactor but more detailed reporting about the reactor will be included in the reports to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

Additionally, the National Report reflects the relevant principle for Latvia from the Vienna Declaration on Nuclear Safety (VDNS). Taking into account recommendations from a letter of President of the 8th Review Meeting (on 13 December 2018) this issue is reflected in report.

The structure of National report is as follows:

Section 1 - Introduction - informs on national policy towards nuclear activities, provides statement on the commitment to the Convention and informs on main safety issues addressed in National Report as well as explains preparation, structure and main features of National Report.

Section 2 - Summary - addresses safety issues, which have been identified in previous National Report and responds to recommendations adopted at the plenary sessions of previous Review Meeting; includes main developments since Review Meeting and future plans.

Section 3 - Reporting article by Article

Section 4 - Annex legal framework and national reports

The National Report is prepared by the Regulatory Body - Radiation Safety Centre of State Environmental Service (hereinafter: RSC SES) in cooperation with the Ministry of Environmental Protection and Regional Development and State limited liability company „Latvian Environment, Geology and Meteorology Centre" (hereinafter: LEGMC).

This National Report and previous Convention reports are available online at www.vvd.gov.lv (*State Environmental Service homepage*).

B. SUMMARY

Since the previous National Report submission Latvia has continued to deal with issues of nuclear safety and radiation safety.

During this period, one of the most important policy documents in the field of radioactive waste management was adopted – the Radioactive Waste Management Programme (approved by Cabinet of Ministers on 10 May 2017). The programme was included in Environmental Policy Guidelines 2014-2020. The Radioactive Waste Management Programme also contains questions about training in radiation emergency situations and the decommissioning of Salaspils Research Reactor.

The issue of decommissioning the Salaspils Research Reactor was addressed in accordance with the Environmental Policy Guidelines. In 2018 an international tender for the decommissioning of the Salaspils Research Reactor was launched, the offers for decommissioning exceeded the allocated budget. Currently it is planned to undertake a tender to estimate Salaspils Research Reactor decommissioning project costs. It is planned that decommissioning of the reactor could be executed by 2026-2030, depending on all linked activities.

During this period, attention was also paid to preparedness and response to radiation emergencies and co-operation with neighbouring countries. In 2018 Republic of Latvia and Republic of Belarus signed the governmental agreement on early notification of nuclear accidents and exchange of information and co-operation in the field of nuclear safety and radiation protection.

The new State Disaster Medicine Plan (adopted with 11.12.2018. Ministry of Health Order No 239) has been developed to ensure the readiness of the authorities to react and provide coordinated emergency medical assistance in emergency situations (including radiological). The Plan is developed by the State Emergency Medical Service in cooperation with other institutions.

In 2017 experts from World Health Organization evaluated the Latvian medical capacities in emergency case according to International Health Regulations (2005)[1]. Radiation emergencies were included in this evaluation, the main recommendations in this field are to continue providing training for medical staff and first responders, and conduct regular training and exercise drills.

In 2016-2018 significant work has been done to improve the quality system at the regulatory body (RSC SES). RSC SES developed a Quality Management System Manual and internal guidelines for key processes (authorization, inspections, enforcement, procedures for local emergencies etc.). In addition, RSC SES has developed various guidelines for the operators (authorization process, quality assurance programme, etc.). These guidelines and RSC SES inspection checklists are published on SES website to ensure transparency.

Strengthening of institution (including the regulatory body) expertise and skills has been carried out by taking advantage of the IAEA technical cooperation programme, as well as opportunities offered by other foreign institutions and organisations. Attention was also paid to the training of staff in emergency preparedness (including medical staff).

[1] World Health Organization report «Joint External Evaluation of the International Health Regulations Core Capacities of Republic of Latvia», 2017

Example: in 2017, Latvia took part in the international European Disaster Response Exercise (EDREX), which was organized by the European Commission.

Planned/ongoing activities

- In compliance to European Union (EU) requirements, in 2016 preparations have begun for the self-assessment and international assessment of nuclear safety and radioactive waste management system (Integrated Regulatory Review Service (IRRS) and Integrated Review Service for radioactive waste (ARTEMIS) Mission. The IRRS mission will be conducted on 20-30 October 2019 and the ARTEMIS mission – 3-10 December 2019. The national regulatory body (RSC SES) is responsible for these missions.

- In 2019, answers are being prepared in two IAEA systems: Emergency Preparedness and Response Information Management System (EPRIMS) and the new Radiation Safety Information Management System (RASIMS2). RSC SES is responsible for preparing the necessary information in these systems.

- The issue of decommissioning the Salaspils Research Reactor will also be further addressed.

Vienna Declaration on Nuclear Safety (VDNS)

Latvia does not have an existing nuclear power plant and is not planning to build a new nuclear power plant. Respectively, the first principle on new nuclear power plants and the second principle on existing nuclear power plants of the VDNS are not applicable for Latvia.

The third principle of the VDNS is:

"National requirements and regulations for addressing this objective throughout the lifetime of nuclear power plants are to take into account the relevant IAEA Safety Standards and, as appropriate, other good practices as identified *inter alia* in the Review Meetings of the CNS."

Taking into account this principle there is regulatory framework for cases of emergency in Latvia. In order to ensure preparedness and response in the event of a radiological emergency, the Latvian authorities participate in and organize various types of training for the event of a radiological emergency.

Challenges form the 7th Review Meeting

At the 7th review meeting, Latvia received such challenges:

- Challenge 1: Transposition and implementation of the European Council Directive 2013/59/*Euratom* (EU Basic Safety Standards).

Directive 2013/59/*Euratom* is mostly transposed in to the national legal acts and there is also active communication with stakeholders to implement all the provisions, which arise from this Directive.

- Challenge 2: The preparation for a joint IRRS Mission and Integrated Review Service for radioactive waste (ARTEMIS) Mission – in 2019.

In 2017-2019 RSC SES worked actively to prepare for the IRRS mission and the ARTEMIS mission. The IRRS mission will be on 20-30 October 2019 and the ARTEMIS mission – on 3-10 December 2019.

- Challenge 3: Decommissioning of Salaspils Research Reactor.

Considering that the state funding granted in 2015 is not sufficient for the decommissioning of Salaspils Research Reactor, it is currently planned to undertake a tender “Development of the Salaspils Research Reactor Decommissioning and Dismantling Project" to estimate Salaspils Research Reactor decommissioning project costs. Afterwards it is planned to submit necessary documentation with justification to Parliament in order to obtain the resources required for the decommissioning activities. Currently it is planned that decommissioning of reactor could be executed by 2026-2030, depending on all linked activities.

C. IMPLEMENTATION OF THE CONVENTION

Article 6: Existing nuclear installations

ARTICLE 6. EXISTING NUCLEAR 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.

According to the definition of the CNS, there are no nuclear installations in Latvia.

There is a Soviet designed pool type research reactor located in Salaspils, which had a maximum thermal power of 5000 kW utilising U-235 with 90% enrichment. Reactor was in operation from 1961 to 1998. It is permanently shut down and it is in stage of decommissioning. The spent fuel was sent back to the country of origin in 2008. The operator of the Salaspils Research Reactor and radioactive waste repository "Radons" at Baldone site is the LEGMC.

Recommendations from IAEA Nuclear safety standards regarding periodic safety reviews are incorporated in national legal system by means of re-licensing - regulations on licensing[2] provide requirements for reviews of all safety aspects of radiation facility, including on-site and off-site emergency planning, accident management and radiation safety. Regulations stipulate that re-licensing (application for new license and review by regulatory body) shall be done on a 10 year basis (licenses are valid for 10 years).

The initial concept for decommissioning was approved by the Government in 1998, then actualized in 2004 and amended in 2007. Currently all steps of decommissioning prescribed in document remain the same – only the dates will be changed.

There was a small radioactive waste storage on the site of Salaspils Research Reactor (in operation 1980-2005) where some parts dismantled from the reactor core and internals were stored after reconstruction activities of the research reactor in 1980. All of said waste after characterization and re-packing has been transferred to the radioactive waste repository „Radons" at Baldone.

The Environmental Policy Guidelines 2014-2020 provide provisions and information about State budget financing for the decommissioning of the research reactor and new radioactive vault and long-term storage facility at the radioactive waste repository "Radons". According to Environmental Policy Guidelines 2014-2020 the decommissioning of the research reactor had to be finished by end of year 2020.In 2014-2015, the Parliament approved the allocation of funds in the state budget for the specific project - decommissioning of the Salaspils Research Reactor and extension of radioactive waste repository "Radons". Total cost for decommissioning was foreseen to be

[2] Cabinet Regulations No.752 „Procedures for Licensing and Registration Activities with Sources of Ionising Radiation" (adopted 22 December 2015)

approximately 5,6 million EUR. This cost includes work such as reactor building decontamination, licence documentation, infrastructure modernisation, decommissioning and radioactive waste management.

In 2018, the LEGMC announced the international procurement procedures “Development and construction of a new radioactive waste vault and long-term storage facility at the radioactive waste repository “Radons”” and “Decommissioning of the Salaspils Research Reactor”. The offers for decommissioning exceeded the allocated budget and a decision was made to stop the tendering procedure. Currently it is planned to undertake tenders “Development of the Salaspils Research Reactor Decommissioning and Dismantling Project " and “Development of a new radioactive waste vault and long-term storage facility at the radioactive waste repository “Radons”” to estimate cost of both project. Afterwards it is planned to submit necessary documentation with justification to Parliament in order to obtain the resources required for the Decommissioning and construction activities. Currently it is planned that decommissioning of reactor could be executed by 2026-2030, depending on all linked activities.

Once the necessary funding is ensured, the Salaspils Research Reactor will be decommissioned and the waste generated in the process disposed in the radioactive waste repository “Radons”, and after the closure of the radioactive waste repository “Radons” facility, it is planned that it’s management and supervision will be ensured by the State.

In recent years, some improvements have been made to the Salaspils Research Reactor site. Eight new groundwater wells were established in the territory of the reactor. These wells are included in the reactor monitoring system, and results are reported in an annual monitoring report. Wells are established in different depths to cover all groundwater layers down to bedrock. Additionally, upgrades to security systems were established in the territory and buildings of the reactor.

At the same time, attention was paid to improving knowledge on issues related to the decommissioning of facilities. Both LEGMC and the RSC SES staff participated in seminars and training on decommissioning issues within regional projects of the IAEA Technical Cooperation Program. Also, in December 2018, an expert mission “On Decommissioning Planning for the IRT Research Reactor and Other Small Facilities” from the IAEA regional project was organized in Latvia, which allowed more Latvian representatives to get knowledge about international requirements, experience of other countries and clarify decommissioning issues.

Article 7: Legislative and regulatory framework

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 licence;

(iii) a system of regulatory inspection and assessment of nuclear installations to ascertain compliance with applicable regulations and the terms of licences;

(iv) the enforcement of applicable regulations and of the terms of licences, including suspension, modification or revocation.

Three sources for legal acts

There are three types of legal acts in Latvia, which are applicable for review under NSC: primary national legislation, secondary legislation (regulations) and EU legal acts.

The main act is the law "On Radiation Safety and Nuclear Safety". In parallel with this framework act, there is also a set of international agreements ratified or acceded by Latvia and several general legal acts, which have some provisions relevant to the NSC (e.g. legislation relevant to the state institutions in general, environmental protection legislation, building codes, administrative and criminal acts).

The secondary sources for Latvia's legal system are regulations and decisions issued by the Government (Cabinet of Ministers). Majority of applicable regulations are issued on the basis of the law „On Radiation Safety and Nuclear Safety", but some - based on other primary legal acts (e.g. the Cabinet Regulations on Procedures for Building of Facilities Related to Radiation Safety, No.661 (24.11.2015.) were issued based on Construction Law (09.07.2013.), and the Cabinet Regulations on State Environmental Service Statute, No.962 (23.11.2004) which cover Radiation Safety Centre authority were issued based on State Administration Structure Law).

The third source of law for Latvia, as for any other EU member state, is *Euratom* law. This system in general is based on the *Euratom* Treaty and secondary legal acts, which are regulations, directives, decisions, recommendations and opinions on the basis of the Treaty issued by the EU Institutions (Commission or the Council), including also the case law - interpretation of treaties and institutional acts carried out by the European Court of Justice and the Court of First Instance. The whole body of EU law together is called the *„acquis communautaire"* and Latvia made all efforts to harmonize its national legislation with the legal provisions set in force within EU.

National legal acts

Latvia applies ***the top to bottom*** approach in developing country's nuclear legislation - preparation of legal documents. In the initial phase (early 90-ies) international agreements ratified by the parliament were used as the legal background (including decisions by the parliament about responsibilities). In 1994 the first framework law was adopted and several regulations approved by the Cabinet were introduced.However, Latvia had two regulatory systems at the time (under the former

Ministry of Environment Protection and Regional Development and under the former Ministry of Welfare). In late 2000 the Parliament approved the next law „On Radiation Safety and Nuclear Safety", which introduced a single regulatory body. Under this law, a number of radiation protection regulations have been issued. The regulations describe in more detail the authorization, worker protection, radioactive waste management, transportation, emergency preparedness, national BSS and other requirements.

Laws are issued by Parliament and Regulations are issued by Cabinet of Ministers; there are no regulatory issued specific regulations or guides regarding nuclear safety.

The Environmental Policy Guidelines 2014-2020 (adopted with 26.03.2014. Cabinet Order No 130) is one of the most important political documents in environmental protection, including radiation safety and nuclear safety. The goals of the Environmental Policy Guidelines are to ensure good environmental governance at all levels, as well as good environmental communication based on the most complete and balanced environmental information; to promote wide public involvement in environmental issues, and to ensure the sustainable use and protection of natural resources by promoting environmental risk reduction and management. Environmental Policy Guidelines state the key events and benefits, as well as the result indicators and the timeframe for reaching the results and also include a future action plan. In 2017 the Radioactive Waste Management Programme was included in the Environmental Policy Guidelines.

The national legal acts have been developed taking into account the requirements of EU legislation and IAEA documents as well as the experience of other countries.

EU legislation

Consequently, relevant to the NSC, and enforced for Latvia[3]:

1. **set of regulations** under the *Euratom* treaty, which are relevant to emergency preparedness, mainly concerning maximum permissible levels for contamination in food and feeding products - two groups of them:
   - post-Chernobyl,
   - future accidents.
2. **directives:**

The following European Council Directives: 2006/117/*Euratom*, 2009/71/*Euratom*, 2011/70/*Euratom* and 2015/59/*Euratom* - establishing a Community framework for the nuclear safety of nuclear installations were implemented to law „On Radiation Safety and Nuclear Safety", Cabinet Regulations No.752 „Procedures for Licensing and Registration Activities with Sources of Ionising Radiation" (adopted on 22.12.2015.) and other Cabinet Regulations regarding radiation safety. The Nuclear Safety Directive is intended to establish a Community framework to maintain and promote the continuous improvement of nuclear safety and its regulation, and to ensure the EU Member States provide appropriate national arrangements for high levels of safety to protect workers and the general public.

Directive 2013/59/*Euratom* (EU Basic Safety Standards) is mostly transposed into the national legislative acts and there is also active communication with stakeholders to implement all the provisions which arise from this Directive.

[3] It is not a comprehensive list of all legal provisions under the Euratom Treaty, because such will be presented by the Commission of the European Communities and also some legal documents are only partly relevant to the NSC, thus they are not mentioned in Latvia's National Report

National draft legislation is submitted to the Commission under the terms of the procedure laid down in Article 33 of the *Euratom* Treaty. The Commission gives an opinion on the national draft legislation in order to make sure that it is in conformity with the terms of the directive.

System of licensing

According to Cabinet Regulations No.752 „Procedures for Licensing and Registration Activities with Sources of Ionising Radiation" (adopted 22.12.2015.), the issuing authority is RSC SES and periods of validity of a license are:

1. ten years;

2. up to four years for the design of an ionising radiation object of national significance or a nuclear installation of national significance;

3. up to ten years for the construction of an ionising radiation object of national significance or a nuclear installation of national significance;

4. up to three years:
4.1. for the use of smoke detectors containing plutonium;
4.2. for the shipment of sources of ionising radiation containing a radioactive substance and radioactive waste or international shipments of spent fuel; and

5. shorter than 10 years if the applicant requests the licence to be issued for a shorter period of time, for calibration, testing, demonstration, for transit, export and import.

Article 8: Regulatory body

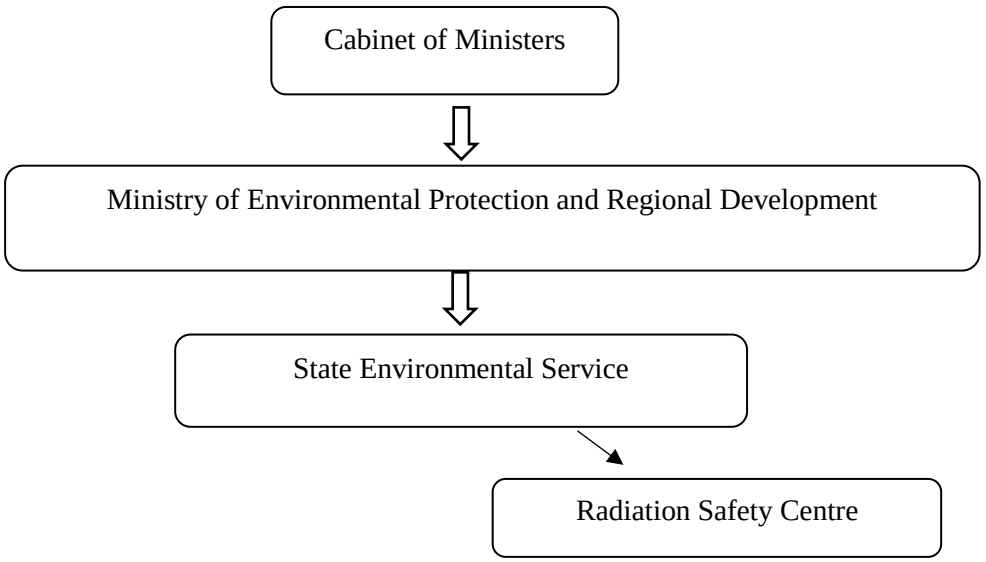
ARTICLE 8. REGULATORY BODY

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 fulfil 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.

The RSC SES is the national regulatory body in the field of radiation safety and nuclear safety. RSC was established in July 2001 based on framework Law „On Radiation Safety and Nuclear Safety". According to amendments in framework law, adopted in June 12, 2009, RSC SES changed its status to central structural unit of State Environmental Service which is under supervision of the Ministry of Environmental Protection and Regional Development.

Place of the regulatory body in the governmental structure:



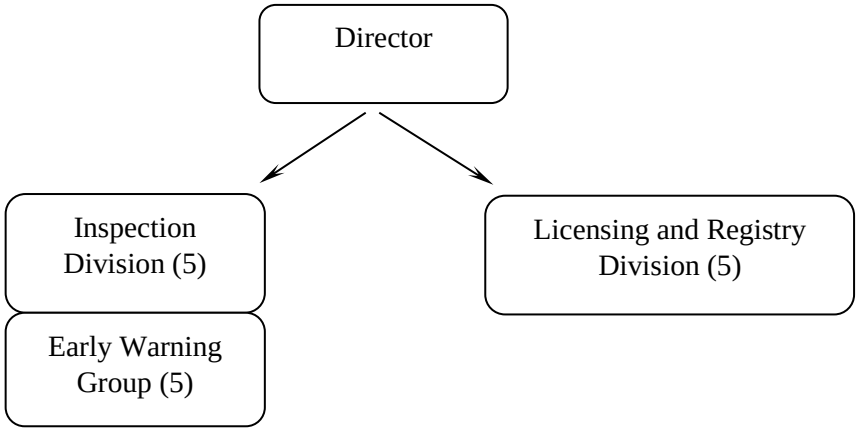
The law on state institutions prescribes system of supervision in details - in short, there is no right for the supervisor to directly affect decisions on the subject matters, only financial control and compliance with requirements from the Law on State civil servants. Thus, recommendations about independency are implemented.

The Parliament delegated the regulatory functions to RSC SES, which is the single regulatory body in field of radiation and nuclear safety in Latvia. Functions and duties are prescribed by the Law "On Radiation Safety and Nuclear Safety". More detailed duties, rights and working procedures are defined in regulations approved by the Cabinet of Ministers.

According to Law "On Radiation Safety and Nuclear Safety" RSC has licensing, supervisory and control functions, it also maintains relevant databases. RSC SES together with representatives from other institutions and professional associations deals with

certification of radiation and nuclear safety officers and recognition of radiation and nuclear safety experts. RSC SES has legal rights and duties for enforcement of applicable regulations.

Organizational structure of the RSC SES:



Given that there were significant staff changes at RSC SES in 2015, the RSC SES continued staff training to improve their qualifications and capacity building (internal training; participation in IAEA training, seminars, workshops) in various areas of radiation protection, with additional attention to new technologies and research reactor decommissioning. In 2018, the RSC SES Long-term Training Plan 2018-2022 was approved, where each employee has defined areas where additional training is required. The training curriculum has been created in this plan. Similarly, the training plan defines whether specific field training is planned as internal learning or international training.

Additionally, RSC SES has implemented several upgrades of its technical capabilities (e.g. radiation measuring equipment; mobile spectrometric detection system MONA).

Since 2016, significant work has been done to improve the quality system at RSC SES. The RSC SES internal guidelines were developed for key processes - licensing, inspections, enforcement, and preparedness and response for local emergencies. In 2018, a quality management system manual defining the principles of the quality management system at RSC SES was approved.

To facilitate application of legislative and regulatory requirements RSC SES has developed various guidelines for the operators regarding the authorization process, quality assurance programme, workplace monitoring, medical exposure. These guidelines are available on SES website. In addition, several inspection checklists have been developed in 2018 and have been published on SES website. These processes provide clarification of the requirements of the regulatory body and the transparency of the regulative processes.

Substantial RSC SES human resources were invested in preparation for the IRRS mission and ARTEMIS mission. The IRRS mission will be conducted on 20-30 October 2019 and the ARTEMIS mission – on 3-10 December 2019. In August 2019 RSC SES completed a self-assessment of the regulatory infrastructure for nuclear and radiation safety using IAEA special toolkits “Self-Assessment of Regulatory Infrastructure for Safety” (SARIS) and a Preliminary National Action Plan. IRRS mission “Advance Reference Material (ARM) Summary Report” for international experts must be completed and submitted by August 20, 2019. At the same time, the questionnaire of self-

assessment for the ARTEMIS mission must be submitted by October 1, 2019. The results of both missions will also be made available to other countries.

In parallel, the preparation of answers for Emergency Preparedness and Response Information Management System (EPRIMS) to self-assess emergency preparedness and response arrangements system took place in 2019. In addition, the RSC SES shall prepare the responses in the new IAEA Radiation Safety Information Management System (RASIMS2) till October 2019.

Following all above, all assessments will provide comprehensive information on the situation in different fields of radiation safety as well as an assessment of the radiation safety infrastructure.

Article 9: Responsibility of the licence holder

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 licence and shall take the appropriate steps to ensure that each such licence holder meets its responsibility.

According to the Law on Radiation Safety and Nuclear Safety a license holder is responsible for violation of law. A license holder who has violated the requirements specified in regulatory enactments shall compensate any person injured for the losses caused to the health and property of the person, as well as the environment as a result of activities connected with sources of ionizing radiation. The license holder has the right to raise a subrogation action against a person who is guilty of causing losses. If, when performing activities with sources of ionizing radiation, the environment, buildings, equipment or vehicles have been polluted, a license holder shall ensure the decontamination of the environment, buildings, equipment and vehicles so that the pollution would no longer pose a threat to the environment, the life, health or property of employees and inhabitants, the life and health of animals, as well as shall cover all the expenditure necessary for sample-taking and research. Only the license holder of nuclear equipment shall be responsible for the nuclear damages caused by this equipment.

Civil liability regime, which was developed, based on legal provisions from Vienna Convention on Civil Liability for Nuclear Damage is applicable for facilities with radiation sources in Latvia. There is clear statement in the Law – only the operator is liable.

According to the Law on Radiation Safety and Nuclear Safety, the main person in any facility is the Work Manager (Radiation Protection Officer), who bears major License Holder functions, prescribed by the Law.

The operator shall demonstrate to RSC SES that this responsibility for safety has been met and will continue to be in compliance with all relevant requirements. RSC SES inspectors verify safety situation at all facilities and RSC SES has power to request (usually these issues are included in inspector's findings) any relevant safety upgrades. Moreover, during the re-licensing activities, the operator has to demonstrate by reports, programs for activities etc., that facility is safe to continue operations.

To enable that RSC SES performs its functions, the operator shall provide necessary assistance and shall grant access to the plant and all relevant documentation. When required by RSC SES (there have been some cases where occupational exposures

seem higher than dose constraints, also few cases with non-compliances), the operator shall undertake special analyses, tests and investigations to demonstrate that exposures are controlled or non-compliances are recognized and eliminated.

Article 10: Priority to safety

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.

National BSS lay down the principle for radiation safety and nuclear safety - priority of protection measures in comparison with other measures.

In order to fulfil the requirements (set out in the quality assurance programme, currently, which allows the establishment of comprehensive management systems for operators, and RSC SES is working on improving small operators capabilities according to the relevant IAEA recommendations) the operator shall budget the financial resources required for the performance of protection measures and hold inventory on a regular basis and examine material resources.

For all large facilities there is a requirement to establish a radiation safety unit, which shall be independent from routine operations of the facility. Composition and number of staff for such radiation protection units is prescribed by regulations.

Plans for any activities that may directly affect the safety have been submitted by the operator to the RSC SES for approval, if so required, or in majority of cases had been discussed with inspectors. In some cases, when activities are proposed, but are not included in the normal procedures, special procedures had been written in accordance with established administrative procedures by operator and then agreed with RSC SES. Verifications of these actions are performed by RSC SES during inspections and licensing.

Article 15: Radiation protection

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.

1. Legal provisions

The Law „On Radiation Safety and Nuclear Safety" introduced these basic principles of limitation and optimization. Verification of compliance is a duty for RSC SES, which also provides as a service the occupational exposure control for all radiation workers in country and maintains relevant database. These requirements are further elaborated in National BSS.

Regarding practices involving a risk from ionizing radiation for the population, the Law requires to apply the fundamental principles governing operational protection of the population. In particular:

1. the public and the environment may not be exposed to a dose of ionizing radiation which exceeds the established dose limits;
2. the positive results achieved shall exceed the negative impact or loss caused by practices involving ionizing radiation sources;
3. optimum radiation safety measures are chosen, taking into account economic and social circumstances, as well as technical capabilities, so that the exposure level is reasonably low and does not exceed the established dose limits;
4. the operator's civil liability for damage that may be caused to a third party and its property or the environment;
5. practices involving ionizing radiation sources may only be conducted upon receipt of a license, except for circumstances prescribed by the Cabinet of Ministers regulations.

2. Implementation measures

2.1. Radiation dose limits

Regarding dose limitation the National BSS, which were elaborated based on IAEA BSS and EU Basic Safety Standards Directive, set out dose limits for exposed workers, for apprentices and students and for members of the public. The limits are the same as in IAEA BSS and in EU Basic Safety Standards Directive.

There are ongoing researches around the major radiation facilities and in different regions of country to assess and monitor public exposures. In addition to these activities, based on requests from individual persons, in few cases from other authorities, the RSC SES has made task-oriented researches at certain regions where there were practices with radiation sources in the past or naturally enhanced radiation was suspected.

2.2. Fulfilment of conditions for the release of radioactive materials

RSC SES has responsibility to examine and approve the plans for installations involving an exposure risk, and the proposed siting of such installations from the point of view of radiation protection. The data about assessment of the risks, including planned releases, shall be submitted by the applicant prior to receiving authorization. Facilities which may release radionuclides into the environment have to prepare plans for control of such releases and have to provide regular reports to RSC SES.

There is very limited utilization for the controlled releases - only one hospital (Latvian Oncology Centre of Riga East University Hospital) is authorized to release short-lived isotopes (mainly I-131 after decay storage) together with the sewage water.

Another option for controlled releases is the clearance - regulations[4] provide possibilities for operators to discharge (mainly together with solid waste or as re-usable materials) some amount of radioactivity.

[4] Cabinet Regulations No.129 „Requirements for Operations with Radioactive Waste and Materials Related Thereto" (adopted 19 March 2002)

Verification of the radiation conditions around facilities which discharge radioactivity is under the National Environmental Monitoring Programme. The National Environmental Monitoring Programme was accepted by the Ministry of Environmental Protection and Regional Development on 16.02.2015 (Order No.67 "Environmental Monitoring Programme"). This programme determines the monitoring network, parameters, regularity and methods. In addition, the Food and Veterinary Service organizes the control of radioactive contamination of food and animal feed. Laboratory and diagnostic investigations related to radiological monitoring of foodstuffs are performed by the Laboratory of Food and Environmental Investigations of Institute of Food Safety, Animal Health and Environment (BIOR).

Article 16: Emergency preparedness

ARTICLE 16. EMERGENCY PREPAREDNESS

…

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.

1. General provisions

Requirements for emergency preparedness (including training) are set in Cabinet Regulations No.152 "On Requirements for Preparedness for Radiological Emergency and Actions in the Event of Such Emergency" (adopted 08.11.2003.). For any nuclear and radiation facility, such plans shall be prepared and tested before it commences operation agreed by the regulatory body (RSC SES). The plans shall be agreed also with local municipalities and State Fire and Rescue Services. These are preconditions for applicants and the relevant documents are assessed before RSC grants the license.

National BSS prescribe main duties for work managers regarding emergency preparedness.

On 5 May 2016 the new Civil Protection and Disaster Management Law was adopted. The Cabinet of Ministers issued two regulations based on this Law, which prescribe requirements for emergency plans for any facility and introduce specific requirements for preparedness, based on groups of radiation facilities (grouping is done based on potential risks associated with the level of total radioactivity - ionizing radiation objects of national significance).

The State Civil Protection Plan provides basic principles for emergency preparedness according to radiation and nuclear safety legislation and has requirements for regular testing (including theoretical exercises, table top exercises and practical exercises).

In 2018 the new State Disaster Medicine Plan has been developed to ensure the readiness of the authorities to react and provide coordinated emergency medical assistance in emergency situations. The Plan is developed by the State Emergency Medical Service in cooperation with institutions which are involving in emergency case (incl. medical institutions) and is updated every year with approval from the Minister of Health.

Regulatory framework for emergency preparedness in Latvia is taking into account EU legal acts and IAEA safety standards and guides.

Following the Fukushima Daiichi Accident, more attention is paid in Latvia to preparedness and response in the event of radiation accidents. A new system of radiation monitoring stations has been in operation since 2014. Emphasis is also placed on cooperation with neighbouring countries.

2. Implementation measures

2.1. Bilateral agreements and arrangements

Latvia has bilateral governmental agreements with Republic of Lithuania and Ukraine for early warning and exchange of information and co-operation in the field of nuclear safety and radiation protection. In 2018 Republic of Latvia and Republic of Belarus signed the governmental agreement on early notification of nuclear accidents and exchange of information and co-operation.

There are also agreements for cooperation in case of natural and man-made accidents with several countries (Belarus, Hungary, Sweden, Ukraine, and Uzbekistan). In 2017 the new agreement between Republic of Latvia, Republic of Estonia, and Republic of Lithuania on Mutual Assistance and Cooperation in the Field of Disaster Prevention, Preparedness and Response was signed (23 November, 2017).

In 2019 the Radiation Safety Department of the Environmental Board of Estonia started communication with the RSC SES on the conclusion of a memorandum of understanding for cooperation and exchange of information on radiation and nuclear safety and regulatory matters.

2.2. National emergency preparedness plan

According to the Civil Protection and Disaster Management Law Ministry of Environmental Protection and Regional Development is the national coordinating authority in case of a radiological emergency. The main bodies in the case of an emergency are:

• RSC SES - national warning point for radiation emergencies, which is operational 24/7. In case of emergency RSC SES evaluates available information and provides recommendations for other involved organizations; takes part in decontamination. RSC SES has the equipment (measuring devices, personal protective equipment, different other tools, etc.) to ensure emergency preparedness and response.

• State Fire and Rescue Service - performs on-site actions assigned by the State Civil Protection Plan in case of radiological and nuclear events, informs state institutions and public, performs decontamination;

• LEGMC - coordinates and organizes environmental radiation monitoring and is responsible for radioactive waste management, performs decontamination, ensures emergency services with dosimeters.

The State Fire and Rescue Service shall notify and warn residents in the event of a radiological emergency by using the mass media and the notification and alarm system. Upon recommendation from RSC SES, the State Fire and Rescue Service shall immediately provide information to the residents who have suffered in the radiological emergency.

Taking into account the character and scale of a possible radiological emergency, once per three years the State Fire and Rescue Service in co-operation with the RSC SES shall provide information regarding the possible impact of ionizing radiation on residents and the environment and radiation protection measures to managers and employees of such institutions and commercial companies that may be involved in the organization and performance of protection measures in the event of a radiological emergency.

Various types of training are organized to test the preparedness of institutions and their ability to cooperate in radiological emergency.

In 2017 Latvia took part in the international European Disaster Response Exercise (EDREX), which was organized by the European Commission. The total number of participants was 44. The goal of this exercise was to explore and assess the ability of ERCC (Emergency Response Coordination Center) and partners to respond to combined crises at national, European Union and international level. The following abilities were tested in the exercise:

- Create a common understanding of the crisis.
- Assess awareness of responsibilities at different levels (countries and European Union).
- Test the procedures for using the voluntary reserve list.
- Test crisis communication at national and European level.

The RSC SES regularly organizes internal exercises, also evaluation of different territories (with mobile spectrometric detection system MONA, hand-held equipment).

Representatives of Latvia also take part in exercises regarding the prevention of illegal transport of radioactive materials. Example: in 2019 the representatives from RSC SES and State Border Guard took part in exercises at the Estonian border. In August 2019 the State Border Guard in close cooperation with the US Department of Energy National Nuclear Security Administration held inter-institutional field training exercise about radiometric control at a border crossing point. Six institutions involved in radiometric control and observers from Lithuania, Estonia and US participated in the training.

In addition, RSC SES participates in communication exercises organized by the IAEA IEC on a regular basis in order to ensure readiness and reaction capabilities for incidents (ConvEx exercises). In 2017, the operator LTD "Riga East University Hospital" took part in the ConvEx exercise, testing their internal emergency procedures (*nuclear medicine*) and cooperation with RSC SES. Exercise was organized as a table-top exercise. The exercise helped identify procedures which need to be improved.

A peer-review which evaluated Latvian medical capacities in emergency cases according to International Health Regulations (2005) was done in 2017 (World Health Organization report «Joint External Evaluation of the International Health Regulations Core Capacities of Republic of Latvia», 2017)[5]. Radiation emergencies were included in this review and the main recommendations in this field are:

- Continue providing training for medical staff and first responders to a radiological incident that includes handling of contaminated victims and the symptoms of acute radiation syndrome.

[5] Report is available: https://www.who.int/ihr/publications/WHO-WHE-CPI-2017-27/en/

• Conduct regular training and exercise drills to test and improve the written protocols and multi-sector working relationships and understanding at the operational, tactical and national level.

Taking into account the previously mentioned peer-review, a national training course "On Emergency Preparedness for Medical Doctors" was organized within the framework of the National Project of IAEA Technical Cooperation Programme in January 2019. 57 participants from 14 organizations improved theoretical and practical knowledge of preparedness and response to radiation emergencies.

2.3. Information activities

Latvia also introduced requirements according to the Council Directive 2013/59*Euratom*, which deals with informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency. The Directive specifies two types of information that has to be given to the members of the public:

- preventive information to be given to the population groups for which Member States have drawn up intervention plans in the event of a radiological emergency;
- information in the event of a radiological emergency to be given to the population groups actually affected in the event of a radiological emergency and for which specific protection measures are taken.

2.4. Early Warning

Latvia is a Contracting Party two conventions in the field of nuclear accident:

- Convention on Early notification of a Nuclear Accident;

- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency.

RSC SES is the national point of contact and the national competent authority of these conventions and bilateral agreements on exchange of information in nuclear and radiation safety.

Since 2001 RSC SES participates in ***EURDEP (European Radiological Data Exchange Platform),*** which is both a standard data format and a network for the exchange of environmental radiation monitoring data between European countries in real-time. Participation of Latvia is based on the Recommendation 2000/473/*Euratom*. RSC SES has made the national radiological monitoring data available for Joint Research Centre (JRC) Ispra and has access to data from all other participating countries.

In 2014, improvements of the early warning radiation monitoring system were implemented with support from the EU Cohesion Fund (project No 3DP/3.5.1.4.0/11/IPIA/VARAM/004 „Modernization of early warning radiation monitoring system"). Currently 24 stations are operational throughout the territory of Latvia. There are 20 new stationary spectrometric monitoring stations, one portable spectrometric station, one aerosol monitoring station and two water monitoring stations. The system is continuously operating with a daily data exchange routine (gamma dose rate) and there is a general consensus that participating in the system automatically means that the data transmissions will continue during an emergency in an elevated frequency.

Alongside with EURDEP, RSC SES participates in the ECURIE (European Community Urgent Radiological Information Exchange) and IAEA USIE (Unified System for Information Exchange in Incidents and Emergencies) programs, which are 24h emergency notification and information exchange systems. ECURIE system notifies the competent authorities of the participating States and the Commission in case of a major nuclear accident or a radiological emergency. During an emergency the system provides an information exchange platform for the participating States in order to inform about the current and foreseeable status of the accident, meteorological conditions, national countermeasures taken, etc. The legal basis for participation in ECURIE by the EU Member States is the EU Council Decision 87/600/*Euratom*. The Commission is responsible for ECURIE management and development. The Commission maintains a 24h preparedness service in order to activate the system in the event of a nuclear or radiological emergency.

Article 17: Siting

Not applicable. There are no plans to build nuclear installations in Latvia.

Article 18: Design and construction

Not applicable. There are no plans to build nuclear installations in Latvia.

Article 19: Operation

Not applicable. There are no nuclear installations in Latvia.

D. ANNEX

REFERENCES TO LATVIAN LEGISLATION AND NATIONAL REPORTS

1. References to national laws and regulations:

• Law "On Radiation Safety and Nuclear Safety", adopted 07.11.2000.

• Civil Protection and Disaster Management Law, adopted 05.05.2016.

• Construction Law, adopted 09.07.2013.

• Law on Environmental Impact Assessment, adopted 14.10.1998.

• The Cabinet Regulations on the Procedures for Licensing and Registration Activities with Sources of Ionising Radiation, No.752, adopted 22.12.2015.

• The Cabinet Regulations on Protection against Ionising Radiation Transporting Radioactive Materials, No.307, adopted 03.07.2001.

• The Cabinet Regulations on the Procedure for Control and Accounting of Exposure of Workers, No.1284, adopted 12.11.2013.

• The Cabinet Regulations on Practices Involving Radioactive Waste and Related Materials, No.129, adopted 19.03.2002.

• The Cabinet Regulations on Protection against Ionising Radiation, No.149, adopted 09.04.2002.

• The Cabinet Regulations on the Procedure Governing Activities Involving Nuclear Materials, Related Materials and Equipment, No.398, adopted 22.04.2004.

• The Cabinet Regulations on Physical Protection of Ionising Radiation Sources, No.508, adopted 04.11.2002.

• The Cabinet Regulations on Preparedness and Response in Cases of Radiation Accidents, No.152, adopted 08.11.2003.

• The Cabinet Regulations on Procedures for Building of Facilities Related to Radiation Safety, No.661, adopted 24.11.2015.

• Environmental Policy Guidelines for 2014-2020 (including Annex 5 "Radioactive Waste Management Programme"), approved by Cabinet of Ministers Order No.233 10.05.2017.

• State Disaster Medicine Plan, adopted by Ministry of Health Order No.239 11.12.2018.

2. References to official national reports related to Conventions:

2.1. Convention on Nuclear Safety:

• First report submitted by Latvia under the Convention on Nuclear Safety, 1998

• Second report submitted by Latvia under the Convention on Nuclear Safety, 2001

• Third report submitted by Latvia under Convention on Nuclear Safety, 2004

• Fourth report submitted by Latvia under the Convention on Nuclear Safety, 2007

• Fifth report submitted by Latvia under the Convention on Nuclear Safety, 2011

• Sixth report submitted by Latvia under the Convention on Nuclear Safety, 2013

• Seventh report submitted by Latvia under the Convention on Nuclear Safety, 2016

2.2. Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management:

• First report submitted by Latvia under the Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 2003

• Second report submitted by Latvia under the Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 2005

• Third report submitted by Latvia under the Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 2009

• Fourth report submitted by Latvia under the Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 2011

• Fifth report submitted by Latvia under the Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 2014

• Sixth report submitted by Latvia under the Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 2017