



**Republic of Lithuania**

**Lithuanian National Report on  
Implementation of Council Directive  
2009/71/EURATOM of 25 June 2009  
Establishing a Community Framework for  
the Nuclear Safety of Nuclear Installations**

**Vilnius 2014**

## **Contributors to the Lithuanian National Report**

State Nuclear Power Safety Inspectorate (VATESI) prepared this report in consultation with and incorporating contributions from:

Ministry of Energy of the Republic of Lithuania  
Ministry of Education and Science of the Republic of Lithuania  
State Enterprise Ignalina Nuclear Power Plant

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Lithuanian National Report on Implementation of Council Directive 2009/71/EURATOM of 25 June 2009 Establishing a Community Framework for the Nuclear Safety of Nuclear Installations

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State Nuclear Power Safety Inspectorate (VATESI)  
A.Goštauto str. 12, LT-01108 Vilnius Lithuania  
[www.vatesi.lt](http://www.vatesi.lt); [atom@vatesi.lt](mailto:atom@vatesi.lt);

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## Acronyms and abbreviations used in this report

ABWR	Advanced Boiling Water Reactor
ALARA	As Low As Reasonable Achievable
ASSET	Assessment of Safety Significant Events Team
AS&QMD	Audit, Safety and Quality Management Department (INPP)
BSR	Nuclear Safety Requirements
BST	Nuclear Safety Rules
CASTOR	Cask for Storage and Transport of radioactive Material
CONSTOR	Concrete Storage Cask
ECURIE	European Community Urgent Radiological Information Exchange
EE	Republic of Estonia
ENSREG	European Nuclear Safety Regulators Group
EU	European Union
EURATOM	European Atomic Energy Community
IAEA	International Atomic Energy Agency
INPP	Ignalina Nuclear Power Plant
ISFSF	Interim Spent Fuel Storage Facility
JBIC	Japan Bank for International Cooperation
LT	Republic of Lithuania
LTL	Lithuanian Litas
LV	Republic of Latvia
MCR	Main Control Room
NCA(A)	National Competent Authority for events abroad
NCA(D)	National Competent Authority for domestic events
NEXI	Nippon Export and Investment Insurance
NPP	Nuclear Power Plant
NSD	Nuclear Safety Directive
NWP	National Warning Point
OEF	Operational Experience Feedback
OSART	Operational Safety Review Team
PSAR	Preliminary Safety Analysis Report
RBMK	Channel-type Large Power Reactor
SAR	Safety Analysis Report
SIP	Safety Improvement Program
SNFSF	Spent Nuclear Fuel Storage Facility
SSRM	Site Safety Review Mission
TS	Training Subdivision (INPP)
TSO	Technical Support Organisation
VATESI	State Nuclear Power Safety Inspectorate
VNPP	Visaginas Nuclear Power Plant
WANO	World Association of Nuclear Operators
WENRA	Western European Nuclear Regulators' Association

## **Introduction**

The Lithuanian National Report on Implementation of the Council Directive 2009/71/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations (hereinafter called the Report) was prepared according to Article 9.1 of the of the Council Directive 2009/71/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations (hereinafter called the Nuclear Safety Directive, NSD).

The aim of the Report is to demonstrate how Lithuania is addressing the objectives of the NSD by fulfilling its obligations under the NSD.

The structure and content of the Report was prepared according to the European Nuclear Safety Regulators Group (ENSREG) Guidelines.

As defined in Article 3.1 of the NSD, in Lithuania are operating these civilian nuclear installations under a licence, as defined in Article 3.4 of the NSD, are listed below:

- Ignalina Nuclear Power Plant (INPP).
- Dry type interim spent nuclear fuel storage facility (SNFSF).
- Storage facilities for radioactive waste that are on the same site and are directly related with INPP.

All these nuclear installations and storage facilities for radioactive waste are operated by licence holder – State Enterprise Ignalina Nuclear Power Plant.

## **Overview of the national nuclear programme**

### **Ignalina Nuclear Power Plant**

The Ignalina nuclear power plant (INPP) contains two RBMK-1500 type reactors, which belongs to the category of “boiling water” channel-type reactors. The INPP is located in the north-eastern part of Lithuania, near the borders with the Republic of Latvia and the Republic of Belarus. The power plant was built as part of the Soviet Union's North-West Unified Power System.

The INPP Unit 1 was connected to the power grid at the end of 1983, and Unit 2 - in August 1987. The design lifetime of the Units was projected to last till 2014 and 2017 respectively. The INPP Unit 1 was permanently shut down on 31 December 2004 and Unit 2 was permanently shut down on 31 December 2009 in compliance with the protocol of Lithuania's EU accession.

Defueling of Unit 1 reactor started in 2006 and was completed in December 2009. Defueling of Unit 2 reactor started in 2010 and is continued up to now. Currently Unit 1 and Unit 2 are maintained in the post-operation state, based on VATESI operation licence and in accordance with the requirements of the Technical Specification. It is important to note that all spent nuclear fuel from reactor of Unit 1 and partially from reactor of Unit 2 is stored in spent nuclear fuel storage pools of both Units.

Decommissioning of various Unit 1 and Unit 2 facilities is underway. These activities are performed in accordance with the INPP Final Decommissioning Plan and in line with Unit 1 and Unit 2 Decommissioning Projects.

In response to the events at Japan's Fukushima Daiichi Nuclear Power Plant, the stress tests were conducted in 2011 – 2012 at INPP according to ENSREG stress tests specification. Appropriate Plan of strengthening nuclear safety in Lithuania was prepared in 2013.

### **Dry type interim spent nuclear fuel storage facility (SNFSF)**

Storage of spent nuclear fuel at INPP is performed by means of two methods. Wet storage in spent fuel storage pools near the reactor and dry storage in the detached storage facility (SNFSF) at NPP territory. Wet storage was provided in the initial design of NPP. NPP's design was developed in the 70s of the last century in the former Soviet Union. It was intended

to store the fuel unloaded from the reactor for several years and then to transfer it for processing. In the beginning of the 90s, when it became finally obvious that the matter of spent fuel processing is not considered any more, a decision was made to build up a dry type interim storage for spent nuclear fuel at INPP and store it for 50 years.

SNFSF is located at the INPP site within a distance of 1 km of the INPP units.

SNFSF was originally designed for 20 CASTOR RBMK casks and 78 CONSTOR RBMK casks. For the period from 2008-04-01 to 2009-02-25 the storage capacity was increased for up to 22 additional CONSTOR RBMK casks. Currently there are 20 CASTOR RBMK casks and 98 CONSTOR RBMK casks placed in SNFSF and have been totally filled.

SNFSF is fenced in perimeter with the shielding reinforced concrete wall and supported by the triple fence equipped with an alarm system.

The process structures are located behind the shielding reinforced concrete wall, which ensures secure operation of the facility. The platform to store the casks of CASTOR RBMK and CONSTOR RBMK in the vertical position is located between the rails of the overhead crane.

The storage is a passive storage system, which does not require the decay of heat from any auxiliary equipment.

The perimeter of SNFSF site is equipped with a continuous radiation monitoring system the signals thereof being transferred into the Radiation Monitoring Control Room.

### **Facilities for storage of radioactive waste (INPP site)**

The facilities listed below are located on the site of INPP (also see Annex D). These facilities are used for operational waste from INPP and for the waste from small producers in Lithuania. The volume of the waste from small producers is only about 1-2 m<sup>3</sup> per year, so more than 99% of radioactive waste in Lithuania is produced at INPP.

#### ***Bituminisation facility Building 150***

The purpose of this facility is to condition the operational liquid waste from INPP. The first bituminisation unit BU-1 was commissioned in 1986 and the second, BU-2 in 1993. The design capacity of the bituminisation unit is 0.5 m<sup>3</sup>/h of evaporator concentrate. The units are located in building 150.

The units mix radioactive salts into pure bitumen. A thin film of evaporates with specific activity of 3.7×10<sup>5</sup> Bq/l - 3.7×10<sup>7</sup> Bq/l and pure bitumen is mixed into bitumen compound with specific activity of 3.7×10<sup>5</sup> Bq/l - 3.7×10<sup>6</sup> Bq/l.

The process of the collection of the liquid radioactive waste and the subsequent bituminisation at INPP is presented in Annex II. The contaminated water from different sources is accumulated in storage tanks. After evaporation in units EU-1, 2, the residual, evaporated concentrate, is accumulated. The bituminisation is carried out with two bituminisation units and the bitumen compound is transferred by heated pipeline to the storage canyons (cells) of building 158.

#### ***Cementation facility Building 150***

The liquid waste cementation facility started operation in March 2006. The ion-exchange resins from INPP water purification and liquid waste treatment systems together with filter aid (perlite) as one waste mixture type and solid particle sediments from evaporator concentrate also with filter aid (perlite) as another waste mixture type are solidified in cement which is poured into drums and put in storage containers (waste packages) in order to reduce any further risk associated with the liquid waste storage in tanks and to assure safe storage and management of solidified waste.

The cementation facility is designed to process approximately 450 m<sup>3</sup> of liquid radioactive waste per year. A total amount of 6000 m<sup>3</sup> liquid radioactive waste is envisaged to be processed. In addition to the accumulated liquid radioactive waste already in storage, the liquid waste which will be generated during future operation of INPP and potentially also during future decommissioning of INPP shall be processed.

The cement-waste mixture is captured into 200 l drums. The filled drums are capped and then loaded into a concrete storage container. Each storage container has a storage capacity of 8 drums.

The storage containers are designed for shielding and protecting the loaded drums against mechanical loadings. For transport from the cementation facility to the building 158/2 the filled storage container is placed into a transport container.

#### ***Storage facility Building 157 (solid waste)***

Building 157 is a reinforced concrete ground structure. The bottom part is a reinforced concrete slab; external walls are pre-cast concrete panels. Standard reinforced concrete building blocks were used to reach the required thickness of the walls. The structure is separated into 15 compartments with pre-cast concrete partitions. The ceiling is made of cast-in-place concrete. Group I and II waste (according old classification of the radioactive waste) is loaded into the compartments through 6x4.5 m square apertures. Group III waste is loaded through 1200 mm round apertures (6 per each compartment) covered by reinforced concrete plugs. Asphalt concrete hydraulic insulation is used to conserve the compartments' covering. Compartments with combustible solid radioactive waste are equipped with fire alarm and automatic carbon dioxide fire extinguishing system. At the moment the automatic fire extinguishing system is switched to manual carbon dioxide supply mode.

#### ***Storage facility Building 157/1 (solid waste)***

Building 157/1 is a reinforced concrete ground structure, consisting of three separate blocks. The distance between the blocks is 1 meter. The bottom part is a reinforced concrete slab; external walls are made of cast-in-place concrete in retained framework. The structure is separated with pre-cast concrete partitions into 29 compartments. The covering is made of cast-in-place concrete and has 6x4.5 m apertures. Asphalt concrete hydraulic insulation is used to conserve the compartments' covering. The covering over compartment No. 8 is made of cast-in-place concrete covered with metal liner and has one 1000x830 mm aperture used to load containers with filters. Compartments with combustible solid radioactive waste are equipped with fire alarm and carbon dioxide fire extinguishing system switched to manual carbon dioxide supply mode.

#### ***Storage facility Building 155 (solid waste)***

Building 155 is a composite reinforced concrete ground structure. The bottom part is a reinforced concrete slab; external walls are reinforced concrete panels. Additional concrete protection is introduced inside. Metal panels are used as covering. Asphalt concrete hydraulic insulation is used to conserve the structure's covering. As for today, the building is completely filled with waste and conserved.

#### ***Storage facility Building 155/1 (solid waste)***

Building 155/1 is a composite reinforced concrete ground structure. The bottom part is a reinforced concrete slab; external walls are reinforced concrete panels. Cast-in-place concrete in retained framework is used inside to introduce additional biological shielding of the walls. Two

pre-cast concrete partitions are used to separate the building into three compartments. Two compartments are 12x21 m each; the third one is 6x21 m. The covering is made of metal panels of 3x10.5 m that can be removed to load waste into the compartments. Asphalt-concrete hydraulic insulation is used to conserve the structure's covering. Inside and outside the building there is a fire extinguishing system. There is a pit provided to collect atmospheric precipitation inside the building. As for today, the building is completely filled with waste and conserved.

#### ***Buffer storage facility (solid waste)***

Storage facility for very low level waste is situated at INPP. The volume of the storage facility is 4000 m<sup>3</sup>. After storage these waste will be transported to very low level disposal facility. In 2009 the Technical Design and Preliminary SAR for very low level waste storage facility were approved by the state authorities of the Republic of Lithuania. Licence for Construction for the very low level waste storage facility was issued by regulator on 5 March 2010, construction started on 09 April 2010. Very low level waste storage facility started operation in 2013.

#### ***Storage facility Building 151 (liquid waste)***

The water purification and liquid waste treatment systems of INPP generate liquid radioactive waste. Waste is collected and stored in three 1500 m<sup>3</sup> metal lined concrete tanks which are located above ground level and covered with soil. The waste is stored in three storage tanks denoted as TW18 B01, TW18 B02 and TW11 B03 in building 151. The waste accumulated in storage tanks TW18 B01 and TW11 B03 consists of ion exchange bead resins and filter aid (perlite) mixture in water with very low salt content. The volume of the waste in these two tanks is 2286 m<sup>3</sup>. The waste accumulated in storage tank TW18 B02 consists of evaporator concentrate with solid particle sediments and filter aid (perlite); the volume of the waste is 1460 m<sup>3</sup>.

#### ***Storage facility Building 158 (bituminised waste)***

The bituminised waste storage facility, building 158, is located in the Northwest side of the INPP site, 200 m to the West of Unit 1. The facility is a two-storey building with supporting walls and radiological shielding by concrete blocks. The foundation is made of monolithic reinforced concrete slabs. The first floor contains 11 canyons (cells) with a volume of 2500 m<sup>3</sup>, each and an effective volume of 2000 m<sup>3</sup>. One canyon has a volume of 1000 m<sup>3</sup> and an effective volume of 800 m<sup>3</sup>. The second floor contains a servicing hall, pipe-shaped communication channels with pipelines and instrumentation rooms. A gallery with three communication channels for bitumen compound pipelines joins the storage building with the liquid waste treatment facility (building 150).

The potential conversion of the existing bituminized waste storage facility into a final repository is under investigation. INPP should complete their studies by 2020.

#### ***Storage Building 158/2 (cemented waste)***

The cemented waste is stored in building 158/2. This facility started operation in 2005. The building 158/2 is three-bay shop reinforced concrete structure. The design basis for the storage building is to provide storage capacity for waste packages produced from a total quantity of 6000 m<sup>3</sup> of liquid processed radioactive waste for duration of 60 years. The capacity is 6300 storage containers. The volume of the container is about 5.6 m<sup>3</sup>.

In addition to above mentioned nuclear installations the following ones are being planned to construct and currently are in different stages of implementation (under site assessment, design or construction stages).



***Dry type interim spent nuclear fuel storage facility (Project B1, under construction)***

The licence to construct the new dry type interim spent fuel storage facility was issued to State Enterprise Ignalina Nuclear Power Plant (INPP) by VATESI in 2009 and is planned to be commissioned nearby the INPP in early 2017. In the storage facility spent nuclear fuel will be stored in the new type reinforced concrete casks CONSTOR RBMK-1500/M2 each of which is 4,5 m high, 2,7 m in diameter and weighs 118 tons loaded with fuel. The site of the new ISFSF will cover 5.93 hectares of the area. The total storage capacity will be about 17 000 fuel assemblies (about 190 casks).

***Solid radioactive waste treatment and storage facilities (Project B2/3/4, under construction)***

The objective of B2/3/4 Project is to build a new INPP Solid Waste Management and Storage Facilities. The Project includes two independent components to be implemented simultaneously:

- B2 (New Solid Waste Retrieval Facilities Design and Construction);
- B3/4 (New Solid Waste Management and Storage Facilities Design and Construction).

In January 2014, B2 was implemented by 40 % and B3/4 – 60 %. Commissioning is expected on 2018.

***Landfill repository for short lived very low activity radioactive waste (design stage)***

In October 2009, INPP submitted the technical design and the preliminary safety analysis report for the Very Low Level Radioactive Waste Repository (Project B19-2). VATESI reviewed these documents and in December 2010 informed INPP that they had no further comments on the documents. On 30 July 2013 VATESI approved the resubmitted revised technical design of the Very Low Level Radioactive Waste Repository. Approximately 60 000 m<sup>3</sup> of radioactive waste will be stored in the repository.

***Near surface repository for short lived low and intermediate activity radioactive waste (design stage)***

Low and intermediate level short-lived radioactive waste must be handled and placed in the repository for low and intermediate level short-lived radioactive waste. In December 2008 VATESI approved the technical specification of the repository for low and intermediate level short-lived radioactive waste (Project B25). The capacity of the repository will be approximately 100 000 m<sup>3</sup> of radioactive waste.

***Visaginas Nuclear Power Plant (site assessment stage)***

Lietuvos Energija, UAB (former – Visagino Atominė Elektrinė, UAB) as a company responsible for the implementation of the preparatory works for the construction of the new NPP has performed a potential site evaluation against national and IAEA requirements. Site evaluation process has started in 2008. Evaluation included both deterministic and probabilistic assessments of various site related phenomenon. The site evaluation report is comprised of the parts such as Assessment of Meteorological Hazards, Dispersion of Radioactive Material and Evaluation of Distribution of Population, Assessment of Unintentional Human Induced Events, Description of Possibilities for Application of Physical Security Measures at Potential Construction Sites of VNPP, Description of Possibilities for Emergency Planning, Evaluation of Ultimate Heat Sink Characteristics and Assessment of Flooding hazards, Detailed Evaluation of Gas Explosion, Evaluation of geological and seismological conditions at potential VAE sites

using seismic exploration data, Investigations of Engineering geological and Geotechnical Conditions, Investigation of Deep Geological Setting of Potential Construction Sites of VNPP by Using 2D/3D Seismic Survey, Geotechnical, Geological, and Seismological (GG&S) Data Inventory for the Visaginas Sites; Constructional Remains and Subsurface Geologic Setting Survey at Potential VNPP Sites using Electrical Tomography Method. Also site evaluation report includes a peer review reports for all its parts.

The main result of this activity is that after considering the following aspects:

- The effects of external events occurring in the region of the Visaginas sites;
- The characteristics of the Visaginas sites and their environment that could influence the transfer to persons and the environment of radioactive material that has been released;
- The population density and population distribution and other characteristics of the external zone in so far as they may affect the possibility of implementing emergency measures and the need to evaluate the risks to individuals and the population.

It was concluded that there are no exclusion criteria and no deficiencies that cannot be compensated for by means of design features, measures for site protection or administrative procedures. Therefore, both investigated sites are suitable for construction of the VNPP.

Site Evaluation Report was reviewed by Independent IAEA Site Safety Review Mission (SSRM) which took place on 8–12th of November, 2010. IAEA experts stated that “Sites evaluation is conducted in line with IAEA requirements and guides, the volume of investigation is sufficient, and sites are suitable for construction of VNPP”. The experts of the mission have submitted several recommendations, which may be implemented only after selecting of nuclear technologies and layout of nuclear facilities providing opportunities for additional investigations related with design works.

Site Evaluation Report was reviewed by Lithuanian authorities involved in coordination, including Hydro-meteorological Service, Geological Survey, Radiation Protection Centre, Fire and Rescue Department under Ministry of Interior, Civil Aviation Administration. Currently the results of the evaluation are being coordinated with State Nuclear Power Safety Inspectorate that finally will approve the Site Evaluation Report.

The results of the Site Evaluation Report shall be used in design process of the VNPP and shall constitute (updated where necessary) a part of the future PSAR.

## **National policy towards nuclear activities**

Like many other countries in Europe, Lithuania is also facing challenges in the energy sector on three main dimensions: security of energy supply, competitiveness and sustainability of the energy sector. This situation was determined by historic and political circumstances as well as scarce internal energy resources.

Most of energy resources used in Lithuania are imported. After the shutdown of INPP, the country is not able to satisfy its internal electricity demand at competitive prices. The Lithuanian electricity network is not connected to the European electricity system and therefore electricity can be imported only from a very limited number of countries.

In order for Lithuania to become a fully-fledged Member State of the European Union, the Lithuanian energy sector should be entirely integrated into the European energy system. The country must have sufficient local capacity to satisfy the internal energy demand and, with regard to energy related questions, should be able to participate and compete in common EU energy markets and effectively cooperate with other countries.

The National Energy Strategy, approved by Resolution No X-2133 of the Seimas of the Republic of Lithuania dated 26 June 2012 sets a number of tasks and major solutions in the fields of electricity, heating, gas, oil, renewable energy sources and improvement of energy efficiency, environment protection and reduction of greenhouse gas emissions.

In current National Energy Strategy (2012) as in previous National Energy Strategies (1994, 1999, 2002, 2007) nuclear energy is seen as a part of the Lithuanian energy supply mix. National Energy Independence Strategy (2012) sets the strategic target – construction of a new regional nuclear power plant in Visaginas (VNPP).

In 2009, the Ministry of Energy started tendering process which continues with selection of Hitachi Ltd.(as the Strategic Investor) together with Hitachi-GE Nuclear Energy (as ABWR technology provider) for the new NPP in Visaginas site. In 2012, the UAB “Visagino atoninė elektrinė” (in August 2013 renamed to „Lietuvos energija”, UAB) was appointed by the Lithuanian Government as a national investor of the VNPP, which together with other project participants will hold shares in the Project Company. National investor shall have no less than 34% of the VNPP's shares.

After non-binding referendum on VNPP (in October 2012) a Special Working Group was established to evaluate VNPP project and the National Energy Independence Strategy. As a result, safe nuclear energy development has again been identified as necessary integral part of the Lithuanian energy supply mix. Following these results and respecting the results of the referendum the Government stated that the project might be continued if it is being developed together with Regional Partners (Estonian and Latvian states and their utility companies) and in case it is economically viable.

Following these discussions, Strategic Investor with the support of Japanese Government and participation of Japanese export credit agencies JBIC and NEXI submitted proposals on improvement of the financial conditions for the project.

Additionally all of the project’s potential investors (LT, LV, EE utility companies and Hitachi) carried out economic viability assessment of VNPP project that identified certain outstanding issues requiring attention of project hosting Government as well as the Governments of the Baltic States.

These results were evaluated favourably and discussed among all three Baltic Prime Ministers during their meeting in November 2013. It was decided to pursue with the resolution of the outstanding issues named by potential investors.

Baltic Prime Ministers decided to make use of the Committee of Senior Officials of the Baltic Council of Ministers composed of high level governmental representatives and competent institutions experts for the consideration and resolution of intergovernmental outstanding issues. Lithuanian Government has also established national Governmental commission dedicated to address remaining outstanding issues.

Currently all interested parties are in the process of discussing possible ways for resolving the outstanding issues.

## **Article 4**

### **4.1 Legislative, regulatory and organisational framework**

In accordance with national legislation, the Nuclear Safety Convention, other international conventions and treaties, NSD, the Republic of Lithuania undertakes appropriate measures to ensure the safety of nuclear installations under its jurisdiction through the establishment of legal framework and infrastructure necessary to maintain the effective nuclear safety regulatory system.

#### **Legislative framework**

The main laws, which sets out the framework governing the regulation of nuclear energy, are:

- Law on Nuclear Energy;

- Law on Nuclear Safety;
- Law on Radiation Protection;
- Law on Radioactive Waste Management.

These Laws are supported by the following main Governmental decrees that include legally binding regulations:

- Resolution of the Government of the Republic of Lithuania on the approval of Rules of Procedure for Issuing Licences and Permits in the Area of Nuclear Energy;
- Resolution of the Government of the Republic of Lithuania on the approval of Rules of Procedure of the Assessment of the Nuclear Power Plant's Site Evaluation Report;
- Resolution of the Government of the Republic of Lithuania on the approval of National Plan for Protection of Population in Case of Nuclear Accident;
- Resolution of the Government of the Republic of Lithuania on the approval of Rules of Procedure of the Development and Review of the Design Basis Threat and Submission of Information to VATESI.

Article 22 of the Law on Nuclear Energy provides the mandate to VATESI – State Nuclear Power Safety Inspectorate – to draft and approve the requirements and rules for nuclear safety, radiation protection in the area of nuclear energy, accounting for and control of the nuclear materials, physical protection of nuclear materials the quantity of which exceeds the quantity indicated in Annex 1 to the Law on Nuclear Safety and the nuclear fuel cycle materials. These requirements and rules are mandatory to all the state and municipal authorities, also to all the persons engaged in such activities.

## **Organizational framework**

The legal framework establishes the VATESI – State Nuclear Power Safety Inspectorate – as a single organization responsible for state regulation and supervision of nuclear safety. Pursuant VATESI's mandate, provided in a Statute of VATESI, it undertakes review and assessment, inspection, preparation of requirements and rules, and enforcement. (see also Article 5 of this report)

The Ministry of Energy of the Republic of Lithuania develops the State policy in the area of nuclear energy and organizes, coordinates and controls its implementation, organizes the development of the infrastructure of the nuclear energy in the Republic of Lithuania. The competences of other state and municipal authorities and governmental institutions (such as the Ministry of Health and its authorised institutions, the Ministry of Environment and its authorised institutions, the Ministry of Social Security and Labour and its authorised institutions, the Ministry of Education and Science, the Ministry of National Defence, the Ministry of the Interior and its authorised institutions, the State Security Department) in the area of nuclear energy are set in the Article 2 of the Law on Nuclear Energy and other legal documents and do not duplicate functions of the VATESI. Framework of governmental institutions involved in to implementation of nuclear energy policy is provided in Annex III.

Article 13 of the Law on Nuclear Safety sets the provision that the institutions and (or) organisations of the Republic of Lithuania, which are involved in the assurance of nuclear safety or whose activities may have an effect on the level of nuclear safety, have to cooperate and exchange information pertaining to nuclear safety with neighbouring countries and other interested states, intergovernmental and international organisations. The form and procedure of cooperation is chosen according to the nature of the tasks to be solved, adhering to the terms and conditions acceptable to all cooperating institutions and (or) organizations with prior focus on ensuring nuclear safety. The procedure for and conditions of cooperation among the institutions

and (or) organizations of the Republic of Lithuania may be regulated by written agreements entered into by those institutions.

As an example of coordination between relevant state bodies is cooperation agreement signed in 2012 between the VATESI and the Environmental Protection Agency under Ministry of Environment. The goal of this agreement is to strengthen collaboration between these two state bodies ensuring effective supervision of entities which carries out nuclear energy related activities involving sources of ionising radiation, namely in the area of measurement of activity of materials and waste and releases to the environment.

### **International legal tools**

Lithuania is contracting party of relevant international treaties and conventions that establish common obligations and mechanisms for ensuring nuclear safety in the utilization of nuclear energy and radiation for peaceful purposes, including the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. The list of multilateral international treaties and conventions which Lithuania is a contracting party to and treaties with international organizations is provided in Annex V.

#### **4.1.a National nuclear safety requirements**

Law on Nuclear Safety mandates the VATESI to set basic nuclear safety requirements and rules in areas of organization of state regulation, site evaluation, design, construction, commissioning, operation and decommissioning of nuclear installations, On-site emergency preparedness, Management systems, Physical security, Fire protection of structures, systems and components important to safety, Radiation protection in the area of nuclear energy and non-proliferation of nuclear weapons. Besides, the VATESI has the right to set special nuclear safety requirements and rules in the areas of Nuclear power plant safety, Radioactive waste management safety and Transportation of nuclear and nuclear fuel cycle materials safety.

The procedure of issuing these documents consists of the following stages:

1. Planning. Pursuant to Nuclear Safety Requirements BSR-1.1.1-2011 “Rules of Procedure for Drafting of Nuclear Safety Requirements and Nuclear Safety Rules“, the five-year Program for Development of Normative-Technical Documents, describing priorities and needs of the development of these documents in the different areas of nuclear safety (the Programme for 2010–2014 is currently in force; it is revised every year) and The Plan for drafting and review of Normative-Technical Documents (for each year) are approved by the Head of the VATESI.

2. Drafting. The draft of nuclear safety requirements or rules is developed by VATESI specialists and discussed internally.

3. Approximation. The draft of nuclear safety requirements or rules is provided for approximation of other state institutions (if needed) and for comments or proposals of other interested parties (relevant licence holders, such as INPP and Lithuanian State Company “Radioactive Waste Management Agency”) by publishing it in the Database of draft legal documents of Seimas (Parliament of Republic of Lithuania) (the addressees get notifications about a new draft), which is a mandatory procedure. As the database is public, all drafts are also available for the comments of the public. In case of complex comments or proposals, meetings can be organized in order to solve the outstanding issues.

4. Approval by the Head of the VATESI and publishing in the Register of Legal Acts. The VATESI has the right to draft and provide for approval drafts of laws.

In case regulations prepared by one governmental institution are related to the areas governed by other relevant institution, such regulation shall be agreed with a competent governmental institution, for example in accordance with the Law on Civil Construction

Ministry of Environment is responsible of preparation of the regulations regulating completion of construction of nuclear installation, but these regulations shall be agreed with VATESI; the norms regulating fire protection of structures, systems and components important to safety shall be prepared by VATESI and shall be agreed with Fire and Rescue Department under the Ministry of the Interior Authority in accordance with the Law on Nuclear Energy.

The revision of the approved regulations is described in Section 4.2 of this report. The revised draft or amendments to the nuclear safety requirements or rules are to be approved in the same order as described above.

#### **4.1.b Licensing system**

The Law on Nuclear Energy and the Law on Nuclear Safety are the main laws that together with the Law on Radioactive Waste Management and regulations made under these laws establish the licensing system for activities related to nuclear safety of nuclear installations during following life-stages: site evaluation, design, construction, commissioning, operation, and decommissioning.

VATESI is a competent authority for the licensing of activities related to nuclear safety of nuclear installations.

During the stage of site evaluation, VATESI shall review and assess the site evaluation report. The positive conclusions in respect of the site evaluation report shall be presented by the following institutions: the Ministry of Health, the Civil Aviation Administration, the Lithuanian Geological Survey, the Lithuanian Hydro Meteorological Service and the Fire Prevention and Rescue Department, in order to approve it. Before the design activities start, technical specification for nuclear installation design has to be approved by VATESI.

Design of a nuclear installation has to be performed and assessed according to the requirements established by the competent institutions, including VATESI (nuclear safety regulation, including fire safety of structures, systems and components that are important to safety), Ministry of Environment (civil construction regulation), Ministry of Health (public health regulation), Ministry of Interior (fire protection regulation) and other institutions involved according to the Law on Nuclear Energy, the Law on Construction and the regulations made under these Laws.

According to the Law on Nuclear Safety, the following types of licences and permits, related with nuclear installations, are established in order to be issued by VATESI:

- construction licence;
- operation licence;
- construction and operation licence;
- decommissioning licence;
- permit for first carry-in of nuclear fuel to site of nuclear power plant or non-power nuclear reactor;
- permit for the first carry-in and testing of the nuclear installation using nuclear and/or nuclear fuel cycle materials;
- permit for first start-up of nuclear power plant unit or non-power nuclear reactor;
- permit for industrial operation of the nuclear installation;
- permit for start-up of the nuclear reactor after its short-term shutdown.

Nuclear installation construction licence may be granted only if the Parliament of Lithuania (in case of NPP) or the Government of Lithuania (in case of other nuclear installations) has adopted a legal act on the nuclear installation and State Territorial Planning and Construction Inspection under the Ministry of Environment has issued a permit for construction of the nuclear installation.

As stipulated in the Law on Nuclear Safety, licences and permits shall be issued to legal entities or persons having sufficient technological, financial, management system, human,

emergency preparedness, physical security capacities, capacities for safe storage, transportation, accounting for and control of nuclear materials meeting the provisions of IAEA and EURATOM for safeguard, allowing proper fulfilment of the conditions of the licenced activity and ensuring nuclear safety.

List of information and documents that applicant is required to provide for the issue of an appropriate licence or permit are established by the Resolution of the Government of Lithuania (see Section 5.3.b of this report).

VATESI is empowered to suspend, amend, revoke suspension and revoke licences and permits that are issued by VATESI.

### **The process and system for relicensing/licence renewal**

Article 25, Paragraph 15 of the Law on Nuclear Safety stipulates that a licence shall be issued for an unspecified period until the licence is terminated. Nevertheless, Article 32, Paragraph 7 defines for reassessment of safety at a nuclear facility that shall be carried out at regular intervals, at least every 10 years, in order to provide evidences that the nuclear installation is in compliance with the current design basis and identifies further safety improvements by taking into account ageing issues, operational experience, most recent research results and developments in international standards. At this point, after review and assessment VATESI may decide to suspend or amend the licence using established procedures.

### **The legal provisions to prevent the operation of a nuclear installation without a valid licence**

Article 22, Paragraph 4 of the Law on Nuclear Safety prohibits every activity associated with nuclear installation without an authorisation (licence or permit prescribed in the Law) issued by VATESI.

## **4.1.c Nuclear safety supervision**

Pursuant to Article 28 of the Law on Nuclear Safety the VATESI as state regulatory and supervisory authority in Lithuania for nuclear safety shall supervise the performance of licensed or permitted activities (listed in Section 4.1.b of this report) by:

- conducting inspections;
- review and assessment of relevant documents;
- regular supervision (performed by resident inspectors);
- consultations (see Section 8 of this report);
- enforcement actions for the infringements of licensed or permitted activities (see Section 4.1.d of this report).

By inspecting licence holders VATESI supervises compliance with the requirements of legislation regulating nuclear safety at nuclear facilities, including fire safety of structures, systems and components that are important to safety, emergency preparedness at nuclear facilities and radioactive waste management.

Inspections of licence holders conducted by VATESI specialists are divided into planned inspections performed under a pre-approved plan, and unplanned ones. By the subject of inspection, VATESI inspections may be special, regular, control room operation inspections and technical (also see Section 5.3.c of this report).

VATESI is conducting review and assessment of relevant documents to determine whether nuclear installations comply with regulatory requirements prior to authorization and again over the lifetime of the nuclear installation (for instance, site evaluation report, preliminary safety analysis report before construction, updated safety analysis report before commissioning,

final safety analysis report before industrial operation, safety justification for modification during operation and others).

Regular supervision is performed by VATESI's Surveillance Division resident inspectors. This regular supervision cover different type of inspections (safety systems, control room inspections), review and assessment of operation and maintenance documentation, supervision of implementation of modifications, participation in examination of INPP staff and other activities.

#### **4.1.d Enforcement actions**

VATESI is empowered to impose following administrative enforcement measures according to the Law of Nuclear Safety and other laws:

- to provide mandatory requirements to all licence or permit holders, committing them to remedy the detected infringements in nuclear safety, to suspend the works within the time-limits set by the Head of VATESI and (or) to shut-down the nuclear reactor, to decrease its capacity, to discontinue operation of other equipment or activities according to Law on Nuclear Safety;
- to impose administrative fines on natural persons according to Code of Administrative Offences of the Republic of Lithuania;
- to impose fines on legal entities according to the Law on Nuclear Safety (otherwise known as economic sanctions).

#### **Mandatory Requirements**

Pursuant to the Article 6 of the Law on Nuclear Safety Head of VATESI has a right to impose the mandatory requirements on the legal entity in any of below listed cases:

- after the issuance of a licence or a permit it emerges that the information provided in the application and in other submitted documents was false, and within the time-limit prescribed by the Head of VATESI correct information is not provided;
- the licence or permit holder breaches the requirements of the legal acts;
- the licence or permit holder does not longer meet the requirements which it had met at the moment of issuance of the licence or permit, and fails to remedy the detected violations within the time-limit prescribed in the notice of Head of VATESI as stated in the Law on Nuclear Safety;
- in case of failure to meet the requirements arising out of the international obligations for non-proliferation of nuclear weapons as assumed by the Republic of Lithuania;
- the licence or permit holder fails to meet, or meets improperly, the established terms and conditions of operation;
- on other occasions established by the Law on Nuclear Energy or other laws.

The Head of VATESI issues mandatory requirements as soon as the nuclear safety infringements are detected in the activities of the licence or permit holder, taking into account the requirements for nuclear safety set by the Law on Nuclear Safety and other legal acts, as well as adhering to the nuclear safety requirements, the nuclear safety rules, the standards and the terms and conditions of the licence or permit. The type of mandatory requirements and their extent, on a case-by-case basis, have to be established upon evaluation of eventual threats, their impact on, scope of, and risk to residents, their property and the environment. The mandatory instructions have to be given on the basis of proportionality, justice, rationality and fairness.



## **Administrative sanctions for natural persons**

According to Code of Administrative Offences of the Republic of Lithuania VATESI is empowered to impose administrative fines on natural person (for example, head of the legal entity) for the infringements of the nuclear safety requirements. The Code of Administrative Offences sets down the administrative responsibility and sanctions for violations of nuclear safety rules and norms. Code of Administrative Offences sets liability and administrative sanctions (penalties) for natural person for following offences:

- noncompliance with normative and other legal acts regulating nuclear safety and radiation safety of nuclear energy activities involving sources of ionizing radiation;
- disobeying legal orders of the officials of VATESI or any other obstruction of carrying out their duties;
- disobeying mandatory requirements of VATESI to remove the detected infringements of nuclear safety and (or) radiation safety of nuclear energy activities involving sources of ionizing radiation in given terms and conditions;
- disobeying mandatory requirements of VATESI to suspend the works within the set time-limits and/or to shut-down the nuclear reactor, to decrease its capacity, to discontinue operation of other equipment or activities according;
- contamination of the environment with radioactive material as well as transportation, use, storage, or disposal of radioactive material in violation of environmental requirements;
- shipment, transit or shipment of radioactive substances to/though/from the territory of the Republic of Lithuania without proper permit or licence;
- emissions to the atmosphere without proper authorization; emissions to the atmosphere in excess of norms or other conditions set in the permit or emissions to the atmosphere violating environmental norms set or legal acts regulating emissions to the atmosphere, when the permit is not required;
- noncompliance with the rules for using facilities and equipment to clean and control the emissions into the atmosphere, as well as their exclusion;
- goods, services, raw materials, the quality, the composition, complement and packaging do not meet technological standards, recipes, technical specifications (conditions), standards and other declared documents or statutory mandatory quality requirements, sale, delivery, implementation, as well as the sale of goods, providing services, realization of raw materials without documents confirming of the necessary quality and safety; noncompliance with standards, technical specifications (conditions) or the conditions set by the manufacturer during transportation or storage of goods or materials and during use of raw materials; Determination availability, quality and of the composition of goods or raw material in violation of the set order or the incorrect determination; intentional deterioration of quality indicators of goods or raw materials;
- improper use of the building;
- noncompliance with rules of building maintenance when there is a threat of deformation and collapse;
- noncompliance with rules of building maintenance;
- pursuit of commercial, economic, financial or professional activities without a licence (permit) for activities which require a licence (permit) or in any other illegal manner, as well as performing such actions using illegal employees;
- noncompliance with rules of licensing and control of export, import, transit and brokering of strategic goods; denying admittance of the officials performing the control of strategic goods to the premises and territory belonging to natural persons, legal entities or branches of foreign legal entities or other entities, where the strategic goods are stored or used, in order for the officials to examine the goods, to perform

control tests and measurements, as well as not providing records, documents, information or withholding the documents, providing incorrect records or information, disobeying legal requests of these officials;

- intentional injury or peel of a stamp (seal), set by a competent official.

### **Economic sanctions for legal entities**

VATESI is empowered to impose fines. The amount of the economic sanction varies from 0,75 up to 3 percent calculated from the income, but not less than 125 thousand LTL. In case the offence is made repeatedly, economic sanctions varies from 1,25 up to 5 percent calculated from the income, but not less than 250 thousand LTL. Economic sanctions are applied in case of particularly serious violations of legal acts that regulate nuclear safety and radiation safety in carrying out the nuclear energy related activities – they are imposed on legal entity which fails to act in line with the requirements established by the Law on Nuclear Safety and other legal acts that regulate nuclear safety, radiation protection in carrying out the nuclear energy related activities with the sources of ionising radiation, as well as physical security requirements and due to which the safety barriers are or might be breached and (or) as a result of which the activity of radionuclides discharged into environment exceeds the allowed limit and (or) the doses of exposure of workers exceed the allowed limits, and which fails to comply with the requirements arising out of the international obligations on non-proliferation of nuclear weapons assumed by the Republic of Lithuania, and this is related to significant quantities of nuclear materials defined by the IAEA.

### **Criminal Sanctions**

In case of a crime or a misdemeanour, VATESI transmits the information about it as soon as possible to the prosecutor or to the investigating officer who are empowered to bring the case to the court and then public works, fines, restriction of freedom or imprisonment can be imposed on natural person or legal entity. The Criminal Code sets down the liability and criminal sanctions for these crimes and misdemeanours involving nuclear facilities and nuclear or radioactive material:

- terror act;
- unlawful possession of nuclear or radioactive materials or other sources of ionizing radiation;
- threat to use or otherwise influence or unlawfully acquire nuclear or radioactive materials or other sources of ionizing radiation;
- violation of the regulations governing lawful possession of nuclear or radioactive materials or other sources of ionizing radiation;
- manufacture of plant explosives, explosives or radioactive material or development or distribution of production technology of these materials;
- smuggling of nuclear or radioactive materials or other sources of ionizing radiation.

### **Other enforcement measures**

VATESI is empowered to take the following actions related to the issued licences and permits:

- warn the legal entity about suspending of the licence, permit;
- suspend the licence, permit;
- revoke the licence, permit.

## **4.2 Maintenance and improvements of national framework**

One of fundamental principles set in the Article 3 of the Law on Nuclear Safety is the principle of state regulation of nuclear safety, which requires to develop and maintain an effective legal framework and a public management structure (national framework) involving an independent state regulation of the activities in the area of nuclear energy. The mandate to create, maintain and improve the state regulatory and supervision system for nuclear safety, including preparation of relevant nuclear safety requirements and rules, is given to VATESI by Article 11, Paragraph 1 of the Law on Nuclear Safety and by Statute of VATESI.

Drafting of new and revision of the approved regulations, including relevant Laws and Governmental documents, is performed in accordance with Nuclear Safety Requirements BSR-1.1.1-2011 “Rules of Procedure for Drafting of Nuclear Safety Requirements and Nuclear Safety Rules“ and VATESI internal procedure. According to BSR-1.1.1-2011 5-year program (program for development of technical-normative documents) and annual plan for drafting of new regulations and revision of approved is established. When drafting nuclear safety requirements and rules, advanced international practice and advanced practice of foreign countries, recommendations of IAEA, WENRA and other international organizations or institutions shall be taken into account. VATESI

It is important to underline, that in 2011, the Law on Nuclear Energy, the Law on Radiation Protection and the Law on Radioactive Waste Management were amended along with other legal acts regulating the use of nuclear energy, and a new Law on Nuclear Safety was passed whereby the regulation principles of nuclear safety and radiation protection of nuclear facilities was established, the competence of VATESI to issue licences in the nuclear energy sector and to develop the system of requirements on nuclear safety was elaborated. This was the essential incentive to update and improve the legal framework of the nuclear safety regulation in Lithuania.

Pursuant Article 9 of the Law on Nuclear Safety the Government shall organise, with a frequency no less than once per 10 years, regular evaluations of the legal regulatory system of nuclear safety and the activities of the competent regulatory authorities, and shall ask to perform an international expert-level evaluation of the parts of the legal regulatory system of nuclear safety and/or of subdivisions of institutions in order to improve the nuclear safety on a regular basis. Taking into account above provision VATESI informed IAEA about its commitment to accept full scope an Integrated Regulatory Review Service (IRRS) mission in 2016.

## **Article 5**

### **5.1 Competent regulatory authority**

The legal framework establishes the VATESI – State Nuclear Power Safety Inspectorate – as a single organization, responsible for state regulation and supervision of nuclear safety in Republic of Lithuania.

The main duties, functions and rights of the VATESI defined in the Statute of VATESI approved by Government of the Republic of Lithuania on 21 October 1992 (Amended on 21 of November, 2012).

VATESI functions are performed according to the legal acts by VATESI state officials, public servants and employees working under employment contracts. Pursuant to Paragraph 10 of the Article 23 of the Law on Nuclear Energy the Head of the VATESI for a term of six years is appointed by the President on the recommendation of the Prime Minister. He is responsible for activities of the VATESI and accountable to the President and the Government.

The VATESI position in the governmental framework of institutions involved in to implementation of nuclear energy policy and current VATESI organizational structure is provided in Annex III and Annex IV correspondingly.

## **5.2 Independence of regulatory authority**

National legislation provides clear division between the responsibilities and functions of VATESI and those organizations or bodies engaged in development or promotion of the nuclear energy or use of nuclear energy, including production of electricity.

Pursuant to Paragraph 3 of Article 21 of the Law on Nuclear Energy VATESI has a power to take decisions independently in carrying out its statutory functions. VATESI responsibilities are kept apart from other institutions, agencies or organizations engaged in regulating, control, administration or development of nuclear installations. To address nuclear safety issues, functions are clearly divided between the licence holders and VATESI. In case there is a need to get information or estimation of other state institution, the procedures and responsibilities of each institution are clearly described in legal acts.

VATESI acts as independent governmental institution subordinated directly to the President and the Government, hence it's place in the governmental structure helps to assure an effective separation of the regulatory body from the agencies responsible for promotion of nuclear energy.

Pursuant to Paragraph 10 of the Article 23 of the Law on Nuclear Energy, the Head and Deputy Heads of VATESI in their official capacity shall act independently from the persons engaged in activities in the field of the nuclear energy sector, also from other agencies, institutions or organisations engaged in expansion of the nuclear energy or use of nuclear energy, including generation of electricity. Independent activities imply a prohibition to be a member of a body of a legal entity, to accept other remunerated or public positions, to provide services or consultations, except the ones provided acting in the official capacity at VATESI, or to be engaged in other activities due to which a certain person, other agency, institution or organisation acting in the nuclear energy sector would or might gain unjustified competitive advantage over the persons engaged in relevant activities. A breach of this requirement shall be qualified as a serious misconduct.

## **5.3 Resources of regulatory authority**

### **Human Resources**

Pursuant to Paragraph 3 of Article 21 of the Law on Nuclear Energy, “the structure, competence of the State Nuclear Power Safety Inspectorate and its provision with resources shall correspond with the nature and scope of the activities in the field of nuclear energy, activities involving nuclear materials and other activities in the field of nuclear energy involving sources of ionising radiation undertaken and planned to be undertaken in the Republic of Lithuania”.

The maximum number of positions of the VATESI is established by the Government of Lithuania. The Head of VATESI establishes the concrete number of positions and approves the administrative structure of the VATESI and job descriptions of all employees.

The assessment of the adequacy of human resources is done through following procedures:

- Strategic Planning, which includes planning of the need of a particular number of employees, which is based on main strategic goals (such as main foreseen functions, main legislative initiatives) of the VATESI for the planning period (3 years). The Strategic Plan of the VATESI is approved by the Head of VATESI;

- Annual evaluation of qualification and activities of civil servant, conducted pursuant to Law on Civil Service. This procedure is also used to establish the training needs of the VATESI employees.

In case of foreseen changes, e.g., expanding nuclear programme, the practice is to establish internal working groups for evaluation of particular need for changes in the structure of the VATESI, the number of positions and distribution of functions among its employees.

Pursuant to VATESI quality management procedures, heads of divisions have an obligation to monitor constantly the work load and functions performed by their employees and inform the head of VATESI about the need for additional human resources.

The need for services of technical support organizations (experts) is evaluated annually through the procedure of establishing the Public Procurement Plan (i.e., while planning the procurement of services). This need is also evaluated during Strategic Planning procedure.

VATESI has 72 full-time staff positions approved by the Government of Lithuania. 68 of these 72 positions are occupied (57 public servants, 8 employees under employment contracts and 3 state officials). The number of personnel employed at VATESI is appropriate for current stage of nuclear programme.

### **Financial Resources**

According to Paragraph 2 of Article 21 of the Law on Nuclear Energy, VATESI activities are financed by the Lithuanian state budget appropriations and other legitimate income. To fulfil its mission and strategic goals every year VATESI prepares Strategic Activity Plan for next three years. It's a part of national strategic planning and budgeting system. According to this plan Government approves allocations for the implementation of the VATESI Programme.

Financial resources of VATESI cover the need for offices and office equipment, the salaries of staff, the costs of communications, transport, training, consultancy services, technical support and international co-operation. Financing of VATESI is appropriate for current stage of nuclear programme and covers VATESI's needs related to regulatory activities.

### **5.3.a Powers of regulatory authority to require the licence holder to comply with national nuclear safety requirements and the terms of the relevant licence**

The legal provisions by which VATESI can require the licence holders to comply with the national nuclear safety requirements and the terms of relevant licence are stated in the Law on Nuclear Energy (Article 22, Paragraph 1, Subparagraphs 4 and 7) and in the Law on Nuclear Safety (Article 11, Paragraph 4 and 7). In accordance with these provisions VATESI supervises the compliance with legal acts regulating nuclear safety and licences or permits terms.

Pursuant to the Article 6 of the Law on Nuclear Safety Head of VATESI has a right to provide mandatory requirements to all licence or permit holders, committing them to remedy the detected infringements in nuclear safety (more details about enforcement actions provided in Section 4.1.d of this report).

Usually these powers are implemented during inspections, when infringements in nuclear safety are detected.

### **5.3.b Powers of regulatory authority to require demonstration of the licence holder's compliance with national nuclear safety requirements and the terms of the relevant licence**

The demonstration of compliance of nuclear installation with national requirements shall be performed through documented assessments and tests performed by applicant or licence/permit holder and other documents on design, commissioning, operation and decommissioning of nuclear installation issues. Documents for demonstration of safety of the installation, including above mentioned, shall be submitted together with application for licence or permit. The whole list of licensing documentation is provided in the "Rules of Procedure on Issuing of Licences and Permits in the Area of Nuclear Energy" (approved by the Resolution of the Government). These documents are covering safety analysis, design, operation, management system, security, safeguards, emergency preparedness aspects and other important issues and the result of the regulatory review and assessment of them is key factor for decision on issuance of the particular licence or permit. Some examples of the documents required for licensing of nuclear installation (depending on kind of licence or permit) are:

- safety analysis report (preliminary, updated, final);
- report on independent verification of Safety analysis report;
- documents of the design of a nuclear installation, which are necessary to evaluate the safety analysis report, including the expertise deed for the design of nuclear installation's building structures;
- plans on ensuring of the physical protection;
- decommissioning plans of a nuclear installation;
- emergency preparedness plans and the reports on testing of them;
- rules of procedure for selecting, training, certifying and competence-raising of the applicant's personnel;
- list of the applicant's nuclear safety normative technical documents and standards, declaration in a free format declaring that all nuclear safety normative technical documents necessary for safe construction of a nuclear installation are prepared and their appropriateness is approved pursuant to the procedure established by the applicant's management system documentation;
- description of the applicant's organizational structure stating the names of the divisions and positions independent of the divisions, functions of these divisions and positions and hierarchy;
- the applicant's rules of procedure associated with the selection, approval and control of the suppliers as well as ensuring of the quality of safety-related goods, services and works;
- description of safety culture development measures;
- rules of procedure for managing of modifications of a nuclear installation;
- programme for inspection of structures, systems and components carried out during construction;
- description of the procedures for the use of operational experience of oneself and of other persons working in the field of nuclear energy prepared in accordance with the requirements of the Head of VATESI for the uses of operational experience;
- level 1 and level 2 documents of the applicant's management system;
- reports of the independent review of the nuclear safety analysis and justification results, performed pursuant to the procedure set up by the Head of VATESI;
- reports on the implementation of the commissioning programme of the nuclear installation;
- operational limits and conditions;

- description of the system of accounting for and control of nuclear materials;
- emergency preparedness plan and the report on its testing;
- plan on the release of radionuclides;
- radiation protection programme;
- list of the applicant's personnel positions in charge of nuclear safety, including fire safety of the safety-related structures, systems and components, physical protection of nuclear installations, nuclear materials and nuclear fuel cycle materials and radiation protection, indicating the competence requirements for such personnel (work experience and education) and their functions;
- description of the procedures for the use of operational experience of oneself and of other persons working in the field of nuclear energy prepared in accordance with the requirements of the Head of VATESI for the use of operational experience;
- rules of procedure of the operation of a nuclear installation, as well as their safety-related structures, systems and components;
- rules of procedure of technical maintenance supervision and inspections of safety-related structures, systems and components during their operation;

In case of the new nuclear installations the Law on Nuclear Safety requires passing through the commissioning program, which shall be approved by VATESI. The Law set such definition of commissioning process: “admission that the installed constructions, systems and components of a nuclear installation are in line with the design and safety requirements, and that the technical standard documentation, organisational structure, number and competences of workers of the licence holder are adequate for safe operation of a nuclear installation”. The successful fulfilment of the commissioning program is the key factor for issuance of permit for industrial operation (see also Sections 6.2 and 6.3 of this report).

### **5.3.c Powers of regulatory authority to verify the licence holder's compliance with national nuclear safety requirements and the terms of the relevant licence through regulatory assessments and inspections**

According to the Law on Nuclear Safety of the Republic of Lithuania the main tasks of VATESI in the area of nuclear safety is development and continuous improvement of the nuclear safety regulatory system, evaluation of safety of nuclear installations and the activities related to nuclear and nuclear fuel cycle materials, issuance of licences and permits, monitoring of the compliance with legal acts by conducting inspections, and if required – application of enforcement measures in the manner set forth by the legal acts of the Republic of Lithuania. The rights to fulfil these functions are described in the Article 12 of the Law on Nuclear Safety. This article provides the basis for VATESI to gain for regulatory purposes any relevant information from licence or permit holders and to inspect the activities of them on site. The regulatory review and assessment described in the Section 6.2 of this report.

VATESI regulatory inspections are conducted within VATESI competence in accordance with the Law on Nuclear Safety, the Law on Public Administration and legal acts following them as well as following Nuclear Safety requirements BSR-1.1.3-2011 „VATESI Inspections“ and VATESI management system documents: “The Procedure for Special Inspections by VATESI” and “The Procedure of Regular Inspections, Technical Checks and Regulation Checks”.

The inspections are conducted at all stages of the lifetime of a nuclear facility: during the evaluation of a construction site for a nuclear facility, its design, construction, commissioning, operation or decommissioning stages, as well as in oversight of the closed radioactive waste repository, procuring, storing or transporting nuclear and / or nuclear fuel cycle

materials and / or dual use nuclear commodities. VATESI inspects applicants for obtaining licences and permits, licence and permit holders, suppliers of goods or contractors performing works and other companies performing operations related to nuclear or nuclear fuel cycle materials. While performing inspection activities, it is critically important to adequately assess the current situation in the nuclear power sector, to identify priority areas in terms of ionizing radiation hazard so that the safety related issues would be given proper attention. Every year VATESI develops a plan of inspections in accordance with the established criteria and with regard to the available human and financial resources. In addition to planned inspections unplanned inspections which may be announced or unannounced are performed as well.

VATESI areas of inspections are following: nuclear safety (including accident management and management system of operating organization), radiation protection at nuclear installations, physical security, emergency preparedness at nuclear installations, control over dual use nuclear commodities and accounting of and control over nuclear materials. VATESI conducts four general types of inspections:

- **Special inspections** are carried out by committee made of VATESI inspectors to control the satisfaction of defined safety requirements, conditions of structures, systems and components, satisfaction of requirements defined in the normative technical documents of the licence holder.
- **Regular inspections** are periodically recurring activities which necessary to control the satisfaction of defined safety requirements by state management and supervisory bodies and by inspected organization.
- **Technical checks** are verification of technical conditions of nuclear installation separate systems, facilities and equipment, defined in the special (exploitation, test, repair and similar) technical normative documents. The objective of Technical checks is to ascertain that the safety-related pressurized components at INPP (equipment and pipelines) have been manufactured, mounted, installed, maintained and operated in accordance with the requirements of the regulations and operation manuals, as well as that they are in good status and it is possible to use them in the course of the start-up – commissioning works and to operate the facility at the specified operational parameters (e.g. pressure and temperature).
- **Regulation checks** are inspections of personnel particular actions (activities) given in nuclear installation Technological Regulation (the principal document that defines safety of INPP operation).

Usually Regular inspections, Technical and Regulation checks are carried out by VATESI's on-site inspectors. The results of an inspection are put down in report, and the organization that has been inspected is familiarized with them. If some violations of authorization requirements or unsatisfactory conditions are found during the inspection, the enforcement actions are applied in accordance with the procedure set forth by the laws.

Pursuant to provisions of the Law on the Nuclear energy, other state institutions within their competence shall inspect the condition of nuclear installations, other activities in the area of nuclear energy and shall undertake all the measures necessary to eliminate the identified weaknesses.

The requirement for operating organization to implement, maintain and develop management system giving due priority to nuclear safety is set in the Article 17 of the Law on Nuclear Safety and Nuclear Safety Requirements BSR-1.4.1-2010 "Management System Requirements". The management systems of licence holder is the subject for regulatory review and assessment and regulatory inspections as well (more detailed information provided in Section 6.4 of this report).



### **5.3.d Powers of regulatory authority to carry out regulatory enforcement actions**

In performing the state regulatory and supervision functions of nuclear safety, pursuant to Paragraph 2 of Article 11 of the Law on Nuclear Safety, VATESI applies enforcement measures in the manner set out by the Law on Nuclear Safety and other legal acts, requires relevant persons to implement corrective remedies and (or) to eliminate the infringements, and supervises the implementation of such requirements.

Enforcement measures are being applied in accordance with legal principal of graded approach. All enforcement measures which are used by VATESI are arranged progressively considering the character of violation (see Section 4.1.d of this report).

## **Article 6**

### **6.1 Licence holder`s responsibility for nuclear safety**

Safety as the highest priority is emphasised within the Law on Nuclear Energy and within the national system of regulation of nuclear safety. The first article of the Law on Nuclear Energy identifies the main goal of state regulation in the field of nuclear energy – to ensure nuclear safety and preclude impermissible use and proliferation of nuclear materials and technologies.

Article 16 of the Law on Nuclear Safety determines that full responsibility for the nuclear safety of a nuclear installation shall solely fall on licence holders. The applicant or the licence holder have a right to involve technical support organisations and external experts, specialists, and consultants for carrying out the analysis and justification of nuclear safety and for preparing other related documents as well as for performing an independent verification of such documents, however, liability for the results of such activities shall fall either on the licence holder (Law on Nuclear Safety, Article 30, Paragraph 5).

### **6.2 Assessment and verification of safety**

The legal provisions to perform systematic safety assessments within the licensing process for different stages in the lifetime of the nuclear installation are stated in the Law on Nuclear Safety (Article 30 and 32). More detailed regulatory requirements to perform safety assessment are stated in following nuclear safety requirements:

- BSR-2.1.2-2010 “Basic Safety Requirements for Nuclear Power Plants with RBMK-1500 Reactors”;
- BSR-1.8.2-2011 “Rules of Procedure for categories of nuclear facility modifications and implementation of modifications”;
- Requirements for decommissioning of nuclear facilities;
- BSR-3.1.1-2010 “General Requirements for Spent Nuclear Fuel Storage Facility of the Dry Type “;
- BSR-3.1.2-2010 “Regulation on the Pre-disposal Management of Radioactive Waste at the Nuclear Facilities “;
- BSR-1.7.1-2014 “Fire safety of safety related structures, systems and components important to safety of nuclear facility” and others.

The legal provisions to perform regular verification of nuclear safety are stated in the Law on Nuclear Safety (Article 32, Paragraph 7), which require the licence holder, at least every ten years, to perform periodic safety review and prepare a periodic safety review report, which

shall be submitted to the VATESI for review and assessment. More detailed requirements to perform regular verification of safety (in-service inspection, surveillance, functional testing of systems, etc.) are stated in the nuclear safety requirements, which are indicated above in this section.

The legal provisions for continuous improvement in nuclear safety are stated in the Law on Nuclear Safety (Article 17, Paragraph 2, Subparagraph 2). Furthermore more detailed provisions for nuclear safety improvement are determined in nuclear safety requirements BSR-1.4.1-2010 "Management System Requirements" as well as in other.

### **Assessment and verification of INPP safety**

After approval of Decommissioning Projects for final shutdown and defueling phase of Unit 1 (Project U1DP0) and Unit 2 (Project U2DP0), INPP was obtained permissions for preparation and implementation of activities, related to decommissioning in both Units. Projects U1DP0 and U2DP0 were approved by the VATESI accordingly on 15<sup>th</sup> January, 2007 and on 3<sup>rd</sup> September, 2010.

Decommissioning Projects for final shutdown and defueling phase of INPP Units include safety analysis report for those phases, which aims are to show that during final shutdown and defueling phases, all decommissioning activities may be safely performed within the limits of the expanded operational licence.

The structure of safety analysis report for final shutdown and defueling phase is similar to the one of the existing safety analysis report for operation of INPP Units. Taking into account the analysis and justification of nuclear safety performed in the frame of decommissioning of INPP accordingly in 2007 and in 2010, the next periodic safety assessment will be carried out for Units 1 and Units 2 of INPP accordingly in 2017 and in 2020. Periodic safety assessment is planned for other nuclear installations and radioactive waste facilities as well. This position is included in conditions of licences for operation of corresponding nuclear installations and radioactive waste facilities.

Safety assessment of the INPP was performed initially by the designers of the INPP and was documented in so called "Technical Justification of Safety". The first in-depth safety analysis of the INPP using advanced international practice was completed and documented in Safety Analysis Report (SAR-1) in 1997. In-depth safety analysis for Unit 2 was finished in 2004. The Safety Analysis Report (SAR-2) for INPP Unit 2 was one of the key documents for obtaining the licence. The principal objectives of the report were to identify the current safety level of the Unit 2, to assess the factors that may affect its operating safety, and to recommend compensatory measures that would improve safety. SAR-2 and its review conclusions confirmed that the technical condition and operation of Unit 2 meet the key nuclear and radiation safety requirements set forth in standard documents of the Republic of Lithuania and international regulations. No major deficiencies were revealed that would necessitate shutting the Unit 2 down immediately or reducing its power.

Although presently the INPP is not operating, but prior to its decommissioning the operational maintenance and in-service inspection have to be carried out.

In compliance with the Quality Management Program and Documentation control system acting at the INPP all works related to maintenance, in-service inspection of structures, systems and components important to safety and ageing management are performed only on the basis and in accordance with documents, which are agreed with VATESI.

Regardless of facts that INPP Units 1 and 2 were finally shut down and configuration of its systems and components has been significantly altered, INPP has been further performing in-service inspections of fuel channels, piping metal condition and equipment of systems important to safety in accordance with the INPP Regulations ("Regulation Control of the Piping Metal Condition and Equipment of Systems Important to Safety in Unit-2 of the INPP with the RBMK-1500 Reactor" and "Regulation Control of Fuel Channels in Unit-2 of the INPP with the RBMK-

1500 Reactor in Pursuance Decommissioning Project”), agreed with VATESI. These regulations have been developed in accordance with the requirements for in-service inspection (PNAE G-7-008-89 and PNAE G-7-010-89), experience of in-service inspection in other nuclear power plants, and IAEA Safety Guide “Maintenance, Surveillance and In-Service Inspection of Nuclear Power Plants”, NS-G-2.6. These regulations determine requirements of in-service inspection (methods, frequency, volume and regions (places)) and assessment of results of performed in-service inspection for systems important to safety.

Every year the INPP prepares in-service inspection Programme of piping metal condition, equipment of systems important to safety and every two years the INPP prepares in-service inspection Programme of fuel channels on the basis of above mentioned Regulations. These Programmes have to be agreed with VATESI.

In-service inspections at the INPP are carried out by accredited Contractor organization. Staff of the INPP together with representatives of the Contractor performs technical verification of pressurized components (equipment and piping) important to safety. VATESI’s Surveillance Division performs appropriate regulatory oversight (technical inspections) of these activities. The technical verification comprises external and/or internal inspection of equipment and piping, checking of parameters that prove the compliance of pressurized components with safety requirements, testing of the components and other actions aimed at assessing their adequacy in terms of safety.

Operational staff of INPP performs maintenance during walk down with control condition of equipment and rooms. Also INPP staff carries out the diagnostic activities of system and components, vibration and failures analysis of equipment, which are important to safety. The results of maintenance are the basis to prepare the plans for repair or replace the components, to carry out modifications.

The INPP has established and developed ageing management system and prepared ageing management programme according “Ageing Management Requirements of Systems and Elements important to safety of Nuclear Power Facilities, VD-E-05-99”. In accordance with VD-E-05-99, the INPP has prepared: ageing management programme of the INPP systems, structures and components important to safety; ageing management procedure; methodology for evaluation of the technical conditions and remaining life time of systems, structures and components important to safety; procedure for screening of systems, structures and components important to safety for the purpose of ageing management; list of the INPP systems, structures and components important to safety; schedule of evaluation of the technical conditions and remaining life time of systems, structures and components important to safety, which are included in ageing management programme.

The main task of the ageing management programme is to ensure reliable operation of systems and elements important to safety of nuclear power facilities. The INPP prepared ageing management programme ensures performance of following functions: general assessment of ageing process according design documentation requirements; timely assessment of systems and elements condition to ensure reliable operation of nuclear power facilities during design lifetime; timely detection of systems and elements degradation phenomena, including determination of unanticipated causes, their elimination and mitigation of consequences; performance of necessary modifications and change of operation conditions in order to mitigate degradation phenomena; assessment of residual service life of system and elements and planning of necessary measures.

It is continuous work and the INPP constantly provides analysis of the faults, the maintenance and in-service inspections programmes analysis to ensure the reliability of systems, structures and components important to safety and also after final shutdown of the INPP and before decommissioning, a post-service surveillance and testing programme be applied to detect and assess continuing ageing effects. This programme will be continuing as long as particular systems, structures and components of the INPP are required to remain operated and the decommissioning process has not been completed.

INPP activity for continuous safety improvement is based upon priorities to meet the modern requirements of national and international safety standards, upon results of the analysis, carried out in SAR-1, SAR-2 and regulatory review of SAR-1 and SAR-2 scope, also it includes additional calculations, implementation of VATESI guidelines, modifications, which improve the system reliability, thus providing the INPP safety. Managerially this activity is fulfilled within the framework of Safety Improvement Program SIP-1 (1993-1996), SIP-2 (1997-2004) and SIP-3 (2005 – 2014). The Safety Improvement Program SIP is reviewed annually and submitted to VATESI for approval. Regardless of the fact that INPP Unit 1 and Unit 2 are in permanent shut down, Safety Improvement program (SIP-3) is still in implementation. In response to the events at Japan's Fukushima Daiichi Nuclear Power Plant, the stress tests were performed in 2011 – 2012 at INPP according to ENSREG stress tests specification. The “stress tests” resulted some additional studies and assessments (for example, integrity of accident response centre during beyond design basis earthquake) as well as and a few hardware modifications, such as new measurement systems for the spent fuel pools.

### **6.3 Measures for prevention of accidents and mitigation of consequences of accidents**

The Law on Nuclear Energy and the Law on Nuclear Safety are the main documents which among other provisions establish the general requirements for the responsibility of the licence holder in the area of the prevention of accidents and mitigation of their consequences.

The Law on Nuclear Energy establishes the legal basis for the division of the responsibilities between the states institutions and persons (the licence holders) responsible for response to nuclear and radiological accidents, management of them and mitigation of their consequences (Article 38 of the Law on Nuclear Energy).

Article 3 of the Law on Nuclear Safety state that one of the basic principles for ensuring nuclear safety shall be as follows:

- the principle of accident prevention. Application of all rationally practicable measures preventing nuclear and radiological accidents and mitigating their consequences, if any;
- the principle of emergency preparedness and response. Measures that would secure preparedness and emergency response procedures in the event of nuclear and radiological accidents as well as in other situations posing radiation danger shall be applied.

The Law on Nuclear Safety establish the general requirements for the prevention of nuclear and radiological accidents and nuclear incidents and emergency preparedness. Pursuant to Article 35 of the Law on Nuclear Safety in order to prevent nuclear and/or radiological accidents, nuclear incidents and other unusual events as well as to avoid their reoccurrence and to secure and further improve safety in the area of nuclear energy, at all stages of a lifecycle of a nuclear installation the licence holder shall be required to regularly analyse its own or other persons that are engaged in the nuclear energy sector experience as well as to exchange such experience and take necessary preventive and/or corrective measures that would ensure proper performance of nuclear safety requirements in the manner prescribed by the regulatory body VATESI.

The regulations necessary to perform comprehensive and systematic safety assessments, including the verification of the measures for the prevention of accidents and mitigation of the consequences are established in VATESI nuclear safety requirements and nuclear safety rules that shall be mandatory to all persons (Article 5 of the Law on Nuclear Safety).

The main safety requirements, including requirements for the measures for preventions of accidents during the design stage and operation, as well as requirements for mitigation of consequences of accidents for the finally shutdown INPP are established in VATESI nuclear

safety requirements BSR-2.1.2-2010 “General safety requirements for NPP with RBMK-1500 reactors”. These requirements establish basic criteria and principles of safety, as well as main principles of safety for nuclear power plant design and operation for the nuclear power plants with RBMK-1500 type reactors.

The BSR-2.1.2-2010 establishes a necessity and obligates the licensee to implement the defence in depth concept at all stages of safety related activities. The implementation of the defence in depth concept is key element which ensures prevention and management of accidents, as well as mitigation of accidents consequences.

Pursuant to Paragraph 10 of the BSR-2.1.2-2010 the safety of a nuclear plant shall be guaranteed by applying of the principle of defence in depth, i.e. by the sequential implementation of protection measures based on a system of barriers to prevent the spread of ionizing radiation and radioactive materials to the environment, and systems of technical and organizational measures to protect these barriers and retain their effectiveness, and also to provide direct protection for the population. The system of barriers includes:

- the fuel matrix;
- the fuel cladding;
- the boundary of the primary coolant circuit;
- the hermetically sealed protective enclosure surrounding localizing safety systems.

The system of technical and organizational measures includes:

- the selection of an appropriate site for the nuclear plant;
- the establishment of a sanitary-protection zone and a monitoring zone around the plant;
- conservative approach to plant design incorporating fail-safe characteristics in the reactor itself and specific safety systems;
- assurance of quality of systems, components and structures of the plant and of all work carried out at the plant;
- nuclear plant operation in accordance with norms and technical requirements;
- maintenance of safety related systems in good operating conditions through the implementation of preventive maintenance measures and replacement of worn-out components;
- timely detection of defects, detection of any deviations from normal functioning, and implementation of measures to remove their causes;
- organization of an effective system for registration of the performance results and monitoring;
- implementation of measures designed to prevent initiating events from developing into design basis accidents, and design basis accidents from developing into beyond design basis accidents;
- mitigation of the consequences of accidents which could not be effectively forestalled through localization of the radioactive materials released;
- measures designed to protect localizing safety systems against destruction during beyond design basis accidents and to maintain them in a functional state;
- preparation, and proper implementation when required, of emergency plans for the site itself and the area surrounding the site;
- selection and training for the actions required in both normal and emergency conditions of operating personnel;
- development of safety culture.

Pursuant to Paragraph 147 of the BSR-2.1.2-2010 requirements, the principal document defining safe operation is the technical specification, which lays down main modes and functions of safe operation as well as general sequence the performance of all operations related to plant

safety, and specifies the limits and conditions of safe operation. The limits and conditions of safe operation shall be justified by design and/or other relevant documents. The technical specification shall be reviewed at least once per every three years and shall be endorsed by VATESI.

The limits and conditions of safe operation for INPP was set and justified in the technical safety justification prepared by the plant main designer. In the frames of comprehensive safety assessments, the limits and conditions of safe operation for INPP units were reviewed and their correctness was confirmed in the safety analysis reports of unit 1 and unit 2 of INNP.

As long as there is nuclear fuel in the reactor core of the unit 2 and in the spent fuel storage pools of the unit 1 and unit 2 of INNP, all decommissioning activities are to be carried out in accordance with the technical specifications of unit 1 and unit 2 of INPP respectively. These technical specifications determine the limits and conditions of safe operation, which are justified in unit 1 and unit 2 decommissioning safety analysis reports for final shutdown and defueling phases of INPP units.

Normal and emergency operating procedures are developed in accordance with the decommissioning safety analysis reports for final shutdown and defueling phases of INPP units and other documents, which justify safety during decommissioning activities of INPP units. Structures, systems and components important to safety of INPP are under supervision of operating organization in accordance with programs of maintenance required by the BSR-2.1.2-2010. These programs are adequate for current state of INPP.

Pursuant to Paragraph 147 of the BSR-2.1.2-2010 requirements, during the operation and decommissioning stages of NPP shall be prepared and ready to implement the emergency preparedness plan of NPP, which shall containing measures to protect personnel and the population in the event of an accident, including the radiation consequences of beyond design basis accidents.

Detailed requirements for the emergency preparedness and response, including the requirements for the emergency preparedness plan are established in VATESI nuclear safety requirements P-2008-01 "Requirements for emergency preparedness to the organization operating the nuclear facility".

Pursuant to Paragraphs 28, 29 and 30 of the BSR-2.1.2-2010 requirements, the licensee is obligated to prepare the list of beyond design basis accidents and to carry out the analysis of their consequences (covering radiation and nuclear effects, the functional capacity of safety systems, availability for future operation, and so on). The analysis of the consequences of beyond design basis accidents shall constitute the basis for the plans of emergency measures to protect personnel and the population, and for the development of special instructions to personnel regarding the management of such accidents.

In compliance with the BSR-2.1.2-2010 requirements, the licensee have developed and introduced at INPP guidelines for management of beyond the design basis accidents. These guidelines are adopted to the finally shutdown state of INPP and include additional safety improvements measures associated with post-Fukushima lessons learned, which were developed and introduced in the guidelines for management of beyond the design basis accidents after the stress tests conducted in 2011 – 2012 at INPP according to ENSREG stress tests specification. Implementation of several safety improvements measures related to the beyond the design basis accidents at INPP are on-going.

The draft regulation "Nuclear safety requirements. Design of Nuclear Power Plant" and other planned regulations in conjunction with The Law on Nuclear Energy and the Law Nuclear Safety will fully cover requirement set by Article 6.3 Council Directive 2009/71/EURATOM in case of build of new nuclear power plant.

## 6.4 National framework for management system

Pursuant to principles provided in Article 3 of the Law on Nuclear Safety effective administration and management with the view to secure safety shall be created and maintained by all persons related to the activities of nuclear installations. The highest priority in the management system of such persons shall be the assurance of nuclear safety.

The main legal provisions for licence holders to have management system are determined in the nuclear safety requirements BSR-1.4.1-2010 Requirements for the Management System. This document provides requirements on integrated management system, which gives due priority to nuclear safety in all stages in the lifetime of installation. The licence holder must ensure necessary financial, material, human and technical resources are in place as well as administration rules and technical requirements, scientific support and effective management system during all stages of lifetime of a nuclear installation also licence holder shall continuously monitor and improve nuclear safety. According to the BSR-1.4.1-2010 licensee by developing management system shall consider application of the IAEA recommendations published in the IAEA guides on management systems. The BSR-1.4.1-2010 establishes requirements for implementation and continuous improvement of the integrated management system based on IAEA Safety Standard the Management System for Facilities and Activities, GS-R-3 and includes requirements such as:

- periodically assess, monitor and continuously develop safety culture;
- to establish and constantly update management system documentation, and manage changes to the documents and identify the changed content within the documents;
- to approve safety as the top priority and the related commitment of management of a licence holder;
- to take into account requirements of interested parties during establishment and development of the management system, in decision-making process and in activities of a licence holder;
- to identify clearly responsibilities and roles of all employees for safety, implementation of the system requirements and adherence to safety and other legal requirements;
- to plan and ensure necessary human, financial and other resources necessary to ensure safety and implement goals and commitments of a licence holder;
- to identify, implement and improve processes with strict and systematic consideration of safety and other requirements when establishing processes and their interactions so the applicable legal requirements and standards are implemented in a safe and proper way;
- to ensure proper cooperation of management levels and different divisions for safe and effective performance;
- to apply reliable control mechanisms over activities performed by safety important contractors and still to retain the ultimate responsibility of a licence holder for safety;
- carefully prepare, plan, implement, monitor, adjust organizational changes and assess them after implementation to preclude deterioration of safety;
- to apply sufficient measurements, monitoring, control and checking activities and needed methods to ensure high level of safety, identification and following-up of needed improvements and effectiveness of the management system;
- to apply management self-assessment through all levels of management and to use the results to improve safety, safety culture and activities;
- to apply independent assessments and audits as an additional mechanism to proactively resolve safety issues and retro-actively identify needed corrections and opportunities to improve processes, the management system and (or) their documents;
- periodically perform comprehensive management reviews of the management system and to plan continuous improvement and resources to implement improvement activities.

## **Main features of the licence holder's management system**

To ensure safety in continuous and reliable way and to implement nuclear safety requirements the INPP has established Integrated Management System (IMS) and identified safety requirements to be followed in all activities of the INPP, established necessary organizational structure and performs internal safety oversight activities, including independent assessments. Safety related activities at the INPP are planned in advance. Precautionary measures for routine jobs are included in work instructions.

The INPP's integrated management system provides a single framework for the arrangements and processes necessary to address all the goals and objectives of the organization. These goals and objectives include safety, quality, environmental, health, security and economic elements and other considerations such as social protection.

The application of the IMS requirements is graded so as to deploy appropriate resources, on the basis of the consideration of the significance and complexity of each product or process, the hazards and the magnitude of the potential impact associated with the safety, health, environmental, security, quality and economic elements of each product or process and the possible consequences if a product fails or a process is carried out incorrectly.

Senior Management of the INPP is ultimately responsible for the IMS and shall ensure that it is developed, implemented, assessed and continually improved in accordance with the established requirements and objectives. Within the INPP organization this function is assigned to Audit, Safety and Quality Management Department (hereinafter, AS&QMD). This is an organizational unit, which is independent from other functions and reports directly to Director General of the INPP.

The INPP IMS documentation structure is provided in Annex VI. The IMS Manual is Level 1 document applicable to development, implementation, assessment and continual improvement of the IMS. It provides vision, mission and objectives of the organization, organizational policies, organizational structure, levels of authority and responsibilities and accountabilities of the Senior Management and organizational units, the IMS documentation structure, an overview of the IMS processes, responsibilities of the process owners and arrangements for measuring and assessing the IMS effectiveness.

All these processes are described in Level 2 documents (hereinafter, IMS procedures). The IMS procedures are documented process descriptions and provide specific details on which activities shall be performed and which organizational units shall carry them out so as to meet the general requirements specified in the IMS Manual.

The typical contents of Level 2 documents include:

- the purpose and scope of application;
- the authorities and responsibilities of the managers and process owners for the activities (sub-processes) described within the IMS procedure;
- information on how these activities shall be conducted, including planning, performance, control and improvement considerations (process inputs/outputs, interfaces and communications, key performance indicators, measurements, analysis, corrective/preventive actions, improvements, decision-making);
- documents and records required to permit the activities; records to be retained after they have been completed;
- references to the IMS Manual and other IMS documents as appropriate.

Level 3 documents are detailed working procedures; they are developed in accordance with the requirements specified in the IMS procedures and prescribe the specific details for the performance of tasks by organizational units or individuals.

Level 4 documents are records stating objective evidence of activities performed or results achieved.

The AS&QMD Manager in the capacity of the Senior Management Representative has the specific authority and responsibility for coordinating the IMS development, implementation,



assessment and continual improvement. The personnel of this department are appropriately trained and qualified to conduct the tasks.

An independent audit and review system is established to monitor and evaluate safety performance. Corrective actions are reviewed and assessed prior and after their implementation whether they adequately address the issues identified during audits and reviews. A number of peer reviews (ASSET, OSART and WANO) have been conducted in the past to provide an independent judgment on the effectiveness of the safety management system.

The configuration management program is established and implemented at the plant. A program controls plant modifications, including those of a temporary nature.

A program for ageing management is in place. The physical degradation phenomena, including degradation caused by the various activities of operation, surveillance and maintenance, are analyzed.

Root Cause Analysis is performed for the events reported. Event evaluation reports have to be completed within one month after the event.

### **Regulatory review and control activities**

The regulations for issuing licences and permits for nuclear power facilities and activities require applicants to submit to the VATESI to review and assess such documents as:

- procedures for selection, training and certification of the employees and improvement of their qualifications;
- description of means for safety culture development;
- documentation of 1<sup>st</sup> and 2<sup>nd</sup> level of management system;
- description of organizational structure;
- procedures related to selection, approval and control of suppliers and quality assurance of safety-important products, services and works;
- description of measures for employment of operational experience.

The INPP's management system documents, reports of audits, including those performed at contracted organizations, reports on safety issues, reports on safety culture monitoring, assessment and carried out surveys, the documentation of modifications' to the nuclear installations including organisational changes whether they comply with legal acts and potential risks on safety are evaluated and properly managed are submitted to VATESI for regulatory review.

During other regulatory oversight activities, e.g. inspections, VATESI specialists analyze and inspect management system's documents related to the particular activity or safety issue. When needed, inspectors of the VATESI require to improve activities or to make necessary corrections in the INPP management system's documents and (or) practice. The VATESI performs the inspections of the activities of the INPP related to conducting the audits at the contractors' organizations involved into the INPP's decommissioning projects. The goal of such inspection is to ascertain how the INPP is performing the assessments (audits) of the management systems of the suppliers that are relevant to safety and of the capability of these suppliers to meet the requirements of the procurement documents.

## **6.5 Financial and human resources**

### **Financial resources**

Pursuant to Paragraph 1 of Article 23 of Law on Nuclear Safety the licences and permits shall be issued to persons with sufficient capacities in terms of technological and financial resources, management system, human resources allowing to properly fulfil the conditions required by the licence or permit and to ensure nuclear safety.

Article 17 of Law on Nuclear Safety imposes a requirement that organisations operating nuclear installations must have the material, financial and human resources that are sufficient for ensure nuclear safety in compliance with the legal acts and technical standard documents of nuclear safety.

After final shutdown of the INPP in December 2009 up to present, the following parties take part in financing of the INPP maintenance and decommissioning:

- European Community under the Ignalina Programme (IP);
- INPP Decommissioning Fund (DF);
- INPP own means (INPP);
- Ignalina International Decommissioning Support Fund (IIDSF);
- Lithuanian Republic budget (LR).

The Ignalina Programme is financed by the European Union budget. The Ignalina Programme was created under Protocol 4 of the Act of Accession of Lithuania into the European Union in order to provide assistance for the decommissioning of INPP (including radioactive waste management) and consequential measures in the energy sector. The funding for Ignalina Programme is based on annual commitments. Therefore a radioactive waste management project which lasts more than 1 year will be financed from funding commitments accumulated in several years.

The INPP Decommissioning Fund is accumulated in the special Treasury Account and contains funds that have been transferred by INPP as part of their revenue earned from electricity sales. Since Unit 2 of INPP was shut-down on 31 December 2009, payments to the Fund ceased. Starting from 2014, all the INPP revenue earned from sales of redundant assets are allocated to the Fund.

The Ignalina International Decommissioning Support Fund contains contributions of the donors, where the main contributor is the European Commission. The European Bank for Reconstruction and Development is the administrator of the fund, while the governing body is the Donors Assembly.

New radioactive waste management facilities, which are or will be built as part of the INPP decommissioning process, are being financed by the Ignalina International Decommissioning Support Fund, Ignalina Programme and co-financed by the INPP Decommissioning Fund or State budget. Annual planned and actual INPP expenses financed from the sources above are shown in tables below.

Table 1 Actual INPP expenses financed from the sources of the INPP maintenance and decommissioning

Expense item	2010		2011		2012		2013		2014
	Plan (Ths Lt)	Fact (Ths Lt)	Plan (Ths Lt)	Fact (Ths Lt)	Plan (Ths Lt)	Fact (Ths Lt)	Plan (Ths Lt)	Fact (Ths Lt)	Plan (Ths Lt)
Working expenses	138016	126469	129251	115762	127268	117059	128289	124475	133776
Utilities	87287	68003	87432	63118	66291	63074	72738	59549	62845
General expenses	3502	1663	2103	1359	1658	1332	1411	1226	1366
Works & Services	37007	42915	79951	41122	65594	37713	52797	33780	39476
Equipment & Supplies	18125	5082	23335	5666	31494	9984	28738	9518	18909
Taxes	10988	10287	445	255	967	214	3747	740	1289
Decommissioning projects	190954	122638	350892	91502	235147	34013	300112	146083	203267
<b>Total</b>	<b>485879</b>	<b>377057</b>	<b>673409</b>	<b>318784</b>	<b>528418</b>	<b>263390</b>	<b>587831</b>	<b>375371</b>	<b>460928</b>

Table 2 Sources of the INPP maintenance and decommissioning

Source	2010		2011		2012		2013		2014
	Plan (Ths Lt)	Fact (Ths Lt)	Plan (Ths Lt)	Fact (Ths Lt)	Plan (Ths Lt)	Fact (Ths Lt)	Plan (Ths Lt)	Fact (Ths Lt)	Plan (Ths Lt)
IP	235299	196710	269209	161607	221273	167384	219913	180940	193268
DF	61148	42398	27595	23557	30943	25738	30008	26604	26364
INPP	0,00	8588	39220	20822	12981	6704	15526	4712	5280
IIDSF	157682	98631	311093	91332	239091	42111	293911	139423	208973
LR	31750	30730	26292	21466	24131	21453	28473	23692	27043
<b>Total</b>	<b>485879</b>	<b>377057</b>	<b>673409</b>	<b>318784</b>	<b>528418</b>	<b>263390</b>	<b>587831</b>	<b>375371</b>	<b>460928</b>

It was planned that about 80% of total annual decommissioning expenses would be covered by European funds, the rest – by Lithuanian ones.

The negotiations regarding the amount of financial support to be provided in respect of INPP decommissioning during the period of 2014 – 2020 are finished. Council of the European Union adopted regulation on Union support for the nuclear decommissioning assistance programme in Lithuania on 13 December 2013. The financial envelope for the implementation of the Ignalina programme for the period 2014-2020 is set at EUR 450.8 million at current prices. Lithuania contributes 12 percent of the funds required for the Ignalina Programme. The funding (both from the EU and national sources) is sufficient to continue decommissioning of INPP and ensure safe management of radioactive waste and spent nuclear fuel. The EU budget is programmed for 7 years cycles. Following the budgetary rules of the EU and taking in to account provisions of the Treaty of Accession of Lithuania into the European Union, amount and scope of financial assistance for INPP decommissioning and radioactive waste management after 2020 is subject to negotiations between Lithuania and the European Commission.

### Processes to Assess Financial Provisions

Ministry of Energy executes control over financing of the INPP, assigns an independent auditor to review financial documentation of the INPP, and approves financial results of the INPP.

Director General of the INPP is responsible for safety and activities of the INPP and implements decisions regarding activities of the INPP and its decommissioning taken by the Parliament (Seimas), the Government, Ministry of Energy and Management Board, formed by Ministry of Energy.

During the process for confirming the adequacy of applicant's financial resources VATESI verify the applicant's financial capacity in the Register of Legal Entities (Paragraph 23.1 of The Rules of Procedure on Issuing of Licences and Permits in the Area of Nuclear Energy).

### Human resources

According to the requirements of VATESI licensee shall prepare and approve list of safety related staff, specifying the job, competence requirements and the required minimum number of employees, also licensee shall have a long-term plan of obtaining employees.

If the licensee intends to change the organizational structure or the number of employees, this change shall be implemented as a modification with the relevant safety justification and shall be approved by VATESI (also see Section 7 of this report).

## Article 7

### 7. Expertise and skills in nuclear safety

#### National level

The National Energy Strategy, approved by Resolution No. X-1046 of the Seimas of the Republic of Lithuania dated 18 January, 2007, provided that „It is necessary to draft a national programme for the training of energy specialists and specify therein the tasks for organising the studies, the quality of the study programmes and the maintenance of the material base of the institutions organising studies by taking into consideration new needs and sources of financing. When drafting and implementing this programme, national priority has to be given to ensuring the timely preparation of specialists for work in the new nuclear power plant regarding the phase of mounting its technological equipment.”

To address future workforce demand and the quality and quantity of nuclear education the National plan for preparation of the nuclear energy specialists was approved by the order of Ministry of Energy and Ministry of Education and Science No.V-906/1-133 on 25 May, 2011.

Ministry of Education and Science of Lithuanian Republic is responsible for implementation of The National Training Programme of Qualified Specialists in Nuclear Energy for 2008–2015. The Program is intended to provide the Lithuanian nuclear energy infrastructure with highly skilled nuclear professionals. The aims of the Program are to ensure the effective preparation of highly qualified nuclear energy specialists for VNPP and the entire nuclear industry and further develop nuclear knowledge, experience and practical, educational and scientific excellence.

In order to achieve this objectives three study programs were started:

- The Study of Physics of Energy at Vilnius University;
- Graduate (bachelor) Study of Nuclear Energy at Kaunas Technological University;
- Postgraduate (master) Studies of Nuclear Energy at Kaunas Technological University.

About 115 students are studying according these programs at present.

The goal of Nuclear Energy Physics study program – to prepare highly qualified nuclear physicist with expert knowledge in nuclear physics, neutron physics, nuclear reactors physics, radiation chemistry, nuclear material physics, nuclear fuel cycle, radiation ecology and safety, materials science, and to provide necessary university education in social and the human sciences.

The main purpose of Graduate and Postgraduate Studies of Nuclear Energy is to provide general technical and special nuclear energy education. During these studies students gain essential knowledge on fundamental theories and principles of physics, necessary for further development of nuclear power engineering and manufacturing companies.

It is expected that after implementation of the Programme about 30-50 highly skilled nuclear energy specialists and nuclear physicists will be prepared each year. Also about 100 specialists will be retrained and improve their professional skills and will be certified annually.

#### Licence holders

The activity related to the management of personnel at INPP is regulated in accordance with the Human Resources Management Procedure Description MS-2-014-1.

Qualifications required for the personnel ensuring safety of the nuclear facility, are established by the operating organization. Analysis of functions and duties of the personnel, who is responsible for safety of nuclear facility, are being performed in order to define qualification criteria for the personnel. The results of such analysis are included into the job description.

The work with the personnel is planned and systematically conducted taking into consideration the need of the personnel for initial and continuous training and certification of the personnel.

To maintain the necessary knowledge the personnel have periodical briefings.

In the INPP initial training is conducted in the following sequence:

- After the corresponding procedures are performed in Personnel Department the employee's manager shall perform the initial on-job instructing of the employee;
- Training Subdivision (TS) instructors determine the knowledge level and skills of a trainee by interview or written test in the presence of the trainee's manager;
- On the basis of the results and in accordance with the approved general training programme for a position, TS develops the individual training programme for the specific employee;
- Upon passing all training stages in accordance with the individual programme the employee shall take internal exam at the TS or at his shift (for operating personnel);
- In case of the positive result of the internal exam the employee shall go through position qualification approval procedure.

After the initial training is completed the employee on the basis of the qualification committee conclusion is allowed to work under supervision of the experienced employee (for operating personnel) and/or independent work.

Training of the personnel consists of the theoretical training and on-job training (probation). Number of the theoretical training items and their contents is specified in accordance with the specific activities performed at the INPP. Theoretical training for the personnel is performed by the TS instructors or the relevant experts of the INPP departments as group courses or individual training.

On-job training (probation) is used to acquire practical skills and attitudes in site and is conducted by the on-job instructor. During probation period employees study and apply in their work areas the actual rules, required standards, job descriptions and operation manuals in accordance to obtain experience for proper, safe and effective work. At the end of the on-job training (probation) and before the qualification by the appropriate qualification committee the employee's practical skills are checked.

The purpose of continuous training is to maintain and further improve knowledge, skills and attitudes. Job proficiency maintenance training includes:

- Training in TS or in other training institutions;
- Periodic instructions;
- Studying of industry and in-house experience;
- Qualification in the form of periodic knowledge check-up and re-qualification;
- Performance of required practical exercises and drills (emergency and fire protection training);
- Studying of modifications.
- Qualification improvement includes:
- Qualification and enhancing of professional competence level via special courses at TS or other organizations in Lithuanian and abroad;
- Experience exchange activities implemented in co-operation with other NPPs.

During continuous training the Main Control Room (MCR) staff solves the follow main tasks:

- Maintaining of the basic knowledge scope at the proper level;
- MCR staff training with respect to the diagnostics skills and emergency situation mitigation;
- Complex training on the basis of modifications performed;
- Training of organizational and managerial skills;
- Training of operative work skills;

- Improvement of team work methods.

Within the frames of personnel continuous training the annual sessions are arranged with lectures, seminars and practical exercises in the trainee's work area. Continuous training for the maintenance personnel includes:

- General and special preparation requirements for a particular task;
- Practical training to apply equipment maintenance procedures and to exchange experience;
- Periodical and additional instructions on modifications in technological processes and (or) equipment, including the additional requirements regarding repair technique and instructions before a major repair;
- May include courses at other educational institutions in Lithuania and abroad.

The system of personnel training consists of the following parts:

- training under the programme;
- certification;
- development of the means for technical training aid and its support with relative organizational, training documentation, methodologies, technical and operational documentation;
- recording and archiving documentation on training of personnel.

Maintenance and technical support personnel at the INPP is trained using initial training and continuous training. To provide proper qualification and competence of the personnel a systematic approach of training is used on different stages of training.

In the process of probation an employee shall study and use rules, norms, job and operating descriptions at the workplace to the extent required in the job description, and gain experience in provision of accident-free, safe and efficient operation of the equipment maintained.

After the on-job training and prior to certification in certifying commission the examination of practical skills is performed. The trained employee shall be certified for position in the corresponding certifying commission.

The continuous training of personnel includes:

- professional improvement during advanced training courses and special purpose training courses under the training programs;
- training for promotion of employee's category of proficiency;
- periodical and supplementary briefings intended to introduce changes of technological processes of equipment repair and supplementary requirements to repair technology, as well as ad hoc briefings prior to performance of repair works;
- trainings during implementation (application) of new materials, equipment, technologies, procedures and training on practical experience in performance of repair works at NPPs with RBMK type reactors;
- maintenance of required practical skills for performance of operational tasks prior to commencement of works;
- self-study (for managers and specialists).

Training of INPP personnel is performed according requirements for a particular position (e.g. periodic training to re-approve compliance to the qualification requirements of a safety important position), need to prepare for new activities or tasks of a division, other needs identified by a manager and discussed with an employee during annual individual appraisal meetings. TS support managers of departments as an internal provider of training and, when needed, help to find and organise external training according the established needs. TS continuously assess effectiveness of training, develops new programmes and training tools to support implementation of plans of INPP (e.g. to prepare new mock-ups for training on dismantling of contaminated equipment). TS work with line managers to establish training needs, assess training results after a

trainee has worked for some time after the training.

TS also performs analysis of operational experience feedback (OEF) lessons, organises training for TS specialists and makes practical observations of the related tasks to improve training content and methods.

### **Regulatory authority**

Pursuant to Paragraph 1 of Article 24 of Law on Nuclear Energy, “State Nuclear Power Safety Inspectorate shall employ qualified personnel with experience and special knowledge necessary to perform functions of this institution, based on the qualification, education and other criteria established for certain positions. State Nuclear Power Safety Inspectorate shall build and further develop such competences of the employees of State Nuclear Power Safety Inspectorate which would allow drawing conclusions regarding the safety level of operation of nuclear installations and other activities involving nuclear materials and the nuclear fuel cycle materials and (or) other activities in the area of nuclear energy involving sources of ionising radiation and the compliance of such safety level with the requirements set forth in the legal acts and technical standard documents, also adopting the required decisions in the area of regulation.”

Procedures for training of VATESI personnel are established in its quality management documents. The established training methods are: formal training (courses, workshops), introductory training of public servants, initial internal training, lecturing by VATESI employees, self-study and work with more experienced specialists. Major part of courses and workshops related to the nuclear safety of nuclear installations are the ones organized by IAEA.

The procedure for analysis of training needs and organizing different types of training events is as follows:

- each employee of VATESI is required (by their job description) to meet and further develop the qualification needed for properly carrying out their functions;
- the need for training (improvement of qualification) is evaluated in the beginning of every year during annual evaluation of civil servants. The main aspects considered during evaluation and establishment of training needs (improvement of qualification) are priority of safety, promotion of safety culture, experience, present and required knowledge of the employee, needs of licensees (e.g. fields in which the highest number of consultations were needed), latest regulation practices and etc.;
- based on above mentioned evaluation, Annual plans for improvement of qualification are drafted and carried out.

## **Article 8**

### **8. Information to the public**

Pursuant the Law on Provision of Information to the Public of the Republic of Lithuania and other legal acts VATESI and the licence holders must inform both the state and municipal institutions and the general public as well as other persons whose business activities are directly related to the licenced activities of a relevant licence holder about the conditions of nuclear safety.

#### **Information and communication in the field of competence**

According to the ENSREG Draft Guidance for National Regulatory Organisations Principles for Openness and Transparency, VATESI is developing open communication tools to

ensure transparency. The ongoing dialogue and interaction with main licensees and other stakeholders are the main priorities in daily communication tasks.

Annually VATESI issues report on the activities of regulation in nuclear safety, presents this report to the President, the Government and the Parliament and provides information to the local authorities, international organisations and the general public. Also VATESI specialists proactively participate in different workshops and conferences to share information about relevant nuclear safety issues in Lithuania and worldwide.

While implementing delegated supervision functions VATESI provides public consultations to the legal entities that submitted written questions or provides public consultations on its own initiative. The procedure of public consultations is outlined in Nuclear Safety Requirements BSR-1.1.2-2011 “Rules on providing confirmed written and publicly announced consultations”. Information meetings or consultations in informal manner with licensees help to promote dialogue and more favourable working environment with high degree of transparency. It is important to add that INPP and VATESI managers have quarterly meetings to discuss about relevant nuclear safety issues.

Accessible website [www.vatesi.lt](http://www.vatesi.lt) for general public and the licensees is in place. On this website licensees can find comprehensive information on all aspects of regulatory decisions. Website includes information on specific events and unusual incidents, annual VATESI and national reports, press releases, relevant guidelines and legislation, information about main VATESI activities and performance indicators. Up to date information on electronically basis provided in Lithuanian and English languages. General public and media inquiries are handled in a timely manner. Information and documents are being made public according to national legislation regulating restricted information. Public opinion surveys regarding nuclear safety issues were organised by VATESI in 2009 and 2011.

### **Arrangements for providing information in emergency situations**

Arrangements have been made for providing useful, timely, truthful, consistent and appropriate information to the public in the event of a nuclear or radiological emergency.

The State Emergency Management Operation Centre is responsible for providing information to public in case of emergency. The State Emergency Management Operation Centre shall activate the Press Centre in the Press Service of Government of Republic of Lithuania or in Fire and Rescue Department. In case of an emergency State and municipality’s institutions, public offices and citizens is notified using existing public warning and notification system.

In 1994 Lithuania has joined Convention on Early Notification of a Nuclear Accident and in 2000 to Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. According to Resolution No 972 of the Government of the Republic of Lithuania on 13<sup>th</sup> October 1994 VATESI is responsible for implementation of Article 7 and provision of information to IAEA and neighbouring countries according Article 5 of Convention on Early Notification of a Nuclear Accident. According to Resolution No 1168 of the Government of the Republic of Lithuania on 29<sup>th</sup> October 2005 Fire and Rescue Department is responsible for implementation of Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. According to the IAEA EPR-IEComm manual, VATESI is National Warning Point (NWP), National Competent Authority for events abroad NCA(A) and Fire and Rescue Department – National Competent Authority for domestic events NCA(D). VATESI is also a contact point and competent authority in ECURIE arrangements.

Government of Republic of Lithuania has signed of the relevant international agreements with neighbouring countries and other States in the field of cooperation on assistance in case of various types of emergency situations (see Annex V).

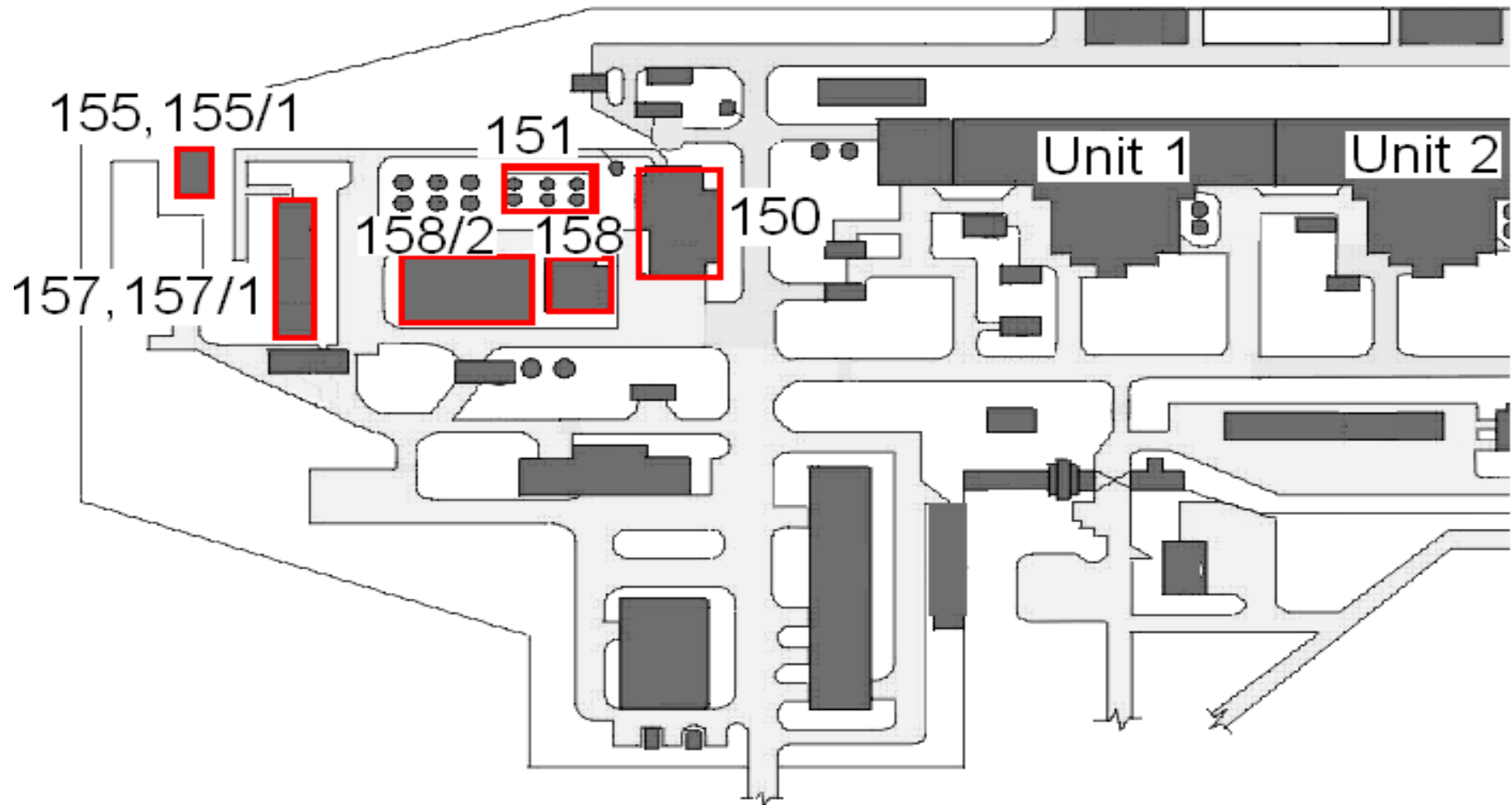


# ANNEXES

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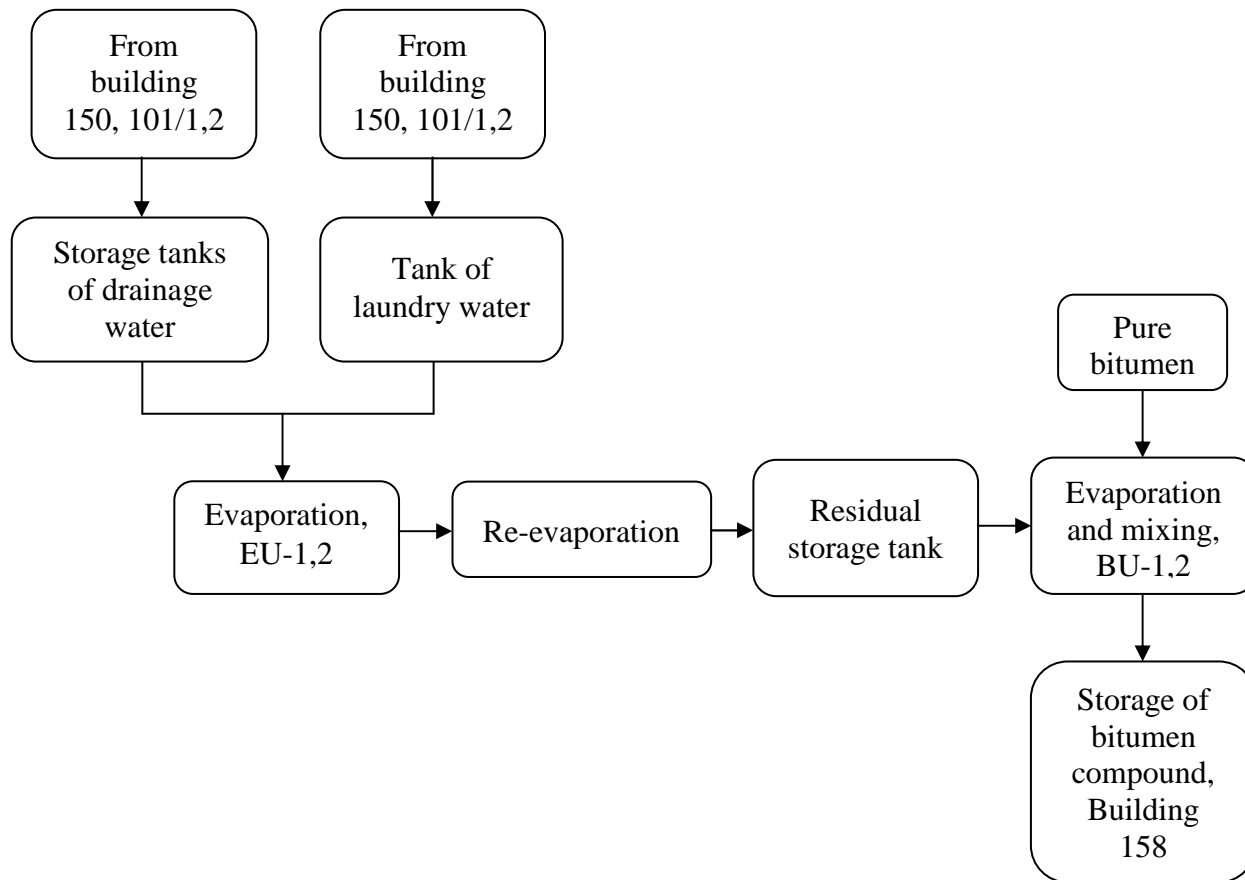
## Annex I

### Layout of radioactive waste facilities at INPP



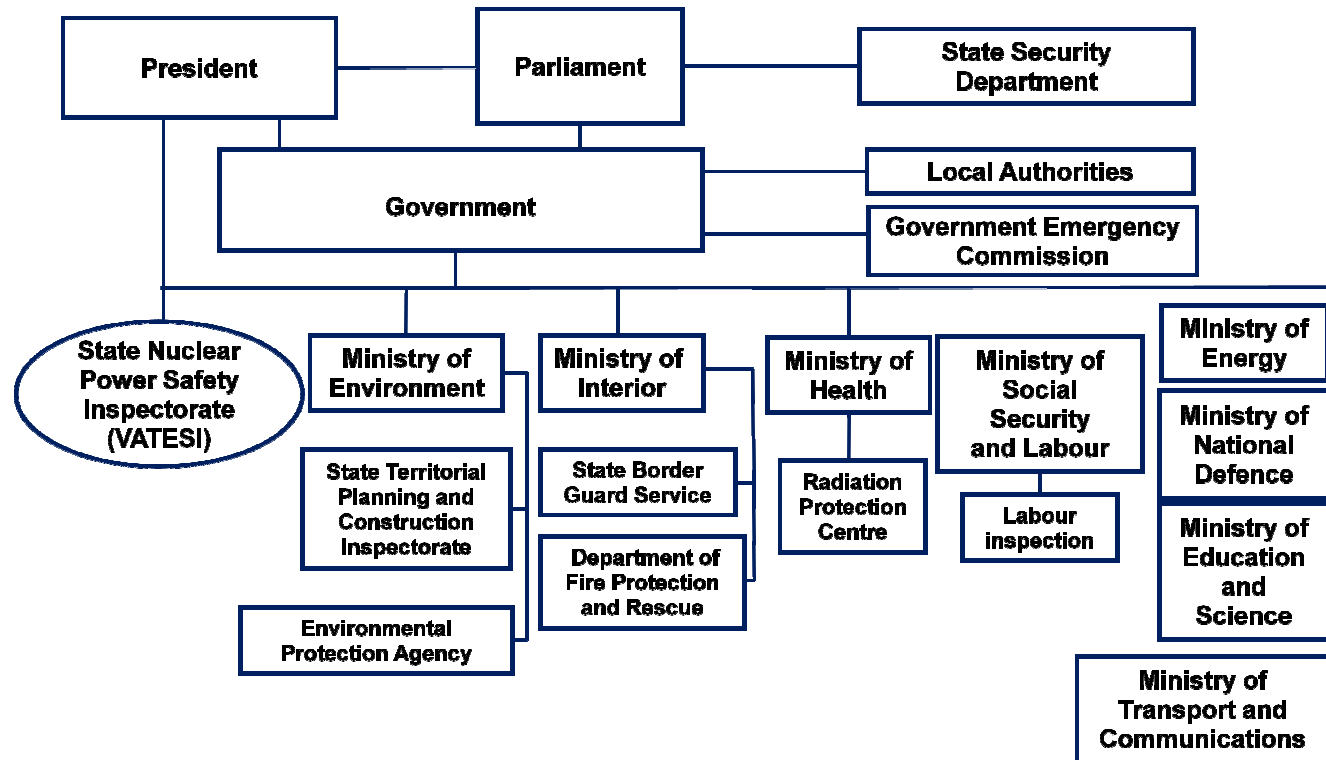
## Annex II

The process of the collection of the liquid radioactive waste and the following bituminisation at INPP



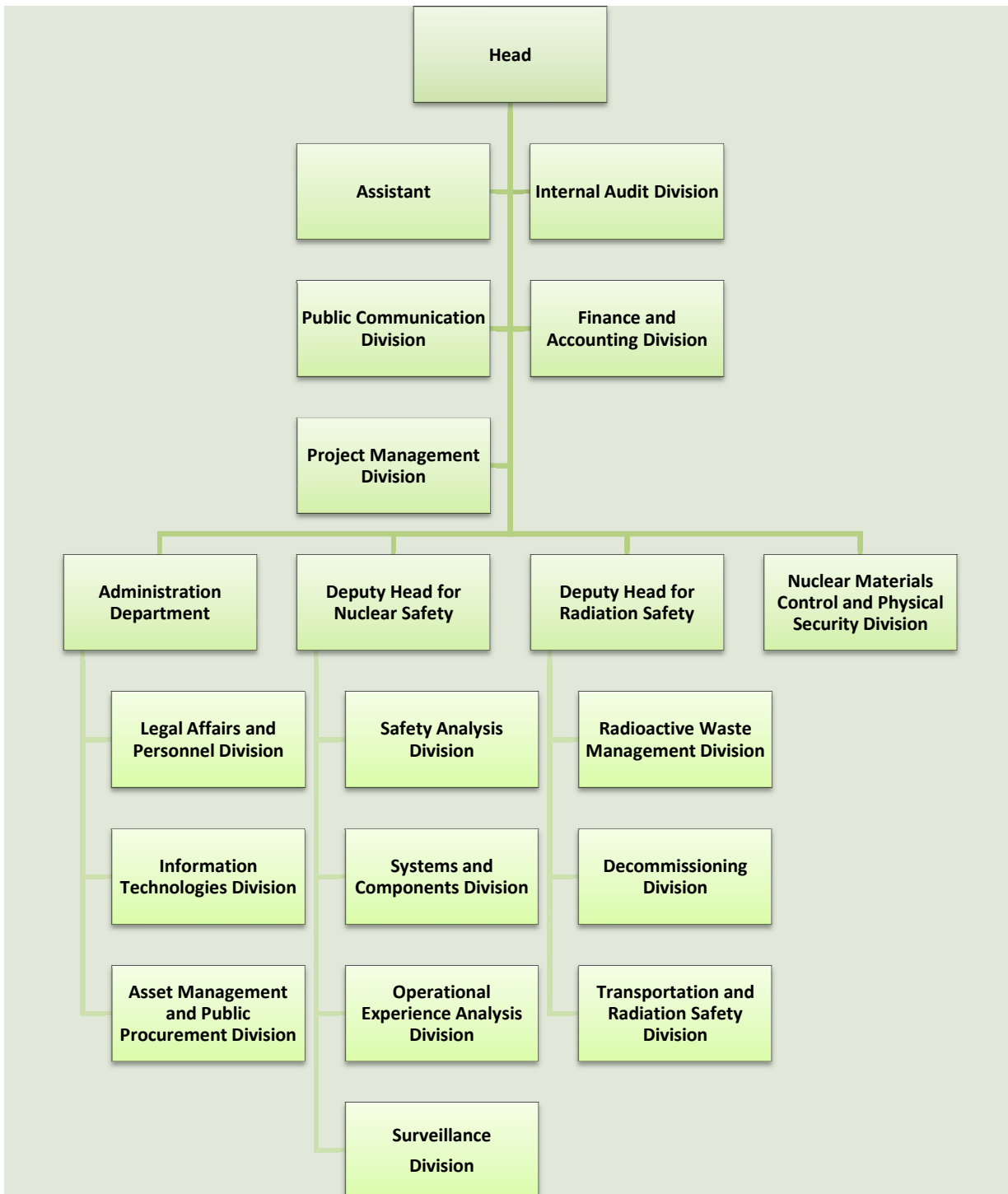
## Annex III

### Lithuanian governmental infrastructure for regulation of nuclear power



## Annex IV

### Organizational Structure of State Nuclear Power Safety Inspectorate (VATESI)



## Annex V

### Multilateral international treaties and conventions and treaties with international organizations

- Convention on Nuclear Safety, entered into force on 24th of October, 1996;
- Joint Convention On the safety of spent fuel management and on the safety of radioactive waste management, entered into force on 14th of June, 2004;
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency 1986, entered into force on 22nd of October, 2000;
- Convention on environmental impact assessment in a transboundary context (ESPOO), 1991, entered into force on 11th of April, 2001;
- Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, entered into force on 27th of July, 2000;
- International Convention for the Suppression of Acts of Nuclear Terrorism, 2005, entered into force on 19th of August, 2007;
- Treaty on the Non-Proliferation of Nuclear Weapons (NPT), 1968, entered into force on 23rd of September, 1991;
- The Comprehensive Nuclear Test Ban Treaty, 1996;
- European agreement concerning the international carriage of dangerous goods by road (ADR) 2003, entered into force on 1st of January, 2003;
- Memorandum of Understanding (Version Ronne, 25 to 27 August 1998) for the Transport of Dangerous Goods in ro-ro Ships in Accordance with the International Maritime Dangerous Goods Code (IMDG Code), the Requirements of the Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID) and the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR), 1998, entered into force on 20th of June, 2002;
- Vienna Convention on Civil Liability for Nuclear Damage, 1963, entered into force on 15th of November, 1992;
- Convention on Physical Protection of Nuclear Material, 1979, entered into force on 6th of January, 1994;
- 2005 July 8th Amendment to the Convention on the Physical Protection of Nuclear Material;
- Convention on Early Notification of a Nuclear Accident, 1986, entered into force on 17th of December, 1994;
- Convention on access to information, public participation in decision-making and access to justice in environmental matters, 1998, entered into force on 28th of April, 2002;
- Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention, 1988, entered into force on 20<sup>th</sup> of December, 1993.
- Signed, not ratified:
- Convention on Supplementary Compensation for Nuclear Damage, 1997;
- Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage, 1997 (Signed, not ratified).

### Cooperation agreements with IAEA in area of Nuclear Power

- Membership in IAEA – 18th November 1993;
- NPT related agreement, INFCIRC/413, entered into force 15th October, 1992;
- Additional Protocol, entered into force 5<sup>th</sup> July 2000;
- Improved procedures for designation of safeguards inspectors (accepted);
- Agreement between the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, Ireland, the Italian Republic, the Grand Duchy of

Luxembourg, the Kingdom of the Netherlands, the European Atomic Energy Community and the International Atomic Energy Agency in implementation of Article III (1) and (4) of the Treaty on the non-proliferation of nuclear weapons (78/164/Euratom) 1978, entered into force 21st of April, 2007;

- Additional Protocol to the Agreement between the Republic of Austria, the Kingdom of Belgium, the Kingdom of Denmark, the Republic of Finland, the Federal Republic of Germany, the Hellenic Republic, Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the Portuguese Republic, the Kingdom of Spain, the Kingdom of Sweden, the European Atomic Energy Community and the International Atomic Energy Agency in implementation of Article III(1) and (4) of the Treaty on the Non-proliferation of Nuclear weapons (notified under document number COM(1998) 314) (78/164/Euratom), 1998, entered in force 1st of January, 2008;
- Supplementary agreement on provision of technical assistance by the IAEA, entered into force 22th February 1995;
- Agreement on the Privileges and Immunities of the IAEA, 1959, entered into force 28th of February, 2001.

#### Bilateral Agreements

- Agreement for the Exchange of information and co-operation of nuclear and Radiological safety area between the Government of the Republic of Lithuania and Kingdom of Denmark, came into force on March 16th, 1993 (Official Gazette, 1995, No. 37-919);
- Agreement on early notification of nuclear and Radiological Emergencies between the Government of the Republic of Lithuania and Government of the Republic of Poland, came into force on December 18th, 1996 (Official Gazette, 1997, No. 55-1262);
- Agreement on early notification of nuclear accidents and on the exchange of information on nuclear facilities between the Government of the Republic of Lithuania and the Government of the Kingdom of Norway, came into force on January 14th, 1998 (Official Gazette, 1997, No. 109-2760);
- Target Agreement between the German and Lithuanian party on Methodology transfer for the preparation of NPP decommissioning for leading personnel of the Ignalina NPP and for representatives of Lithuanian authorities, came into force on February 21st, 2002;
- Agreement on early notification of nuclear and Radiological Emergencies between the Government of the Republic of Lithuania and Government of the Republic of Latvia, came into force on October 3rd, 2003 (Official Gazette, 2004, No. 30-972);
- Accession agreement to the ESARDA Agreement No. 22613-2004-12 SONEN ISP BE, signed on October 17th, 2005;
- Agreement on early notification of nuclear and Radiological Emergencies between the State nuclear power safety inspectorate of the Republic of Lithuania and the Swedish Radiation Safety Authority of the Kingdom of Sweden, signed on December 28th, 2008;
- Arrangement between the Lithuanian State nuclear power safety inspectorate (VATESI) and the United states nuclear regulatory commission (NRC) for the Exchange of technical information, signed on September 23rd, 2010;
- Arrangement between State Nuclear Regulatory Committee of Ukraine and State Nuclear Power Safety Inspectorate of Republic of Lithuania for the Exchange of information and cooperation in the matters of regulation of usage nuclear energy for peaceful purposes, signed on December 3rd, 2010.



## **Annex VI**

### **Integrated Management System documentation structure of Ignalina NPP**

