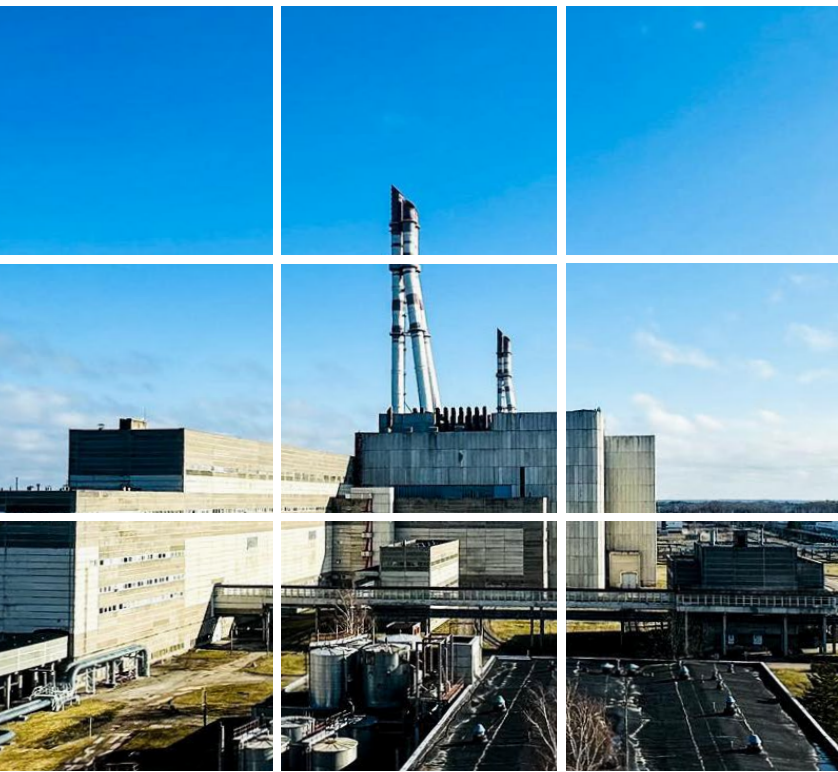


# NUCLEAR POWER SAFETY IN LITHUANIA



## ANNUAL REPORT 2023

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## FOREWORD BY THE HEAD OF VATESI



In 2023, there were no events in Lithuanian nuclear facilities or activities involving nuclear and nuclear fuel cycle materials that might have any impact on nuclear safety. State Enterprise Ignalina Nuclear Power Plant (INPP) recorded three unusual events reportable in its operations that were classified below the scale threshold at level 0 on the International Nuclear and Radiological Event Scale (INES), with no damage to radionuclide containment and/or radiation suppression barriers, the levels of occupational exposure and indoor radionuclide contamination that stayed within the established permissible limits, and there were no radionuclide releases into the environment. The low level of unusual events and the fact that they had no impact on safety indicate a high level of nuclear safety at the Ignalina NPP and other nuclear facilities in Lithuania. Similarly, other undertakings operating in the ionising radiation environment at nuclear power facilities and holders of small quantities of nuclear material have also ensured a high level of safety in their activities.

In 2023, the international community was informed that all spent nuclear fuel from two permanently shut-down Ignalina NPP power units had been safely transferred to spent fuel storage facilities and that decontamination and dismantling of redundant systems and radioactive waste management operations were further continued. The Convention on Nuclear Safety Review Meeting confirmed that Lithuania is properly implementing its commitments.

Unfortunately, in 2023, our neighbours failed to make substantial progress in implementing stress tests measures and other modern safety requirements at the Belarusian NPP, which has been

identified as a threat to Lithuania's national security. Despite Lithuania's numerous calls to suspend the operation of Unit 1 and the commissioning of Unit 2 of the Belarusian NPP due to unresolved safety issues, Unit 2 was put into industrial operation in November 2023. The Meeting of the Contracting Parties to the Convention on Nuclear Safety reiterated its call on Belarus to analyse the experience of nuclear safety regulators in developed countries and to implement appropriate modifications to the Belarusian NPP, establishing an appropriate mechanism for informing the public and stakeholders about the plant.

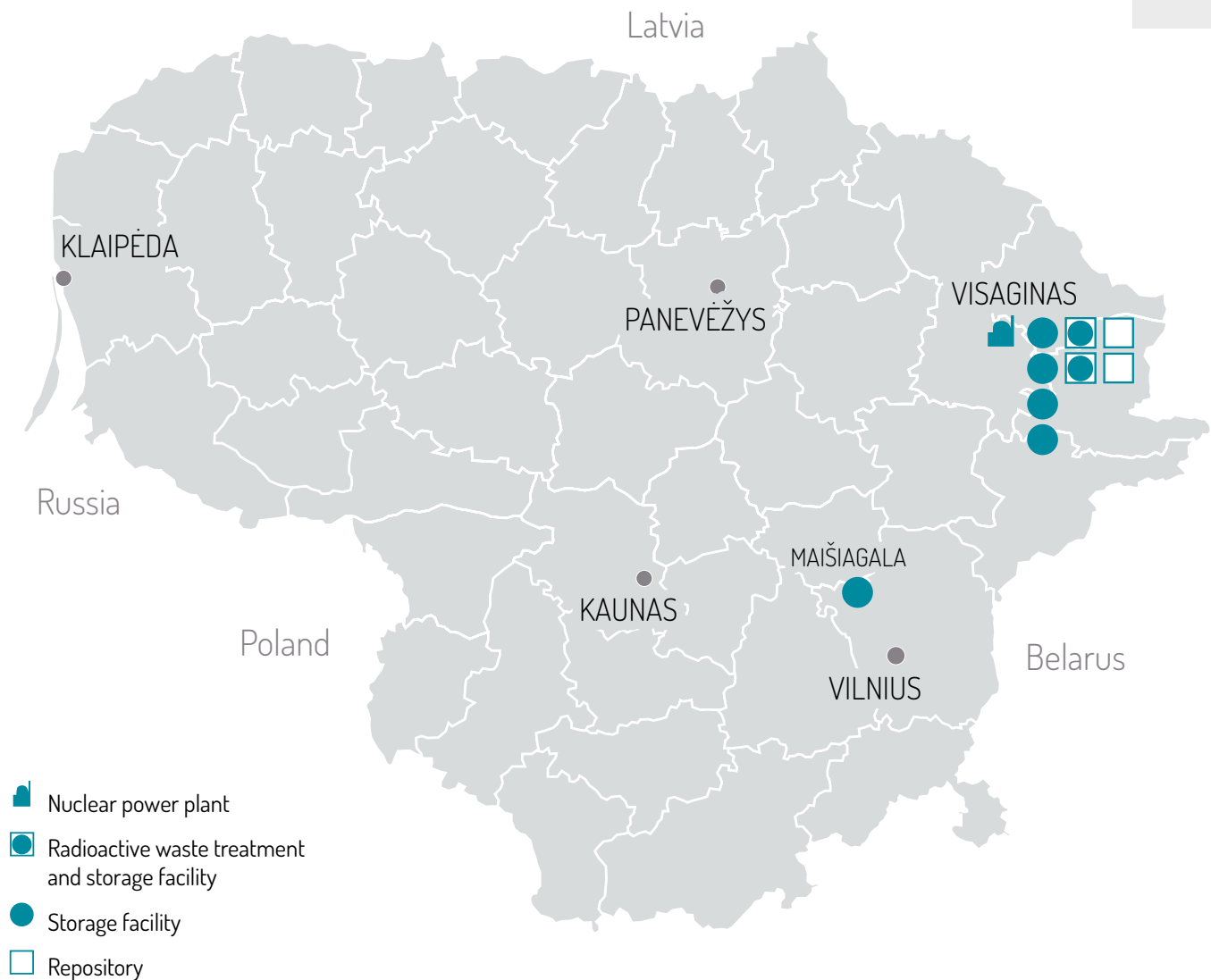
The continued public concern and attention to Ukraine due to the serious situation at nuclear facilities, in particular at the Zaporizhzhya Nuclear Power Plant, has required constant attention, monitoring and assessment of the situation. Lithuania joined the statements of Euratom and other Western countries calling on Russia to withdraw as soon as possible from all nuclear facilities in Ukraine and to hand over control to the Ukrainian authorities, and expressing support for the Ukrainian nuclear professionals who work to ensure the safety of the nuclear power plants, even under such difficult conditions.

Given the threats of nuclear and radiological accidents, the level of emergency preparedness of VATESI was strengthened, and participation in functional and international emergency preparedness exercises organised by the national authorities and the International Atomic Energy Agency (IAEA) took place. Drills and exchanges of experience and knowledge with nuclear safety regulators from other countries were organised in order to test new technical tools and to improve interaction with other responsible authorities.

The priorities of VATESI activity remain the same in the short term: to supervise the safety of Ignalina NPP's decommissioning activities and radioactive waste management, to supervise the compliance with international non-proliferation commitments undertaken by the Republic of Lithuania, to consistently upgrade the framework of nuclear safety regulation and supervision, and to be prepared for potential nuclear and radiological emergencies in Lithuania and beyond.

A handwritten signature in black ink, appearing to be 'M. Demčenko'.

Head of VATESI  
Michail Demčenko

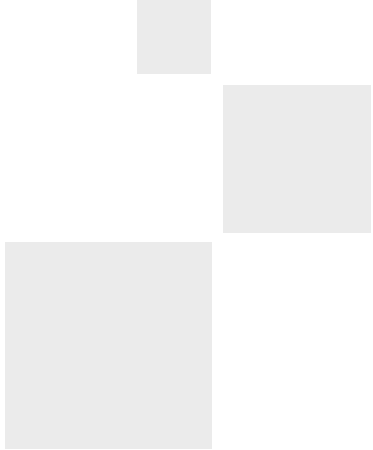


## Nuclear facilities in Lithuania

1. Ignalina Nuclear Power Plant – Drūkšiniai, Visaginas m.
2. Closed Maišiagala storage facility of radioactive waste – Bartkuškis forest, Širvintos.
3. Spent nuclear fuel storage facility (SFSF-1) – Drūkšiniai, Visaginas m.
4. Spent nuclear fuel storage facility (SFSF-2) – Drūkšiniai, Visaginas m.
5. Very low level waste storage facility – Drūkšiniai, Visaginas m.
6. Cemented radioactive waste storage facility – Drūkšiniai, Visaginas m.
7. Facilities for treatment and storage of solid radioactive waste – Drūkšiniai, Visaginas m.
8. Solid radioactive waste retrieval facilities – Drūkšiniai, Visaginas m.
9. Very low level radioactive waste repository – Drūkšiniai, Visaginas m.

## Nuclear facilities under construction

Low and intermediate level radioactive waste repository – Stabatiškės, Visaginas m.



# State Nuclear Power Safety Inspectorate



# STATE NUCLEAR POWER SAFETY INSPECTORATE

The State Nuclear Power Safety Inspectorate (VATESI) is a state regulatory and supervisory authority for nuclear safety and activities involving ionising radiation sources in this area. VATESI sets forth safety regulations and requirements, supervises compliance with them, issues licenses and permits, assesses nuclear facilities for safety, conducts inspections, and carries out other functions.

Within its remit, VATESI ensures compliance with the commitments of the Republic of Lithuania established in international agreements, and represents the national interests in international organisations.

VATESI is an independent state institution, established in 1991. Its activities are financed by the appropriations of the Lithuanian State budget and by other legally generated revenue.

VATESI is headed by the Head of VATESI appointed by the President of the Republic of Lithuania based on a recommendation from the Prime Minister. Deputy Heads are appointed by the Prime Minister on a recommendation from the Head of VATESI.

## VATESI vision

**The public and the environment** are reliably protected in accordance with the highest and modern safety standards.

**Nuclear safety regulation** is explicit and prudent.

**Work at VATESI** is highly respected, valued and motivating.

**VATESI mission** is to perform the state regulation and supervision of safety of nuclear facilities and activities related to nuclear and nuclear fuel cycle materials in order to protect the public and the environment from the harmful effects of radiation.

## The main activity priorities of VATESI are as follows:

- To supervise safety of the permanently shut-down units of the Ignalina NPP and their decommissioning;
- To supervise safety of construction and operation of radioactive waste management facilities;

- To ensure and supervise compliance with the international non-proliferation obligations undertaken by the Republic of Lithuania;
- To improve the regulatory and supervisory framework of nuclear safety in Lithuania;
- To assess, within its remits, the compliance of nuclear power plants in neighbouring countries with international safety standards and to raise issues to address the identified safety problems;
- To prepare, within its remits, for nuclear and radiological emergencies that may occur in Lithuania and abroad.

## Key events and results achieved in 2023

The purpose of VATESI activity is to ensure a high level of nuclear safety through state regulation and supervision.

To achieve the above purpose, two effect criteria were set and achieved in 2023:

- There were no unusual events of Level 2 and higher according to the INES in Lithuania's nuclear facilities (target value – 0);
- There were no cases of use of nuclear material, nuclear dual-use items and undeclared research and development related to the nuclear fuel cycle in Lithuania for non-peaceful purposes (target value – 0).

In 2023, within the framework of the Programme of Nuclear Safety Regulation and Supervision, VATESI successfully implemented four follow-up objectives:

- To authorise and supervise activities within the supervision area delegated to VATESI;
- To improve the regulatory and supervisory framework for nuclear safety;
- To assess the compliance of nuclear power plants in neighbouring countries with international safety standards and prepare for possible nuclear and radiological accidents there;
- To ensure the operation of the State Nuclear Power Safety Inspectorate.

# State Nuclear Power Safety Inspectorate (VATESI)

## VALUES

RESPONSIBILITY

COOPERATION

COMPETENCE

OPENNESS TO CHANGE

INTEGRITY AND IMPARTIALITY

TRANSPARENCY

## VISION

PUBLIC AND THE ENVIRONMENT

reliably protected in accordance with  
the highest and modern safety standards

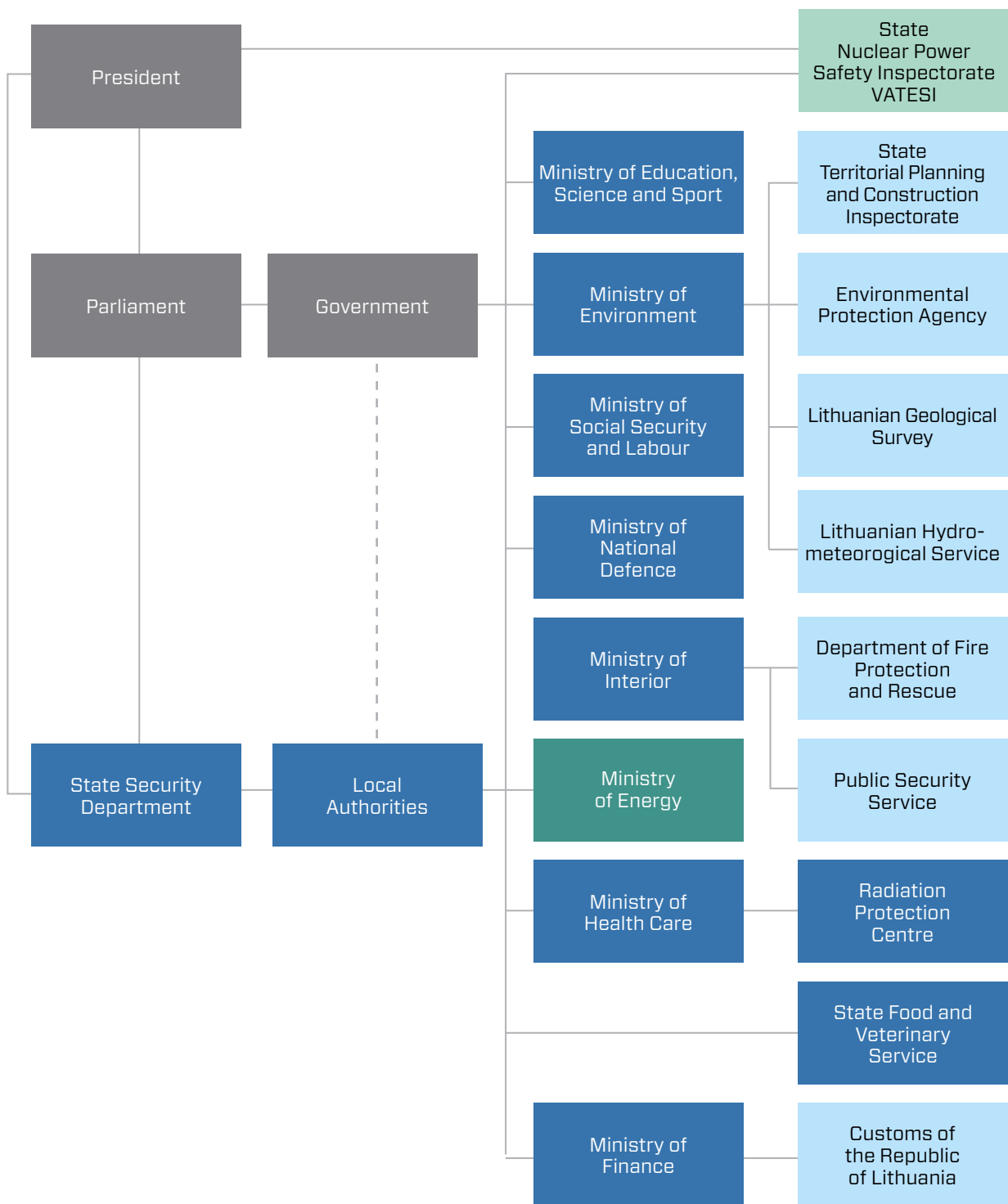
NUCLEAR SAFETY REGULATION

explicit and prudent

WORK AT VATESI

highly respected, valued  
and motivating

# Nuclear and radiation safety regulatory infrastructure in Lithuania





In carrying out the functions of state supervision and regulation of nuclear safety, VATESI performed the following key activities in 2023:

- Carried out licensing in the field of nuclear energy activities and made decisions on granting and/or amending licenses;
- Analysed and evaluated safety justification documents and other safety-relevant documentation;
- Supervised the safety of the permanently shut-down Ignalina NPP Units 1 and 2 and their decommissioning;
- Supervised the safety of the decommissioning of Maišiagala Radioactive Waste Storage Facility;
- Supervised the safety of construction and operation of spent nuclear fuel and radioactive waste management facilities;
- Inspected compliance of activities of economic entities with the established requirements;
- Supervised compliance with international nuclear non-proliferation obligations undertaken by Lithuania;
- Drafted legal acts regulating nuclear safety;
- Implemented international commitments in the field of nuclear safety regulation and supervision, and provided reporting information;
- Assessed the safety of nuclear power plants in neighbouring countries;
- Consulted economic entities and public authorities;
- Prepared for nuclear and radiological emergencies that may occur in Lithuania and abroad.

In 2023, the Programme of Nuclear Safety Regulation and Supervision largely met or exceeded the target values of all monitoring indicators:

- There were no INES Level 1 events related to deficiencies based on the defence-in-depth principle (target value 1 or less);
- There were no INES Level 1 events related to radionuclide discharges and radiation exposure (target value 1 or less);
- There were no INES Level 1 events related to nuclear safety incidents (target value 1 or less);
- There were no non-compliances of nuclear safety legislation with international treaties, European Union and Lithuanian legislation (target value 0).

The follow-up objectives implemented and the results achieved by VATESI in 2023 contributed to the following:

- Initiatives in the areas of Strengthening Energy Security (242.2, 242.4) and Effective Crisis and Emergency Management System (246.1) of the Programme of the Eighteenth Government of the Republic of Lithuania, approved by Resolution No. XIV-72 of the Seimas of the Republic of Lithuania of 11 December 2020 “On the Programme of the Eighteenth Government of the Republic of Lithuania”;
- Action 11.5.11 “Mobilise international support for Lithuania’s position on the Ostrovets NPP and ensure coordinated participation of Lithuanian institutions in addressing nuclear safety and environmental issues in EU institutions, international organisations and bilateral agendas” and Action 11.5.16 “Start dismantling the reactor equipment of Ignalina Nuclear Power Plant” of the Implementation Plan for the Provisions of the Programme of the Eighteenth Government of the Republic of Lithuania, approved by Resolution No. 155 of the Government of the Republic of Lithuania of 10 March 2021 “On the Approval of the Plan for the Implementation of the Provisions of the Eighteenth Programme of the Government of the Republic of Lithuania”.

The results achieved by VATESI in the field of safety of nuclear energy and activities in this field involving sources of ionising radiation in 2023 (i.e. nuclear safety, radiation protection, physical security, accounting and control of nuclear materials, as well as other requirements arising from the international non-proliferation obligations of the Republic of Lithuania) contributed significantly to ensuring a high level of safety of the nuclear energy sector in the Republic of Lithuania and protection of the public and the environment from the harmful effects of ionising radiation.

### Key events in 2023

- 20 – 31 March. Lithuanian delegation presented the National Report in the Review Meeting of the Contracting Parties to the Convention on Nuclear Safety (CNS), providing information on the safety of nuclear facilities in Lithuania, developments in the nuclear and radiation safety infrastructure and supervision system over the last six years, and the most important issues and measures to be addressed in the future.

7 April. VATESI approved a site safety evaluation report for a disposal facility of bituminous radioactive waste submitted by the State Enterprise Ignalina Nuclear Power Plant.

27 April. VATESI professionals, together with other Lithuanian institutions, took part in the international emergency preparedness exercise ECUREX-2023 organised by the European Commission.

18 July. VATESI issued a licence to the State Enterprise Ignalina Nuclear Power Plant to transport nuclear fuel cycle materials and nuclear and fissile materials listed in Annex 1 to the Law on Nuclear Safety of the Republic of Lithuania.

21 September. VATESI participated in a national functional exercise on civil protection organised by the Fire and Rescue Department.

3 November. VATESI submitted a national report on fire safety in nuclear facilities for the second nuclear safety thematic review organised by the European Nuclear Safety Regulators Group (ENSREG).

16 November. VATESI approved the report on the decommissioning tests of the Maišiagala Radioactive Waste Storage Facility without using radioactive waste. Following this approval, the State Enterprise Ignalina Nuclear Power Plant started testing equipment using radioactive waste.

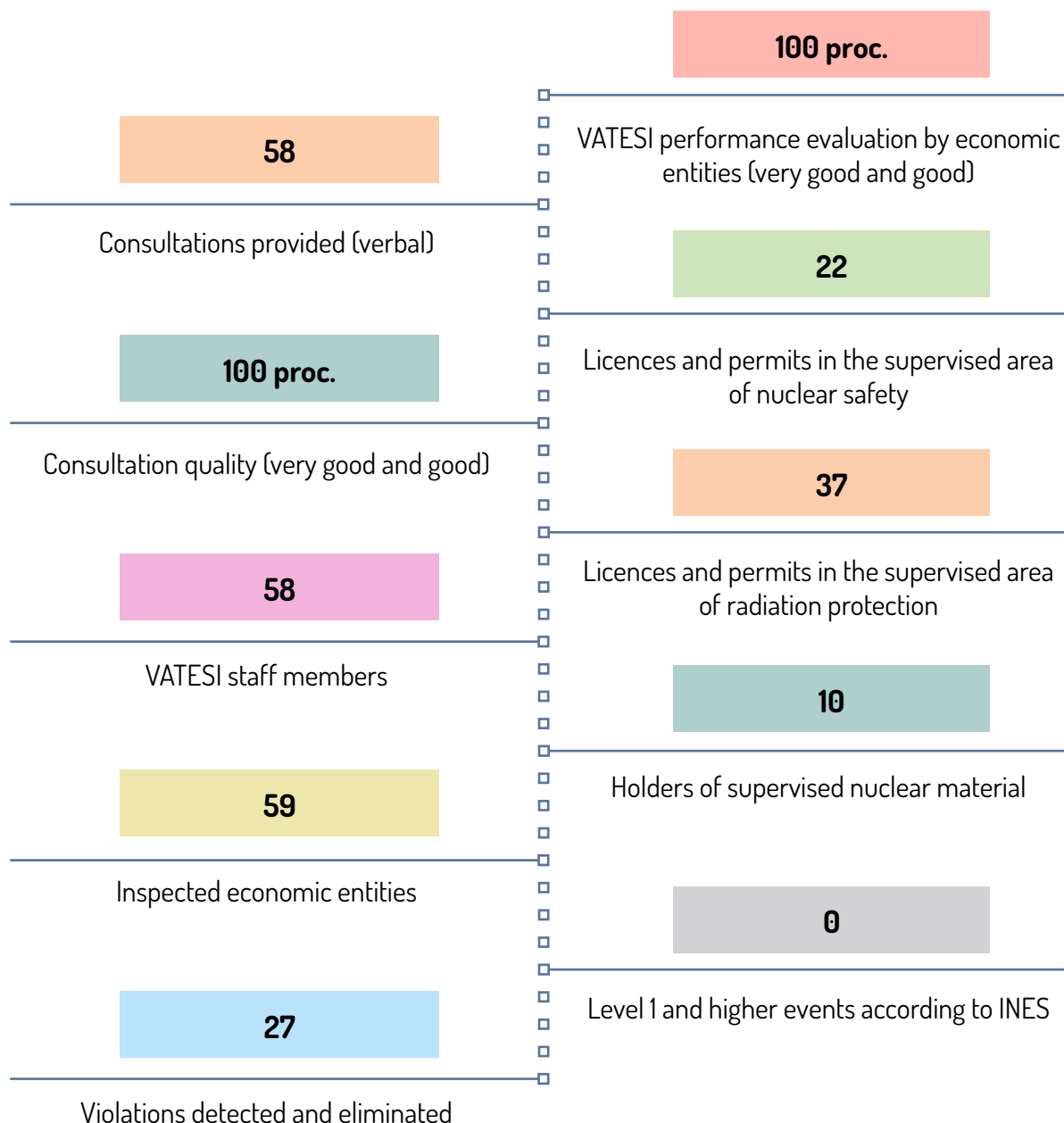
## Overall results of supervision of economic entities

As part of its activities and in pursuit of its main goal, VATESI has introduced performance indicators in the following four areas: nuclear safety, radiation protection, physical security, and compliance with non-proliferation obligations. These indicators are used as a planning, management and good public governance tool to help achieve the main goal, to perform efficiently and effectively, to use financial and human resources efficiently by continuously monitoring, measuring and evaluating performance, and to make appropriate management decisions in a timely manner to improve performance.

Performance indicators of VATESI supervision in 2023 are presented in the table below.

PERFORMANCE INDICATORS FOR SUPERVISING ACTIVITIES OF ECONOMIC ENTITIES	2023	EXPLANATION
<b>Nuclear safety:</b> The number of Level 1 events under IAEA INES related to irregularities in complying with the defence in depth principle – no more than 1.	0	The level of nuclear safety was acceptable in 2023.
<b>Radiation protection:</b> The number of INES Level 1 events related to radionuclide emissions and exposure to radiation – no more than 1.	0	The level of radiation protection was acceptable in 2023.
<b>Physical security:</b> The number of events related to the loss of control of nuclear and nuclear fuel cycle material, radiation sources used in the activities in the field of nuclear energy with radiation sources (classified as INES Level 1 events) – no more than 1; The number of events related to damage to important and critical equipment by deliberate acts (classified as INES Level 1 events) – no more than 1.	0	The level of physical security was acceptable in 2023.
<b>Compliance with nuclear non-proliferation commitments:</b> The number of cases of use of nuclear material, nuclear dual-use items in Lithuania or research related to the nuclear fuel cycle carried out in Lithuania for non-peaceful purposes – 0.	0	Compliance with nuclear non-proliferation commitments was acceptable in 2023.

# VATESI 2023 in numbers



In 2023, VATESI supervised activities of 49 economic entities in total. The Ignalina NPP is the largest economic entity posing the highest risk, and is subject to the highest number of yearly inspections. To control the burden of inspections, the indicator of the planned inspection burden for the Ignalina NPP was set at a maximum of 235 hours per year, which was 192 hours in 2023 and therefore not exceeded. The inspection burden on other economic entities is low and proportionate to their activities, and therefore no inspection burden indicator has been set for them.

## VATESI preparedness to perform functions in the civil protection system

Civil protection is an activity that covers the preparedness of government and local agencies, authorities, other institutions, non-governmental organisations, economic and other entities and population for emergencies, as well as actions taken when they are at risk of occurring or have occurred, and emergency management and mitigation of the consequences. Civil protection in Lithuania is regulated by the Law on Crisis Management and Civil Protection that establishes the legal framework for crisis and emergency prevention, crisis and emergency preparedness, as well as management and mitigation of the consequences thereof.

In the event of an imminent or actual nuclear accident or radiological emergency in Lithuania or in the neighbouring countries, where there is a threat of radioactive material entering the territory of the country, the situation shall be managed in line with the National Plan for Protection of Population in Case of Nuclear or Radiological Accident (hereinafter referred to as “the

Plan”). The Plan establishes civil protection measures for arranging and implementing protective actions to protect the population, the property of the population and the environment from ionising radiation and radioactive contamination, regulates arrangements for national level emergency management in case of an imminent or actual emergency, as well as the functions of the government and local agencies and authorities, other institutions and economic entities in this field. In compliance with the Plan, VATESI assesses the situation and forecasts the course of a nuclear or radiological accident at nuclear facilities (NFs), carries out an assessment of the radionuclides released to the environment in the event of an accident and of the radionuclide activity, and provides information to national authorities, the European Commission, the IAEA, and the neighbouring countries.

The Plan is regularly tested during exercises and updated as necessary to improve and practice the skills of the members of the civil protection system in order to perform the delegated functions. Members of the VATESI Emergency Operations Centre must be prepared to respond to nuclear and radiological accidents, and therefore regularly participate in trainings, communication drills, and exercises on various levels.

In 2023, the Centre members attended three international level exercises and five international communication drills, improved their qualifications during emergency preparedness and civil protection trainings organised by VATESI, as well as during IAEA trainings.

On 21 September 2023, experts from the VATESI Emergency Operations Centre participated in a national functional exercise organised by the Fire and Rescue Department (FRD). The purpose of the exercise was to assess the preparedness of the entities of the crisis management and civil protection system of the Republic of Lithuania to perform the functions of the entities of the crisis management and civil protection system set out in the Plan, in the context of the evacuation of the population, as well as to test the equipment and tools acquired under the project financed by the Norwegian Financial Mechanism in the event of a notification of a nuclear accident in the Belarusian Nuclear Power Plant. Representatives from 50 institutions, including the Norwegian Radiation and Nuclear Safety Authority (DSA), VATESI, 18 municipalities and ministries participated in the exercise. Representatives of the FRD, the police, the Radiation Protection Centre, the State Border Guard Service, the Lithuanian Armed Forces, the Emergency Medical Service, the Red Cross, the Riflemen’s Union, the municipalities of the Vilnius region and Kalvarija tested their actions in practice.



State-level civil protection functional exercise

LITHUANIA

BELARUS

Vilnius region has more than 900 thou. residents

CONSTRUCTION SITE

- ❗ Construction site was not selected under international treaties and IAEA safety standards
- ❗ Consultation with neighbouring states is not closed
- ❗ Rises potential risk for 1/3 of population in Lithuania and crucial to government authorities
- ❗ Not properly investigated
- ❗ Full scope IAEA SEED mission is not accomplished

NUCLEAR POWER PLANT

- ❗ Resistance to the impact of a heavy aircraft crash is not secured
- ❗ Stress tests recommendations are not implemented
- ❗ Probabilistic safety analysis is not properly accomplished
- ❗ International practices and recommendations concerning designs of new nuclear power plants and emergency preparedness are not taken into account

VILNIUS

Lithuania border - 23 km  
Belarus NPP in Ostrovets

40 km

30 km

Lentvaris

100 km

Šalčininkai

Eišiškės

QUALITY OF WORK PERFORMANCE

- ❗ Selective approach to ensuring safety
- ❗ Construction work quality is not properly controlled
- ❗ Low level of safety culture
- ❗ Construction works are performed violating principles of transparency and openness
- ❗ General public and other stakeholders are not informed on unusual events or identified deficiencies

156 km

MINSK

Elektrėnai

Molėtai

Ignalina

Švenčionys

Pabradė

Smurgainys

Correspondence with the Ministry of Emergency Situations of Belarus on safety issues related to the Belarusian NPP also continued in 2023. After receiving incomplete answers, conclusions and information for Lithuanian stakeholders and the public at large were prepared.

To adequately protect the population and provide them with relevant information, information on unplanned outages of the Belarusian NPP was assessed, the level of emergency preparedness of the institution was strengthened, and the interaction with other responsible authorities was enhanced. Belarus has not provided specific information on the choice of the location for the construction of the NPP, as in the event of an accident about 1/3 of the Lithuanian population could be exposed to ionising radiation, and it would be extremely difficult for the Lithuanian authorities to manage the consequences of a possible accident in such circumstances.

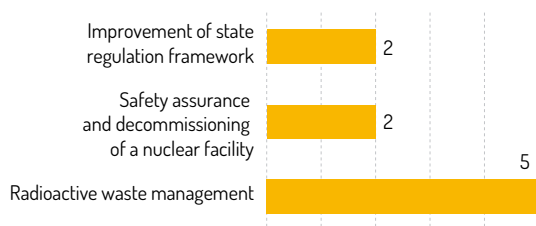
In 2023, VATESI implemented measures foreseen in the Emergency Prevention Plan 2022–2025 for 2023 to prevent the risk of fire, infectious diseases, disruption and/or failures of electronic communications and/or communication systems, including those caused by cyber-attacks, heat supply disruptions and/or failures during the heating season, as well as measures to prepare for emergency situations related to nuclear accidents.

## Changes in nuclear safety regulation

Clear and consistent legal regulation that responds to changes in the profile of nuclear energy activities and their threat profile is a key prerequisite for an adequate nuclear safety assurance system.

As part of its efforts to properly plan the process of drafting legislation, VATESI prepares a 5-year Programme for the Improvement of Nuclear Safety Normative Technical Documents and an Annual Plan for the Drafting and Review of Nuclear Safety Normative Technical Documents.

**Number of legal acts adopted and amended in 2023 by the area of supervision**



## Licensing of activities of economic entities

In 2023, VATESI examined nine applications for licences and permits provided for in the Law on Nuclear Safety of the Republic of Lithuania and the Law on Radiation Protection of the Republic of Lithuania.

Five applications submitted by the Ignalina Nuclear Power Plant for licences and permits under the Law on Nuclear Safety of the Republic of Lithuania were examined:

- one application for decommissioning of the Ignalina Nuclear Power Plant's power units and other nuclear facilities related to their operation;
- one application for the shipment of nuclear fuel cycle materials and nuclear and fissile materials;
- three applications for decontamination and dismantling of equipment contaminated with radionuclides at the Ignalina Nuclear Power Plant.

In addition, four applications for licences to carry out activities with sources of ionising radiation in the nuclear energy area (to perform activities subject to occupational exposure to ionising radiation at nuclear facilities) were examined, together with the documents submitted.

Furthermore, VATESI, in its supervision of the transport of nuclear fuel cycle materials and nuclear and fissile materials in quantities specified in Annex 1 to the Law on Nuclear Safety, examined an application submitted by the Ignalina Nuclear Power Plant for a certificate of approval for the transportation of radioactive material under special arrangement from the Maišiagala Radioactive Waste Storage Facility to the Ignalina Nuclear Power Plant.

In 2023, VATESI issued a total of five licences, approved two applications for transportation permits, and issued a certificate of approval for the transportation of radioactive material under special arrangement.

In 2023, VATESI issued four licences to carry out activities with sources of ionising radiation in the nuclear energy area (to perform activities subject to occupational exposure to ionising radiation at nuclear facilities). They were issued to economic entities that intended to undertake such activities at the Ignalina NPP.

Likewise, one licence was issued to transport nuclear fuel cycle material and nuclear and fissile material listed in Annex 1 to the Law on Nuclear Safety, in the quantities set out therein. The licence authorised transportation in the Republic of Lithuania of orphan nuclear fuel cycle, nuclear and fissile material (whether orphan or of other radioactive waste generators) in excess of the limits set for the quantities to be transported, and radioactive waste existing at the Maišiagala Radioactive Waste Storage Facility and to be generated during the decommissioning of this facility.

To get a transportation permit for radioactive material and radioactive waste classified as nuclear material, or in the case of an entity operating or decommissioning a nuclear facility, or carrying out activities with sources of ionising radiation at a nuclear facility or its site, VATESI must approve an application for a transportation permit that is later issued by the Radiation Protection Centre. In 2023, VATESI analysed and approved two applications for transportation permits for radioactive material classified as nuclear material. One of them was for radioactive waste and the other for shipments of radioactive materials.

In 2023, no violations were found during the processes of supervising authorised activities and for activities regulated by permits which would have led to the suspension of a license, permit or temporary permit, or revocation of an issued license, permit, temporary permit or a certificate of registered activity data. One licence for nuclear energy activities involving sources of ionising radiation was cancelled following a request from an operator who had decided to discontinue the authorised activity

Information on regularly updated lists of licenses, permits, temporary permits or certificates of registered activity data issued by VATESI is available in the *Services* section of the website [vatesi.lrv.lt](http://vatesi.lrv.lt).

## Organisation of supervision of economic entity activities

### Operational risk assessment, inspection programme

To efficiently use financial and human resources, VATESI follows the graded approach in supervising economic entity activities, i.e., the focus is on safety-related areas potentially posing higher risks to the population, the environment and the employees of the supervised entities, while aiming to prevent unreasonable burden on them. Inspection areas are selected after assessing the aspects directly related to risks: the amount, composition and physical state of radionuclides at the nuclear facility or its individual installations, the possibility of dispersal of these radionuclides and their potential impact on the employees, population and the environment, the risk of disintegration of physical safety barriers that contain radionuclides, the accessibility of nuclear or other radioactive material, as well as the number of employees or population that may be adversely affected by the economic entity activities and/or malfunctioning of the nuclear facility or its individual installations.

To plan systematically the inspections of economic entities and the resources allocated to them, at the end of 2023, VATESI developed the Inspection Programme for 2024–2028. The Programme takes into account the planned applications of economic entities regarding licenses or permits, as well as activities undertaken or planned by them, for instance dismantling and modifications of equipment.

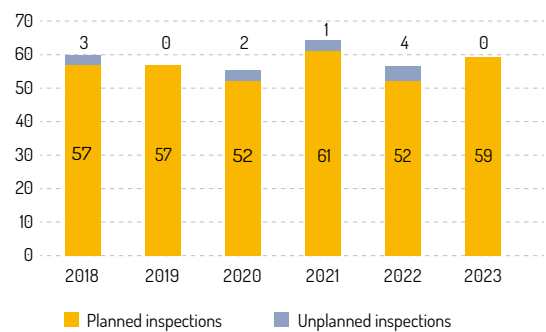
### Inspections

VATESI inspects economic entities in the areas of nuclear safety, radiation protection and physical security, and in the areas relating to compliance with requirements arising from the international non-proliferation commitments of Lithuania.

In terms of planning aspects, VATESI inspections are classified into planned inspections carried out under a pre-approved schedule, and unplanned inspections.

In 2023, a total of 59 inspections were carried out (56 in 2022). All the inspections were planned ones, including 52 regular inspections, six targeted inspections and one technical inspection.

### Number of inspections completed by VATESI employees in 2018–2023



The highest number of inspections was conducted at the Ignalina NPP – 45 (47 in 2022). The main focus of these inspections was to assess how the operation of safety-critical lifting installations and facilities, ventilation systems was carried out, how safety-critical structures, systems and components of the Ignalina NPP power units and other nuclear facilities that have been permanently shut down were maintained, how safety requirements during the dismantling and decontamination of Units 1 and 2 were implemented, and how radioactive waste management was carried out, how physical security, radiation protection, fire protection, cyber security, emergency preparedness, non-proliferation control were ensured, how the



**During inspection in Maišiagala RWSF**

competence of the staff of the Ignalina NPP was ensured, and how the requirements of nuclear safety standard technical documents were met in the field of safety culture. VATESI staff also inspected the decommissioning of the Maišiagala Radioactive Waste Storage Facility, including the construction of the facilities necessary for the retrieval of radioactive waste, radiological monitoring systems, emergency preparedness, physical security and cyber security measures, the proper performance of radioactive waste pre-treatment, the proper forming of packaging, and the proper preparation for the shipment of radioactive waste to the Ignalina NPP's radioactive waste management facilities.

In 2023, VATESI staff carried out one technical inspection to verify how the Ignalina NPP carried out the technical inspection of safety-critical pressure components and assessed the technical condition of the equipment under inspection. This inspection covered the external and internal inspection of the technical condition of safety-critical pressure components and evaporators. The technical inspection carried out in 2023 did not reveal any irregularities or non-compliances with good practice.

In 2023, VATESI employees inspected the following entities once:

- State Research Institute Centre for Physical Sciences and Technology was inspected for compliance with the physical security requirements by applying organisational and technical measures for the protection of Category III nuclear material;
- Radiation Protection Centre and Polimaster Europe, UAB, were inspected for the taking of physical inventories of nuclear material kept there;
- Fire and Rescue Department under the Ministry of the Interior, Borta, UAB, Ekobana, UAB, Interlux,

UAB, Lokmis, UAB, Axioma servisas, UAB, Konecranes, UAB, Fima, UAB, Eldermoneta, UAB, and Aukstata, UAB, were inspected for the compliance with radiation protection requirements in the field of activities in ionising radiation environments;

- Dekra Industrial, UAB, was inspected for compliance with radiation protection and physical security requirements when using and storing sources of ionising radiation.

36 VATESI employees participated in the inspection activities. The average inspection duration was four hours.

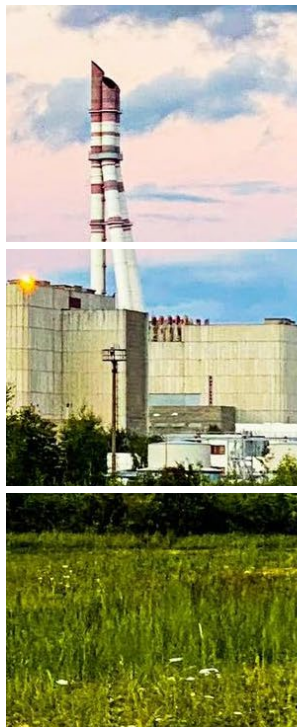
In 2023, inspections identified 11 violations (13 in 2022), 16 minor violations of legal requirements (8 in 2021), and 3 best practice non-compliances. One violation was detected when examining safety justification documents submitted by the Ignalina NPP and not at the time of inspection. 9 violations detected were subject to mandatory instructions and 6 minor violations were subject to an instruction to remedy the minor violations. The remaining 13 violations and minor violations were rectified at the time of inspections or drafting the inspection reports and therefore did not lead to the imposition of sanctions. The violations were related to non-compliance with legal provisions requiring economic entities to establish procedures for implementing certain processes and to follow their management systems, or non-compliance with obligations specified in other standard technical documents. The violations were in the supervised areas of physical security, radioactive waste management and other areas. Having corrected the violations identified in the inspection report, the economic entity informed VATESI, providing documentary evidence of such correction. The violations found in 2023 were rectified by the economic entities in a timely and proper manner.

### **Assessment of supervision of economic entity activities**

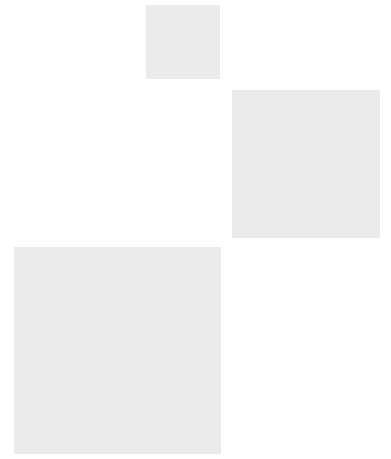
In 2023, VATESI participated in the progress (scoreboard) assessment of the authorities supervising economic entity activities, under all the categories set out in the assessment methodology. The results were published by the Ministry of the Economy and Innovation in early 2023. According to the 2022 assessment, VATESI's Progress Index score was 8.57 (11th out of 45 institutions).

VATESI will continue to pursue the widest possible application of advanced tools for the supervision of economic entities, taking into account the peculiarities of nuclear energy activities.





# Supervision of nuclear facilities



# SUPERVISION OF NUCLEAR FACILITIES

## Maintenance of operating safety-important structures, systems and components

The objective of the maintenance of safety-important structures, systems and components of nuclear facilities carried out by the staff of the State Enterprise Ignalina Nuclear Power Plant is to ensure that the facilities located in the NF operate reliably and safely. In line with the VATESI nuclear safety requirements, the Ignalina NPP is required to annually plan and carry out maintenance of structures, systems and components important to safety. Each year, the Ignalina NPP submits an annual safety report to VATESI, which contains information on the maintenance work carried out in accordance with the approved plans and schedules. During the inspections, VATESI verifies that the results of the works are properly documented in the reports, work performance sheets, operational staff logbooks, and entered in the special information system on the maintenance works carried out.

In 2023, VATESI experts examined and approved the amended regulations for inspections and tests of safety-important systems of the Solid Radioactive Waste Retrieval Facility at the Ignalina NPP, as well as evaluated and approved the lists of ageing management and lifting installations and their equipment for safety-important structures, systems and components of nuclear facilities.

During the inspections and the review of the reports, the experts assessed the results of the maintenance work carried out on important structures, systems and

components and provided their conclusions. VATESI professionals inspected and evaluated the performance of safety-important structures at the Maišiagala Radioactive Waste Storage Facility, the Solid Radioactive Waste Retrieval Facility, the Solid Radioactive Waste Management and Storage Facility, the Very Low Level Radioactive Waste Storage Facility, the Cemented Radioactive Waste Storage Facility, the Spent Nuclear Fuel Storage Facility and the Bituminised Radioactive Waste Storage Facility, the maintenance of safety-critical structures, systems and components, including safety-important lifting installations and their equipment, instrumentation and control systems and components, whether repairs were carried out, whether their remaining useful life was assessed, whether assessments of their technical condition at the end of their design life were carried out in a timely manner, and whether decisions were taken to extend their operational life.

Having analysed the documents justifying the safety of structures, systems and components important to safety provided by the Ignalina NPP, and having carried out inspections and evaluated the information collected during them, VATESI experts were assured that Ignalina NPP properly carried out the maintenance of safety-important structures, systems and components and their ageing management in 2023.

## Supervision of decommissioning activities

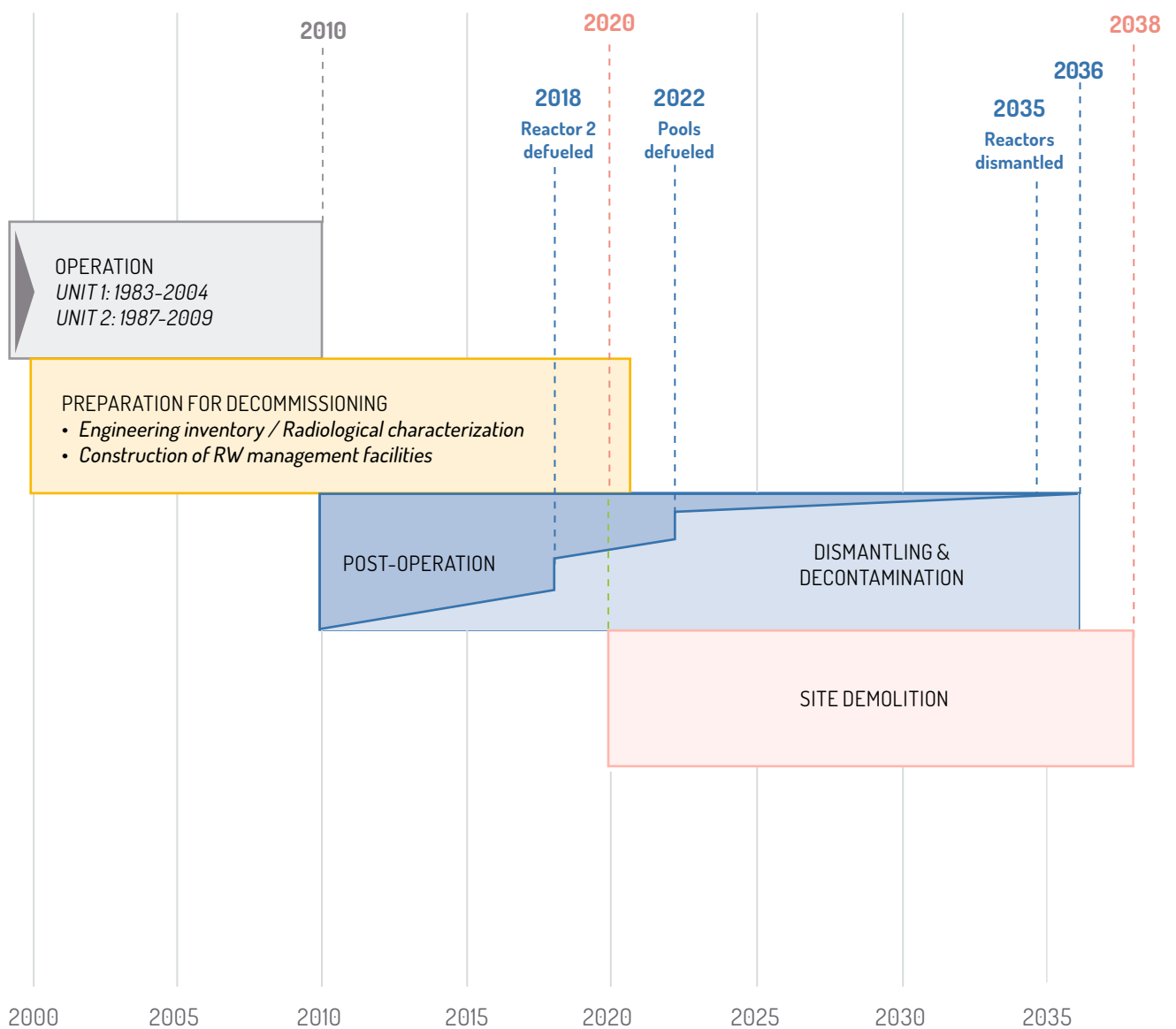
The decommissioning of the Ignalina Nuclear Power Plant is regulated by the Law on Decommissioning of the State Enterprise Ignalina Nuclear Power Plant of the Republic of Lithuania, the Programme for the Decommissioning of Units 1 and 2 of the Ignalina Nuclear Power Plant, as adopted by Resolution No. 117 of the Government of the Republic of Lithuania of 2 February 2005, as well as by Nuclear Safety Requirements BSR-1.5.1-2019 on “Decommissioning of nuclear facilities”.

The Final Decommissioning Plan for the Ignalina Nuclear Power Plant (FDP) was approved in 2005 and updated later in 2020. Together with the FDP, VATESI also approved Unit 1 Final Shutdown and Defueling



Ignalina NPP Unit 2 fire extinguishing system pump station

# Ignalina NPP decommissioning schedule



Phase Decommissioning Project and Unit 2 Final Shut-down and Defueling Phase Decommissioning Project. These projects describe the safety systems, components and their functions, and how these functions have evolved, thereby identifying which equipment can be isolated, dismantled and decontaminated.

VATESI continues its evaluation, which started in 2018, of the safety justification documents submitted by the Ignalina Nuclear Power Plant in response to its application for a nuclear facilities decommissioning licence.

In 2023, VATESI analysed and commented on a newly submitted decommissioning safety analysis report to substantiate the safe implementation of the activities foreseen in the Final Decommissioning Plan of the Ignalina NPP.

## Supervision of dismantling and decontamination activities

In 2023, the Ignalina NPP acquired remote-controlled equipment and, upon agreement with VATESI, started the dismantling and decontamination of the equipment (reactor bottom feed water lines and steam-water lines, purification and cooling system, main circulation circuit, main circulation pumps, drum separators, refuelling machine complex, and other heavily contaminated equipment) located in Unit A1.

In 2023, the process of evaluation of the safety justification for the radioactive waste pre-treatment site located in Unit A1 was continued.



**Decontamination unit for dismantled equipment**

VATESI experts also agreed upon the safety justification documents for the dismantling and decontamination of the equipment (main circulation pumps, suction and pressure headers and their auxiliary systems, drum separator pipelines, and heavily

contaminated areas) in Unit A1. At the end of 2023, VATESI started to evaluate the dismantling and decontamination projects for the Unit 2: equipment in Units A2 (reactor's auxiliary systems) and V2 (gas circuit) as well as the dismantling and decontamination projects for R1 (steam-water lines) and R2 (reactor bottom feed water lines) work areas and their safety analysis reports for compliance with the requirements of nuclear safety, radiation protection and physical security.

Dismantling of equipment not needed any more at the Ignalina NPP is carried out in accordance with individually pre-developed and pre-approved projects, and is subject to inspections to verify the results.

## Supervision of the demolition of disused buildings

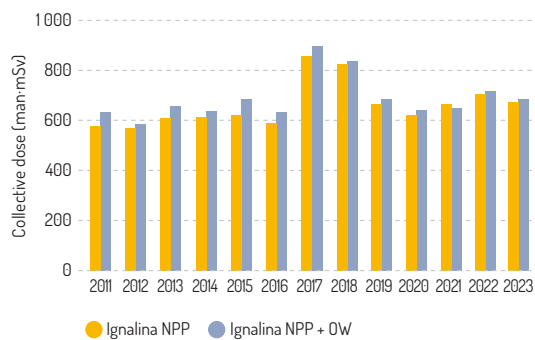
Buildings, engineering structures on the site of the Ignalina Nuclear Power Plant where activities with nuclear fuel cycle materials are planned or carried out, or which are considered to be affected by radionuclides, as well as buildings and/or engineering structures where one of the purposes of the building and/or equipment is to ensure the nuclear safety, radiation protection and/or physical security of the nuclear facility, shall be considered structures of a nuclear facility. When planning to demolish such buildings, the State Enterprise Ignalina NPP shall demonstrate in the documentation justifying the safety of the modification that there are no planned and ongoing activities with nuclear fuel cycle materials, that the buildings and the equipment therein are not designed to ensure nuclear safety, radiation protection and physical security, and that the buildings are free of equipment, systems and components that will be used and/or necessary for the decommissioning of the facility, that the activity concentrations of radionuclides in the buildings do not exceed clearance levels and surface activity values, that the demolition works will have no adverse effect on the nuclear safety, radiation protection and physical security of the activities carried out on the same site, including the operation of the installations on the same site. If these conditions are met, the Ignalina NPP shall prepare and agree with VATESI the documents justifying the safety of the modifications in accordance with the procedure established by the nuclear safety requirements, on the basis of which the demolition of disused buildings shall be carried out (in 2023, two buildings were demolished).

## Supervision of occupational radiation protection

Occupational radiation protection was supervised by conducting inspections and analysing documents submitted on the implementation of radiation protection requirements.

In 2023, the collective dose of Ignalina NPP staff and outside workers (OW) was 670.06 man · mSv (Ignalina NPP staff – 665.44 man · mSv; OW – 4.62 man · mSv). Compared with 2011–2022, the collective dose in 2023 was similar to the level of the year before. The most significant occupational exposures to workers were caused by equipment dismantling and radioactive waste management activities.

**Annual collective doses of Ignalina NPP staff and outside workers (OW) (man · mSv) in 2011–2023**



In 2023, 2,013 employees of the Ignalina NPP and outside workers were monitored for their individual exposure. The maximum annual individual dose to an employee of the Ignalina NPP was 10.7 mSv and the maximum annual individual dose to an outside worker was 1.09 mSv. The annual doses of Ignalina NPP and outside workers did not exceed the annual effective dose limit of 20 mSv set in the Lithuanian Hygiene Standard HN 73:2018.

## Operational experience feedback

To ensure a high level of nuclear safety in Lithuania and to prevent potential accidents, incidents and unusual events important for nuclear safety, radiation protection and physical security, the operational experience of our own and of other organisations operating in the nuclear energy sector

is continuously analysed. In 2023, the safety of the Ignalina NPP was continuously improved and ensured through the analysis of its own experience and that of other organisations operating in the nuclear energy sector.

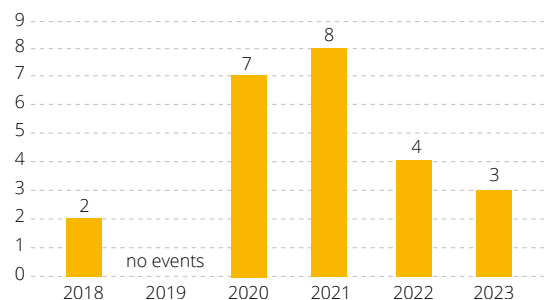
In 2023, three unusual events were registered in the nuclear facilities of the State Enterprise Ignalina NPP, which are subject to reporting to VATESI in accordance with the established requirements. One unusual event occurred due to heavy rain which damaged the roof structure of the low-level solid radioactive waste storage facility (Building 155). The second unusual event related to a false report of an allegedly planted explosive device, which led to the evacuation of part of the administrative staff. The third unusual event was the disconnection of the information management system due to a temporary loss of power supply.

The unusual events neither breached the barriers stopping radionuclides and/or inhibiting ionising radiation, nor affected nuclear safety. According to the International Nuclear and Radiological Event Scale, the unusual events occurring in 2023 were classified as below the scale level, i.e. at level 0. The fact that the unusual events did not affect safety indicated a high level of nuclear safety at the Ignalina NPP.

In 2023, 11 meetings of the Commission for the Analysis of Unusual Events and Operational Experience were held at VATESI, during which unusual events that occurred at the Ignalina NPP and foreign-based nuclear power facilities were examined.

Taking into account the experience gained from the operation of nuclear facilities in other countries and the lessons learnt from the unusual events, recommendations related to the improvement and assurance of safety in the nuclear facilities of the Ignalina NPP were developed. The analysis of such events and the application of the lessons learned are necessary to prevent the recurrence of similar events in the nuclear facilities of the Ignalina NPP.

**Unusual events to be reported that occurred at the Ignalina NPP in 2018–2023**



## Iginalina NPP safety and security culture, employee training and certification

### Safety and security culture of the Iginalina NPP

The attitudes of the organisation's managers towards employees and activities, the style of management, responsibility for safety, relationships, employee promotion, training and learning, the organisation's internal procedures and descriptions thereof, along with many other factors, represent the culture of the organisation. When it comes to the organisation's safety and security culture, the aim is to focus all the factors on the organisation's main priority: to operate safely.

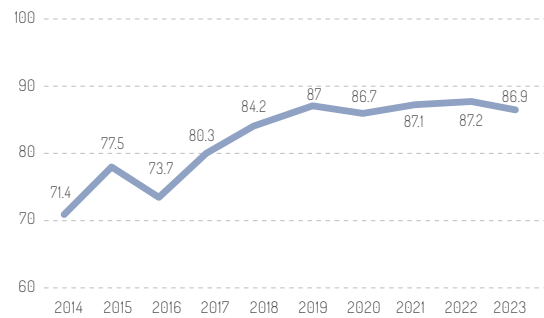
In order to assess the state of the safety and security culture at the Iginalina NPP, the Safety and Security Culture Development Plan for 2023 was drawn up and implemented. According to the plan, an anonymous survey of employees on safety culture issues was carried out, safety and security culture indicators and their changes were analysed on a quarterly basis, and their results were discussed at management meetings. Likewise, training and coaching of employees, including physical security staff, were carried out in line with the company's plans, and safety culture memos were prepared for the company's suppliers and contractors, and were made available to their employees.

One of the hallmarks of a progressive safety culture is the effective use of internal and external operational experience. Operational experience consists of information that can be used to improve the safety of a NF, such as information on events, accidents and their precursors, defects, near-misses, low-level events, their trends, shortcomings and best practices, safety performance analysis reports, etc.

In 2023, as part of its supervision of NF's safety culture, VATESI reviewed the company's quarterly reports on organisational safety culture, trends in safety culture and safety culture indicators, and on the results of the employee survey. In 2023, the self-assessed target for the safety culture indicator at the Iginalina Nuclear Power Plant was not less than 87%. The shortfall of 0.085% for this target was due to the occurrence of unusual events. The safety culture status indicator for 2023 was 86.915%.

The annual safety culture self-assessment of the Iginalina NPP has remained stable at 99% for the third consecutive year since 2019.

Change of the safety culture status at the Iginalina NPP, %



### Iginalina NPP employee training and certification

The selection, introductory and follow-up training, periodic certification and continuous improvement of the competence development system of the staff working in nuclear facilities ensure an adequate level of competence of the staff and have a significant impact on the safety culture of the organisation.

Ensuring the competence of employees is one of the components of Iginalina NPP's activities related to the operational safety of the NF.

In 2023, VATESI coordinated the training programmes and examination papers for Iginalina NPP staff responsible for nuclear safety and participated in the examinations for testing the knowledge of professionals. In 2023, the VATESI Certification Commission tested the knowledge and certified three senior staff members of the Iginalina NPP, and professionals from the Supervision Division participated in the proficiency checks of 43 staff members of the Iginalina NPP in safety-related positions. The Iginalina NPP organised introductory and follow-up training and certification of its staff in order to maintain their competences and to provide the staff with new knowledge and skills that are necessary for working with new equipment in decommissioning projects.

In 2023, 1,533 persons were trained and certified at the Iginalina NPP, including 146 managers, 747 specialists, 615 workers and 25 office staff.

Each year, the Iginalina NPP analyses the results of the process of maintaining staff qualifications and presents the results in the progress report on maintaining the staff qualifications. VATESI reviews documents related to ensuring the competence of the staff, draws conclusions, harmonises key technical standard documents and carries out inspections. In 2023, VATESI carried out an inspection of the competence process of Iginalina NPP employees. The review of the information during the inspection did not reveal any irregularities or non-compliances in the area of staff competences.

## Ignalina NPP emergency preparedness

As the risk of incidents and accidents during the decommissioning of the Ignalina NPP power units is constantly changing, and in preparation for the operation of new radioactive waste management and storage facilities, the Ignalina NPP is required to continuously assess potential threats and update the emergency preparedness plan together with the accompanying instructions and procedures accordingly.

In 2023, the Ignalina NPP continued the activities envisaged in the Measure Plan for the Implementation of Nuclear Safety Requirements BSR-1.8.10-2021 "Consequence analysis of potential nuclear and radiological emergencies at a nuclear facility" approved in 2021. In May 2023, the Ignalina NPP approved the Description of Beyond-Design Basis Accidents and Accidents Caused by Postulated Events at NFs of the Ignalina NPP. This document sets out lists of beyond-design basis accidents and accidents caused by postulated events that may occur at the Ignalina NPP's NFs and their emergency response sites, including during the transport of radioactive waste and/or other nuclear fuel cycle materials, describes the worst-case accident scenario and the forecast of the radiological consequences resulting from the accident, and presents conclusions to assess the need for and the scope of technical and organisational measures to manage beyond-design basis accidents and accidents caused by postulated events, as well as to eliminate their consequences, in the context of drafting the Ignalina NPP's Emergency Preparedness Plan and Emergency Preparedness Instructions.

In addition, in 2023, the Ignalina NPP reviewed and revised the emergency preparedness categories of NFs at the Ignalina NPP in line with other measures of the Measure Plan for the Implementation of Nuclear Safety Requirements BSR-1.8.10-2021.

The Ignalina NPP Emergency Preparedness Plan was updated to take into account the revised emergency preparedness categories. The related Emergency Preparedness Instructions were revised and updated together with the Plan.

To ensure the preparedness of the Ignalina NPP Emergency Control Centre, the equipment of the Centre is regularly inspected, malfunctions are rectified, and documentation is updated. During 2023, the potable water reserve was upgraded/replaced, maintenance work was carried out on the diesel generator of the Control Centre, the uninterruptible power supplies for the emergency alert system were replaced, maintenance work was carried out on the control

equipment for the electric motors of the ventilation system, and a preventive check of the dosimetric control system was performed.

The qualification and preparedness of the staff of the Ignalina NPP Emergency Preparedness Organisation to respond to emergency situations are ensured through training and exercises. During 2023, 32 training sessions and three exercises were organised for the staff of the Ignalina NPP Emergency Preparedness Organisation. On 1 June 2023, a table-top exercise was held at the Emergency Control Centre of the Emergency Preparedness Organisation of the Ignalina NPP and remotely on the subject of a potential accident in the handling of graphite waste and mitigating the consequences thereof. A functional exercise was held at the functional centre of the Ignalina NPP on 27 September 2023 with the aim to practically test the preparedness of the Emergency Response Team in radioactive waste management facilities for the response to a potential accident in handling graphite waste. On 29 November 2023, a complex exercise was organised to test the Ignalina NPP Emergency Preparedness Plan and to assess the preparedness of the staff of the Emergency Preparedness Organisation to adequately manage potential accidents and mitigate the consequences of such accidents in the handling of graphite waste.

In 2023, VATESI experts carried out three inspections at the Ignalina NPP, which were related to the verification of emergency preparedness and emergency management measures. No violations or non-compliance with good practices were found during these inspections.

## Limitation of releases of radionuclides to the environment

To protect the environment and the population, the activities of radionuclides released from the Ignalina NPP into the atmosphere and the Lake Drūkšiai are limited. The results of the radiological monitoring carried out at the Ignalina NPP in 2023 are presented in the table below.

The radiological monitoring results show that the activities of radionuclides released were below activity limits. In 2023, the activity of the C-14 radionuclide accounted for the highest proportion of the radionuclide activity released to atmosphere ( $5.79 \cdot 10^{10}$  Bq/year). The increase in the activity of this radionuclide

**Activities of radionuclides released to the environment from the Ignalina NPP in 2023 and resulting exposure doses to the population.**

Type of releases	Activity, Bq/year	Percent from activity limit	Dose, Sv	Percent from dose constraint
To atmosphere	$6,87 \cdot 10^{10}$	42,35	$1,347 \cdot 10^{-6}$	0,67
To water	$4,63 \cdot 10^{10}$	0,31	$2,558 \cdot 10^{-7}$	0,13
Total	$1,15 \cdot 10^{11}$	42,66	$1,60 \cdot 10^{-6}$	0,8

in atmosphere releases, as compared with 2022 ( $2.41 \cdot 10^{10}$  Bq/year), is due to the appearance of more facilities that release C-14 radionuclides.

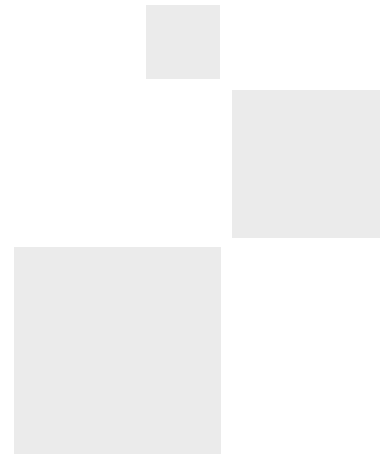
As the controlled nuclear reaction that had generated short-lived inert radioactive aerosols and radioactive iodine nuclides (I-131) had stopped in both reactors, the residual nuclides were no longer released to the atmosphere upon disintegration.



Nuclear Safety Requirements BSR-1.9.1-2017 stipulate that the NF must be designed, commissioned, operated and decommissioned so that, under the normal operating regime of the facility and in cases of anticipated operational occurrences, the annual effective dose to the population resulting from the release of radionuclides from the NF does not exceed the dose constraint. Hygiene Standard HN73:2018 sets the annual effective dose constraint for the population at 0.2 mSv. The measurement of the activities of radionuclides released to the environment from the Ignalina NPP and the assessment of their potential effects on the population showed that the exposure of the members of the reference population group was negligible and constituted a very small fraction of the dose constraint.

The monitoring of the activities of radionuclides released to the environment showed that preparations for the decommissioning of the Ignalina NPP, as well as the dismantling and decontamination projects for the units of the Ignalina NPP, were carried out safely in 2023.





## Safety supervision in radioactive waste management



# SAFETY SUPERVISION IN RADIOACTIVE WASTE MANAGEMENT

Radioactive waste management includes the collection, sorting, processing, transport, packaging, storage, and disposal of radioactive waste. The main objective of these activities is to manage radioactive waste in a way that does not endanger people and the environment and does not impose undue burdens on future generations.

The largest amount of radioactive waste in Lithuania (more than 99%) is generated at the nuclear facilities operated by the Ignalina Nuclear Power Plant. This entity is also a radioactive waste manager responsible for the final disposal of waste and for the operation of radioactive waste repositories for this waste.

VATESI is the main regulatory authority in Lithuania for the safety of radioactive waste management, establishing the classification of radioactive waste and the safety requirements for radioactive waste management at NFs, licensing radioactive waste management facilities, and carrying out inspections to supervise compliance with legal requirements.

## Supervision of radioactive waste management by the Ignalina NPP

### Management and storage of spent nuclear fuel

Spent nuclear fuel is highly radioactive waste that generates heat and contains a relatively high

amount of fissile material. Spent fuel is considered to be managed safely, if it is ensured that no chain fission reaction occurs under normal and emergency conditions, if spent fuel assemblies are sufficiently cooled, if appropriate barriers for radiation shielding are used, and if radionuclide containment barriers are preserved or new ones are developed to prevent radionuclide releases into the environment. The dry storage method has been selected for spent nuclear fuel storage in Lithuania (until the installation of the deep repository): the spent nuclear fuel is loaded into special containers that meet all the above safety requirements, which are stored in the storage facilities of the Ignalina NPP. Both storage facilities are of the dry type and the spent fuel is stored in the same containers in which it was delivered to the storage facilities. From the beginning of 2023, Ignalina NPP did not have any spent or unspent nuclear fuel residues in its power units.

A total of 118 containers (20 CASTOR RBMK-1500 and 98 CONSTOR RBMK-1500 ones) with spent nuclear fuel are stored in the first spent fuel storage facility (SFSF-1). Each container contains 51 spent nuclear fuel assemblies. In total 6,016 spent nuclear fuel assemblies are stored in the storage facility. The facility stores spent fuel with 2% initial enrichment (U-235). All CASTOR RBMK-1500 and CONSTOR RBMK-1500 protective containers with spent nuclear fuel are leak-tight.

As of the beginning of 2023, 190 CONSTOR® RBMK1500/M2 type containers containing spent nuclear fuel (including 22 ones containing damaged fuel) and 15,555 spent nuclear fuel assemblies were stored in the second spent fuel storage facility (SFSF-2), plus one extra empty container for the transfer of spent fuel in the storage facility's hot cell in case a spent fuel container is no longer leak-tight. It also stored eight special metal containers containing unused nuclear fuel.

In accordance with the procedures and regulatory acts adopted by the Ignalina Nuclear Power Plant, both storage facilities are subject to maintenance and periodic inspection of the stored containers, as well as to temperature control of the container bodies and to radiation monitoring of the outer surfaces of the containers.







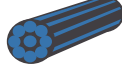
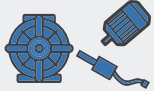



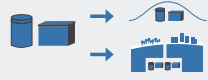


Spent Fuel Storage Facility (SFSF-2)

# Radioactive waste in Lithuanian nuclear facilities

## WHAT IS RADIOACTIVE WASTE?

Radioactive waste is spent nuclear fuel and other radioactive material that is contaminated with or contains radionuclides and is considered unsuitable for further use according to its purpose.

	SHORT-LIVED VERY LOW LEVEL RADIOACTIVE WASTE	SHORT-LIVED LOW AND INTERMEDIATE LEVEL RADIOACTIVE WASTE	SPENT NUCLEAR FUEL AND OTHER LONG-LIVED WASTE	DISUSED SEALED SOURCES
HOW IS IT GENERATED?	<p>It is generated during repairs of installations and cleaning premises of Ignalina NPP, and during decommissioning.</p> 	<p>It is generated during repairs, small-scale works in the central hall, spent fuel storage pools of Ignalina NPP, and during decommissioning.</p> 	<p>It has accumulated during Ignalina NPP operation, and is generated during decommissioning and dismantling.</p> 	<p>By Ignalina NPP and other industrial companies, medical and research institutions.</p> 
WHAT DOES IT LOOK LIKE?	<p>Paper and cotton waste, pieces of power cables, filters, metal parts of installations, rubber and heat insulation material, construction waste.</p> 	<p>Worn out or dismantled equipment, pipes, structural elements, construction waste.</p> 	<p>Spent nuclear fuel assemblies, their structural elements, fuel channels, parts of control and safety systems, graphite.</p> 	<p>For instance, devices not in use.</p> 
WHERE AND HOW IS IT STORED?	<p>It is placed in metal containers (after pressing some of it into bales and wrapping them into polyethylene film) and stored in a storage facility in the territory of Ignalina NPP.</p> <p>It will be shipped to the repository for very low level radioactive waste later, once it is installed.</p> 	<p>It is processed (incinerated, pressed, placed into reinforced concrete containers, cemented) and stored in storage facilities in the territory of Ignalina NPP.</p> <p>It will be shipped to the repository for low and intermediate level short-lived radioactive waste later, once it is installed.</p> 	<p>It is placed into containers and shipped for storage to the spent nuclear fuel and other storage facilities in the territory of Ignalina NPP.</p> <p>This waste will be stored in these facilities for up to 50 years, and later placed in a deep geological repository.</p> 	<p>They are stored in storage facilities in the territory of Ignalina NPP and in Maišiagalė Radioactive Waste Storage Facility.</p> <p>In the future this waste will be sorted, packed into special packages and placed into a repository meant for these sources.</p> 
HOW LONG WILL IT BE DANGEROUS TO PEOPLE AND THE ENVIRONMENT?	<p>100 years</p>	<p>300 years</p>	<p>The waste will be radioactive for thousands of years, but if placed in a deep geological repository it will not be dangerous to people or the environment.</p> <p>&gt; 1000 years</p>	<p>From 100 to thousands of years.</p> <p>&gt; 100 years</p>

## Solid radioactive waste

Solid radioactive waste accumulated during the operation of the Ignalina NPP is temporarily stored in the solid radioactive waste storage facilities (Buildings 155 and 155/1 and Buildings 157 and 157/1) on the territory of the Ignalina NPP. During the entire operation of Ignalina NPP, 27,178 m<sup>3</sup> of untreated solid radioactive waste were generated. In the above-mentioned storage facilities, untreated solid radioactive waste is stored in bulk. Thus, the radioactive waste must be retrieved from the storage facilities and sorted, characterised and packaged in line with its radiological and other characteristics, and undergo further processing to prepare it for disposal in repositories. This ensures that solid radioactive waste is managed safely and that the impact of its ionising radiation on the environment and people is kept at a minimum. Radioactive waste generated during decommissioning is no longer placed for storage in the above-mentioned storage facilities: it is managed in new radioactive waste management installations and subsequently stored in newly built radioactive waste storage facilities.



A package filled with very little radioactive waste

Short-lived very low level radioactive waste (Class A waste according to the classification provided for in Nuclear Safety Requirements BSR-3.1.2-2017) must be disposed of in a very low level radioactive waste repository. This waste is stored in a very low level radioactive waste buffer storage facility, from where it is transported to the repository. The storage operated since 2013 was completely full by the beginning of 2019 and stored 4,351 m<sup>3</sup> radioactive wastes. Waste of this class that does not fit into the buffer storage facility can also be temporarily stored in the former turbine building (room 101/1 of Building G1 and room 101/2 of Building G2). After dismantling equipment of the buildings, special areas for waste storage were arranged there.

Facilities of solid radioactive waste retrieval from Buildings 155 and 155/1 and their pre-treatment facilities are used for the retrieval, sorting, compression and packaging of solid radioactive waste. In 2023, 203.1 m<sup>3</sup> of radioactive waste were retrieved from Building 155/1 and, after pre-treatment, packaged into 6 packages of compacted waste and 10 packages of non-compacted waste. Since the start of operation of the retrieval facilities, 2,212.8 m<sup>3</sup> of radioactive waste have been retrieved, pre-treated and packaged in 502 packages of compacted waste and 73 packages of non-compacted waste.

In 2023, preparations were made for the temporary storage in this building of the radioactive waste packages shipped from the Maišiagala Radioactive Waste Storage Facility since November.

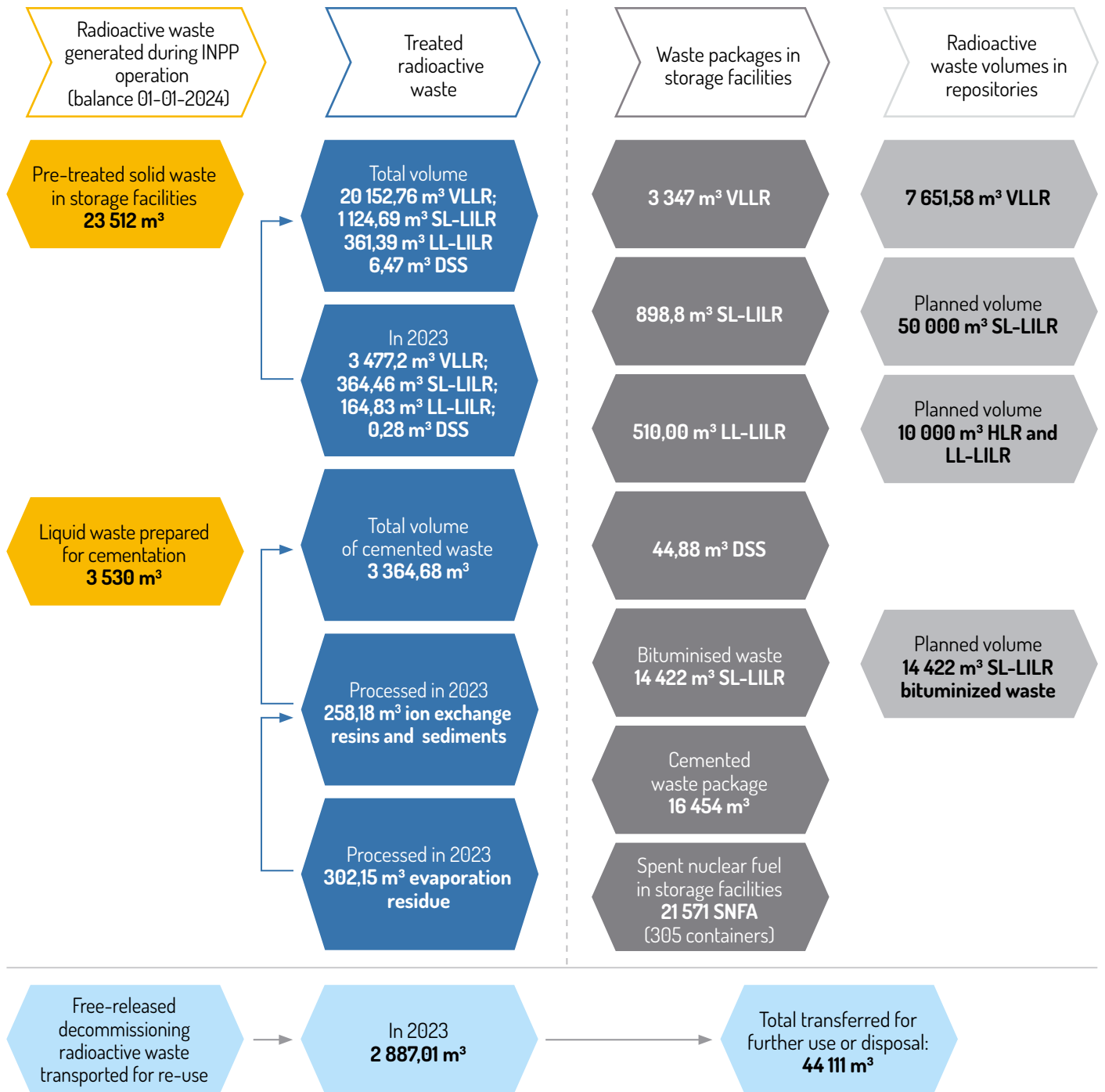
During operation, the waste is retrieved from the storage facilities (Buildings 157 and 157/1), placed in transport containers and transported for sorting and handling to the solid radioactive waste management facilities. In 2023, 1,269.12 m<sup>3</sup> of short-lived very low, low and intermediate level radioactive waste and 93.3 m<sup>3</sup> of long-lived high level radioactive waste were retrieved from the storage facilities. In total, 1,764.82 m<sup>3</sup> of short-lived very low, low and intermediate level radioactive waste and 210.5 m<sup>3</sup> of long-lived high level radioactive waste were retrieved during the entire period of retrieval of radioactive waste.

During 2023, the total number of packages produced at the Solid Waste Management and Storage Facilities included 35 packages of short-lived low and intermediate level waste (Class B and C) and 46 packages of long-lived low and intermediate level waste (Class D and E). At the end of 2023, the total number of packages stored in the facilities was 140 packages of Class B and C radioactive waste, 125 packages of Class D and E radioactive waste and 11 packages of spent sealed sources (Class F radioactive waste). The Solid Radioactive Waste Management and Storage Facilities are designed to manage, in accordance with modern international requirements, all solid radioactive waste generated during the operation and decommissioning of the Ignalina NPP, and to store long-lived radioactive waste for up to 50 years.

## Liquid radioactive waste

The liquid state facilitates the release of radionuclides in the environment and, to prevent this, liquid radioactive waste (contaminated NF process water, such as water used for reactor cooling or other NF purposes, or filtration substances used to treat contaminated water) is solidified by cementing,

# Radioactive waste volume 2023



**VLLR** – very low level radioactive waste;  
**LL-LILR** – long-lived low and intermediate level radioactive waste;  
**SNFA** – spent nuclear fuel assemblies

**SL-LILR** – short-lived low and intermediate level radioactive waste;  
**HLR** – high level radioactive waste;  
**DSS** – disused sealed sources.



Container with cemented waste

bituminising or otherwise binding residual water in this type of waste. Typically, prior to solidification, liquid radioactive waste is reduced in volume by evaporation and separation of clean water from the contaminated residue and filtration substances, which are further treated as radioactive waste. Liquid radioactive waste generated at the Ignalina NPP is evaporated in dedicated evaporation facilities. The vapours generated during evaporation are filtered with special ion-exchange and perlite filters that absorb radionuclides. These filters are subsequently cemented and stored as radioactive waste in the cemented radioactive waste storage facility.

Previously, the evaporation residue was solidified by bituminisation, but in 2019 the Ignalina Nuclear Power Plant decided to cement it.

During 2023, 405.08 m<sup>3</sup> of liquid radioactive waste were treated in the cementing facility and 3,224 cemented waste packages (drums) were produced. At the end of 2023, 2,848 containers of cemented liquid radioactive waste were stored in the cemented waste storage facility.

### Waste not exceeding the clearance levels

Radioactive waste is defined as waste with levels of radionuclide contamination above the clearance levels of radionuclide activity set by legislation. All waste within a radiologically controlled area shall be considered radioactive until the level of contamination is measured and it is demonstrated that the values of radionuclide contamination do not exceed the clearance level values. Such waste shall be safe for placement in conventional landfills or for use as secondary raw materials. For example, some equipment or metal parts can be reused in industry or construction waste can be managed as conventional. Special measurement devices are used to determine whether waste meets the clearance levels, i.e. whether potentially non-radioactive waste is indeed

non-radioactive. Such devices are in place in Buildings 159B and B10 of the Ignalina NPP. During 2023, 4,934.5 m<sup>3</sup> of materials and waste were measured in these facilities, determined to be non-radioactive according to measurement results, and shipped out for reuse or to conventional landfills. VATESI evaluates the certificates of activity concentration or surface activity measurements for each package of material or waste planned for shipment. Only when satisfied that the measured values are such as to demonstrate compliance with the condition of material clearance from the point of view of radiation protection, VATESI takes a decision to allow the shipment of the material or waste packages from the territory of the Ignalina NPP.

### Very low level radioactive waste repository

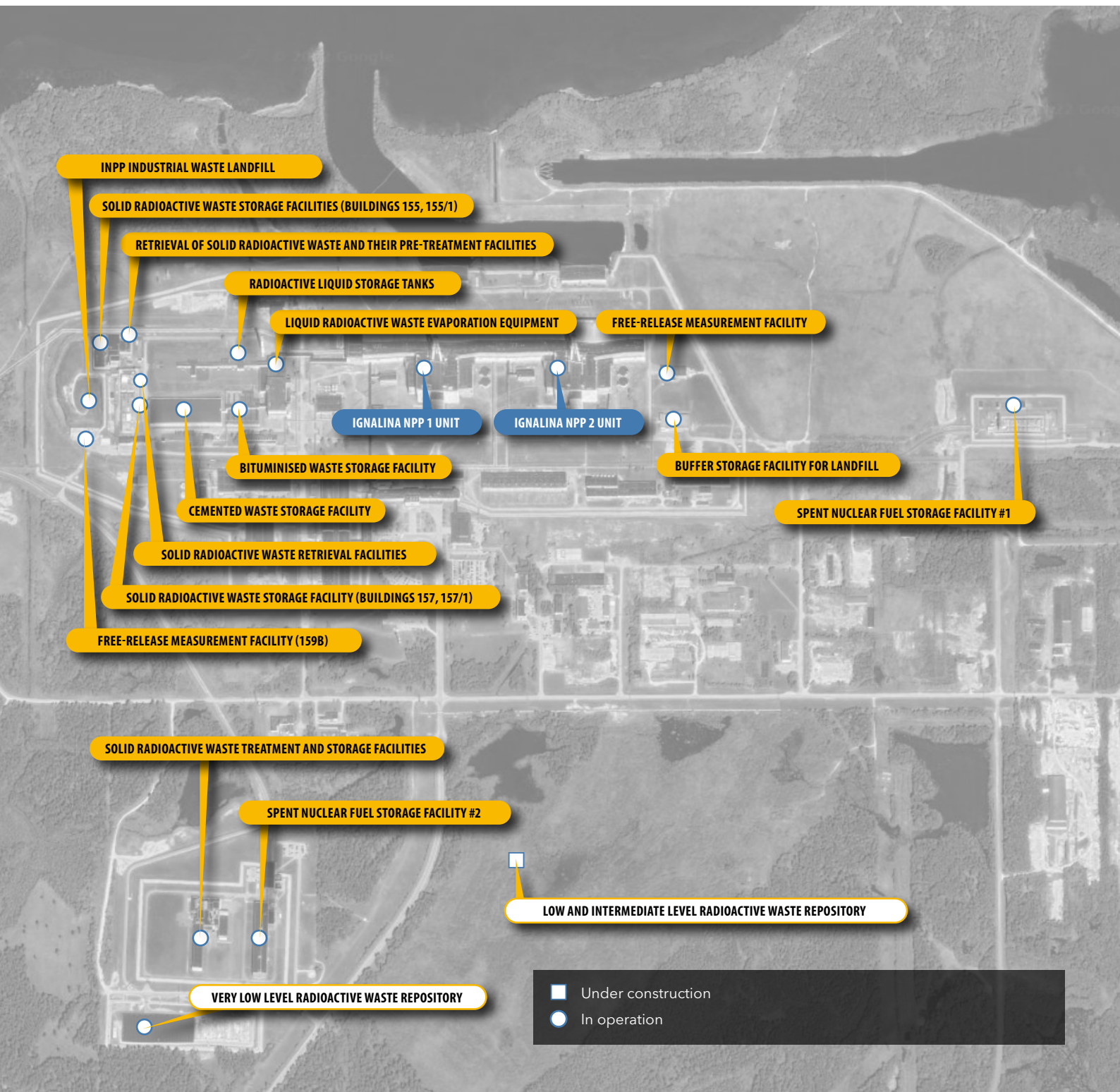
The very low level waste repository (Project B19-2, the Repository) was built on the territory of the Ignalina NPP, on a site south of the Second Spent Fuel Storage Facility and the Solid Waste Management and Storage Facility. The Repository modules are designed to contain very low level waste in compliance with safety requirements ensuring adequate protection of people and the environment from potential harmful radiological effects. The Repository will consist of three modules, each containing approximately 20,000 m<sup>3</sup> of radioactive waste. The disposal of radioactive waste will be carried out in campaigns at least once every two years. It is planned that the Repository will be full by 2038, when the decommissioning of the Ignalina NPP will be completed.

Placement of radioactive waste into the Repository started in 2022, when VATESI issued a permit to the Ignalina NPP for transporting radioactive waste to the Repository and for conducting the first tests of the systems of the Repository using radioactive waste.

In 2023, the company continued the work and carried out the second waste placement campaign. During this campaign, 3,621.7 m<sup>3</sup> of waste was placed in the Repository. The waste packages and the gaps between them were filled with sand to form a levelling layer, and a waterproofing layer of bentonite carpet and HDPE (high density polyethylene) geomembrane was installed. Above these, gravel drainage and soil layers with grass are being formed and separated by a geotextile.

The results of the monitoring programme carried out in 2023 showed that the Repository did not have any negative impact on the environment: the level of ionising radiation in the Repository during and after the campaign did not exceed the values laid down in

# Radioactive waste storage facilities near Ignalina NPP territory





Formation of a very low-level waste repository

the regulatory documents and in the technical design, and there were no releases of radioactive substances into the environment. The settlement of the Repository's foundation slab is acceptable for its continued operation in accordance with the requirements of the technical design. The engineered barrier layer of bentonite carpet and HDPE geomembrane reliably protect the Repository module against ingress of water.

## Supervision of decommissioning of Maišiagala Radioactive Waste Storage Facility

The Maišiagala Radioactive Waste Storage Facility (Maišiagala RWSF) is a 200 m<sup>3</sup> cast-in-situ monolithic reinforced concrete basement, installed at a depth of three metres and located in Bartkuškis Forest, in Širvintos District. This storage facility was closed in 1989 and stored radioactive waste collected from industrial enterprises, medical and scientific institutions between 1963 and 1989. The storage facility is situated 9 km away from Maišiagala town and about 40 km away from Vilnius.

Taking into account expert conclusions drawn in 2006 and modern requirements for radioactive waste management, the Maišiagala RWSF could not be the final disposal site for the waste stored there, and a decision was therefore taken to decommission the Maišiagala RWSF and to retrieve, sort and package the radioactive waste contained therein, to transport it to the storage facilities of the Ignalina NPP, and to subsequently place it into waste repositories dedicated to each type of waste. On 5 October 2018, the Final Decommissioning Plan for the Maišiagala Radioactive Waste Storage Facility was approved by Order of the Minister for Energy. The decommissioning of the storage facility is being carried out by the Ignalina NPP, which was licensed for this activity by VATESI in 2021.

In 2023, the Ignalina NPP completed the construction of a temporary structure (caisson) at the Maišiagala RWSF site using contractors. The purpose of the caisson is to ensure that radioactive materials are contained within the structure and not released to the environment during the retrieval of radioactive waste. Other preparatory decommissioning works were also carried out (construction of roads and parking areas on the site, excavation of the basement storage pile down to the asphalt layer, and construction of a roofed storage area for the storage of potentially non-radioactive waste).

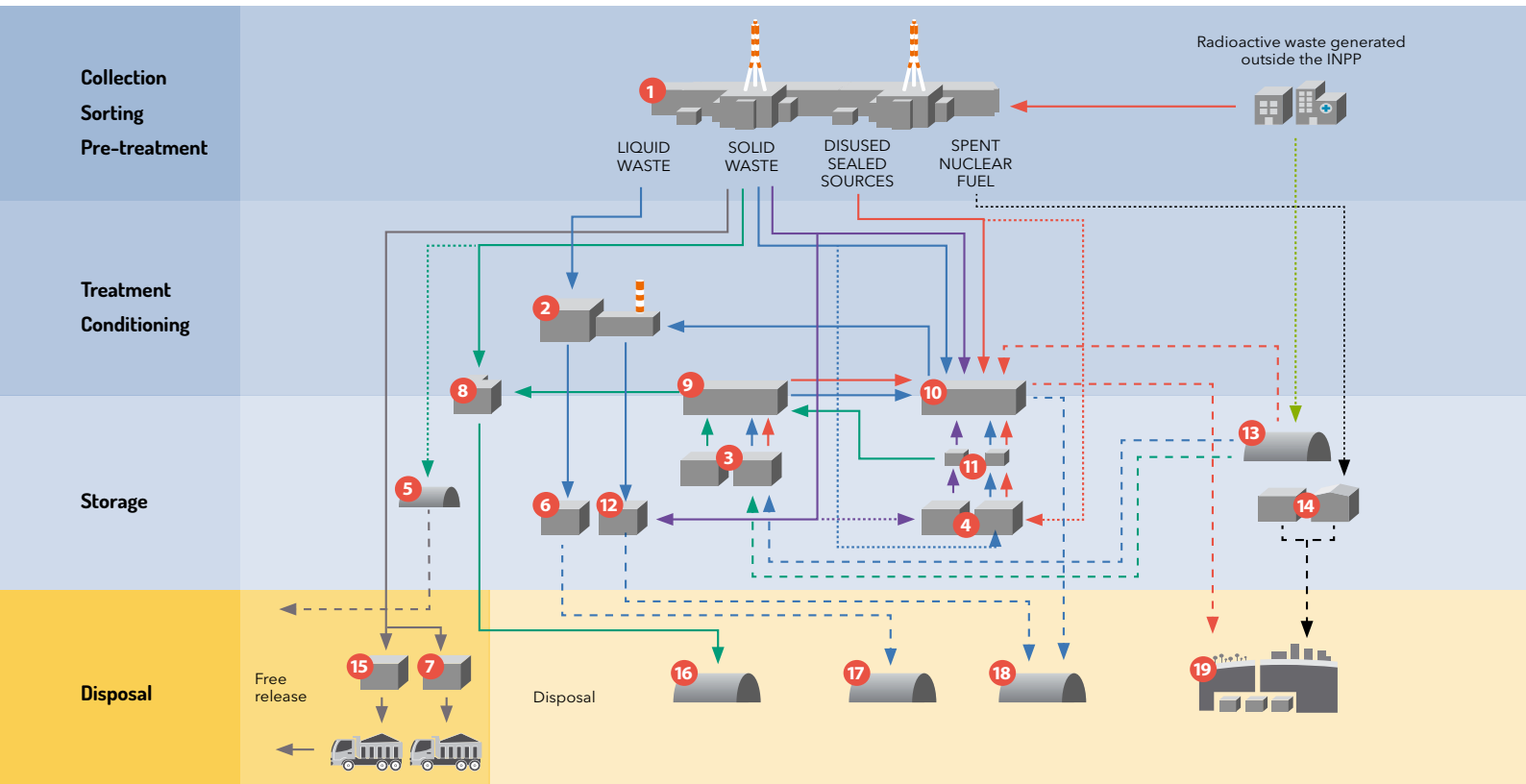
In early November 2023, in accordance with the cold trials programme agreed with VATESI, the Ignalina Nuclear Power Plant carried out cold trials of the radioactive waste management equipment and systems installed on the Maišiagala RWSF site, i.e. trials without radioactive waste. During these trials, all systems and components, as well as the technological processes, were verified by removing the asphalt and the levelling concrete layer from the basement overlay of the Maišiagala RWSF. The results of the trials showed that all the equipment worked safely together and that the overall performance and characteristics of the caisson were in line with the intended design solutions. The vehicles, containers and packaging (various types of containers, drums, big bags, etc.) for the transport of radioactive waste from the Maišiagala RWSF site to the Ignalina NPP radioactive waste storage facilities were also tested.

At the end of November 2023, the Ignalina Nuclear Power Plant received a statement of completion of the construction of the temporary structure (caisson) of the Maišiagala RWSF, which confirmed that all the equipment, technological and engineering systems of the Maišiagala RWSF were ready for the safe retrieval of the radioactive waste stored in the basement of the Maišiagala RWSF. Immediately thereafter, the Ignalina NPP commenced hot trials at the Maišiagala RWSF, i.e. trials using radioactive waste, in accordance with the hot trials programme agreed with VATESI. Both during and after the hot trials, waste was retrieved from the basement sections of the storage facility, reduced in size and then removed. This work was carried out by means of a remotely controlled device. The safety of workers, the public and the environment was ensured by specially equipped advanced containment systems (ventilation, high-efficiency filtration, monitoring equipment).

Also in 2023, VATESI issued a licence to the Ignalina Nuclear Power Plant to transport nuclear fuel cycle materials and the nuclear and fissile materials listed in Annex 1 to the Law on Nuclear Safety in the



# Radioactive waste management scheme



## EXPLANATIONS

The different color of the arrows indicates a specific flow of radioactive waste. Arrows in the chart indicate the planned, ongoing or no longer performed radioactive waste management activities. Numbers denote nuclear facilities.

- Free-released waste (class 0)
- Short-lived very low level radioactive waste (class A)
- Short-lived low and intermediate level radioactive waste (class B and C)
- Long-lived low and intermediate level radioactive waste (class D and E)
- Disused sealed sources (class F)
- Spent nuclear fuel (class G)
- Unsorted radioactive waste (until 1989)

Radioactive waste management activities:

- - - Planned
- In progress
- ..... No longer in place

1. Ignalina Nuclear Power Plant (INPP)
2. Liquid radioactive waste evaporation equipment
3. Solid radioactive waste storage facility (155, 155/1)
4. Solid radioactive waste storage facility (157, 157/1)
5. INPP industrial waste landfill
6. Bituminised radioactive waste storage facility
7. Free-release measurement facility (159B)

8. Very low level radioactive waste storage facility (characterization, storage)
9. Retrieval of solid radioactive waste and their pre-treatment facilities (Project B2-1) (sorting, packaging)
10. Solid radioactive waste management and storage facilities (B 3/4) (sorting, cutting, compaction, incineration, grouting, packaging, characterization, storage)

11. Retrieval of solid radioactive waste and their pre-treatment facilities (Project B2-2)
12. Cemented radioactive waste storage facility
13. Maišiagala Radioactive Waste Storage Facility
14. Spent nuclear fuel storage facilities
15. Free-release measurement facility (B10)
16. Very low level radioactive waste repository
17. Bituminised radioactive waste storage facility
18. Low and intermediate level radioactive waste repository
19. Deep geological repository



**Covered Maišiagala radioactive waste cellar and part of the radioactive waste retrieval equipment**

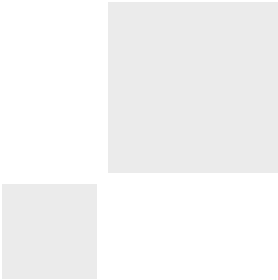
quantities set out therein. During the analysis of the safety justification documents submitted by the Ignalina NPP for the transport licence, VATESI was satisfied that the planned activities, such as the proper selection of transportation packages, vehicles and

routes, emergency preparedness, transporting and loading operations, as well as the qualifications of employees, complied with the requirements of nuclear safety, radiation protection and physical security for transporting radioactive waste by public roads. This licence authorises the Ignalina NPP to transport radioactive waste generated during the decommissioning of the Maišiagala RWSF to the Ignalina NPP radioactive waste management facilities.

Based on the Final Decommissioning Plan of the Maišiagala RWSF, radioactive waste, structures and soil contaminated with radionuclides will be retrieved from the Maišiagala RWSF. The retrieved waste will be sorted and transported to the radioactive waste management facilities at the Ignalina NPP, where it will be treated and stored in suitable storage facilities next to the Ignalina NPP. There are plans to remediate the storage facility area and cease its radiation control in 2025. The remediated site of the Maišiagala RWSF will be available for other activities without any restrictions.



# Non-proliferation control



## NON-PROLIFERATION CONTROL

The implementation of non-proliferation commitments is a complex activity including the implementation of IAEA and European Atomic Energy Community (Euratom) safeguards, the control of nuclear dual-use items or the prohibition of nuclear testing.

### Implementation of IAEA and Euratom safeguards



Calibration plates with plutonium

The IAEA and Euratom Safeguards are a set of control measures (inspections, remote monitoring and other control systems) put in place by the IAEA and the European Commission to verify compliance with non-proliferation commitments under the Treaty on the Non-Proliferation of Nuclear Weapons to prevent the use of nuclear energy for non-peaceful purposes. Lithuania has acceded to the Treaty on the Non-Proliferation of Nuclear Weapons, thereby declaring that all activities involving nuclear material in the Republic of Lithuania shall be used for peaceful purposes only. In accordance with this Treaty, and by signing the Comprehensive Safeguards Agreement with the IAEA on the application of safeguards and its Additional Protocol, Lithuania committed to accept international inspectors to carry out inspections and to provide all information on the country's nuclear activities. After joining the European Union (EU), Lithuania also became a member of Euratom, and the European Commission, together with the IAEA, started controlling nuclear material.

To properly control nuclear material, the European Commission assigns individual material balance area (MBA) codes to companies, organisations or institutions holding nuclear material. In 2023, there were a

total of 12 active MBA codes in Lithuania, of which six were assigned to the Ignalina Nuclear Power Plant. The remaining five codes represented material balance areas for entities with small quantities of nuclear material and one MBA was for VATESI. The VATESI-owned MBA (WLTC) takes account of nuclear material held by economic entities on a temporary basis and therefore it would not be appropriate for them to apply to the European Commission for an individual MBA code, as well as of nuclear material held by holders of nuclear material with pending decisions on MBA granting. In 2023, nuclear material held by three economic entities was accounted in the VATESI-owned MBA.

All entities holding MBAs are required to provide regular information to VATESI and the European Commission on changes in the nuclear material in the MBAs and to update different relevant technical information accordingly. In this context, in 2023, VATESI continued to monitor and, where necessary, advise the economic entities to ensure that they submit all the necessary information to the European Commission in a timely manner.

As part of the monitoring of Lithuania's international non-proliferation commitments to the IAEA, inspectors from the European Commission, together with inspectors from VATESI, visited one Lithuanian entity declaring activities with nuclear material in 2023. During the visit, the inspectors verified that the company was carrying out activities exclusively for peaceful purposes, that all nuclear materials were properly accounted, and that there were no other undeclared activities involving nuclear or nuclear fuel cycle materials. Also in 2023, IAEA and European Commission inspectors visited three undertakings that had declared termination of all activities with nuclear material and had applied for the closure of MBAs assigned to them. After assessing the information gathered, the IAEA and the European Commission have reached a conclusion on the cancellation of one MBA, while the final decision of the IAEA and the European Commission is still pending on the others.

In early June 2023, a planned inspection of physical inventory verification of the Ignalina NPP site and the dry-type storage facilities for spent nuclear fuel was carried out by the IAEA, the European Commission and VATESI experts. The inspection covered sealed unspent nuclear fuel stacked in containers at the temporary spent fuel storage facility, spent nuclear fuel stored

in both spent fuel storage facilities, and fuel storage pools in both units of the Ignalina NPP. VATESI inspectors found no irregularities during the inspection and the international inspectors will report their findings in 2024. Moreover, an a complimentary access inspection was carried out in May 2023 at VATESI-owned MBA (WLTC), during which IAEA and EC inspectors inspected premises of companies, accounting for their nuclear material in the VATESI-owned MBA (WLTC), where nuclear material is handled, performed identification measurements of used calibration sources, and also collected environmental samples.

In 2023, in order to ensure that the entities which have their nuclear material accounted in the VATESI-owned MBA are implementing the requirements for accounting and control of nuclear material, VATESI experts inspected the nuclear material held by such entities and evaluated how the physical inventory of the nuclear material is carried out. VATESI also verified the implementation of the nuclear material accounting and control requirements by one economic entity holding an MBA granted by the European Commission. During this inspection, one minor violation was identified, which was immediately corrected by the entity.

Inspections carried out by international inspectors and information provided by Lithuania on its activities in the field of nuclear energy enabled the IAEA to conclude that all the nuclear material and activities declared by the country were used only for peaceful purposes and that there was no evidence of undeclared nuclear material and activities. In the 2023 Safeguards Implementation Report, the IAEA made a positive conclusion that all the nuclear material used and activities that took place in Lithuania in 2022 were exclusively for peaceful purposes. The report for 2023 will be submitted in mid-2024.



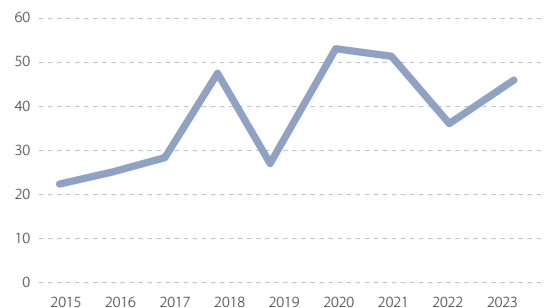
Calibration plates with plutonium

## Control of nuclear dual-use items

To contribute to the non-proliferation regime, the Nuclear Suppliers Group (NSG) was established in 1974 that brought together countries with nuclear technologies and set the terms under which nuclear and dual-use material, equipment and technology may be transferred from one country to another. Lithuania became a member of the group in 2004.

In accordance with these terms, and in line with the legislation of the Republic of Lithuania and the EU, VATESI, together with other institutions, carries out controls on the export, import, transit, brokering and transfer of strategic goods in the EU, and participates in the issuance of conclusions on the export and import of dual-use items. In 2023, VATESI provided conclusions on 46 applications for dual-use export licences. The main exporters of these items are Lithuanian economic entities producing laser systems and components.

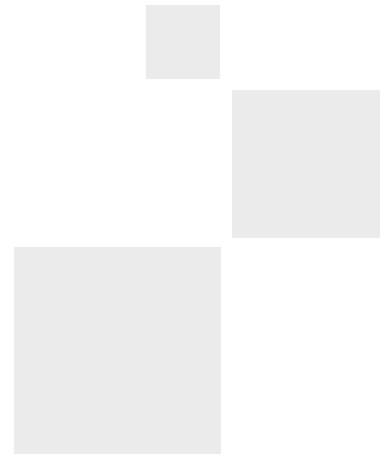
### VATESI conclusions on export and import of dual-use items in 2015–2023



In case of imported nuclear dual-use items, VATESI, together with the Ministry of the Economy and Innovation of the Republic of Lithuania, issues state guarantees (a letter confirming the end use) to the supplier country of the imported items regarding the peaceful use of such items. The sole importer of such items in Lithuania is the Ignalina NPP. In 2023, no such nuclear dual-use items were imported. The results of VATESI inspections show that previously imported nuclear dual-use items with end-use certificates were used in line with their guarantee obligations and were properly controlled.



# Nuclear security



# NUCLEAR SECURITY

Nuclear security is the prevention, detection of and response to any illegal activity (theft of nuclear or other radioactive material, diversion, illegal movement of such material, unauthorised access to facilities where such material is stored and used, or other related criminal acts).

The physical security of NFs, nuclear and other radioactive material is among the components of nuclear security.

## Physical security of nuclear material and nuclear facilities

Physical security of nuclear, nuclear fuel cycle material and NFs consists of the totality of competencies and measures to protect NFs, nuclear, nuclear fuel cycle material and sources of ionising radiation from unlawful possession or seizure, and from other unlawful acts that would pose a risk to human health and safety due to radiation exposure.

In line with best international practices and IAEA Nuclear Security Recommendations, the physical security system for NFs and nuclear material should be designed with a view to protecting against potential intruders whose characteristics are described in the design basis threat documents. Threat assessment is the initial step in the development and maintenance of a physical security system to help answer the question of what the NF or activities with nuclear material need to be protected against. The IAEA defines a design basis threat as a set of information about a potential intruder that includes their characteristics, such as motivation, intention, knowledge, tools, vehicles, capabilities and capacities, and other information that describes the potential intruder. Lithuania also follows these IAEA recommendations; therefore, design basis threats are assigned and validated for all NFs and activities such as the transport of relevant nuclear material.

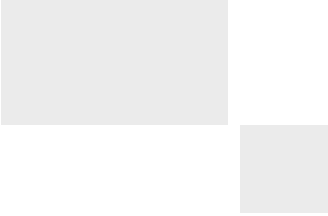
On 8 March 2023, a design basis threat to the unused nuclear fuel storage facility was eliminated by order of the Head of VATESI, with the transfer of all unused nuclear fuel from this building to the spent fuel storage facility (SFSF-2) for storage.

On 22 November 2023, the Commission for Assessing Design Basis Threats held its regular meeting. The meeting, attended by members delegated by VATESI, the Department of State Security, the Ministry of National Defence and the Ministry of the Interior, discussed the changed geopolitical situation and the resulting increased security risk to nuclear facilities in Lithuania. Together with representatives of the Ignalina Nuclear Power Plant, the meeting also discussed aspects of nuclear security threats, such as the risk posed by insiders and cyber security.

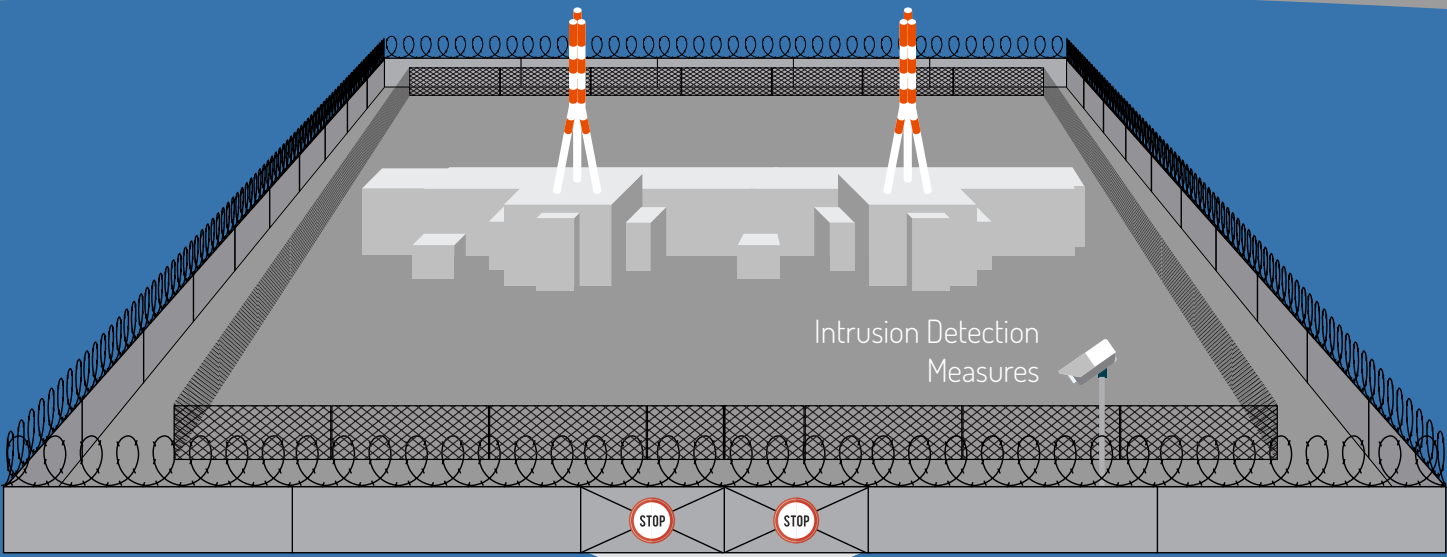
Given the continuing threat posed by the war in Ukraine, the members of the Commission for Assessing Design Basis Threats were regularly briefed on the situation in Ukraine's NFs and on other nuclear security events around the world, such as the theft of radioactive sources in Mexico and the attempted sale of nuclear materials in Serbia in 2023.

Similarly, due to modifications in technical and organisational arrangements for the physical security system of nuclear facilities in 2023, VATESI assessed various safety justification documents submitted by the Ignalina Nuclear Power Plant related to physical security (physical security plans for different NFs and nuclear material transportation, descriptions of technical measures of physical protection systems, reports on the analysis of the NF division into protection zones).

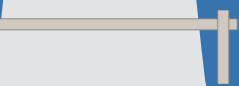
Also in 2023, the Ignalina Nuclear Power Plant, together with the Visaginas Unit of the Public Security Service under the Ministry of the Interior of the Republic of Lithuania, carried out an assessment of the effectiveness of the physical security system at the Maišiagala Radioactive Waste Storage Facility to assess whether the physical security system of the NF (technical and organisational measures, including the actions taken by the guards and response forces) are capable of meeting the objectives of the system. The assessment was carried out in accordance with the Effectiveness Assessment Programme approved by VATESI and the approved adversary scenarios. The preparedness of the Ignalina Nuclear Power Plant to ensure physical security during the decommissioning of the storage facility was assessed. The assessments found that the physical security system in place, together with appropriate response forces, is capable of



# Physical security system



Access Controls



Security Officers





protecting nuclear, nuclear fuel cycle and other radioactive material contained therein from unauthorised acts that could pose a risk to human health and safety.

As every year, VATESI experts carried out inspections in physical security area at the NFs controlled by the Ignalina Nuclear Power Plant. General information on the results of the inspections is provided in the section *Inspections*.

## Prevention of illicit trafficking of nuclear and other radioactive material

To encourage member states to share information on incidents or illicit acts with nuclear or other radioactive material, and on cases of their smuggling, illicit transportation or disposal, the IAEA created the Incident and Trafficking Database (ITDB) in 1995. It is a voluntary initiative which Lithuania is a party to. VATESI is responsible for providing such information to the IAEA and disseminating it to Lithuanian

agencies. In 2023, the Federal Republic of Somalia and the Togolese Republic joined the ITDB, and now 145 member states are parties to the ITDB.

Since joining the ITDB in 1996 to the end of 2023, VATESI submitted a total of 98 information reports on events in Lithuania.

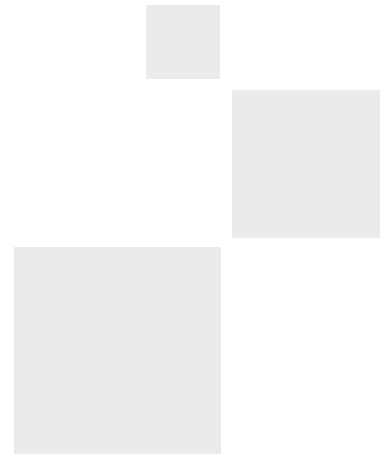
In 2023, four events related to illicit material trafficking were recorded in Lithuania. VATESI provided information on them to the IAEA database as follows:

- Metal products contaminated with radium (Ra-226) found in a scrap metal company;
- Metal products contaminated with americium (Am-241), manganese (Mn-54), samarium (Sm-153) and sodium (Na-22) radionuclides found in a scrap metal company;
- A container of depleted uranium found in a scrap metal company;
- A metal product contaminated with radium (Ra-226) and a container of depleted uranium found in a scrap metal company.

In 2023, IAEA member states submitted a total of 168 information reports on incidents or illicit acts with nuclear or other radioactive material, and updates to five previous reports. Having received the information reports from the IAEA, VATESI forwarded them to the Police Department, Radiation Protection Centre and the Nuclear Security Centre of Excellence. Information on lost or stolen radioactive sources in Lithuania's neighbouring countries and on other events that may have affected national nuclear security was additionally forwarded to the State Border Guard Service and the Customs Department. Information on events related to attempted sales of nuclear or other radioactive material and cases of theft was also forwarded to the members of the Commission for Assessing Design Basis Threats.



## International cooperation



# INTERNATIONAL COOPERATION

International cooperation of VATESI is based on Lithuania's international obligations, membership in international organisations and bilateral agreements.

VATESI experts represent the national interests and participate in the activities of international organisations: they work in various working groups aimed at continuously improving the level of nuclear safety, physical security, and radiation protection in Lithuania and Europe, and exchange experience and best practices in nuclear activity regulation and supervision.

## Convention on Nuclear Safety

Lithuania became a Contracting Party to the Convention on Nuclear Safety (CNS) in 1996. All the Contracting Parties to the CNS must respect the principles of nuclear safety assurance laid down therein.

CNS objectives:

- To achieve and maintain a high level of nuclear safety worldwide;
- To develop and maintain effective measures against potential radiological hazards in nuclear facilities in order to protect people and the environment from the harmful effects of radiation resulting from the operation of such facilities;
- To prevent accidents with potential radiological consequences and to mitigate the consequences, if any.

Every three years, each Contracting Party shall submit a regular report on the measures taken to implement obligations under the CNS. The reports are discussed at CNS review meetings of the Contracting Parties. The meetings take place at least once in three years. VATESI is responsible for compliance with Lithuania's obligations under the CNS.

In 2023, preparations for the Joint 8<sup>th</sup> and 9<sup>th</sup> CNS Review Meetings took place. VATESI, together with other institutions, answered 102 questions asked by the Contracting Parties for the 9<sup>th</sup> Lithuanian National Report and submitted 42 questions for other countries' National Reports.

Lithuania's report on the work carried out over the past six years to implement the provisions of the CNS and to ensure a high level of nuclear safety in Lithuania was presented at the Review Meeting held in Vienna from 20 to 31 March 2023. Lithuania also presented the actions taken to ensure nuclear safety, emergency preparedness and public awareness of potential risks in the light of the military aggression of the Russian Federation, which threatens the nuclear safety and security of Ukraine's nuclear facilities. In its presentation, Lithuania condemned the military aggression of the Russian Federation and joined the statements of Euratom and other Western countries calling on Russia to withdraw as soon as possible from all nuclear facilities in Ukraine and to hand over control to the Ukrainian authorities, as well as expressing support for the Ukrainian nuclear professionals who work to ensure the safety of nuclear power plants even under such difficult conditions. The countries attending the presentation agreed that Lithuania was duly fulfilling its obligations under all the provisions of the Convention.

The Lithuanian delegation also actively participated in the discussion of other countries' reports. Following the presentation of the Belarus report, the participants' attention was drawn to unresolved safety issues at the Belarusian NPP, which is located only 40 km away from the capital of Lithuania, Vilnius, and poses unacceptable risks to the population. Lithuania's clear position was that the operation and commissioning of Units 1 and 2 of the Belarusian NPP must be suspended until all nuclear safety issues are resolved.

At the end of the Review Meeting, the Report of the Review Meeting was endorsed, underlining the need to have plans in place to deal with the impact of emergencies such as the COVID-19 pandemic, extreme natural phenomena or military conflicts and to ensure the safety of the nuclear installations in operation, to strengthen the capacity of regulators in the assessment of the safety of new technologies, to foster international cooperation in the field of safety assessment of small modular reactors (SMRs) to assess the impact of climate change on the safety of operating nuclear installations, to ensure reliable

supply chains of nuclear fuel and spare parts, ageing management, and to strengthen emergency preparedness, including for the potential radiological consequences of military actions in Ukraine.

The Review Meeting also decided to set up a dedicated working group to discuss proposals on the efficiency and effectiveness of the CNS. VATESI has delegated a representative to this working group.



Delegation of Lithuania to the Nuclear Safety Convention meeting

## Convention on Early Notification and implementation of obligations under the Arrangements for the Early Exchange of Information in the Event of a Radiological Emergency 87/600/EURATOM

The Convention on Early Notification of a Nuclear Accident, Council Decision 87/600/Euratom on Community arrangements for the early exchange of information in the event of a radiological emergency, and bilateral agreements with neighbouring countries obligate Lithuania to timely and properly receive and provide information to the IAEA, the European Commission and the neighbouring countries on radiological and nuclear incidents and accidents that have occurred. VATESI has been appointed as the Lithuanian competent authority responsible for meeting the above commitments.

VATESI has in place a 24/7 Early Notification System. The designated and trained early notification officers are ready to respond to radiological and nuclear accidents, incidents or other unusual events and activate the Emergency Operations Centre of VATESI.

The early notification officers regularly participate in unannounced communication testing drills organised by the IAEA and the European Commission. As part of international commitments to exchange information with the IAEA and the European Commission, VATESI uses USIE and WebECURIE information exchange systems. These systems are the main tool for national competent authorities to exchange information on various unusual events, exercises and in the event of a nuclear or radiological accident.

In 2023, information on 17 events was disseminated in the IAEA's USIE system and about 100 notifications were posted, and information on six events was posted in the European Commission's WebECURIE.

Most of the notifications in the IAEA's USIE system were related to events at nuclear facilities in Ukraine. Other notifications published by the European Commission and the IAEA related to missing, stolen or found sources of ionising radiation or nuclear material, workers exposed to excessive exposure limits, and minor incidents at nuclear power plants or nuclear installations.

In 2023, a representative of VATESI participated in a meeting of the competent authorities of the European Community Urgent Radiological Information Exchange (ECURIE) system organised by the European Commission. During the meeting, the implementation of the ECURIE system, the situation in Ukraine's nuclear facilities and emerging threats, and the results of the exercises were discussed. The meetings of the competent authorities play an important role in strengthening the emergency preparedness of States at the international level. Participation in the ECURIE system is compulsory for EU countries; Switzerland, North Macedonia, Norway, Iceland, Serbia, Montenegro and Turkey have joined the system voluntarily. Bosnia and Herzegovina plans to join in the future.

VATESI, as the responsible competent authority under the above conventions and agreements, regularly participates in various IAEA and European Commission exercises. In addition to the above-mentioned communication verification drills, in 2023, VATESI officers participated in two other exercises, the IAEA's ConvEx-2a and the European Commission's ECUREX-2023, designed to test the ability to use the IAEA and European Commission's information systems, provide information, fill out forms, and take decisions depending on the simulated emergency situation.

## Participation in the environmental impact assessment activities to implement the Espoo Convention

The design, construction and operation of new nuclear power plants must comply with all international requirements on nuclear safety, radiation and environmental protection. To assess their impact on other countries, the Convention on Environmental Impact Assessment in a Transboundary Context (the Espoo Convention) must be complied with.

VATESI is among Lithuanian authorities participating in NF environmental impact assessment activities and examining submitted documents related to the environmental impact assessment. The Lithuanian Ministry of the Environment is the authority responsible for implementing the provisions of the Espoo Convention in Lithuania.

In 2023, VATESI provided conclusions to the Ministry of the Environment on the information sent by Poland regarding the planned construction of nuclear facilities and their environmental impact assessment documents.

VATESI reviewed the responses from the Polish competent authority in relation to the Environmental Impact Assessment Report received in 2022 regarding the construction and operation of the first nuclear power plant with a capacity of up to 3,750 MWe planned to be built in Poland in the area of municipalities of Choczew or Gniewin and Krakow. Following the assessment, VATESI concluded that the responses were acceptable and that the planned activities would not have an adverse effect on the population and the environment of the Republic of Lithuania. The same conclusion was also given for the planned construction in Poland of BWRX-300 small modular boiling water reactors of the BWRX-300 type: up to six (with a total electrical capacity of up to 2,000 MW) in the town of Wloclawek and up to four (with a total electrical capacity of up to 1,300 MW) in the village of Stawy Monowskie. The distance from the above mentioned locations in Poland to the territory of the Republic of Lithuania is more than 300 km (the maximum emergency planning distance in the event of a nuclear or radiological emergency is set out in the Lithuanian National Plan for Protection of Population), and therefore the planned activities would not have a negative impact on the Lithuanian environment and population, and there is no need to ask Poland to organise transboundary environmental impact assessment procedures.

## Nuclear safety regulation in the European Union (ENSREG)

It is the responsibility of each EU country to regulate the safety of nuclear installations and related activities on its territory. To this end, countries have national nuclear safety regulatory frameworks based on three EU directives: the Nuclear Safety Directive, the Directive Establishing a Community Framework for the Responsible and Safe Management of Spent Fuel and Radioactive Waste, and the Basic Safety Standards Directive for protection against the dangers arising from exposure to ionising radiation.

In compliance with these EU directives and the principle of continuous improvement of nuclear safety, the European Nuclear Safety Regulators Group (ENSREG), consisting of the European Commission and executives and experts from the European Commission's Directorate-General for Energy, addresses the assurance and continuous improvement of the safety of NFs through regulation and supervision, including decommissioning and management of spent nuclear fuel and radioactive waste. ENSREG has three working groups to address specific issues: Nuclear Safety Improvement, Radioactive Waste Management, Spent Nuclear Fuel and Decommissioning, and Public Information and Transparency.

Two ENSREG meetings were held in April and November 2023. As in 2022, safety issues related to Ukraine's nuclear facilities, arising from Russia's military aggression against Ukraine, remained high on the ENSREG agenda. Representatives of the Nuclear Safety Regulatory Inspectorate of Ukraine (SNRIU) briefed ENSREG members on the serious situation at the Zaporizhzhya NPP, which has been illegally seized and is under Russian control, stressing the presence of a large amount of military equipment on the site. It is important to further ensure the work of IAEA experts at the Zaporizhzhya NPP, who are able to provide objective information on the nuclear safety and security situation at the Europe's largest nuclear power plant. They also stressed that, after breaking off all relations with Russia, Ukraine is seeking to secure supplies of nuclear fuel, spare parts and services from other countries for the nuclear power plants remaining under Ukraine's control. They mentioned that there are sufficient organisations, both in Ukraine and in other countries, which can ensure a reliable supply of the necessary materials and services. During the meetings, the representatives of the European Commission shared information on the material support provided to Ukraine. ENSREG has repeatedly stressed

that Russia's illegal seizure of Zaporizhzhya NPP and its actions on and around the site is a major threat to nuclear safety, and that the risk of nuclear incidents will remain high as long as Russian forces are present on the Zaporizhzhya NPP site. ENSREG members are also unanimous in their view that Russian forces and their military equipment must be withdrawn from the Zaporizhzhya NPP site and the plant must be immediately returned to its rightful owner and to the supervision of Ukraine's nuclear safety regulatory authority. ENSREG also supports the Ukrainian Nuclear Safety Regulatory Inspectorate and its staff, as well as the staff of the Zaporizhzhya NPP, who continue to work under extremely difficult conditions, and strongly supports the efforts of the Director General of the IAEA to ensure the nuclear safety and security situation in Ukraine.

In compliance with the Nuclear Safety Directive, Topical Peer Reviews of nuclear safety must be held every six years, starting with 2016. The first Topical Peer Review took place in 2016–2017 and analysed ageing management of nuclear power plants and research reactors. The second Topical Peer Review started in 2023 to address fire safety assurance in operating and permanently shut-down NPPs under dismantling, as well as in radioactive waste management facilities. At the end of October, countries participating in this review, including Lithuania, developed and presented their national safety assessment reports for peer review.

In 2023, ENSREG members started the preparation of the ENSREG Work Programme 2024–2026, shared their experience in safety assessment of SMRs, and discussed the organisation of stress tests and the implementation of safety improvement measures in EU neighbouring countries (Armenia, Belarus, Turkey, Iran and Egypt).

## Western European Nuclear Regulators Association (WENRA)

The Western European Nuclear Regulators' Association (WENRA) was established in 1999. The main goal of the organisation is to develop a common approach towards nuclear safety. At WENRA events, country-delegated regulator representatives discuss nuclear safety regulation and supervision, share experience and important safety-related information, and plan nuclear safety improvement areas. Since

2004, Lithuania has been participating in the Association's Reactor Safety Harmonisation Working Group (RHWG) and the Working Group on Decommissioning and Radioactive Waste Management (WGWD).

In late 2001, the WGWD started harmonising the requirements for decommissioning and operation of radioactive waste repositories in the WENRA countries with a view to developing recommended safety levels to be followed by WENRA countries. The recommended safety levels are developed taking into account the existing legal frameworks and international guidance. The WGWD meets annually to discuss issues related to the review and benchmarking of nuclear safety supervision legislation in EU countries against the relevant safety reference levels.

In March 2023, the WGWD meeting reviewed the safety guidance levels for radioactive waste treatment. The evaluation of the self-assessment of safety guidance levels for radioactive waste treatment submitted by VATESI was also launched. During the WGWD meeting in September 2023, a peer review of Lithuania and several other countries was carried out and recommendations were made by the WGWD to these countries. The meeting also agreed on the updating of several reference safety levels for radioactive waste treatment.

## European Nuclear Security Regulators Association (ENSRA)

The European Nuclear Security Regulators Association (ENSRA) is an inter-institutional organisation uniting 16 European nuclear safety regulatory and supervisory authorities. The ENSRA was established in 2004 to provide a platform for the Association members to share best practices and experience in nuclear security regulation, and thus contribute to building and maintaining effective nuclear security in Europe. VATESI joined this association in 2013. The participation in the Association activities allows it to adopt best practices of other countries and thus strengthen the nuclear security regime of Lithuania.

In 2023, VATESI representatives attended a plenary meeting of the ENSRA in France. During the meeting, issues related to attracting new members to the ENSRA, possible amendments to ENSRA's provisions to expand the possibilities for new members (e.g. countries planning to start developing nuclear power projects), current and possible further cooperation with US authorities, preparations for the IAEA's Conference on Nuclear Security ICONS2024,



SMRs, and other issues were discussed. Each attending ENSRA member state presented information on major nuclear security developments and related work in their countries.

The activities of the Decommissioning Working Group, to which VATESI has delegated a representative, also continued in 2023. The task of the Working Group is to assess the practice of the countries and to make proposals related to nuclear safety during the decommissioning of nuclear facilities. Two meetings of the Working Group were held in Brussels in 2023 to present the practices of the members of the Working Group in ensuring nuclear security during the decommissioning of nuclear facilities, and to discuss proposals for the content of the good practice document to be published by the ENSRA. The next meeting of the Working Group is scheduled for June 2024 to take place in Lithuania.

## European Safeguards Research and Development Association (ESARDA)

The aim of the European Safeguards Research and Development Association (ESARDA) is to encourage organisations to exchange information related to nuclear material control and experience through the use of state-of-the-art safeguard application technologies. It brings together national nuclear safety regulators, nuclear facility operators, research and development centres, and universities operating in the area of safeguards application. The Association is composed of members from European countries, Japan, the USA and the European Commission. Lithuania is represented in this Association by VATESI, which became a member in 2005. VATESI's representative is also a member of the ESARDA Steering Committee.

The second joint ESARDA/Nuclear Materials Management Institute annual meeting was held in May 2023. The meeting focused on future technologies and their application to safeguards implementation and challenges. The final management of spent nuclear fuel and the closely related collection and recording of information, as well as the preservation of this information and the ways to transfer it to future generations, were widely discussed. Much attention was paid to university programmes and cooperation, to the early introduction of the concept of safeguards in the training of new professionals in various fields, and to the use of new technologies for inspectors' activities (e.g. in deep geological repositories), such as robotics and self-propelled vehicles. A self-propelled robot, with batteries and self-charging, which can record images and access areas beyond the reach of the inspector, was demonstrated to participants.

With the agreement of the Ministry of Foreign Affairs of the Republic of Lithuania, on 21 July 2023, VATESI signed an updated ESARDA Membership Agreement, with the main changes related to the identification and definition of the different members and the representation on the Executive Board. These changes are not fundamental to Lithuania's representation in the Association.

## IAEA technical cooperation projects

In compliance with the IAEA European Regional Programme for Technical Cooperation 2022-2023, and together with the Lithuanian Ministry of Energy and the Radiation Protection Centre, VATESI coordinated the participation of Lithuanian experts in the following regional technical cooperation projects on nuclear safety and energy:

- RER0048 – Enhancing National Legal Frameworks;
- RER0049 – Enhancing the Capacities of Educational Institutions for the Sustainable use of Nuclear Technologies;
- RER2015 – Strengthening Nuclear Power Plant Lifetime Management for Long Term Operation;
- RER9146 – Enhancing Capacities in Member States for the Planning and Implementation of Decommissioning Projects;
- RER9148 – Strengthening the Regulatory Infrastructure for Radiation Safety;
- RER9149 – Improving the Radiation Protection of Workers Occupationally Exposed to Ionising Radiation;

- RER9150 – Improving Capabilities to Efficiently Implement Large Ongoing Decommissioning Projects and Waste Management with Minimization of Risks Based on Initiatives and Potential Synergies;
- RER9151 – Updating and Harmonising Emergency Preparedness and Response Plans;
- RER9154 – Enhancing the Implementation of Integrated Programmes for the Safe Management of Radioactive Waste;
- RER9156 – Establishing Education and Training Infrastructure in Radiation Protection;
- RER9158 – Strengthening the Regulatory Infrastructure for Radiation Safety;



IAEA headquarters in Vienna

- RER9160 – Strengthening Capabilities on Safety Assessment and Risk Informed Decision Making for Severe Accidents and Off Site Consequences.

In 2023, VATESI employees attended 26 events held under IAEA international and regional projects: workshops, conferences, technical meetings, and training courses. These events gave the VATESI employees the opportunity to learn about regulatory requirements in the areas of nuclear safety, radiation protection and physical security, as well as to get familiar with best practices and share their experiences.

The implementation of the 2022–2025 IAEA National Technical Cooperation Project LIT9020 “Enhancing National Capabilities for Decommissioning and Radioactive Waste Management, Safety Assessment, Oversight, Licensing and Emergency Preparedness” was continued. In 2023, five VATESI employees improved their expertise during a research visit and workshops held within the framework of the IAEA national project. The IAEA support through national projects helps Lithuanian nuclear safety professionals to improve their emergency preparedness, technical knowledge on decommissioning and radioactive waste management, to know the most up-to-date international nuclear safety requirements and learn about best practices in other countries.





# Public communication

# PUBLIC COMMUNICATION

VATESI public communication activities are based on the principles of transparency and openness. The key goal is to provide the public and other stakeholders with relevant information on the regulation and supervision of compliance with nuclear safety, radiation protection, physical security and the international non-proliferation commitments undertaken by Lithuania.

VATESI responds to incoming inquiries, provides annual reports on the level of nuclear safety in Lithuania, and regularly informs the public about the results of supervision of economic entity activities. VATESI provides information to Lithuanian and foreign media on nuclear safety and radiation protection. VATESI experts organise and attend a wide range of events and meetings with representatives of various scientific projects.

The publication “Nuclear Power Safety in Lithuania” is published annually. The main VATESI channel for disseminating information is VATESI’s website [www.vatesi.lt](http://www.vatesi.lt).

In 2023, the main topics on which VATESI commented were the operational and safety problems of the Belarusian NPP, the safety status of the Zaporizhzhya NPP in Ukraine and the threats posed by Russia’s military aggression in Ukraine, and the management of radioactive water at the Fukushima nuclear power station in Japan.



Comment for Lithuanian Television

## Public participation in the decision-making process

The public has the opportunity to be involved in making the most important decisions in the area of nuclear power: *approval of an assessment report of the nuclear facility construction location (site), licenses for construction and operation of nuclear facilities, nuclear facility decommissioning, supervision of closed radioactive waste repositories, and some permits*, such as the import of nuclear or nuclear fuel cycle material to the nuclear facility site, and the first tests using this material (so-called hot tests).

It is of note that key decisions on the decommissioning of nuclear energy facilities and the design and construction of radioactive waste management facilities (repositories, storage facilities) are taken by the Lithuanian Government. Together with other government agencies, VATESI implements these decisions within its remit, i.e. by assessing the nuclear safety of the planned activities.

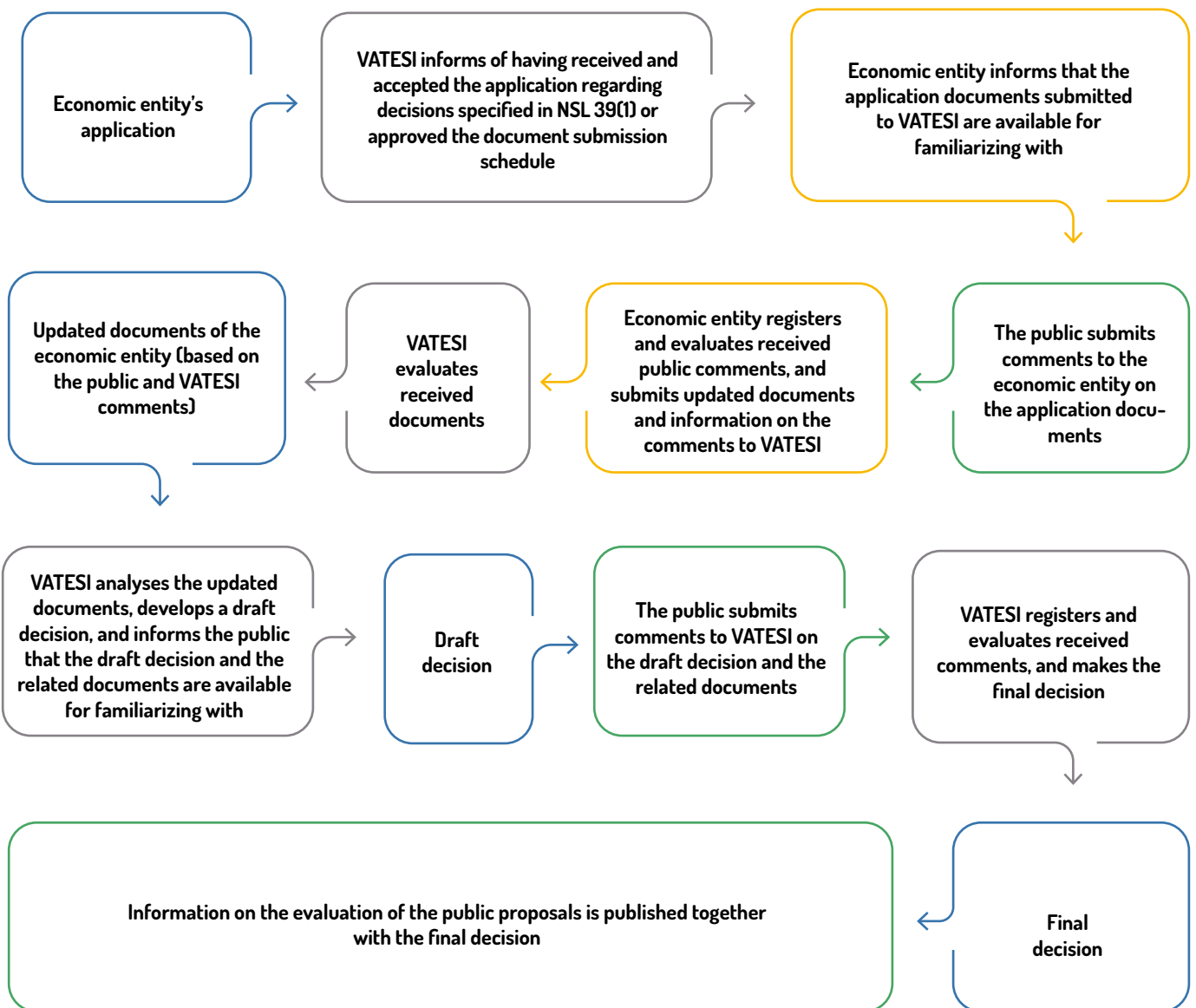
Public participation in the decision-making process of VATESI is regulated by the Law on Nuclear Safety and Nuclear Safety Requirements BSR-1.1.5-2017 “[Rules of Procedure for Public Participation in Decision Making in the Area of Nuclear Energy](#)”.

Full information on how the public may participate and which decisions are open to public participation, as well as information on applications, draft decisions and decisions taken by VATESI is published on the VATESI website in the section “[Public participation in decision making](#)”. Municipal administrations and local residents in the vicinity of nuclear facilities are informed about specific draft decisions and the opportunity to participate in their adoption. Furthermore, reports are developed and shared with the national and regional media.

VATESI is currently finalising the evaluation of safety justification documents submitted by the Ignalina NPP in support of its application for an NF decommissioning licence. When VATESI publishes its draft decision, it will also be made available for consultation and written proposals to VATESI.

All the stages are presented in the flowchart of public participation in the decision-making process.

# Flowchart of the public participation in decision making



# Operating and under construction nuclear power plants in the neighbouring countries

(distance from the border of Lithuania, km)



## LIST OF ABBREVIATIONS

<b>Bq</b>	Becquerel, the international measurement unit used to measure activity of radioactive material	<b>MBA</b>	Material balance area
<b>CNS</b>	Convention on Nuclear Safety	<b>mSv</b>	Millisievert (exposure measurement unit)
<b>ECURIE</b>	European Community Urgent Radiological Information Exchange System	<b>NF</b>	Nuclear facility
<b>ENSRA</b>	European Nuclear Security Regulators Association	<b>NPP</b>	Nuclear power plant
<b>ENSREG</b>	European Nuclear Safety Regulators Group	<b>SFSF-1</b>	the first Spent Fuel Storage Facility
<b>ESARDA</b>	European Safeguards Research and Development Association	<b>SFSF-2</b>	the second Spent Fuel Storage Facility
<b>EU</b>	European Union	<b>SMR</b>	small modular reactors
<b>EURATOM</b>	European Atomic Energy Community	<b>VATESI</b>	State Nuclear Power Safety Inspectorate
<b>FRD</b>	Fire and Rescue Department under the Ministry of the Interior of the Republic of Lithuania	<b>UAB</b>	closed joint stock company
<b>IAEA</b>	International Atomic Energy Agency	<b>USIE</b>	IAEA Unified System for Information Exchange
<b>Ignalina NPP</b>	Ignalina Nuclear Power Plant	<b>WebECURIE</b>	European Community Urgent Radiological Information Exchange
<b>INES</b>	International Nuclear and Radiological Event Scale	<b>WENRA</b>	Western European Nuclear Regulators Association
<b>ITDB</b>	IAEA Incident and Trafficking Database	<b>WGWD</b>	WENRA Working Group on Waste and Decommissioning
<b>Maišiagala RWSF</b>	Maišiagala Radioactive Waste Storage Facility	<b>WLTC</b>	Material balance zone accounting for material of the nuclear material holders that have no zones attributed by the European Commission

# NUCLEAR POWER SAFETY IN LITHUANIA

Annual Report 2023

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