ANNUAL REPORT 2019

NUCLEAR
REGULATORY AUTHORITY
OF THE SLOVAK REPUBLIC

CONTENTS

DEAR READERS,

The Nuclear Regulatory Authority of the Slovak Republic (ÚJD SR, or the Authority) has again put together an Annual Report, through which you can obtain comprehensive information on its activities and scope of powers, and at the same time get acquainted with the status and assessment of nuclear safety of nuclear installations in the Slovak Republic (SR) for 2019.

Following on from previous years, ÚJD SR continuously focused on creating a legislative environment for the peaceful use of nuclear energy in Slovakia, assessing and controlling the safety of nuclear installations and the management of nuclear materials and radioactive waste in our territory. It monitored the license holders´ compliance with laws, decrees, guidelines, and safety guides issued by the Authority, as well as emergency preparedness. ÚJD SR actively participated in the fulfilment of objectives and tasks arising from the membership of SR in the European Union (EU), in the International Atomic Energy Agency (IAEA) and other international organizations. As communication with the public is one of its priorities, the Authority also sought to improve the conditions for providing up-to-date, objective, and comprehensible information in this area as well. An important prerequisite for managing complex demanding activities related to the performance of regulation, is the continuous deepening of the expertise of our staff, and therefore you will also find information in this area in this Report.

As far as legislative activities are concerned, ÚJD SR continued preparatory work on the development of a new Atomic Act, issued one decree within its competence and amended two decrees. It has also prepared several safety guides and guidelines. In connection with inter-ministerial commenting procedure, the Authority assessed more than 665 documents and provided cooperation in various working groups at the national as well as international levels.

An important aspect of nuclear safety assessment and evaluation is the scheduled and unscheduled inspections of license holders. Nuclear power plants (NPP) in operation, under construction, also in decommissioning were inspected and the Authority also checked the records of nuclear materials (NM). A total of 204 inspections were carried out in 2019.

In 2019, ÚJD SR issued 483 decisions, of which 194 were directly related to the nuclear power plant under construction, Mochovce 3&4 (MO3&4). A hot hydrotest was completed at Unit 3 of this power plant in April, and reheating was carried out at the end of the year. The preparedness of Unit 3 of MO3&4 for commissioning is closely monitored not only in the country, but also abroad and has been thoroughly verified by the IAEA experts within the PRE-OSART mission, as well as by the mission of the World Association of Nuclear Operators (WANO).

Based on the results of inspections and on the basis of a summary evaluation of safety indicators, ÚJD SR can state that nuclear installations in Slovakia were operated in a safe and reliable manner in 2019, without serious events that would lead to limiting the scope or validity of the permit, or stop the operation of nuclear installations.

Regarding international activities, ÚJD SR as in previous years, represented the interests of the Slovak Republic in the field of peaceful uses of nuclear energy and consistently fulfilled all obligations arising from our membership in international organizations. Representatives of ÚJD SR regularly participated in meetings of working groups of the Council of the EU, as well as in the meetings of working committees and groups of the European Commission.

In 2019, five regular meetings of the IAEA Board of Governors were held, where ÚJD SR was also represented. In August, the eighth National Report of the Slovak Republic compiled in terms of the Convention on Nuclear Safety was sent to the IAEA. This Report will be discussed during the 8th Review Meeting of the Parties to the Convention in 2020.

One of the many ÚJD SR activities at the international level is the representation of the Slovak Republic in the performance of its function as the National Liaison body for the Preparatory Commission of the Organization for the Comprehensive Nuclear Test-Ban Treaty (CTBTO). In 2019, the Preparatory Commission of the CTBTO selected the Slovak Republic, from among the competition of other signatory countries, as the host country of two international exercises entitled Build-up Exercises, which will take place in 2020.

Bilateral cooperation is also an important part of the international cooperation. In 2019, regular meetings of ÚJD SR representatives with delegations of mainly neighbouring states – Hungary, the Czech Republic, Austria, and Slovenia were held at the governmental level, as well as at the level of partner regulators.

Dear readers, in conclusion allow me to express my respect and gratitude to all employees of ÚJD SR, thanks to whom we managed to meet all the set goals and overcome the unexpected challenges brought by the year 2019. Their professional approach, responsibility and expertise are a guarantee that ÚJD SR will continue to perform its activities and duties at a high level, to ensure the safety of nuclear installations in our territory.

Ing. Marta Žiaková, CSc.
Chairperson of the ÚJD SR

1 LEGISLATIVE ACTIVITY

In the area of development and amendment of decrees within the competence of ÚJD SR, in 2019, Decree No. 33/2012 Coll. on regular, comprehensive and systematic assessment of nuclear safety of nuclear installations as amended by Decree No. 106/2016, was finalized. The amendment was published in the Collection of Laws of SR under No. 71/2019 Coll. with effect from 15 March 2019. Decree No. 52/2006 on professional competence was amended by Decree No. 34/2012. In the Collection of Laws of SR, it was published under No. 410/2019 Coll. with effect from 1 January 2020. At the end of 2019, the inter-ministerial commenting procedure on the draft new decree was completed, which will replace the existing Decree No. 76/2018 on special materials and equipment that fall under the regulation by ÚJD SR.

A new Directive on issuance of Safety Guides of the Nuclear Regulatory Activity of the Slovak Republic was adopted, as well as a Plan for the issuance of Safety Guides of ÚJD SR in 2019 with a forecast to 2020. In June 2019, a new Directive on identification and removal of sensitive information in documentation for public access, was adopted.

In 2019, ÚJD SR prepared five Safety Guides in order to ensure compliance with the requirements for the safe use of nuclear energy or the performance of activities related to the uses of nuclear energy:

1. BN 1/2019: Requirements for quality assurance of software for safety analyses;
2. BN 2/2019: Single failure criterion;
3. BN 3/2019: Requirements for the description of the reactor and its design basis in the Safety Report;
4. BN 4/2019: Requirements for performing and evaluating the results of self-assessment of nuclear safety culture;
5. BN 5/2019: Requirements for deterministic safety analysis of NPPs with VVER-440/V213.

During 2019, the Authority continued to coordinate the cooperation of the entities concerned within the inter-ministerial working group on civil liability for nuclear damage. The focal activity of the working group was the analysis of the development of civil liability at the national and international level, including changes in the contractual basis of the Vienna system. As part of its agenda, the Authority also thoroughly verified the existence of insurance coverage at nuclear operators.

A significant activity of ÚJD SR in the legislative area was the continuation of preparatory work on the development of the new Atomic Act within the "Schedule and substantive focus of work on the development of a new Atomic Act". In terms of content, the focus of work concentrates, among other things, on adjusting the scope of powers and competencies of ÚJD SR, expanding and tightening the obligations of the license holder before commissioning of NI, as well as the license holder´s obligations regarding nuclear safety requirements. Moreover, aspects such as changes in the licensing process for NI, physical protection, cyber security and changes related to the verification of professional competence of staff of the license holder are included.

As part of other legislative activities, in 2019 ÚJD SR actively participated in the inter-ministerial coordination group for representing the Slovak Republic in EU courts at the Ministry of Justice of SR, and in the inter-ministerial coordination group in proceedings in the EC in the pre-trial phase at the Ministry of Foreign and European Affairs of SR. None of the working groups had an active case in 2019 falling under the competence of ÚJD SR, in which Slovak Republic would be a party to.

In connection with inter-ministerial commenting procedures, legislative and non-legislative documents were assessed, on which ÚJD SR made ordinary or substantial comments. In total, there were more than 665 documents, on which the Authority developed its opinion.

An important legislative change directly affecting the activity of ÚJD SR was the submission of a parliamentary amendment to the law, amending Act No. 541/2004 Coll. on peaceful uses of nuclear energy (Atomic Act) and on amendments to certain laws as amended, and on amendments to the Act No. 50/1976 Coll. on spatial planning and building regulations (Building Act) as amended. ÚJD SR carried out an inter-ministerial commenting procedure and after further steps required by the legislation, the Act was adopted under No. 279/2019 Coll. with effect from 1 October 2019.

In 2019, ÚJD SR continued in providing cooperation to the Ministry of Environment of SR (MoE SR) in the procedure of the Slovak Republic in relation to the Aarhus Convention and the Aarhus Convention Compliance Committee (ACCC) in the matter of continuing the case in connection with Mochovce 3&4 NPP (ACCC/C/2013/89). Decision VI/8i on Case ACCC/C/2013/89 on compliance of the Slovak Republic with its obligations under the Aarhus Convention contained recommendations for the adoption of the necessary legislative, regulatory, administrative measures, as well as practical procedures to ensure compliance of the disputed legislation with individual provisions of the Aarhus Convention. In accordance with the schedule, ÚJD SR developed a Second Progress Report on the steps taken by ÚJD SR in order to achieve compliance of the discussed legal regulation with the ACCC recommendations. In cooperation with the MoE SR, supporting annexes to the text of the Report were developed, which the MoE SR as the national coordinator for the Aarhus Convention, sent to the ACCC Secretariat together with the relevant documentation duly and on time.

As part of the activities related to the commissioning of MO3&4 NPP, procedural steps were taken in connection with two administrative proceedings concerning the fresh fuel unit and the relevant appeal decisions No. 139/2019 P and 140/2019 P, which entered into force in May 2019. Specifically, these were proceedings concerning the application for a permit for early use of the building of Unit 3 (in the scope of buildings and facilities used for the operation of Unit 3, and in the scope of buildings and facilities common to Units 3&4 used for operation of Unit 3) pursuant to Act No. 50/1976 Coll. (Building Act) as amended, and the Atomic Act. As part of the proceedings, a going-over was carried out in November 2019 in connection with local survey of buildings and facilities of Unit 3, including buildings and facilities common to both Unit 3 and 4 needed for operation of Unit 3 of the MO3&4 nuclear installation. The Legislative and Legal Department of ÚJD SR actively participated in the procedural preparation of this inspection.

2 REGULATORY ACTIVITIES

In addition to legislation, regulation over nuclear safety is carried out in the area of licensing, assessment and evaluation of safety documentation, control/inspection activities in nuclear installations and in law enforcement.

The nuclear safety of NI is proven in several steps. The first step is the assessment of technical documentation, which demonstrates that the systems, components and technological equipment, including the ability of the staff to operate them, are able to operate safely and reliably, during normal, abnormal, as well as emergency operation, and that the impact of NI on employees, population, the environment and property is at an acceptable level in accordance with the Slovak legislation and recognized international standards. The next step in the process is the performance of inspections, which among other things, check the compliance of the real state of the NI with the documentation that was the subject of review.

The main entities under regulation are the holders of permits for construction, commissioning, operation and decommissioning of nuclear installations. In the Slovak Republic, Slovenské elektrárne, a. s. (SE, a. s.), and Nuclear and Decommissioning Company - Jadrová a vyraďovacia spoločnosť, a. s. (JAVYS, a. s.) are holders of such permits.

2.1 LICENSING

To obtain a permit for activities in the field of peaceful uses of nuclear energy, whether it is a new activity or a change to the existing, the applicant must demonstrate its ability to comply with and meet all requirements set by laws and decrees in force in Slovakia, especially the requirements of the Atomic Act and implementing decrees of ÚJD SR to this Act. The applicant must further prove that the NI will be or is operated safely.

In addition to the holders of permits referred to above, ÚJD SR also regulates and issues permits for other legal entities and organizations that do not operate energy NIs, but perform activities related to the peaceful uses of nuclear energy in accordance with the Atomic Act. One of the representatives of these permit holders is VUJE, a. s., dealing with professional training of staff for nuclear installations.

2.2 REVIEW AND ASSESSMENT ACTIVITIES

In 2019, ÚJD SR reviewed and assessed technical documentation related mainly to:

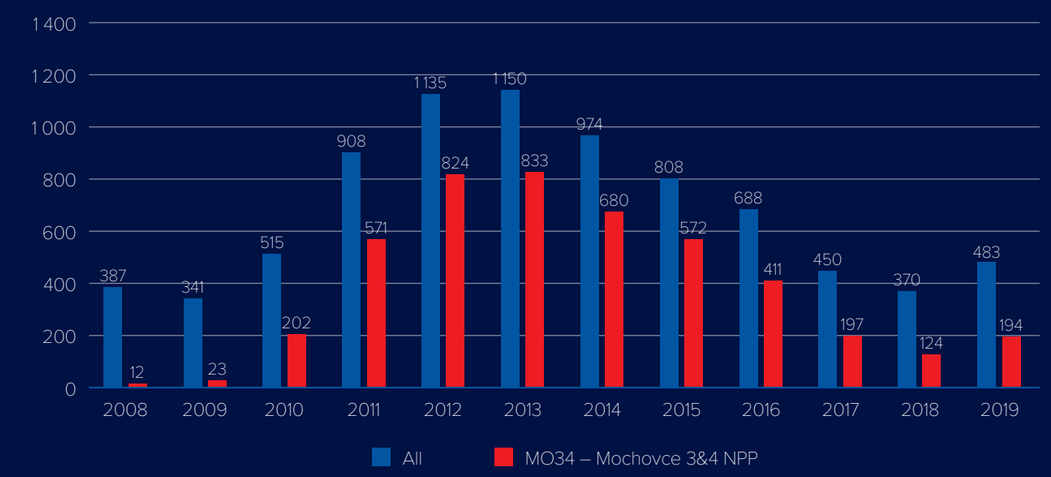
- Implementation of works on the completion of Mochovce 3&4 NPP, including modifications to the basic design,
- Implementation of significant design modifications of safety-related equipment of operated NIs,
- The quality of scheduled and implemented pre-operational and operational inspections,
- Design modifications and changes to the documentation reviewed or assessed by ÚJD SR,
- Quality assurance for safety-related equipment and NI,
- Quality Management Systems of permit holders pursuant to the Atomic Act, and their contractors,
- Limits and Conditions (L&C) for safe operation and safe decommissioning,
- Emergency planning,
- Training of selected staff and professionally competent staff of permit holders for operation and decommissioning of nuclear installations,
- Organizational changes of permit holders,
- Physical protection plans of operated NIs,
- Transport of nuclear and radioactive materials,
- Radioactive waste (RAW) management in Bohunice A-1 NPP, V-1 NPP, TSÚ RAW, RAW National Repository and in other NIs designed for RAW management,
- Decommissioning of A-1 NPP and V-1 NPP and related activities.

In connection with the completion of Units 3&4 of Mochovce NPP, ÚJD SR carried out a number of post-installation compliance inspections, the aim of which was to verify the compliance of the installed technological equipment with the design and approved quality requirements. Furthermore, ÚJD SR checked the course of selected tests of functional tests, preparation and implementation of the hot hydrotest and reheating of Unit 3. The assessment of the documentation of the quality management system and the quality requirements of safety-related equipment continued in accordance with the relevant ÚJD SR decrees. Approved quality requirements for safety-related equipment were checked by ÚJD SR also during final acceptance tests directly at the manufacturers of this equipment.

Table 1 Number of ÚJD SR Decisions issued in 2019

Organization / Nuclear installation	Operation	Design modifications	Quality assurance	Building Authority	Permit	Interrupted admin. proceeding	Suspended admin. proceedings	Other	Total
SE, a. s.	3	0	3	1	2	6	2	11	28
NPP Bohunice V-2	17	1	9	2	1	5	1	7	43
NPP Mochovce 1&2	21	5	19	2	5	34	1	16	103
NPP Mochovce 3&4	1	1	85	1	0	81	4	21	194
JAVYS, a. s.	10	0	8	6	13	7	1	20	65
VÚJE, a. s.	1	0	1	0	0	0	0	18	20
Other organizations	0	0	1	0	12	2	1	14	30
Total	**53**	**7**	**126**	**12**	**33**	**135**	**10**	**107**	**483**

Fig. 1 Number of ÚJD SR Decisions issued in the period 2008 – 2019



2.3 INSPECTIONS

Inspection activity means a process, by which compliance with the requirements and fulfilment of obligations stipulated by the Atomic Act and its implementing legal regulations, in the Building Act and its implementing legal regulations, fulfilment of obligations arising from ÚJD SR decisions, as well as fulfilment of measures to eliminate deficiencies from protocols, is checked. Inspection activities are performed by nuclear safety inspectors of ÚJD SR. The schedule of planned inspections is set out in the Inspection Plan, which is compiled so that it is possible to carry out continuous and systematic assessment of compliance with legislative requirements. ÚJD SR develops a Preliminary Inspection Plan for three years, and an Inspection plan for the relevant year.

In addition to scheduled inspections, inspectors also perform unplanned inspections that are triggered by conditions in the NI (such as, construction and installation, commissioning stages) or operational events. Unplanned inspections also include IAEA inspections in the area of registration and inspection of nuclear materials, the date of which is announced to ÚJD SR and the relevant permit holder only immediately before the inspection itself.

For 2019, there were 166 inspections scheduled, of that 10 were cancelled for objective reasons. There were 48 unplanned inspections in 2019. A total of 204 inspections were performed, while 33 inspections were still pending as of 31 December 2019. Of the completed inspections, 14 were closed with a protocol and the others are closed as a record.

2.4 LAW ENFORCEMENT

In the event that the inspection activity reveals deficiencies in any of the areas under regulation, the inspection report shall order to the permit holder to remove the deficiencies with binding deadlines for their implementation. The permit holder is then required to notify ÚJD SR of the manner and date of elimination of the deficiency.

If the regulated entity does not comply with the measures, as well as in the event of a severe violation of provisions of the Atomic Act or of the requirements of its implementing decrees, ÚJD SR may initiate administrative proceedings, which may result in:

- Imposition of a fine,
- Limitation of the scope or validity of the permit,
- Order the implementation of the necessary measures,
- Stopping the operation of a nuclear installation,
- Permanent withdrawal of a certificate of special professional competence or certificate of professional competence.

In 2019, ÚJD SR did not limit the scope or validity of a permit, nor did it stop the operation of any NI. The Authority withdrew one certificate of special professional competence of selected employee of the permit holder due to the failure to pass the examination during the verification of special professional competence of the selected employee.

Table 2 Overview of inspections performed in 2019

Nuclear Installations/Other	Team	Special	Routine	Unplanned	Total
Bohunice V-2 NPP	13	16	4	5	38
Mochovce 1&2 NPP	13	18	5	2	38
Mochovce 3&4 NPP	2	6	4	15	27
JAVYS, a. s.	5	23	9	2	39
VUJE, a. s.	0	2	0	0	2
NM and RAW shipments	0	5	0	8	13
Control and registration of NM	0	27	0	15	42
Other inspections	0	4	0	1	5
Total	**33**	**101**	**22**	**48**	**204**

3 NUCLEAR SAFETY OF NUCLEAR INSTALLATIONS

3.1 NUCLEAR POWER PLANTS IN OPERATION

Evaluation of safety indicators of NPPs in operation

The evaluation of NPP operation' safety indicators is performed by ÚJD SR continuously and is assessed on a yearly basis. Operating Units of NPPs in Slovakia (Bohunice V-2 NPP and Mochovce 1&2 NPP) are evaluated by indicators in four specific areas of operation: significant events, human factor, operation of safety systems and tightness of barriers.

Significant events and human factor:

The following main indicators are monitored in these areas:

- Number of reactor scrams (AO1),
- Number of breaches of Limits & Conditions of safe operation (L&C means a document setting out requirements for permitted values of nuclear installation parameters, readiness of safety systems and verification of their readiness, any deviation from the set values or requirements is recorded as L&C breach),
- Number of failures of equipment and systems, which the operator of the nuclear installation has to report to ÚJD SR according to the set criteria,
- Share of human factor in operational events reported to ÚJD SR,
- Number of events at the nuclear installation, which are classified by level 1 according to international INES scale.

Table 3 Number of AO1 and L&C breaches at operating Units of NIs in SR in 2019

2019	EBO3	EBO4	EMO1	EMO2
Number of AO1	0	0	0	0
L&C breaches	0	0	0	0

In 2019, there was no scram and no breach of Limits & Conditions. This fact testifies to the high operational reliability of nuclear units of Bohunice V-2 NPP and Mochovce 1&2 NPP.

Table 4 Number of reported failures, number of failures with human factor (HF) contribution and number of events with INES 1 classification

2019	EBO3	EBO4	EMO1	EMO2
Failures reported to ÚJD SR	3	2	7	4
Failures classified as INES 1	0	0	0	0
Failures with the HF contribution	2	1	3	2
Share of failures with HF contribution [%]	67	50	43	50

The number of reported failures is low and testifies to the stable operation of nuclear installations in the Slovak Republic. None of the failures was classified as INES 1. The number of failures with a human factor contribution and their share in the total number of reported failures is adequate in comparison with foreign nuclear installations.

Operation of safety systems:

The operation of safety systems is evaluated by means of unavailability factors. The unavailability factor is defined as the ratio of the sum of the unavailability times of a given system to the total time, when its operability is required. Unavailability is usually caused by repairs of failures identified during regular system tests.

In 2019, there was no failure of safety systems.

Table 5 shows the calculated unavailability factors of the following safety systems:

- Unavailability of diesel generators (DG), providing power supply to other safety systems in the event of loss of other own and external sources of power supply,
- Unavailability of pumps of high pressure emergency replenishment of the primary circuit (HP) – these pumps are intended for reactor core cooling in case of coolant leakages from the primary circuit,
- Unavailability of the steam generators feeding system (SHNČ and HNČ) – SHNČ – super-emergency pumps and HNČ pumps provide replenishment for the secondary side of steam generators and thus also heat removal from the primary circuit in conditions of abnormal operation and in emergency conditions.

Table 5 Unavailability factors of selected safety systems for Units of NIs in SR in 2019

2019	EBO3	EBO4	EMO1	EMO2
Unavailability of DG	0	3.42E-05	0	4.56E-03
Unavailability of HP	0	7.13E-06	0	1.47E-04
Unavailability of SG supply pumps	0	4.14E-06	3.14E-05	0

The unavailability factors are low, which shows a very high readiness of safety systems for activation, if needed (i.e. in case of a failure or an emergency condition).

Tightness of barriers:
This indicator monitors the tightness of the fuel cells cladding in the reactor and the tightness of hermetic spaces, which form a barrier against the leakage of radioactive substances during potential accidents. The values of these indicators are very good and stabilized compared to previous years.

The evaluation of nuclear safety indicators for 2019, together with the results of inspections make it possible to state that nuclear safety of the operated nuclear power plants in the Slovak Republic is at a high level.

a) BOHUNICE V-2 NUCLEAR POWER PLANT
In both operated Units of Bohunice V-2 NPP, standard, scheduled and unplanned inspections and assessment activities were carried out in 2019, connected with daily operation. As part of its activities, ÚJD SR inspected the fulfilment of tasks arising from the aging management program and several design modifications were approved with the aim to increase the level of safety of NI in places, where ÚJD SR identified findings during its inspections.

There were two scheduled outages for refuelling performed at the EBO V-2 nuclear power plant. At Unit 3, in the period from 19 June till 15 July 2019, and at Unit 4, from 22 May till 16 June 2019. Compared to the schedule, the outage at Unit 3 was extended by 1 day due to the extension of work related to the installation of the reactor after refuelling. At Unit 4, the outage was extended by more than 4 days due to the blinding of a large number of heat exchanger tubes of steam generator No. 44. During GO at Unit 4, a fall of a foreign material in an open technology of a steam generator was recorded. The object was removed from the technology and based on an analysis of the sample it was found that it was a piece of welding wire.

During 2019, the license holder implemented the final part of the Electric Boiler Project – a new source for the supply of steam and for the provision of ancillary services for secondary power regulation, including putting into operation. Part of it was also innovation of the distribution system for the essential service water (ESW) and non-essential service water. During the scheduled outages of Units, the operator implemented modifications leading to increased reliability of the power supply for the severe accident management system. In the area of instrumentation and control systems (I&C), the license holder implemented modifications on the system of control assemblies' management. Secondary circuit systems have also been modernized.

Operational controls
The license holder performed operational controls to demonstrate the operability of safety-related equipment necessary to ensure safety and reliability of operation of NI. Operational controls were carried out in accordance with the annual plans of operational controls of safety-related equipment, submitted by the operator for the approval of ÚJD SR.

ÚJD SR performed inspections aimed at verifying the implementation of operational controls, tests and maintenance of safety-related equipment, electric and I&C, operational non-destructive tests (NDT), and inspections of welded joints on safety-related equipment. The focus was also on checking implementation of a new safety guide of ÚJD SR for post-installation conformity checks of safety-related equipment, mechanical, electric and I&C. ÚJD SR inspectors performed unplanned inspection of the performance of post-installation conformity checks of safety-related equipment, mechanical, electric and I&C. After checking the results of operational controls, ÚJD SR can state that the condition of safety-related equipment at both Units of EBO V-2 NPP is satisfactory. ÚJD SR imposed corrective actions on the identified deficiencies in the inspection reports and continuously monitors fulfilment of deadlines for their removal.

As part of the aging management program, the operator also provides evaluation of fatigue life of main components and piping systems, as well as assessment of the robustness of reactor pressure vessel materials to brittle fracture, and informs ÚJD SR on an annual basis on the use of life cycle of the main components and selected important piping routes. Based on the inspected evaluation of monitored fatigue life of the main components and important piping systems, as well as the evaluation of robustness of reactor pressure vessel materials against brittle fracture, ÚJD SR can state that neither fatigue life, nor results of analyses in the area of embrittlement of reactor pressure vessels, limit the life of safety-related equipment, and confirm the assumption for long-term safe operation of both Units.

The integral hermetic zone tightness test (PERIS) was performed during GO at Unit 3 and it showed that the tightness of hermetic spaces is in accordance with the requirements of L&C, as well as with the applicable operating procedures. The tightness of the hermetic zone is constantly monitored and the system for searching for and subsequent removal of detected leaks is functional. However, as the test result deteriorated compared to 2017, appropriate measures were taken and in accordance with L&C requirements, the test was scheduled to be repeated in 2020. As a standard, the integral tightness test is performed every other year.

Operational events

The number and nature of events in 2019 were within the usual operational failures without special significance in terms of nuclear safety. ÚJD SR registered 6 operational events subject to reporting to the regulator, all of which were without a significant impact on nuclear safety.

After summarizing the results of inspections and based on summary evaluation of safety indicators, ÚJD SR states that the operation of both Units of Bohunice V-2 NPP in 2019 was without serious deficiencies in the field of nuclear safety. The identified operational failures, in terms of nuclear safety, were of no particular importance. Deficiencies identified during inspections have been remedied, and corrective action has been taken to minimize the likelihood of their recurrence.

b) MOCHOVCE 1&2 NUCLEAR POWER PLANT

In both operating Units of NPP, standard, scheduled and unplanned inspections and assessments were carried out in 2019, connected with daily operation. During the year, inspectors of the relevant departments of ÚJD SR approved and subsequently checked the implementation of measures from the Action Plan for increasing the safety of EMO NPP Units, which were adopted on the basis of Stress Test results, performed as lessons learned from the Fukushima – Daiichi NPP accident.

There were planned outages for refuelling at EMO 1&2 nuclear power plant. At Unit 1, it was from 7 April till 27 April and at Unit 2, from 15 September till 30 October 2019.

The license holder implemented a stage of the Project of seismic reinforcement of the ESW and DGS buildings. As part of the I&C innovation, a new control system for the management of control assemblies of reactor power of Unit 2 was installed, and the necessary repairs were carried out at Unit 1. The license holder also implemented the next stage of the Seismic Reinforcement Project of important large components of the primary circuit, seismic reinforcement of the supports of the main circulation pumps and part of the Project of Seismic Reinforcement of pressurizers of both Units. Several design modifications were approved and implemented with the aim of increasing the safety level of NI. As part of I&C innovation, a new control computer with software for the fuel loading machine was installed. An algorithm for the protections and blocking of the fuel loading machine for the technology of inspection of the tightness of cladding of fuel assemblies was developed. Display units of the post-accident monitoring system for the main Unit parameters were added to the I&C workstation for severe accident management system.

Operational controls

Also at Units 1&2 of Mochovce NPP, the license holder performed operational controls to demonstrate the operability of safety-related equipment necessary to ensure safety and reliability of operation of NI. Operational controls were carried out in accordance with the annual plans of operational controls of safety-related equipment, submitted by the operator for the approval of ÚJD SR.

ÚJD SR performed inspections aimed at verifying the implementation of operational inspections, tests and maintenance of safety-related equipment, electric and I&C, operational NDT tests of welded joints on safety-related equipment carried out during operation and during scheduled GOs of Units, as well as tests and measurements aimed at verifying the electrical parameters of emergency DGs during their trial run. The equipment of the safety systems was inspected for the secured power supply of category 1 during the operation of both Units. During the test of mobile DGs under load, ÚJD SR inspectors checked the gradual loading of the mobile DG and the inter-activity of the staff when performing the tests. ÚJD SR inspectors performed an unplanned inspection of the post-installation conformity checks of safety-related equipment, mechanical, electric and I&C at Unit 2. After review of results of operational inspections, ÚJD SR can state that the condition of safety-related equipment at both Units of EMO1&2 is satisfactory. ÚJD SR imposed corrective actions to eliminate the identified deficiencies in the inspection reports and continuously monitors the deadlines for their fulfilment.

As part of the aging management program, the operator also provides evaluation of fatigue life of main components and piping systems, as well as assessment of the robustness of reactor pressure vessel materials to brittle fracture, and informs ÚJD SR on an annual basis on the use of life cycle of the main components and selected important piping routes. Based on the inspected evaluation of monitored fatigue life of the main components and important piping systems, as well as the evaluation of robustness of reactor pressure vessel materials against brittle fracture, ÚJD SR can state that neither fatigue life, nor results of analyses in the area of embrittlement of reactor pressure vessels, limit the life of safety-related equipment, and confirm the assumption for long-term safe operation of both Units.

ÚJD SR inspectors paid special attention to the preparation, course and results of the integral tightness test of hermetic spaces (PERIS) at Unit 1, which aimed to confirm that the tightness of the containment is in accordance with L&C requirements, as well as applicable operating procedures, and meets the conditions of safe operation. The test was performed with satisfactory result. The tightness of the hermetic zone is constantly monitored, it is continuously improving and the system for searching and subsequent removal of detected leaks is functional.

In 2019, ÚJD SR evaluated and closed also the periodic nuclear safety review of EMO1&2, which aims at comprehensive review of EMO1&2 in terms of compliance with the legislation of the Slovak Republic and international safety standards, as well as in terms of design modifications implemented in order to increase the safety level of NIs.

Operational events

The number and nature of operational events at EMO1&2 in 2019 did not exceed the usual rate of operational failures. ÚJD SR registered 12 events subject to reporting to the regulator, but which did not have a significant impact on nuclear safety.

Based on the results of inspection and assessment activities of ÚJD SR, the operation of Mochovce 1&2 NPP in 2019 was evaluated as safe. Identified operational failures were of no particular significance in terms of nuclear safety, and corrective actions were taken that minimize the likelihood of their recurrence.

3.2 NUCLEAR POWER PLANTS UNDER CONSTRUCTION

MOCHOVCE 3&4 NUCLEAR POWER PLANT

A hot hydrotest was completed at Unit 3 of Mochovce NPP in April 2019. This was the last inactive integral test of operating parameters, which was to verify the cooperation of all main systems and auxiliary systems needed to start active testing of reactor unit. Within this test, a series of tests was performed to verify emergency-control drives, safety system settings, hydraulic characteristics of the reactor core were measured with the aid of imitators of fuel assemblies and control assemblies, the strength of the primary circuit at overpressure of 19.12 MPa was tested, tests of power supply, automatic backups, tests of protections, blockages and automatics. Operating procedures have been validated. After the completion of the hot hydrotest, an integral test of strength and tightness of hermetic spaces was performed, which confirmed an extraordinary tightness of the last barrier, preventing the release of radioactive substances into the environment in the event of an accident. Subsequently, the Unit underwent an extended revision, during which thorough inspections of tested equipment, necessary maintenance interventions were performed, back-log items and identified deficiencies were removed, and pre-operational inspections were conducted according to programs approved by ÚJD SR.

Since the final setting of HVAC systems was not entirely possible, and because of the replacement of the damaged electric heater of the pressurizer, it was necessary to repeat the strength tests of the primary circuit, the license holder, based on the recommendation from ÚJD SR, decided to repeat also other sequences of some tests within the reheating of the reactor unit. ÚJD SR inspectors subsequently performed inspections that confirmed the fulfilment of the conditions of readiness of Unit 3 for the reheating, and reheating was carried out according to a pre-approved schedule from 14 December 2019 to 13 January 2020. After processing the test results, cause analyses and the appropriate corrective actions of the identified deficiencies, ÚJD SR prepared the final evaluation of the reheating and adapted further procedure in the process of permitting the commissioning of Unit 3 of Mochovce 3&4 NPP.

The readiness of Unit 3 for commissioning was also checked by the IAEA Pre-Operational Safety Assessment Team (as the PRE-OSART mission) composed of 17 experts from various countries.

Unit 4 of Mochovce NPP is still in the stage of installation. Functional tests of systems, the execution of which is a necessary pre-requisite for starting integral tests at Unit 4, have not yet started.

ÚJD SR inspected and assessed the condition of NI under construction of Units 3&4 on a regular basis, the quality of installation of safety-related equipment, post-installation checks of assembled technological units, or their parts, as well as the course and results of individual tests, and at the same time checked the elimination of deficiencies and back-log items identified during functional tests of systems and equipment. An unplanned inspection was also carried out to evaluate the quality management system of the contractor of building works. At the same time, ÚJD SR verified the condition of buildings from the point of early use of the building.

3.3 NUCLEAR POWER PLANTS UNDER DECOMMISSIONING

a) BOHUNICE A-1 NUCLEAR POWER PLANT

Also in 2019, the activities of 3rd and 4th stage of the decommissioning continued in the Bohunice A-1 NPP in accordance with ÚJD SR Decision No. 369/2016, which granted a permit for both stages simultaneously under one permitting procedure. The work associated with these stages of decommissioning are scheduled until the end of 2024, and is focused on the ongoing treatment of liquid RAW, sludge from long-term storage and long-term storage of spent nuclear fuel (SNF) casings. The license holder continued to carry out activities related to the decommissioning of original, non-functional and disused technological systems of external facilities and technological equipment of buildings of the main generating unit of the reactor hall and interim hall. After its completion, the final 5th stage of decommissioning will immediately follow, the completion of which is planned for 2033.

In the course of 2019, ÚJD SR reviewed the documentation related to the inspection of barriers and to the modification of the structure of the melting vessel on the vitrification plant intended for the treatment of Chrompik – the original cooling medium of fuel cells. ÚJD SR also reviewed documentation for the implementation of changes during decommissioning related to the construction of local fragmentation workplaces for the management of waste from decommissioning of components of the primary circuit and the addition of technological equipment of SUZA II fixation equipment designed for treatment of radioactive sludge.

The scheduled inspections at the Bohunice A-1 NPP were focused on the control of compliance with the conditions of nuclear safety and the regulator´s requirements during the decommissioning of Bohunice A-1 NPP, and during management of RAW from decommissioning. As part of the inspections, compliance with the Limits & Conditions of safe decommissioning and compliance with the operating procedures important in terms of nuclear safety were checked. After summarizing the results of inspections, and

on the basis of a summary assessment of safety indicators, ÚJD SR states that the activities at Bohunice A-1 NPP were performed with no significant deficiencies in the field of nuclear safety.

b) BOHUNICE V-1 NUCLEAR POWER PLANT

ÚJD SR, by its Decision No. 900/2014, granted to JAVYS, a. s., a permit for 2nd stage of decommissioning of Bohunice V-1 NPP, and at the same time a permit for RAW management and for the management of NM during 2nd stage of decommissioning of this NI. The permit entered into force on 1 January 2015. The 2nd stage mainly includes the decommissioning of the buildings of the main generating unit, the building of auxiliary facilities and remaining ancillary buildings. The most important activities are: dismantling of reactors, dismantling of equipment of the primary circuit, and dismantling of other equipment in the controlled zone and outside the controlled zone, their decontamination and radiation control.

In 2019, ÚJD SR assessed documentation for the implementation of changes during decommissioning, and issued decisions for the use of dry fragmentation plant in the building of former turbine hall and in the steam generator boxes. ÚJD SR also assessed documentation related to the use of large-capacity fragmentation and decontamination plants at Bohunice V-1 NPP and documentation for the construction and equipment for wet cutting workplaces in the reactor building within the project of dismantling large-scale components of the primary circuit.

Completion of 2nd stage of the decommissioning of Bohunice V-1 NPP is, in accordance with the submitted documentation, expected by 2025, while the final condition of the premises at the end of 2nd stage will be the release of the site for limited use. After the final inspection, the site will be excluded from the scope of the Atomic Act.

The scheduled inspections at Bohunice V-1 NPP were focused on checking the compliance of the decommissioning status with the status described in the plan for 2nd stage of the decommissioning of Bohunice V-1 NPP, and to control compliance with nuclear safety conditions and the regulator´s requirements for decommissioning.

Decommissioning of Bohunice V-1 NPP in 2019 was carried out according to plan for 2nd stage of decommissioning. ÚJD SR did not record any operational events that would have a special impact on nuclear safety.

3.4 OTHER NUCLEAR INSTALLATIONS

a) INTERIM SPENT NUCLEAR FUEL STORAGE AT BOHUNICE (ISFS)

The spent nuclear fuel from Bohunice V-1 NPP (discontinued production of SNF), Bohunice V-2 NPP and Mochovce 1&2 NPP are temporarily stored in the Interim Spent Fuel Storage facility at Bohunice site. The fuel is stored in the pools filled with demineralized water. As of 31 December 2019, the ISFS was filled to approximately 90 % of its total capacity.

In the course of 2019, the assessment activity was focused on the evaluation of the state of operational inspections of construction and technological parts and systems of the Bohunice ISFS and the stored SNF.

As part of the inspection activities, two inspections of SNF storage were carried out at Bohunice ISFS. The aim of the inspections was to check compliance with the Limits and Conditions and operating procedures for the operation of individual facilities, as well as the readiness of the operating staff in case of an adverse event. No violation of nuclear safety conditions or of operating procedures was found in any of the cases. The operating staff demonstrated a high level of readiness and the level of knowledge and procedures for abnormal operating conditions. Based on the results of inspections, in 2019 the operation of the NI ISFS was assessed as safe.

b) TECHNOLOGY FOR TREATMENT AND CONDITIONING OF RAW (TSÚ RAO)

TSÚ RAW contains two bituminisation plants, the Bohunice RAW Treatment Centre (BSC RAW), fragmentation plant, a large-capacity decontamination plant, a workplace for treatment of used air filters, a waste water treatment plant, and RAW storage facilities. Bituminization plants are designed for treatment of radioactive concentrates from operation of NPPs into 200-litre drums, which before their final disposal are placed into fibre-concrete containers (FCC). Part of the treatment technology of bituminisation lines is a discontinuous bituminisation line (DBL), used to fix sorbents into the bitumen matrix. BSC RAW serves as the main facility for the final treatment of RAW before their disposal in the National Radwaste Repository in Mochovce. In addition to bituminization, cementation, incineration, fragmentation, high pressure compacting and increasing the concentration by evaporation, are also used for the RAW treatment and conditioning. The final products of RAW treatment and conditioning are placed into FCCs, which meet the conditions for their disposal at RÚ RAO Mochovce.

In 2019, the implementation of the investment project "Optimization of RAW incineration capacity" in Jaslovské Bohunice site began. Incineration capacity will be optimized by the completion of facility designed for volume and weight reduction of RAW by incineration, which will operate on a principle of modern incinerators. When producing emissions, the permitted values for Slovakia and the EU will be observed.

The construction of a facility for melting metallic RAW originating from the decommissioning of Bohunice A-1 NPP and Bohunice V-1 NPP at Jaslovské Bohunice site continued. The purpose of the melting facility is to achieve maximum release of metallic materials to the environment and minimize RAW intended for final disposal in the National RAW Repository in Mochovce.

Modifications to the TSÚ RAW were continuously examined and approved, leading to the optimization of the RAW management

system in order to cover all types of RAW produced. An opinion was prepared for the MoE SR on the Environmental Impact Assessment Report regarding "Optimization of treatment capacity of the technology for treatment and conditioning of radioactive waste JAVYS, a. s., in Jaslovské Bohunice site".

ÚJD SR inspections focused mainly on the control of safe operation of individual treatment plants and on the control of RAW storage. Based on the results of inspections, in 2019 the operation of NI Technology for RAW Treatment and Conditioning was assessed as safe.

c) NATIONAL RAW REPOSITORY MOCHOVCE (RÚ RAO)

RÚ RAO Mochovce is designed for disposal of low-level (LRAW) and very low level (VLRAW) radioactive waste from operation and decommissioning of NIs. On 14 September 2019, the second periodic nuclear safety review of RÚ RAW after ten years from the date when the previous periodic review was carried out.

LRAW disposal into FCCs and the second double row was standard. By the end of 2019, 5,812 pcs of FCCs were disposed, of that 338 pcs of FCCs were disposed in 2019. In the section for disposal of VLRAW, 3,355.41 m^3 of handling packaging with VLRAW (MEVA barrels and large volume bags) were disposed in 2019, a total of 10,716.91 m^3 of VLRAW is disposed.

The inspection activity in National RAW Repository in 2019 focused mainly on checking the readiness of the repository for LRAW at the National RAW Repository, section of the 3rd double row of disposal boxes and its operating staff for operation, which was permitted by ÚJD SR Decision No. 117/2019. Based on inspections carried out by ÚJD SR in 2019, it is possible to assess the current operation of the National RAW Repository Mochovce as safe, having negligible impact on the environment.

d) FINAL TREATMENT OF LIQUID RAW MOCHOVCE (FS KRAO)

The purpose of the FS KRAO facility is the final treatment and conditioning of liquid RAW (radioactive concentrates, saturated sorbents and sludge) produced by Mochovce NPP, some types of solid RAW from the operation of Units of this power plant, and conditioning of treated solid RAW from other NIs. The capacity of technological lines far exceeds the production of RAW from Mochovce nuclear units. FS KRAO has technology for treatment of radioactive concentrates by bituminisation in a film rotor evaporator, and by concentration on a concentration evaporator. The discontinuous bituminisation line is used for fixation of radioactive sorbents. On the cementation line, the RAW thus treated is conditioned into FCCs, which are then disposed to the National RAW Repository.

Inspection activities at FS KRAO in 2019 focused on the control of compliance with nuclear safety conditions in RAW management, minimization of RAW, control of compliance with the corrective actions and safety improvements resulting from the Report on Periodic Nuclear Safety Review, as well as control of requirements for characterization and registration of RAW. Based on results of ÚJD SR inspections, in 2019 the operation of FS KRAO was assessed as safe.

e) INTEGRAL RAW STORAGE

The Integral RAW Storage facility began operations in 2018, and its capacity is gradually being used for the storage of low-level waste produced during decommissioning of A-1 NPP and V-1 NPP in approved packaging bodies, such as ISO containers and barrels. In December 2019, an application was sent to ÚJD SR to increase the maximum storage activity and the amount of stored RAW. Based on results of inspection activity, in 2019 the operation of IS RAW was assessed as safe.

f) RADIOACTIVE WASTE SHIPMENTS

In the course of 2019, by continuous type approval of transport equipment, issuing transport permits and approving international shipments in accordance with Council Directive 2006/117/Euratom on the supervision and control of shipments of radioactive waste and spent nuclear fuel, ÚJD SR created conditions for maintaining a functioning and safe system for securing the necessary transfers of RAW between individual technologies and NIs, as well as imports of RAW for their treatment at the treatment plants of TSÚ RAO.

The inspection activity in the area of RAW shipments focused on checking the validity of permits, the accuracy of the accompanying documentation and the records of transported RAW. Based on results of inspections by ÚJD SR, in 2019 the area of RAW transports was assessed as safe. RAW shipments were carried out in accordance with the transport plans and transport notifications in accordance with ÚJD SR Decree No. 57/2006 Coll., as amended by ÚJD SR Decree No. 105/2016.

4 NUCLEAR MATERIALS

4.1 NUCLEAR MATERIALS

ÚJD SR is the central state administration body responsible for the regulatory activities performed in the area of NM management, their registration and control. In Slovakia NM can be used only for peaceful purposes and in accordance with the permit issued by ÚJD SR only to those applicants, who demonstrate their ability to manage NM in accordance with applicable legal regulations and international obligations of SR.

The international obligations of SR result from the Treaty on the Non-Proliferation of Nuclear Weapons and the resulting Agreement on the implementation of Article 3, par. 1 and 4 of the Non-Proliferation Treaty and its Additional Protocol, and oblige the Slovak Republic to accept safeguards on the NM. At the same time, the adoption of safeguards on NM is the first basic step towards the peaceful use of nuclear energy.

In addition to the requirements of the Agreement on the Implementation of Safeguards on NM and its Additional Protocol, Slovakia is also bound by the requirements of the EU legislation arising from the Euratom Treaty, and related legislation, such as Commission Regulation (Euratom) 302/2005 on the application of Euratom Safeguards, as amended (amended by EC Regulation No. 519/2013). Also UN Security Council Resolution No. 1540/2004 obliges UN Member States in the field of nuclear energy use, to take transparent measures to increase control of non-proliferation of nuclear weapons. The aim of these measures is to prevent illicit trafficking of NM and other nuclear items.

Registration and control of nuclear materials

In the area of safeguards for NM, an important tool is the national system of registration and control of NM maintained by ÚJD SR in accordance with the Atomic Act. The purpose of the national system of registration and control of NM in Slovakia is to keep records of all NM declared in the territory of SR to confirm compliance between declared data and the actual state, detect losses of NM, provide information that could lead to recovery of the missing NM, prevent unauthorized use of NM, cooperate in detecting unauthorized use of NM, and provide current information on the number and location of NM in the SR. The accuracy of the data kept in the national system of registration of NM is verified by inspections.

An effective system of registration and control of NM is the basis for independent verification of NM in the territory of SR by ÚJD SR inspectors, the IAEA and the European Atomic Energy Community (Euratom). This verification confirms that NM is used as declared, and at the same time there was no diversification for non-peaceful purposes.

Inspection activity in the area of registration and control of NM has been taking place since 1 September 2009 in the regime of Integrated Safeguards, which is an optimal and effective combination of all safeguards activities performed under the legal framework. In 2019, ÚJD SR performed 42 inspections within the inspection activities in the field of registration and control of NM. Of these, there were 15 independent inspections performed by ÚJD SR inspectors without the participation of the IAEA, or Euratom. Four inspections out of this number were focused on the inspection of loading reactor core, and 11 inspections covered the area of control and registration of nuclear materials at holders of permits for the handling of nuclear materials outside the nuclear facility.

19 inspections of nuclear installations were carried out with the participation of IAEA and Euratom inspectors. Eight inspections, aimed at checking the physical inventory of nuclear materials at holders of permits for handling NM outside of nuclear installation, were performed with the participation of a Euratom inspector.

The activities of ÚJD SR also include the control and processing registration reports sent to ÚJD SR by permit holders. These are entered into the national system of registration of NM, while also checking the data accuracy. ÚJD SR is responsible for maintaining records on NM in the area of WSXZ material balance. As of 31 December 2019, this material balance area consisted of 45 holders of permits for handling NM outside of nuclear installation, of that six holders of the relevant permit did not have any NM in their records as of that date. ÚJD SR sends Euratom registration reports every month for the given area of material balance.

Within its competencies, ÚJD SR is also responsible for the timely sending of reports prepared on the basis of the requirements of Article 2 of the Additional Protocol to the Trilateral Safeguards Agreement to Euratom and the IAEA. In 2019, ÚJD SR sent 12 such reports. These reports are another confirmation of a fact that there are only activities related to the peaceful uses of nuclear energy throughout the territory of SR, and the obligations in the area of non-proliferation are observed. In 2019, work began on connecting the sites according to the Additional Protocol to the Safeguard Agreement (INFCIRC/193/Add.8).

Pursuant to Section 5 par. 2 (n) of the Atomic Act, ÚJD SR issues permits for handling NM outside the nuclear installation. In 2019, there were 5 permits issued.

Based on results of inspections and control of registration and operational records of permit holders it can be clearly stated that in 2019, nuclear materials in the SR were used only for peaceful purposes. The Slovak Republic is fully meeting its international obligations in the field of safeguards for nuclear materials and the data in the national system of registration and control of nuclear materials are fully in compliance with the data of Euratom and the IAEA.

Shipments of Nuclear Materials

The supervisory activity in ensuring nuclear safety during shipments of NM was performed in accordance with the Atomic Act, Decree No. 57/2006, which was amended by Decree No. 105/2016, and international standards and recommendations. During the period under review, fresh nuclear fuel (FNF) was transported from the Russian Federation to Bohunice NPP and Mochovce NPP. FNF transports were carried out by rail. In 2019, SNF was transported from Units of Bohunice V-2 NPP, as well as SNF transports from Mochovce NPP to the ISFS Bohunice. In addition to JAVYS, a. s., and SE, a. s., the preparations involved also ÚJD SR, Police Corps of SR, Civil Protection Office of the Ministry of Interior of SR, Fire and Rescue Corps, Slovak Railways and others. Nuclear safety and physical protection were ensured during transports in accordance with applicable legislation. In 2019, ÚJD SR inspectors performed a total of 12 inspections of all FNF and SNF shipments. During inspections of NM shipments, the inspectors did not find any material deficiencies. The conditions required by law and ÚJD SR decisions were complied with.

Illicit trafficking of nuclear and radioactive materials

The fight against illicit trafficking of NM is of an international nature and various state bodies coordinate their activities aimed at preventing and detecting illicit trafficking of NM not only with each other, but also engage in cooperation with international organizations. Illicit trafficking of NM is an international crime, and international cooperation enables its early and successful detection. Cooperation in this area is developed with the IAEA, the Joint Research Centre in Karlsruhe and with Interpol and Europol.

Cooperation with the US continues within the Joint Action Plan of the Government of the Slovak Republic and the Government of the US to combat illicit trafficking of NM and radioactive materials and related technologies. As part of this cooperation, ÚJD SR experts attend conferences, working meetings and courses and joint exercises are organized. An important part of cooperation is information exchange. At the international level, the information exchange is ensured by the Incident and Trafficking Database, which is operated by the IAEA in Vienna. Currently, there are 140 countries from all over the world including SR, contributing to this database. Timely exchange of information contributes to increasing the effectiveness of the fight against illicit trafficking in NM.

Control of storage of fresh nuclear fuel and spent nuclear fuel

In 2019, there were 5 scheduled inspections focused on the control of storage of FNF and SNF in Bohunice V-2 NPP, Mochovce 1&2 NPP and Mochovce 3&4 NPP. No material deficiencies were found in Bohunice NPP and Mochovce 1&2 NPP, and the operation of storage facilities for FNF and SNF pools was assessed as safe in accordance with the requirements of the Atomic Act, Limits and Conditions and the relevant regulations. The readiness of staff and technology in MO3&4 meets all legal conditions for receiving nuclear materials, but so far, there is no nuclear fuel. In MO3&4, the inspectors checked the state of preparation of the documentation required for the granting of permit for the management of radioactive waste and spent nuclear fuel. Inspectors physically checked the readiness of equipment and support systems for spent fuel management. They focused thoroughly on the control of the system of residual heat removal from the spent fuel pool of Unit 3.

4.2 PHYSICAL SECURITY OF NUCLEAR INSTALLATIONS AND NUCLEAR MATERIALS (PHYSICAL PROTECTION AND CYBER SECURITY)

Physical protection consists of a set of technical, regime or organizational measures necessary to prevent and detect unauthorized activities with nuclear installations, nuclear materials, special materials and facilities, when managing radioactive waste, spent nuclear fuel, in transport of radioactive materials, as well as unauthorized intrusion into nuclear facility and sabotage.

The obligations of the Slovak Republic in the field of physical protection of nuclear materials result from the accession to the Convention on the Physical Protection of Nuclear Material – INFCIRC 274/rev.1), which was signed by the Government of the Czechoslovak Socialist Republic on 8 February 1987. In 2005, the Amendment to the Convention on the Physical Protection of Nuclear Material was adopted in Vienna, and entered into force on 8 May 2016.

According to the Amendment to the Convention on the Physical Protection of Nuclear Material, one of the basic principles is the G Principle: "Threat". This Principle states that "Physical protection by the State should be based on an assessment of the current threat". The Slovak Government Resolution No. 229/2009 approved the document "Proposal for the determination of the threat by a nuclear installation and for nuclear installations and nuclear materials within the design-basis threat to the State". The given document is a starting point for determining the design-basis threat for NI. Based on this Resolution, ÚJD SR Chairperson established a permanent inter-ministerial working group to update the determination of the threat by nuclear installation and for nuclear installations and nuclear materials within the design-basis threat to the State" submitted to the Chairman of the Slovak Security Council for information, the group also dealt with updating the design-basis threat for NIs, by regular reassessment of the threat and operational solutions to situations arising from events in the Slovak Republic or abroad that affected the physical protection of NM and NIs.

Requirements for the physical protection of nuclear materials and nuclear installations for Slovakia are defined in the Atomic Act, in the ÚJD SR Decree No. 51/2006, laying down the details of the requirements for the provision of physical protection and the requirements for physical protection during transports of radioactive material, in the ÚJD SR Decree No. 57/2006, laying down the details of the requirements during transports of radioactive material and in the ÚJD SR Decree No. 105/2016, amending the ÚJD SR Decree No. 57/2006.

ÚJD SR concentrated its supervisory activities in this area on the control of operation of technical systems of physical protection, the level of regime protection in SE-EBO, SE-EMO, JAVYS and MO3&4, and the provision of physical protection during transports of fresh nuclear fuel and spent nuclear fuel.

Physical protection of the premises of SE, a. s., and JAVYS, a. s., was provided by private security services throughout the evaluated period. At both sites, there are also units of emergency services of the Slovak Police, which are ready to take action against the intruder in the event of a breach of physical protection.

In SE-EBO ÚJD SR focused its control activity on the activities of the system of physical protection. ÚJD SR approved the change to the document "Physical Protection Plan for SE-EBO". Physical protection in JAVYS, a. s., was provided in accordance with approved physical protection plans. Physical protection at the National RAW Repository site was also in 2019 in accordance with the approved "Physical Protection Plan for the National RAW Repository in Mochovce" and its amendments. In 2019, ÚJD SR approved several changes to the "Physical Protection Plan for SE-EMO1&2". Ensuring physical protection was in accordance with the approved Physical Protection Plan for SE-EMO and its previous amendments approved by ÚJD SR.

In 2019, ÚJD SR in connection with the commissioning of MO3&4 in the scope of handling and storage of fresh nuclear fuel in the fresh fuel node, as well as in connection with the commissioning of Unit 3 of MO3&4, approved the changes to the relevant physical protection plans. At the same time, in 2019 the conditions of ÚJD SR Decision No. 260/2018 were fulfilled, approving the "Physical Protection Plan for SE- MO3&4", edition 1, revision 0, in which ÚJD SR assessed technical, regime and organizational measures to ensure physical protection in connection with the commissioning of Unit 3 of MO3&4.

Furthermore, ÚJD SR reviewed and approved the physical protection plan for the transport of spent nuclear fuel from SE-EMO to ISFS, which took place in August 2019.

Exercises of physical protection services were held at the sites every quarter, with the participation of ÚJD SR representatives, which verified the effectiveness of the physical protection system. In 2019, interoperability exercises were also carried out at the Pečeňady Pumping and Filtration Station. The exercises focused on responding to the situation, and coordinating activities of all services of physical protection. The readiness of the exercising staff of the license holder was verified, the operators of control centres of physical protection, the physical protection services – private security services and the Slovak Police to respond to the simulated situation. At the same time, the system of connection and communication between the individual components of physical protection was verified.

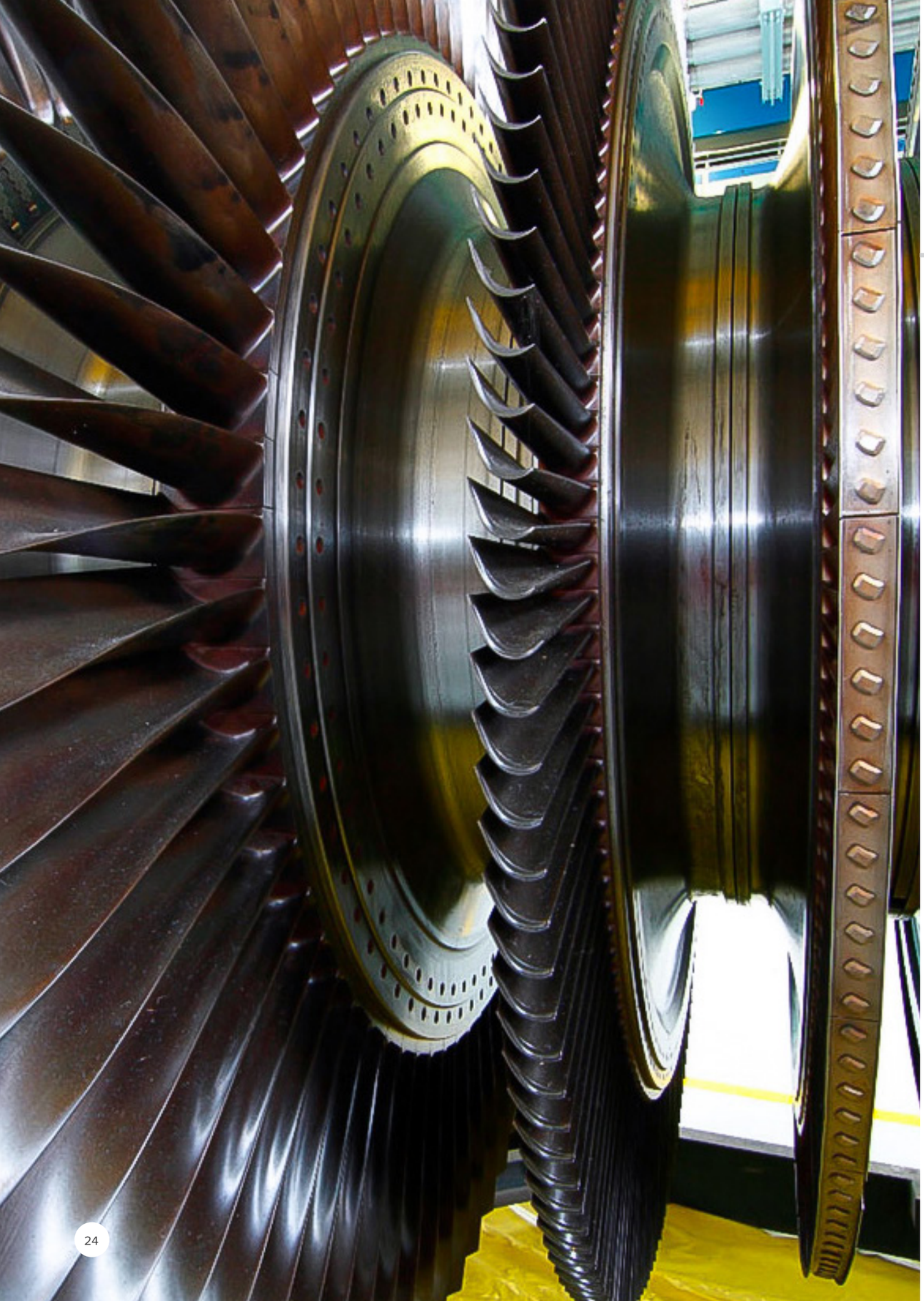
In the course of 2019, ÚJD SR inspected physical protection of nuclear installations and nuclear materials, and the physical protection during shipments of fresh nuclear fuel, spent nuclear fuel and uranium concentrate. The inspection activity was, in accordance with the inspection procedure of ÚJD SR, focused on the provision of regime protection, the method of control of entry and exit of vehicles, comparison of the status of technical means of the physical protection system with applicable legislation, and the status agreed in the documentation for individual nuclear installations.

ÚJD SR inspectors carried out 16 inspections focusing on the physical protection of nuclear installations, nuclear materials, radioactive waste, and at the same time inspections focusing on physical protection during shipments of radioactive materials.

Furthermore, the inspectors also performed 3 inspections focused on the security culture. The concept of security culture is one of the basic principles set out in the Amendment to the Convention on the Physical Protection of Nuclear Materials, which states that the priority of all organizations involved in physical protection should be the security culture, its development and maintenance, to ensure its effective implementation throughout the organization.

In 2019, ÚJD SR also performed 5 inspections on cyber security and protection of sensitive information in nuclear installations. The fulfilment of requirements of cyber security and protection of sensitive information resulting from the Atomic Act and the relevant ÚJD SR decrees was checked. IAEA technical guides were also used to check these requirements.

ÚJD SR representatives attended several technical meetings and training courses organized by the IAEA related to physical protection of nuclear materials and nuclear installations, as well as cyber security.



5 COMPETENCE AS A BUILDING AUTHORITY

ÚJD SR performs the competence of a Building Authority pursuant to Act No. 50/1976 Coll. on Spatial Planning and Building Regulations (Building Act) for structures of NIs and structures related to NIs located in the premises delimited by the borders of NIs. This means permitting structures, construction modifications, maintenance works, issuing decisions on the use of buildings and removal of buildings.

For Bohunice V-2 NPP, a final building approval was issued for the Electric Boiler, which is a new source of steam supply and for providing secondary power regulation.

For Mochovce 1&2 NPP, building permits for seismic reinforcements were issued for turbine hall, diesel generator station of Unit 1, pumping station of the essential service water and fire water, final building approval for the external substation 110 kV and 400 kV, where 400 kV switches were added on Units 1&2, for seismic reinforcement of buildings of the main generating dual unit, a forced draft cooling tower and civil protection object under the administrative building.

For JAVYS, a. s., Bohunice V-1 NPP premises, building permits were issued for construction of pools for wet cutting workplaces in the reactor building, optimization of capacities of RAW incineration, for gas storage for fragmentation of pressurizer and steam generators. Building approval decisions were issued for the dismantling of systems of the auxiliaries building, as well as for the LRAW storage facility and other modifications to the power plant, and installation of new equipment within the Bohunice International Decommissioning Support Fund (BIDSF) project. As part of the project of NPP modification and installation of new equipment, decisions were issued to change the deadline for dismantling piping ducts, including dismantling of piping routes and completion of the modification of the discharge of contaminated water from the Interim Spent Fuel Storage Facility. A permit for early use of the building was issued for the workplace of dry fragmentation.

In the premises of Units 3&4 of Mochovce NPP, 89 local surveys were carried out as part of the procedure for permitting an early use of the building according to the Building Act in the scope of buildings used for operation of Unit 3.

6 EMERGENCY PLANNING AND PREPAREDNESS

The Atomic Act defines emergency preparedness as the ability of the license holder and the public authorities to activate and implement activities and measures that lead to the detection and effective coping with incidents or accidents at NIs or during shipments of radioactive materials, and to effectively supress their potential to endanger the life, health of staff or the population, their property or the environment. This ability should be documented in emergency plans, which together with the operating documentation are developed by the license holders, and it is subject to review or approval by ÚJD SR.

The main document in terms of emergency preparedness is the internal emergency plan, which the legislation requires for nuclear installations in operation and also those in the decommissioning stage. This plan, together with the preliminary internal emergency plan, currently valid on the territory of nuclear units under completion in Mochovce site, is approved by ÚJD SR.

Other documents reviewed by ÚJD SR are population protection plans and emergency traffic regulations. Population protection plans are developed by the District Offices in the seat of regions, whose territory is located within the emergency planning zone. The documentation addresses the tasks and measures aimed at protecting the life, health and property of the population during the period of threat, or in the period of consequences of an emergency due to an incident or accident at a nuclear facility. ÚJD SR comments on the documentation submitted by the District Office and after incorporation and acceptance of comments, issues its decision on the assessment of the population protection plan, which is the basis for issuing a decision of the Ministry of Interior of SR approving the Population Protection Plan. The elaboration of the emergency traffic regulations is a condition for obtaining a permit for shipments of radioactive materials. ÚJD SR reviews the emergency traffic regulations on the basis of an application for transport permit. After accepting any comments, ÚJD SR issues a decision on the review of emergency traffic regulations, which is a basis for a decision of the Ministry of Transport and Construction of SR on the approval of the emergency traffic regulations. In 2019, ÚJD SR approved, assessed and commented on several draft internal emergency plans, population protection plans and emergency traffic regulations, as part of emergency preparedness.

As for other areas, also for the area of emergency preparedness, ÚJD SR has a plan of inspection activities at nuclear installations and holders of permits for the transport of radioactive materials. In 2019, inspections were carried out aimed at checking the course of emergency exercises for shift personnel, checking the activity of emergency response organization during site exercises, checking the reliability of online data transfers from the nuclear installation and checking the system of trainings. The inspection also focused on the evaluation of practicing emergency plans and emergency traffic regulations.

To ensure the receipt and transmission of notifications, warnings and other information in the event of a nuclear accident or radiation hazard (such as, for example, incidents or accidents at a nuclear installation, during shipments of radioactive substances, seizures of radioactive materials, losses, detection or theft of ionizing radiation sources) in the Slovak Republic or similar events abroad, ÚJD SR has established a liaison office. As a liaison, ÚJD SR closely cooperates with selected authorities of state administration, in order to ensure a unified procedure and applies the common guidelines for state administration bodies, which regulates the procedure of mutual information in case of occurrence or detection of an event related to ionizing radiation sources, the obligation to inform the population and the international community about significant events related to the use of ionizing radiation sources, as well as criteria for informing the liaison office. In case of an event at a nuclear installation in the territory of the Slovak Republic, or an event abroad with cross-border impact, ÚJD SR is also the competent authority for requesting assistance through the IAEA and its RANET system.

ÚJD SR staff is assigned to Emergency Staff for work in the Emergency Response Centre (ERC). ERC was established at ÚJD SR for independent evaluation of incidents that may arise during operation of nuclear installations or during shipments of radioactive materials. ERC is a technical support facility of ÚJD SR to deal with emergency at NIs and as an advisory body to the Chairperson of ÚJD SR, who is a member of the Security Council of SR and the Central Crisis Staff. The activity of ERC includes assessment of the course and consequences of incidents and accidents at nuclear installations that are material in terms of their potential impact on the environment, preparation of proposals and recommendations for measures to protect the population.

Individual groups of the ÚJD SR Emergency Staff are capable, based on the information received, to analyse the state of nuclear installation and prepare a forecast of the development of the event, using software tools installed in the ERC. These activities are described in emergency regulations issued by ÚJD SR, and regularly practiced during shift personnel exercises, site exercises, possibly interoperability exercises of license holders, as well as during exercises with neighbouring countries and international organizations. International exercises are aimed primarily at testing and evaluating the ability of individual Member States to respond promptly to radiation incidents with transboundary consequences. In 2019, ÚJD SR participated in two international exercises organized by the IAEA, held in June (ConvEx 2a – response to an incident), and October (ConvEx 2d – testing of the sending forms in the Agency system), as well as ECUREX exercises organized by the European Commission to test the use of the system of timely exchange of information between the individual European Union Member States, which took place in November. In addition to the exercises, communication on issues of cross-border emergency preparedness mainly on a multilateral basis – at the IAEA and also in the Radiation Accidents Group (HERCA) of the association of European regulators, WENRA, whose meeting was organized by ÚJD SR and the Public Health Authority of SR took place in 2019 in Bratislava.

7 INTERNATIONAL ACTIVITIES

7.1 EUROPEAN AFFAIRS

Cooperation within the European Atomic Energy Community (Euratom)

In the context of membership of the Slovak Republic in the European Union and in the European Atomic Energy Community (Euratom), ÚJD SR ensured the tasks and fulfilled the obligations arising from this membership. ÚJD SR representatives regularly participated in the meetings of working groups of the Council of the EU, and in meetings of working committees and groups of the European Commission, where, as experts in areas related to competencies of ÚJD SR, especially in relation to obligations and activities arising from the Treaty establishing the European Atomic Energy Community (Euratom Treaty), defended the interests of the Slovak Republic.

One of the most important working groups of the Council of the EU from the view of nuclear safety is the Working Party on Atomic Questions (ATO). In 2019, ATO met eighteen times. In the first half of 2019, the Presidency of the Council of the EU was held by Romania (RO PRES). The frequency of WP ATO meetings chaired by RO PRES was relatively intense given the extensive agenda, and in particular the discussions on the draft Council conclusions to strengthen the safety of nuclear installations through better physical protection. This was a problematic area, which most Member States, including the Slovak Republic, rejected and did not support due to the competences of the Euratom Treaty. The adopted Council Conclusions on the non-energy use of nuclear and radiation technologies were widely supported. At the same time, discussions continued during Romania´s Presidency, and subsequently the WP ATO at the Council adopted the Council Conclusions in March 2019 on the first topical peer review on nuclear safety. The conclusions are intended to highlight this evaluation process at the highest political level, and to encourage Euratom Member States to draw up national action plans, and to implement the improvements identified. In the second half of 2019, Finland took over the Presidency of the Council of the EU (FI PRES), thematically following the RO PRES on the topic of non-energy use of nuclear and radiation technologies. Within the WP ATO, preparations for the 8th Review Meeting for the Convention on Nuclear Safety began, which will be held in spring 2020 at the IAEA in Vienna.

In March 2019, the 38th Plenary Session of the European High Level Group on Nuclear Safety (ENSREG) elected Marta Žiaková, the Chairperson of ÚJD SR as the ENSREG chairperson for the following period. During 2019, ENSREG in cooperation with the European Commission, continued to evaluate historically the first topical peer review of EU Member States carried out under Council Directive 2014/87/Euratom. The topic of the first review was aging management of nuclear power plants and research reactors. NPPs in the Slovak Republic, in terms of set goals related to aging were assessed very well. Following the adopted conclusions, ÚJD SR in cooperation with the operator elaborated and sent to the European Commission in the second half of 2019 a National Action Plan with the aim of further improving the aging management of NPPs. In June 2019, the European Commission (EC) in cooperation with ENSREG organized the 5th ENSREG Conference on Nuclear Safety in Brussels. The aim of the Conference was to present the situation in the field of nuclear safety in Europe and in a global context. The topics of the conference reflected the results and experiences from the peer reviews on aging management of NPPs in the EU Member States, concerning the decommissioning of NIs, the standardization of the supply chain and knowledge management and skills in the nuclear area.

Other activities within the ENSREG group and its subgroups in 2019 focused mainly on the continuation of monitoring of the measures taken and on the implementation of recommendations resulting from the peer reviews within the Stress Tests (Action Plan) undertaken after the nuclear accident at Fukushima – Daiichi NPP. The current state of fulfilment of the Action Plan was sent to the European Commission for Slovakia at the end of 2019.

In December 2019, the EC published the third Report of the Commission to the European Parliament and the Council and the European Economic and Social Committee on the implementation of the Council Directive 2006/117/Euratom on the supervision and control of shipments of radioactive waste and spent fuel by the Member States, which the EC elaborated on the basis of national reports of the Member States, including the Slovak Republic. The Report covers shipments for the period 2015 – 2017.

Also in December 2019, the EC published the second Report of the Commission to the Council and the European Parliament on progress in implementing the Council Directive 2011/70/Euratom, on the Community inventory of radioactive waste and spent fuel, and on future developments, prepared by the EC on the basis of national reports of the Member States, including the Slovak Republic.

JAVYS, a. s., still in April 2018 forwarded to ÚJD SR general data prepared in accordance with the relevant annexes of Commission Recommendation 2010/635/Euratom for notification to the European Commission under Article 37 of the Euratom Treaty on the Completion of Interim Spent Fuel Storage Capacity in Jaslovské Bohunice. The documentation was reviewed again in 2019, and a request was made to revise and supplement it. After its completion, the documentation will be sent to the EC.

In the course of 2019, the inter-ministerial coordination group for the coordination of tasks arising from Articles of the Euratom Treaty continued, which was established at ÚJD SR on the basis of Slovak Government Resolution No. 442/2006. Two meetings were held during the year, in May and in December 2019. They discussed current topics, such as for example, the Commission Communication on more efficient and more democratic decision-making in the field of energy and climate, which seeks to change and democratize decision-making processes under the Euratom Treaty, the planning of the ARTEMIS mission, the EU taxonomy and others.

7.2 COOPERATION WITH THE IAEA

The IAEA, based in Vienna, plays the most important role in the field of international cooperation, given its political, professional and international importance, and a wide range of possibilities for technical cooperation and assistance. In 2019, five regular meetings of the IAEA Board of Governors were held (March, June, September – two meetings, November), with the participation of ÚJD SR representatives. Slovak experts participated in the work of expert groups and committees of the IAEA. A representative of ÚJD SR also participated in the International Conference on Climate Change and the Role of Nuclear Energy, which took place on 7 – 11 October 2019 in Vienna. From 16 – 20 September 2019, the 63rd session of the IAEA General Conference took place, which was attended by the Slovak delegation led by the Chairperson of ÚJD SR, Marta Žiaková. During the session, several special bilateral meetings were held in support of the candidacy of the Chairperson of ÚJD SR for the post of the IAEA General Director.

In 2019, tasks arising from three national and approximately 30 regional projects were fulfilled on an ongoing basis. Participation on workshops, training courses and meetings of projects of the two-year IAEA technical cooperation 2018 – 2019 was ensured.

During the year, National Liaison Officers met to discuss regional projects for the next two years (2020 – 2021), as well as topical project proposals for the new period. In November 2019, a meeting of the Committee for Technical Assistance and Cooperation of the IAEA Board of Governors in Vienna was held to discuss the draft program of Agency´s technical cooperation for the next two years 2020 – 2021, also assessed three national projects of the SR within this cooperation, which were subsequently approved by the IAEA Board of Governors.

ÚJD SR also participates in the work of the Commission for Safety Standards (CSS), the main task of which is the process preparation and assessment of new or amended safety standards.

The regular membership contribution of the SR to the IAEA for 2019 of EUR 472,444 and USD 71,333 and the contribution to the IAEA Technical Cooperation Fund of EUR 132,694 were paid in full and on time.

7.3 COOPERATION WITH THE NUCLEAR TEST-BAN TREATY ORGANIZATION (CTBTO)

ÚJD SR ensures the performance of the function of the National Authority for Liaison with the Preparatory Commission of the Organization for the Comprehensive Nuclear-Test-Ban Treaty (CTBTO) based in Vienna. The CTBT is a multilateral treaty banning any nuclear explosions in any environment on Earth, for both military and civilian purposes. To date, 168 countries have ratified the CTBT. The Preparatory Commission of the CTBTO and the signatory countries of the CTBT are making significant diplomatic, scientific and technical efforts with a view of its timely entry into force. The CTBT Treaty is currently considered one of the basic pillars of global nuclear disarmament.

ÚJD SR actively participates in the process of preparations for the entry into force of the CTBT Treaty, primarily through the participation of its representatives in meetings of the CTBTO Preparatory Commission and its working groups, hosting CTBTO training courses in Slovakia for On-Site Inspections and supporting training of experts and future CTBTO inspectors.

In 2019, the Slovak Republic was selected, among competitors from other signatory countries, to host two international CTBTO Build-up Exercises in 2020. ÚJD SR cooperates with Lešť Training Centre, with the Permanent Mission of SR in Vienna and other state administration authorities in preparing and organizing these exercises.

In 2019, ÚJD SR actively cooperated with the Faculty of Mathematics, Physics and Informatics of the Comenius University in Bratislava (FMFI UK) in the field of seismic monitoring of historical nuclear explosions recorded by the National Network of Seismic Stations in SR. The result of this cooperation was a scientific poster entitled A Catalogue of Nuclear Test Explosions Recorded by Slovak National Network of Seismic Stations, presented in June 2019 at the CTBT Science and Technology 2019 Conference in Vienna. ÚJD SR actively supported participation of experts from scientific institutions in Slovakia in courses and other training activities organized by the CTBTO. Researchers and doctoral students from FMFI UK and the Slovak Academy of Sciences participated in three seismological courses in Vienna in 2019 under the auspices of the CTBTO.

ÚJD SR paid the regular membership contribution for 2019 on behalf of Slovakia to the CTBTO of USD 113,607 and EUR 81,170.

7.4 COOPERATION WITH THE NUCLEAR ENERGY AGENCY AT THE ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD/NEA)

ÚJD SR, as the coordinator for the cooperation with the OECD/NEA on the basis of Government Resolution No. 245/2001, coordinates the cooperation between Slovakia and the OECD/NEA, and ensures fulfilment of Slovakia´s obligations arising from this membership.

In 2019, two meetings of the NEA Nuclear Energy Steering Committee were held. The Steering Committee is chaired by Marta Žiaková, Chairperson of ÚJD SR, who was reaffirmed at the October meeting as the Chair of the Steering Committee.

The Slovak experts also actively participated in the activities of almost all standing technical committees of the OECD/NEA, as well as in the activities of a number of working groups and expert groups. ÚJD SR´s involvement in joint OECD/NEA projects from the second half of 2019 included only the Halden Reactor Project, as the THAI-3 project ended in July 2019.

Membership contributions for 2019 to the OECD/NEA (EUR 34,047) and to the NEA Databank (EUR 10,471.92), for Halden Reactor Project (106,400 Norwegian krone) and THAI-3 project (EUR 4,750) were paid in full and on time.

7.5 FULFILMENT OF OBLIGATIONS UNDER INTERNATIONAL CONTRACTUAL DOCUMENTS

The Convention on Nuclear Safety

The Convention on Nuclear Safety was ratified by the Slovak Republic on 23 February 1995. In accordance with Article 5 of the Convention, Slovakia prepared the eights National Report of the Slovak Republic, which was sent to the IAEA, Vienna in August 2019. The National Report contains basic information on how Slovakia complies with the provisions of this Convention. This National Report will be discussed at the 8th Review Meeting of the Parties to the Convention on Nuclear Safety from 23 March to 3 April 2020 at the IAEA in Vienna. The National Report from 2019 is available on the website of ÚJD SR.

The Treaty on the Non-Proliferation of Nuclear Weapons

Pursuant to the Agreement between the Kingdom of Belgium, the Kingdom of Denmark, Federal Republic of Germany, Republic of Ireland, Republic of Italy, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the European Atomic Energy Community on the implementation of Article 3 par. 1 and 4 of the Non-Proliferation Treaty and its Additional Protocol, inspections were carried out by Euratom and IAEA inspectors. There was no violation of the obligations of the Slovak Republic in the field of non-proliferation of nuclear weapons and the safeguards system.

The Espoo Convention

Pursuant to the Agreement between MoE SR and ÚJD SR on cooperation and expert coverage of topics on nuclear energy and safety under the Espoo Convention on Transboundary Environmental Impacts, ÚJD SR participated in meetings of the Convention and cooperated in preparing position documents, in coordination with the MoE SR.

The focus of the discussion in the framework of the above-mentioned Convention was, and still is, the issue of decisions concerning the extension of the lifecycle of nuclear power plants. The Parties to the Convention are working on preparation of guidelines in the format of an ad hoc working group in order to facilitate the procedures of the Implementation Committee for assessing cases concerning the long-term operation of nuclear power plants and their compliance with the provisions of the Convention.

In February 2019, ÚJD SR participated in the Extraordinary Meeting of the Parties to the Convention (iMOP), in the scope of contributions to cases concerning nuclear energy.

7.6 BILATERAL COOPERATION

Bilateral cooperation, especially with neighbouring countries, takes place at the governmental level and at the level of nuclear and radiation safety supervisory authorities. ÚJD SR regularly organizes meetings with representatives of governmental and other partner organizations of neighbouring countries. In 2019, bilateral meetings were held between top representatives of ÚJD SR with delegations especially from neighbouring countries – Hungary, Czech Republic, Austria and Slovenia.

Czech Republic: On 4 and 5 March 2019, a bilateral meeting of representatives of ÚJD SR and the State Nuclear Safety Office of the Czech Republic (SÚJB) was held in Prague. At the meeting, they discussed the current developments in their institutions, the operation of nuclear power plants, radiation protection, but also international activities, including relevant EU issues for the past year. Both delegations expressed satisfaction with the high level of discussions and organization of the meeting. The discussion brought a lot of knowledge and information that can be used on both sides in the decision-making process. During the year, there was a direct exchange of information between the representatives of both regulators according to current needs.

Czech Republic, Hungary and Slovenia: On 3 and 4 April 2019, an annual four-party meeting of representatives of nuclear regulators of the Slovak Republic, Czech Republic, Hungary and Slovenia was held in Ptuj, Slovenia. The participants of the meeting informed each other about changes and current developments of state regulators, and about the most important activities from the last four-party meeting. They discussed current issues related to the safety of nuclear installations in their countries, regulatory

and legal frameworks related to the construction of new nuclear power plants, developments in international affairs, including the EU, safety culture of regulators, and international projects involving the four regulators of these four countries.

Austria: From 17 to 19 June 2019, in accordance with the inter-governmental bilateral agreement, a regular meeting of Slovakia and Austria took place in Piešťany on common topics related to nuclear safety and radiation protection, extended by a one-day expert meeting on the project of completion of Units 3&4 of Mochovce nuclear power station. The Slovak delegation was led by the Chairperson of ÚJD SR. The meeting covered topics related to the course of the hot hydrotest at Unit 3 of Mochovce NPP, the schedule for the commissioning of this Unit and the legal requirements for the commissioning and the start-up of the nuclear power plant. Special attention was paid to issues related to anchoring elements in the containment of the nuclear power plant, and the presentation of procedures for eliminating the identified deficiencies in the systems. On 19 June 2019, the Austrian delegation visited JAVYS, a. s., in Jaslovské Bohunice, to get acquainted with its activities. They also had a tour of the V-1 NPP under decommissioning. The heads of delegations appreciated the regular annual meeting and emphasized its relevance in the context of creating possibilities for mutual discussion, exchange of information and strengthening of trust between the two countries in this area.

In accordance with the conclusions of the expert meeting on the completion of Units 3&4 of Mochovce NPP, which was held as part of the regular inter-governmental bilateral meeting of the Slovak Republic and Austria, the Slovak party allowed the visit of Austrian experts directly at the site of Mochovce 3&4 NPP. The visit of Austrian experts took place on 11 and 12 November 2019. The meeting was in a spirit of openness and transparency. The Slovak side provided detailed information as requested by the Austrian experts, especially in the area of non-conformity reports and their processing as part of the quality control process, and also in the area of technical approach to anchoring elements for seismic reinforcement. All questions were answered in detail and the relevant technical documentation in the areas of interest was provided to Austrian experts for consultation.

8 PUBLIC RELATIONS

For ÚJD SR, communication and information for the public is one of the priority tasks, resulting from the mission of the Authority itself. The aim of communication with the public is to inform the domestic and foreign public about the activities of the Regulatory Authority, and through current, objective and comprehensible information and open communication, to build confidence of the public towards ÚJD SR´s activity. In January 2019, the updated Strategy of Communication with the Public until 2023 was approved, regulating the methods of communication of ÚJD SR with the public in accordance with the set goal.

As an objective and independent regulator, ÚJD SR constantly creates conditions for providing information to the public and to media through press releases, news published on the ÚJD SR website, but also through a profile on the Facebook social network. For the international community, the ÚJD SR website provides information in English. Laws and regulations in the field of nuclear safety, related legal regulations, as well as the entire text of safety guides, are published and continuously updated. ÚJD SR Decisions, as well as all administrative proceedings are published on ÚJD SR website. In addition, ÚJD SR enables the public and the media to communicate directly through a special email address: info@ujd.gov.sk.

Pursuant to Government Resolution No. 346/2017 and the Strategy and Action Plan to access and use of open data of public administration (OPEN DATA), ÚJD SR continuously makes available selected sets of open data, so called datasets, on its website and also through the open data portal, data.gov.sk. All purchase orders, contracts, invoices, as well as a list of permit holders, or an overview of requests for information delivered to the Authority pursuant to Act No. 211/2000 Coll. on Free Access to Information and on amendments to certain laws (Freedom of Information Act).

In 2019, ÚJD SR answered questions sent under the Freedom of Information Act, as amended. The Authority received and processed 13 requests for information, of which it issued 2 decisions on non-disclosure of information in part and 1 decision on rejection of the request.

In 2019, the process of getting a new, more modern website began, which will meet the requirements of the forthcoming update of the legislation concerning standards for public administration information systems.

ÚJD SR has a touch information kiosk installed, which fulfils the function of the Official Notice Board of ÚJD SR. In the kiosk, it is possible to view administrative proceedings of ÚJD SR (closed and pending ones), and also ÚJD SR decisions. ÚJD SR website is also available to the public. The touch information kiosk is located at the ÚJD SR offices in Bratislava – in front of the building and is thus accessible to the public 24 hours a day.

ÚJD SR regularly answers questions from the public and the media. In 2019, the topic of completion of Units 3&4 of Mochovce NPP dominated in the questions of journalists more than in the previous year. Out of the total number of 56 questions delivered to ÚJD SR in 2019 from representatives of the Slovak and foreign media, up to 47 (that is 84 %) concerned the completion of the mentioned NPP. In order to provide the public with comprehensive and correct information, ÚJD SR issued 4 press releases in 2019 and the Chairperson of ÚJD SR provided the media with 3 extensive interviews, focusing mainly on explaining the situation at the Mochovce 3&4 NPP construction site, and the supervisory activities within the competence of ÚJD SR.

ÚJD SR deepens the public´s awareness of its activities and mission with the aim of creating a positive opinion as a professional and reliable regulator, which is a credible source of information in the form of publishing information materials (primarily in the form of the Annual Report).

ÚJD SR continues to communicate with the public in the vicinity of NPPs. Representatives of ÚJD SR also in 2019 actively participated in the meetings of Civil Information Committees (OIK) at NIs in Bohunice and at NIs in Mochovce, at the meetings of the Association of Towns and Municipalities, Jaslovské Bohunice region and Special Interest Regional Association of Towns and Municipalities Mochovce. Information on current issues in the field of nuclear safety in SR and abroad, as well as on activities of ÚJD SR were presented. Moreover, the mayors of municipalities have contact details to contact the Chairperson of ÚJD SR, with whom they can communicate directly, if they need information.

9 NUCLEAR REGULATORY AUTHORITY OF SR

9.1 ECONOMIC INFORMATION

ÚJD SR is a budget chapter and therefore its revenues and expenditures, are connected to the state budget. In accordance with the Atomic Act, license holders are obliged to pay annual contributions for the state supervision over nuclear safety from 1 January 2008. Revenues for 2019 were budgeted for ÚJD SR in the amount of EUR 9,121,000, the revenue budget was not adjusted during the year. The actual revenues reached EUR 9,403,074, of which administrative fees amounted to EUR 9,383,183, fines and penalties (for breach of regulations) EUR 4,592 and other non-tax revenues of EUR 15,299. The expenditure limit for 2019 was approved for ÚJD SR in the amount of EUR 9,560,210. Following budgetary measures, the expenditure cap was adjusted to EUR 9,873,288. The total expenditures for the operation of ÚJD SR as at 31 December 2019 amounted to EUR 9,186,236. Of this, expenditure of EUR 8,997,648 was spent on financing normal operation, and EUR 188,588 for acquisition of capital assets.

Table 6 Economic results for 2019

Item	Amount (in Eur)
Revenues limit	9,121,000
Actual revenues, total	9,403,074
Of which:	
Administrative fees	*9,383,183*
Fines, penalties and other	*4,592*
Other non-tax revenues	*15,299*
Expenditures limit	9,560,210
Actual expenditure, total	9,186,236
Of which:	
Current expenditures	*8,997,648*
Capital expenditures	*188,588*

Current expenditures

In current expenditures, a significant share is represented by foreign transfers of EUR 1,163,090. The funds were used for membership contributions paid to international organizations. The regular contributions are two foreign transfers to the IAEA, namely a regular membership contribution of EUR 776,150 and a contribution to the Technical Cooperation Fund of EUR 262,144. Another contribution to the IAEA was a participatory contribution of EUR 113. In 2019, ÚJD SR also paid contributions to the OECD/NEA of EUR 34,704 and to the OECD/NEA – Databank, of EUR 10,413. As part of contributions to scientific and technical cooperation programs, where the members use the results of research and development programs to increase the safety and reliability of NIs, a contribution to a program under OECD/NEA, Halden Reactor Project of EUR 11,113, for the OECD/NEA PKL3 Project of EUR 4,750 and contribution to the Implementation Agreement of the US Nuclear Regulatory Commission (US NRC) and ÚJD SR – participation in CSARP program – in the amount of EUR 63,183. Foreign transfers included also a contribution to the European ENSREG Conference on Nuclear Safety of EUR 520.

An overview of foreign transfers, summarized in Table 7, shows the summary membership contributions for 2019, and part of contributions for the future period, which were paid in 2019.

Table 7 Foreign transfers to international organizations

Financial contributions to international organizations	Amount (in Eur)
IAEA – Membership contribution	776,150
IAEA – Technical Cooperation Fund	262,144
IAEA – Participatory contribution	113
OECD/NEA	34,704
OECD/NEA – Databank	10,413
OECD/NEA – PKL3 Project	4,750
OECD/NEA – Halden Reactor Project	11,113
Implementation Agreement, US NRC and ÚJD SR (CSARP Program)	63,183
Contribution to ENSREG conference	520
Total	1,163,090

Domestic transfers of EUR 29,930 were used to pay membership contribution to a non-profit organization, Slovak Nuclear Society (SNUS), for compensation to employees for the first 10 days of incapacity for work and for severance pays.

The necessary support in the decision-making, licensing and inspection activities of ÚJD SR are expertise, opinions and analyses, in total an expenditure of EUR 1,170,816.

Wage costs for employees represented EUR 3,905,897 and health insurance and social security expenditures were in the amount of EUR 1,520,505.

Table 8 Current expenditures

Current expenditures	Amount (in Eur)
Foreign transfers	1,163,090
Expertise, opinions, analyses	1,170,816
Payroll (119 employees)	3,905,897
Statutory employee insurance	1,520,505
Domestic transfers	29,930
Goods and services	1,207,410
Total	8,997,648

Funds in the amount of EUR 1,207,410 were spent on the procurement of goods and services necessary for the operation of ÚJD SR. The basic type breakdown of these expenditures results from the economic budget classification of expenditures, and their structure was as follows:

Table 9 Expenditures spent on goods and services in 2019

Item	Amount (in Eur)
Travel expenses	150,388
Communication and energy	70,327
Material	163,353
Car park	39,429
Routine and standard maintenance of building and operational facilities	88,454
Rent for office space, garages, meeting rooms and equipment	60,894
Services (printing, cleaning, translations, information, equipment revisions, trainings, advertising, catering, bank fees, contribution to the Social Fund, compensations – recreation, entertainment expenses and other)	634,565
Total	1,207,410

Capital expenditures

The use of budget appropriations for the acquisition of capital assets in the category of capital expenditures of EUR 188,588 is summarized in Table 10.

Tab. 10 Use of capital expenditures in 2019

Item	Amount (in Eur)
Purchase of central back-up source	8,591
Purchase of a security system	5,000
IT infrastructure (switches, server, UPS, firewall)	93,377
Purchase of cars	28,496
Software upgrades	53,124
Total	188,588

Appropriations from a separate account, Donations and Grants

The disbursement of expenditures from a separate account, Donations and Grants in 2019 amounted to EUR 1,741. Funds of foreign grants were the funds from SARNET Project.

Table 11 Use of funds in 2019

Item	Expenditure account	Donations and Grants	Total (in Eur)
Current expenditures	8,997,648	1,741	8,999,389
Capital expenditures	188,588	-	188,588
Total expenditures	9,186,236	1,741	9,187,977

9.2 HUMAN RESOURCE MANAGEMENT AND TRAINING

Quality human resource management is one of the basic preconditions for achieving strategic goals and tasks of ÚJD SR, and fulfilling the approved National Nuclear Safety Policy. In 2019, we managed to strengthen human resources for the performance of demanding process of review and assessment of documentation, as well as for the inspection activities during the completion of Mochovce 3&4 NPP.

Human resource management focused on selection procedures, remuneration and evaluation of employees, as well as training of staff in order to support and develop human potential, but especially to create an atmosphere that motivates employees to meet the goals and challenging tasks of ÚJD SR as a regulator.

ÚJD SR had a total number of 128 employees determined by the budget breakdown for 2019, of which were 111 civil servants and 17 employees performing work in public interest. One civil service position was temporarily delimited for secondment to support cooperation in the field of peaceful uses of nuclear energy, namely to the Ministry of Foreign and European Affairs of SR.

The process of filling civil service positions, as well as positions in public interest took place at ÚJD SR in a standardized format, in accordance with the Civil Service Act and the Decree laying down the details of selection procedures. ÚJD SR announced selection procedures for filling vacant civil service positions by publishing them in the register of selection procedures on the portal www.slovensko.sk and the Authority´s website. When filling civil service positions for temporary civil service, which is of the lowest interest, and when filling positions for work in public interest, ÚJD SR also publishes offers through the largest job portal.

In 2019, ÚJD SR announced 17 selection procedures to fill vacant or temporarily vacant civil service posts, and 2 selection procedures to fill posts for work in public interest. Two selection procedures and one competition will be closed only in 2020. A total of 18 selection procedures were held in 2019 (of which 3 were announced in 2018) and 1 competition.

In 2019, ÚJD SR announced a total of 10 short-listed internal selection procedures, of which 4 failed due to the fact that no candidate applied from among civil servants of ÚJD SR.

Through 18 selection procedures 11 vacant or temporarily vacant civil service positions were filled. In the course of 2019, 4 civil service positions were filled on the basis of new service contracts, 1 civil servant started to work with effect from 1 January 2020, and 5 employees had a change in their civil service employment. One employee returned from parental leave, and 2 employees started maternity leave. Following a successful selection, one employee was hired for a job to perform work in public interest.

As at 31 December 2019, ÚJD SR had a total of 120 employees, of which 104 civil servants and 16 employees performing work in public interest. At the end of the year, 6 civil service positions and 1 post for work in public interest remained vacant (of which 1 civil service post was bound by a concluded service contract with the start date from 1 January 2020).

The civil service employment at ÚJD SR was ended by 3 civil servants, of which 1 civil servant was permanently transferred to the Ministry of Environment of SR, and 2 civil servants ended their civil service employment after the expiry of the period of extension of their civil service employment after reaching the age of 65 years.

One employee terminated her employment of work in public interest to establish a civil service employment.

As at 31 December 2019, there were 54 women (40 women in civil service employment and 14 women taking a job in public interest) and 66 posts were taken by men (64 men in civil service positions and 2 men taking a job in public interest). The total share of women employed was 45 %.

In terms of systematization of civil service positions, ÚJD SR registered a total of 77 civil service positions in the field of civil service 2.05 Nuclear supervision.

As of 31 December 2019, ÚJD SR registered 75 occupied civil service positions by nuclear safety inspectors.

Table 12 Structure of inspectors as at 31 December 2019

	Total	Women	Man
Inspectors	75	23	52

The educational structure of employees had a direct impact on the professional of performance of activities of individual departments of ÚJD SR, and declares that 90.83 % of its employees have completed their university studies, level 2, and 9.17 % has complete secondary education. At the end of 2019, 98.48 % of the posts occupied by men were with university education, and for women the percentage share is 81.48 %. This share of university educated employees is associated with the demanding work of ÚJD SR staff, and far exceeds the educational level of the Slovak population.

Table 13 Educational structure of staff as at 31 December 2019

Education	University studies	Complete secondary education	Total
Women	44	10	54
Men	65	1	66
Total	**109**	**11**	**120**

In terms of the age structure of employees, the group aged 56 and over, represents 30.83 % of the total number of staff. The age structure also documents that the employees aged 36 to 55 make up to 50.83 % of the total number of staff, employees aged 18 to 35 make up 18.34 % of the total number of 120 staff. This fact confirms the long-term trend that the process of exercising state supervision also in 2019 was ensured primarily by employees with many years of professional experience, i.e. employees aged 36 to 55 and over, who together accounted for 81.66 % of the total number of staff. The average age of ÚJD SR staff as of 31 December 2019 was 47 years.

The share of managers in the organizational structure represented 13.33 % of the total number of staff.

Acquiring, deepening and maintaining professional competence of ÚJD SR staff is another prerequisite for managing the new tasks of the current legal, economic and highly demanding technical environment, which also includes the nuclear energy sector. Education is one of the basic goals, but also one of the requirements of modern society. The requirements for knowledge, abilities, skills and experience of the employees in modern society are constantly changing. In order for an employee to function as a highly professional workforce, one must constantly deepen and expand them. A separate chapter on education consists of the informatization of public administration and the transparency in performance of activities of a regulator, which requires the active involvement of staff in solving new issues that these areas bring. To this end, it is necessary to adopt new requirements and obligations of public administration bodies, which employees must fulfil.

Education of ÚJD SR staff for 2019 was developed in the plan of continuous education. The plan of continuous education is an operational management act of ÚJD SR with a year-round content focused training needs of all organizational units of ÚJD SR. As part of the education process, ad hoc educational activities offered by educational institutions were also used. The training focused on all professional areas provided by ÚJD SR.

ÚJD SR staff also utilize other forms of education, such as e-learning and self-study. Civil servants and especially managerial staff made use of the offer of the Centre for Education and Assessment of the Government Office of SR, and attended trainings to support managerial skills and personal development. ÚJD SR staff regularly attend workshops and training activities organized by international organizations, such as IAEA in Vienna and OECD/NEA in Paris. Training and formation of work abilities and skills in the conditions of ÚJD SR becomes a lifelong process, because it is necessary to permanently take into account the current needs caused by the reality of changes.

Expenditures for ÚJD SR staff training were budgeted in the amount of EUR 250,000 in the plan of continuous training for 2019. More than 52% of the funds spent in 2019 were allocated to vocational training, mainly in the field of nuclear supervision. It is clear from the above that ÚJD SR places great emphasis on highly specialized training of employees in the area of Authority´s competence, through which inspectors and surrogate inspectors acquire the necessary knowledge and skills to perform inspection activities. Funds for education in the field of IT were also allocated separately. Equal emphasis is placed on training of civil servants in other branches of civil service and on the training of staff in performance of employees in public interest, so that their training is continuous and up-to-date due to ongoing changes in legislation and public administration.

The adaptation of newly entered civil servants was ensured by adaptation training and mentoring, i.e. by the help of an assigned mentor. In 2019, the process was completed by four civil servants. As part of adaptation training, new employees acquired basic skills and obtained the necessary information for the performance of civil service at the relevant department of ÚJD SR.

ÚJD SR also paid due attention to language training, especially foreign language training, namely English and Russian, which is attended by more than half of ÚJD SR staff.

The Service Office has introduced systematic training of ÚJD SR staff in the field of language culture and this has a highly positive impact on the language of documents drafted as part of activities of the Service Office.

ÚJD SR, as another central administration authority, has achieved a state of quality of its work which is highly positively evaluated both domestically and abroad, which proves the high professional level and professionalism of the regulator´s staff.

9.3 DEVELOPMENT OF REGULATORY ACTIVITIES

Maintaining a high professional level and professionalism of the regulator´s staff is aided by the application of results of science and research at ÚJD SR, and the exchange of experience and knowledge as part of the active involvement of ÚJD SR in various international expert teams.

ÚJD SR is involved in the research project of the US Nuclear Regulatory Commission in the field of severe accidents management. Thanks to its participation in the project, ÚJD SR has at its disposal the US computational program MELCOR ("MELting CORe") and its additional tool, MACCS ("MELCOR Accident Consequence Code System"). It is used for verification calculations of severe accident analyses, which license holders submit to ÚJD SR as part of administrative proceedings. During the working meetings of the project, its members exchange experience and knowledge in modelling severe accidents and evaluating the reactions of NI to the accident. They also inform each other about modifications to NIs, the aim of which is to prevent the occurrence of potential accidents or to mitigate their consequences.

ÚJD SR also gains experience and technical information by participating in international projects and working groups of the OECD/NEA. In the period from 2016 to 2019, it supported the THAI-3 Project, which examined the behaviour of fission products in the reactor containment and the possibility of mitigating the risk associated with hydrogen production during accidents and its burning or explosions. The Project officially ended on 31 July 2019. OECD/NEA working groups organize various international conferences, seminars and working groups aimed at addressing current issues of safety of NIs, exchange of experience and mutual assistance. ÚJD SR experts are actively involved in the preparation and review of many professional papers, proposals and concepts. This contributes to their further professional growth, information and exchange of knowledge and experience in the field of increasing nuclear safety.

Within the framework of international cooperation in the field of nuclear safety, ÚJD SR also assists in the development of nuclear regulators of other countries. Examples of such assistance are EC projects in support of the Iranian Nuclear Regulatory Authority, (INRA), in which ÚJD SR is involved in a consortium with ENCO and partner regulators from the Czech Republic, Hungary and Slovenia. The project´s aim is to enhance Iran´s nuclear and radiation safety supervision capabilities by exchanging experience and promoting the use of international best practice. The first project was initiated in 2017. ÚJD SR assists INRA in the coordinated and effective implementation of nuclear safety Stress Tests, which are performed on the basis of experience after the accident at the Fukushima – Daiichi NPP in Japan. In 2019, assistance was aimed at supporting INRA in the verification of Stress Tests of the Iranian Busher NPP. The second project was officially launched in the autumn of 2018. The ÚJD SR contribution focuses on assisting INRA with the preparation of the IRRS mission in Iran, as well as supporting INRA in further developing the legislative and regulatory framework for nuclear safety in Iran, in accordance with international standards. In 2019, ÚJD SR experts reviewed and developed recommendations for improving INRA´s responses in six modules of the SARIS database, which is the IAEA´s support tool for the IRRS mission. They have also begun to address the task of reviewing legislative framework for supervision in Iran, identifying its gaps and proposing solutions.

ÚJD SR is a founding member of the Forum of state nuclear regulators of the countries operating VVER nuclear power plants (VVER Forum), which was established in 1993. The aim of the VVER Forum is to support increasing the level of nuclear safety and protection against the adverse effects of ionizing radiation. It is a platform for the exchange of information and experience in this area, its members meet at regular annual intervals. Working groups are set up within the VVER Forum to address specific issues. In June 2019, ÚJD SR hosted the third meeting of the working group on the use of probabilistic safety assessment (PSA) by the regulators in the fifth programming period (2018 – 2021). During this period, this working group focuses in particular on the comparison and exchange of experience in the field of monitoring the effectiveness of maintenance, and in the legislative framework and supervision requirements for long-term operation, aging management and the role of PSA in these processes.

9.4 MANAGEMENT SYSTEM

The management system of ÚJD SR is built in accordance with the requirements of EN ISO 9001:2015 standard, and supplemented by specific requirements imposed by the IAEA in the field of ensuring nuclear safety. The Chairperson´s advisory body is the Management System Board, which assesses the concept of management system development, issues of its development and application, the need for reviews, their conditions and requirements, reports from audits, assessment and comparative studies, issues of cooperation, exchange of experience and good practice within implementation of the management system in the Slovak state administration and abroad, proposes procedures in its improvement and increase of efficiency and effectiveness of ÚJD SR activities.

Risk management was integrated into the management system as early as 2016, and a risk register was elaborated. The Risk Register defines and classifies potential, or encountered risks associated with the activities of ÚJD SR, and includes all other information necessary for risk management. Once the Register has been set up, it is regularly updated, the identified risks are monitored and measures are taken to eliminate or mitigate the largest identified risks.

In accordance with the plan of audits of the management system, 4 specifically targeted partial internal audits were performed in 2019. The audits confirmed that the activities performed by ÚJD SR are governed by applicable guidelines and procedures of the management system. The audits resulted in several measures to eliminate non-compliance and suggestions for improvements. Some of them were fulfilled already in 2019, and the remaining ones will be implemented in 2020.

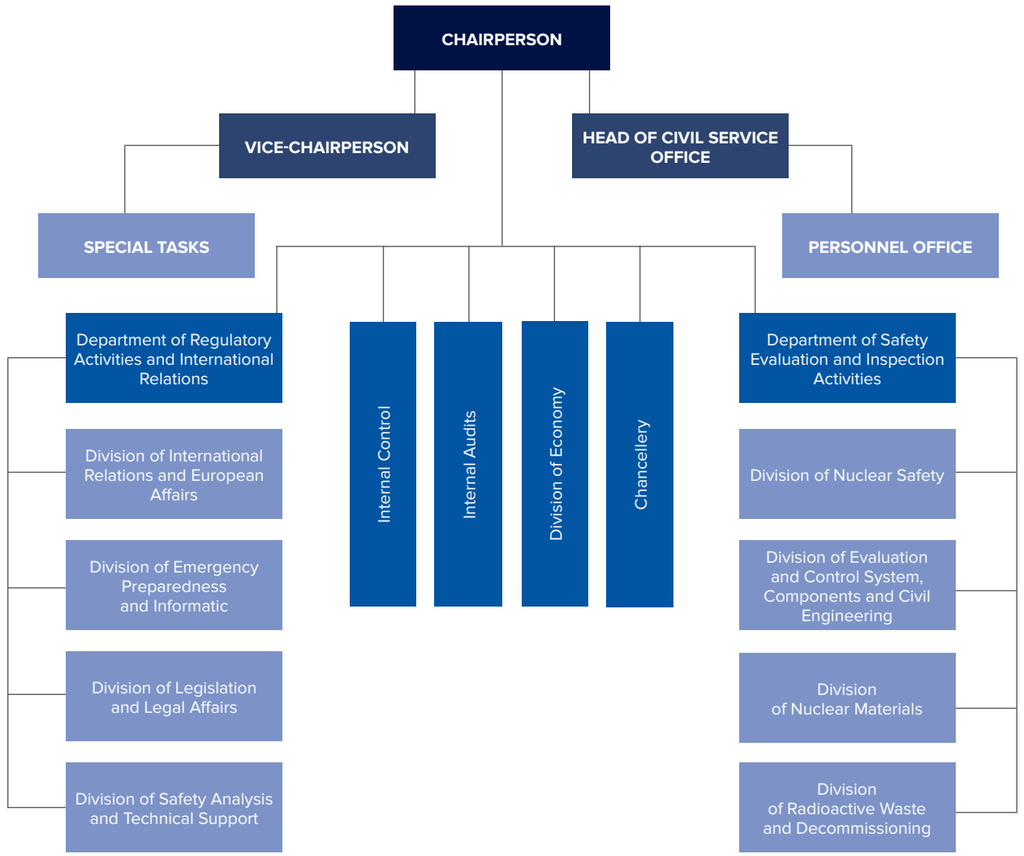
The audit was performed by an external organization with regard to the requirements of EN ISO 9001:2015 standard with the conclusion that ÚJD SR meets the set requirements of the standard. The audit resulted in suggestions for improvements, which are gradually being implemented.

In October and November 2019, the project Measurement and evaluation of the safety culture and safety management was implemented, in accordance with the requirements of the IAEA safety standard, General Safety Requirements No. GSR Part 2. The Project was implemented by an external organization. The evaluation confirmed that the motto of ÚJD SR: "Safety is always on the first place and must override any other requirements" stated in the Quality Policy, is applied in the daily life of ÚJD SR and its staff. Culture has its foundations in the high professionalism of ÚJD SR staff, in their responsible approach to work, which is supported by the ÚJD SR management. An important prerequisite for a strong culture is the independence of ÚJD SR. Impartiality is achieved by the independence of ÚJD SR as a legal entity, sufficient resources and strong personalities in the management of ÚJD SR. Based on these facts, suitable working conditions are created for the staff with strong support for personal and professional development and improvement of work procedures.

The review of the quality management system by the management of the organization, in the evaluation of which all the process owners participate, is assessed by the Management System Board of ÚJD SR. The resulting document is an integral assessment of the state of fulfilment of policy and quality objectives, results of internal audits, regular reviews of quality guidelines, fulfilment of related requirements, describing process performance, product conformity, description of the status of preventive and corrective actions and changes with potential impact on the management system, stating also recommendations for improving processes, activities and product improvement related to the legitimate requirements of stakeholders and the necessary resources.

10 ANNEX

ORGANIZATIONAL STRUCTURE OF THE NUCLEAR REGULATORY AUTHORITY VALID AS AT 31 DECEMBER 2019



11 ABBREVIATIONS USED

ACCC	Aarhus Convention Compliance Committee
AO1	Reactor scram
BIDSF	Bohunice International Decommissioning Support Fund
BSC RAO	Bohunice RAW Treatment Centre
CSS	Commission for safety standards of the IAEA
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organization
DBL	Discontinuous bituminisation line
DGS	Diesel generator station
EBO	Bohunice Nuclear Power Plant
EC	European Commission
EMO	Mochovce Nuclear Power Plant
ENSREG	European Nuclear Safety Regulators Group
ERC	Emergency Response Centre
ESW	Essential Service Water
FCC	Fibre-concrete container
FNF	Fresh nuclear fuel
FS KRAO	Final treatment of liquid RAW
GO	General overhaul
HNČ	Pumps of the emergency feeding system for steam generators
I&C	Instrumentation and Control systems
IRRS	Integrated Regulatory Review Service
IS RAO	Integral RAW storage facility
JAVYS, a. s.	Jadrová a vyraďovacia spoločnosť /Nuclear Decommissioning Company
NPP	Nuclear Power Plant
NM	Nuclear materials
NI	Nuclear installation
L&C	Limits and Conditions
IAEA	International Atomic Energy Agency
MO SR	Ministry of Defence of SR
ISFS	Interim Spent Fuel Storage Facility
MoE SR	Ministry of Environment of SR
NRAO	Low level RAW
NDT	Non-destructive
NR SR	National Council of SR
OECD/NEA	Nuclear Energy Agency at the Organization for Economic Cooperation a Development
OIK	Civil Information Commission
PERIS	Integral tightness test of hermetic spaces in NPP
PSA	Probabilistic Safety Assessment
WP ATO	Working Party on Atomic Questions in the EC
RAW	Radioactive waste
RO PRES	Romanian Presidency of the Council of EU
RÚ RAO	National RAW Repository
SHNČ	Pumps of super-emergency feeding system for steam generators
SNF	Spent nuclear fuel
SNUS	Slovak Nuclear Society
SR	Slovak Republic
SE, a. s.	Slovenské elektrárne, a. s.
SÚJB	State Office for Nuclear Safety of the Czech Republic
TSÚ RAO	Technology for RAW Treatment and Conditioning
ÚJD SR	Úrad jadrového dozoru SR – Nuclear Regulatory Authority of SR
US NRC	US Nuclear Regulatory Commission
VNRAO	Very low-level RAW