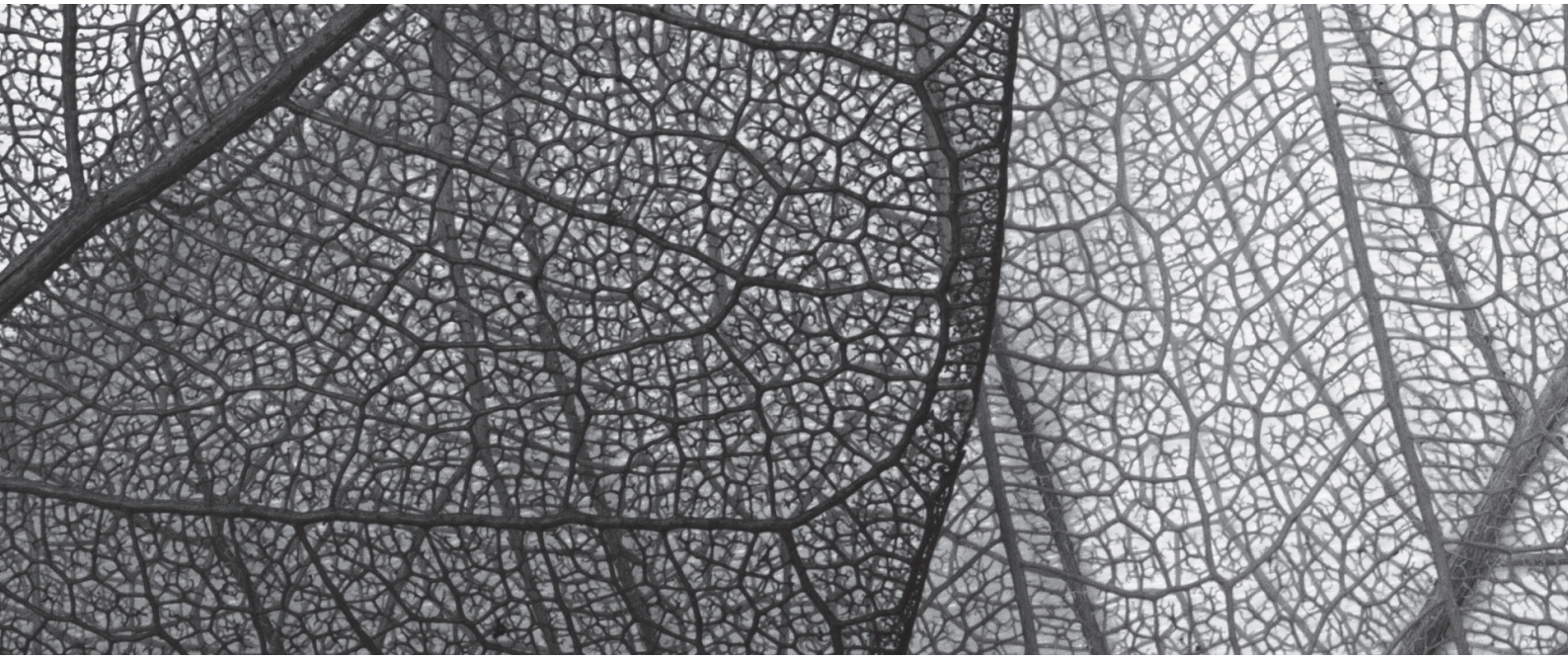
2017

ANNUAL REPORT

NUCLEAR
REGULATORY AUTHORITY
OF THE SLOVAK REPUBLIC



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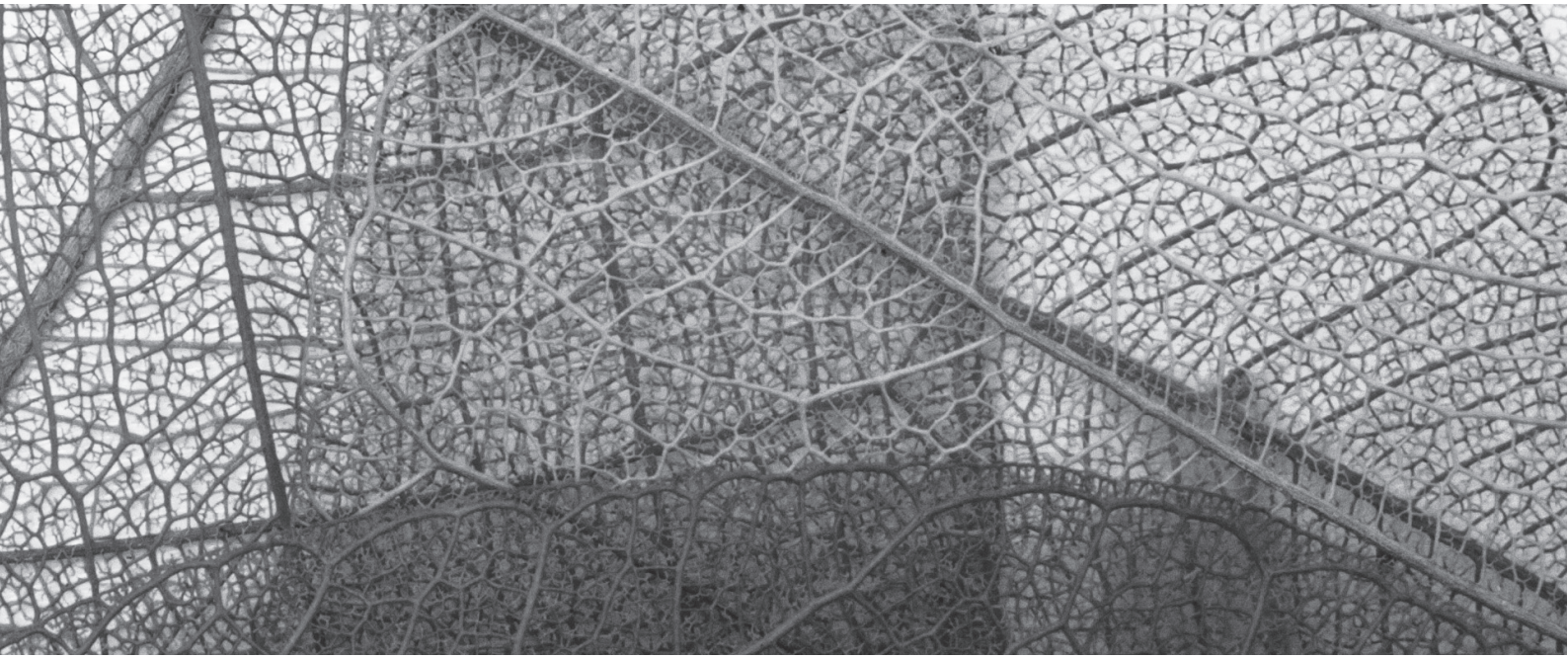
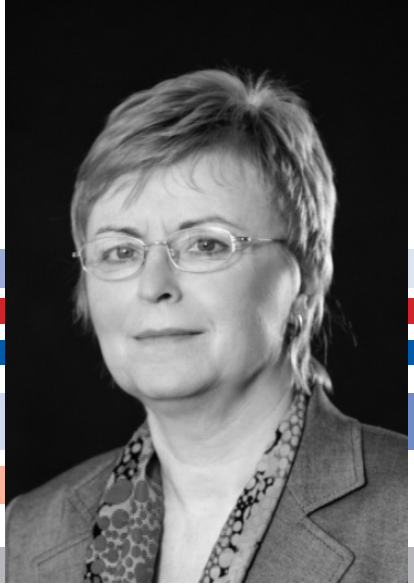




Dear readers,

From this Annual Report for 2017 you have the opportunity to get acquainted with the activities of the Nuclear Regulatory Authority of the Slovak Republic (ÚJD SR), as well as with the state of nuclear safety of nuclear installation in the Slovak Republic.

One of the basic tasks of ÚJD SR is the creation of legislative environment for the peaceful use of nuclear energy in Slovakia. An important achievement in this area was the completion of work on the amendment to the Atomic Act, which aims to fully transpose Directive 2014/87/Euratom and partially transpose Directive 2013/59/Euratom. Also, in 2017, ÚJD SR prepared and issued several safety guides to ensure the fulfilment of requirements for the safe use of nuclear energy or the implementation of activities related to the use of nuclear energy.

In the area of reviews and assessment, in 2017 ÚJD SR focused mainly on the documentation related to the works on completion of the nuclear power plant Mochovce 3 & 4. In August, ÚJD SR interrupted the administrative procedure for the granting of authorization for commissioning, handling nuclear materials, spent nuclear fuel (SNF) and radioactive waste (RAW) management in the nuclear facility, as well as early use of selected building objects of 3rd phase of construction due to incomplete documentation for the procedure and also insufficient proof of physical readiness of unit 3 for commissioning.

From the point of view of ensuring nuclear safety, the control activity at the license holders conducted by the ÚJD SR inspectors is very important. In 2017, nuclear safety inspectors carried out 183 inspections. After summarizing the results of inspections and based on a summary assessment of ÚJD SR safety indicators it can be stated that the nuclear facilities in the Slovak Republic in 2017 were operated in a safe and reliable manner, without any serious events that would have led ÚJD SR to issue an order for power reduction or shutdown of the reactor or stopping the operation of the nuclear power plant. ÚJD SR also pays increased attention to cyber security risks, which may have negative impact on the safe operation of nuclear facilities and the physical protection of nuclear materials (NM) and nuclear facilities (NF).

As part of international cooperation, in 2017 ÚJD SR provided for the tasks and obligations resulting from the membership of Slovakia in the EU. ÚJD SR covered the European Agenda for the peaceful use of nuclear energy, fulfilled the tasks and obligations resulting from this membership throughout 2017. In 2017, ÚJD SR sent to the European Commission (EC) the third National Report of SR on the implementation of Council Directive 2006/117/Euratom on the supervision and control of shipments of radioactive waste and spent nuclear fuel for the period 2015 – 2017. ÚJD SR drafted and sent to the EC also other important documents, such as the National Assessment Report of SR on Aging Management of Nuclear Power Plants and evaluation of the fulfilment of the National Action Plan, based on the results of the stress tests of Nuclear Power Plants (NPP).

Regarding the participation of SR in the activities of international organizations, the International Atomic Energy Agency (IAEA) plays the most important role. Representatives of ÚJD SR in 2017 participated actively in the meetings of the IAEA Board of Governors, committee meetings on safety standards, workshops, training courses and many other activities. At the IAEA headquarters in Vienna, the 7th Review Meeting of the States Parties to the Nuclear Safety Convention was held. At this meeting the National Report of SR was discussed and positively assessed in accordance with the Nuclear Safety Convention.

Finally, I would like to thank our colleagues for their hard work, perseverance and professionalism, which has helped us to meet the challenging tasks we set for 2017. At the same time, dear readers, I would like to assure you that ÚJD SR will continue to carry out its duties so that the nuclear safety of nuclear installations in the Slovak Republic continues to be secured at a high level.

1. LEGISLATIVE ACTIVITY

An important activity in the area of legislation for 2017 was the completion of work on the Amendment to the Atomic Act. The purpose of the Amendment to the Atomic Act was the full transposition of the Directive 2014/87/Euratom and the partial transposition of Directive 2013/59/Euratom. The Amendment to the Act was adopted by the National Council of SR on March 23, 2017 and subsequently signed by the President of the Slovak Republic. In the Collection of Laws of the Slovak Republic the Act was proclaimed on April 27, 2017 under No. 96/2017 Coll., amending Act No. 541/2004 Coll. on the peaceful use of nuclear energy (Atomic Act) and on amendments to certain regulations, and it came into force on August 1, 2017.

In 2017, ÚJD SR continued to coordinate the cooperation of stakeholders within the inter-ministerial working group on civil liability for nuclear damage. The main activity of this working group was work on finalizing the report on the state and development of European legislation on civil liability for nuclear damage as of December 31, 2016 in accordance with the Government Resolution No. 152/2014 of April 2, 2014. The Government approved the report by its Resolution No. 139/2017 of March 22, 2017.

In 2017, ÚJD SR in cooperation with the Nuclear Energy Agency (OECD/NEA) prepared the Third International Workshop on Liability for Nuclear Damage, which was held in Bratislava from October 18 to 20, 2017. The Workshop focused on evaluating the implementation of applicable international conventions on liability for nuclear damage in individual states, including non-contracting states, provided that all modernized international instruments will come into effect. The workshop was attended by close to 180 participants from 33 countries. The subject of contributions and discussions was the legal aspects of compensating victims who have suffered nuclear damage as a result of nuclear incident at a nuclear facility, and exchange of experience and opinions on this issue. At the December meeting of the inter-ministerial working group, the progress and results of the International Workshop were evaluated and the tasks for the following period were agreed.

ÚJD SR has also ensured legislative process of amendment to the ÚJD SR Decree No. 55/2006 Coll. concerning the details in emergency planning in case of incident or accident, in particular to define a contact point. The draft amendment was sent in accordance with Act No. 400/2015 Coll. on preliminary consultations with the business sector. After the preliminary consultations, an additional legislative process under the Legislative Rules of the Slovak Government was ensured. Following the approval by the Standing Working Commission of the Legislative Council of the Slovak Government for technical regulations, the draft decree was sent under Directive 2015/1535 for the Community commenting procedure competed on December 21, 2017. At the same time, ÚJD SR sent a draft decree to community commenting procedure according to Articles 30 – 33 of the Euratom Treaty.

ÚJD SR also conducted legislative process on a draft decree issuing a list of special materials and equipment falling under the supervision of ÚJD SR. On August 10, 2017, a process of consultations with the affected business entities was launched on the draft decree. The Standing Working Commission of the Legislative Council of the Slovak Government for technical regulations approved the draft and subsequently it was sent for Community commenting procedure according to Directive 2015/1535 and according to Articles 30 to 33 of the Euratom Treaty to the European Commission for Community commenting procedure.

Further, ÚJD SR prepared several safety guides to ensure fulfilment of the requirements for the safe use of nuclear

energy or the implementation of activities related to the use of nuclear energy.
In 2017, the following four safety guides were issued:

1. BNS I.4.2/2017 Requirements for drafting PSA (3rd edition – revised and completed)
2. BNS I.9.3/2017 Requirements for the content and the scope of decommissioning documentation submitted as part of the application in the procedure to grant consent pursuant to Section 5 par. 2 of the Atomic act, and in the proceeding to grant authorization pursuant to Section 5 par. 3 a) to d) of the Atomic Act
3. BNS I.9.4/2017 Requirements for the data records important for the decommissioning of a nuclear installation
4. BNS I.9.5/2017 Requirements for safety analyzes of activities performed during decommissioning of nuclear facilities

Within the framework of other legislative activities, in 2017 ÚJD SR participated actively in the inter-ministerial coordination group for the representation of Slovakia before the courts of the European Union (EU) at the Ministry of Justice of SR and in the inter-ministerial coordination group in the proceeding before the EC in the pre-trial phase at the Ministry of Foreign and European Affairs of SR. None of these working groups registered an active case in 2017 where the Slovak Republic would act in the area of competence of ÚJD SR.

In 2017, ÚJD SR has continuously provided cooperation to the Ministry of Environment of SR (MŽP SR) in the procedure of the Slovak Republic in relation to the Aarhus Convention and the Aarhus Convention Compliance Committee (ACCC) concerning the continuation of the NPP Mochovce 3 & 4 case (ACCC/C/2013/89). The ACCC has sent revised draft findings and recommendations on ACCC/C/2013/89 case. These proposals concern in particular the access to information and the way of publication of documentation for the continuation of construction of NPP Mochovce 3 & 4. ÚJD SR prepared an opinion on the draft revised findings and recommendations of ACCC and sent it to MŽP SR within the required deadline. On June 20, 2017 the ACCC sent to MŽP SR the final text of the findings and recommendations, which were approved at the Meeting of the Parties in September 2017.

With regard to the adoption of the Act No. 305/2013 Coll. on the electronic form of the exercise of powers of the public authorities and on amendments to certain laws (eGovernment Act), which came into force on November 1, 2013, a project team continued to work at ÚJD SR led by the Vice-chairman of ÚJD SR, whose task was to ensure the practical application of the eGovernment Act into the daily processes of ÚJD SR, to which this Act applies to.

Within the inter-ministerial commenting procedures ÚJD SR sent approximately 500 opinions on the draft legislative and non-legislative proposals.

2. REGULATORY ACTIVITY

2.1 ISSUE OF LICENSES

In order to obtain a license for activities in the field of peaceful use of nuclear energy, the applicant must demonstrate its ability to comply with and fulfil all the requirements set by the laws and decrees valid in Slovakia, in particular the requirements of the Atomic Act and the implementing decrees of ÚJD SR to this act. The applicant must also demonstrate that the nuclear installation (NI) will be or is operated in a safe manner. In addition to the license holders, which are Slovenské elektrárne, a. s. (SE, a. s.) and the Nuclear and Decommissioning Company (JAVYS, a. s.), ÚJD SR supervises and issues permits also for other legal entities and organizations that do not operate in the energy sector, but perform activities related to the peaceful use of nuclear energy in accordance with the Atomic Act. One representative of these license holders is Research Institute for Nuclear Power Plants (VUJE), a. s., which is providing training of NI's staff research, design and implementation activity related to NI and nuclear materials (NM).

2.2 REVIEW AND ASSESSMENT ACTIVITY

Nuclear safety of NIs is demonstrated by documentation proving that its systems, components and technological equipment, including the competence to operate them, are capable of operating in a safe and reliable manner during both standard and non-standard operation, and that the impact of NI on the staff, population, environment and property is at an acceptable level of recognized international standards.

In 2017, ÚJD SR reviewed and assessed documentation related, in particular, to:

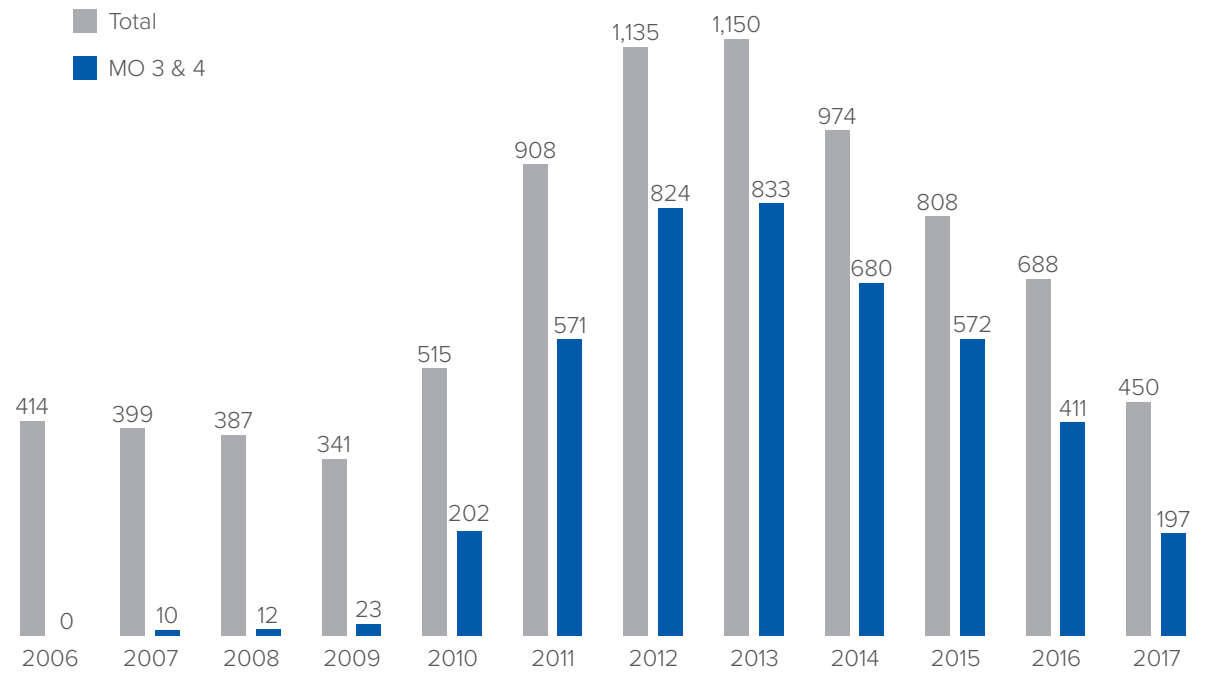
- realization of work on the completion of NPP Mochovce 3 & 4, including modifications to the basic design,
- implementation of design modifications on selected equipment (VZ),
- the quality of scheduled pre-operational and operational checks,
- building proceedings for NI,
- design modifications and changes to documentation reviewed or approved by ÚJD SR,
- quality assurance for selected equipment and NIs,
- system for the connection of all four units of NPP Mochovce into the power system of SR at 400 kV and 110 kV levels,
- quality Management Systems of license holders according to the Atomic Act and their suppliers,
- Limits and Conditions ("L&C") for safe operation and safe decommissioning,
- emergency planning,
- training of selected staff and professionally competent staff, holding permits for operation and decommissioning of NIs,
- organizational changes of the license holders,
- physical protection plans for operated NIs,
- shipments of nuclear and radioactive materials,
- RAW management in NPP Bohunice A-1 and other NIs for RAW management.

In connection with the completion of units 3 & 4 of NPP Mochovce, ÚJD SR conducted a number of post-assembly compliance checks in order to verify the conformity of installed technological equipment with the design and approved quality requirements. Review of documentation of the quality management system and quality requirements for selected equipment in accordance with the relevant ÚJD SR decrees continued. Approved quality requirements for selected equipment were checked by ÚJD SR also during the final acceptance tests directly at the manufacturer of such equipment.

TABLE 1 NUMBER OF ÚJD SR DECISIONS ISSUED IN 2017

Organization / Nuclear facility	Operation	Design modifications	Quality assurance	Building authority	License	Interrupting admin. procedure	Stopping admin. procedure	Other	Total
SE, a. s.	0	0	1	1	1	1	0	2	6
SE, a. s./NPP Bohunice V-1	0	0	0	0	0	0	0	1	1
SE, a. s./NPP Bohunice V-2	16	2	13	5	0	11	0	5	52
SE, a. s./NPP Mochovce 1 & 2	26	7	19	3	2	13	1	10	81
SE, a. s./NPP Mochovce 3 & 4	0	0	181	0	1	10	1	4	197
JAVYS, a. s.	19	0	7	10	7	3	2	25	73
VUJE, a. s.	4	0	1	0	0	0	0	12	17
Other organizations	0	0	0	0	13	0	1	9	23
Total	65	9	222	19	24	38	5	68	450

FIG. 1 NUMBER OF DECISIONS ISSUED BY ÚJD SR IN THE PERIOD 2006 – 2017



Note: MO 3 & 4 – NPP Mochovce 3 & 4

2.3 INSPECTIONS

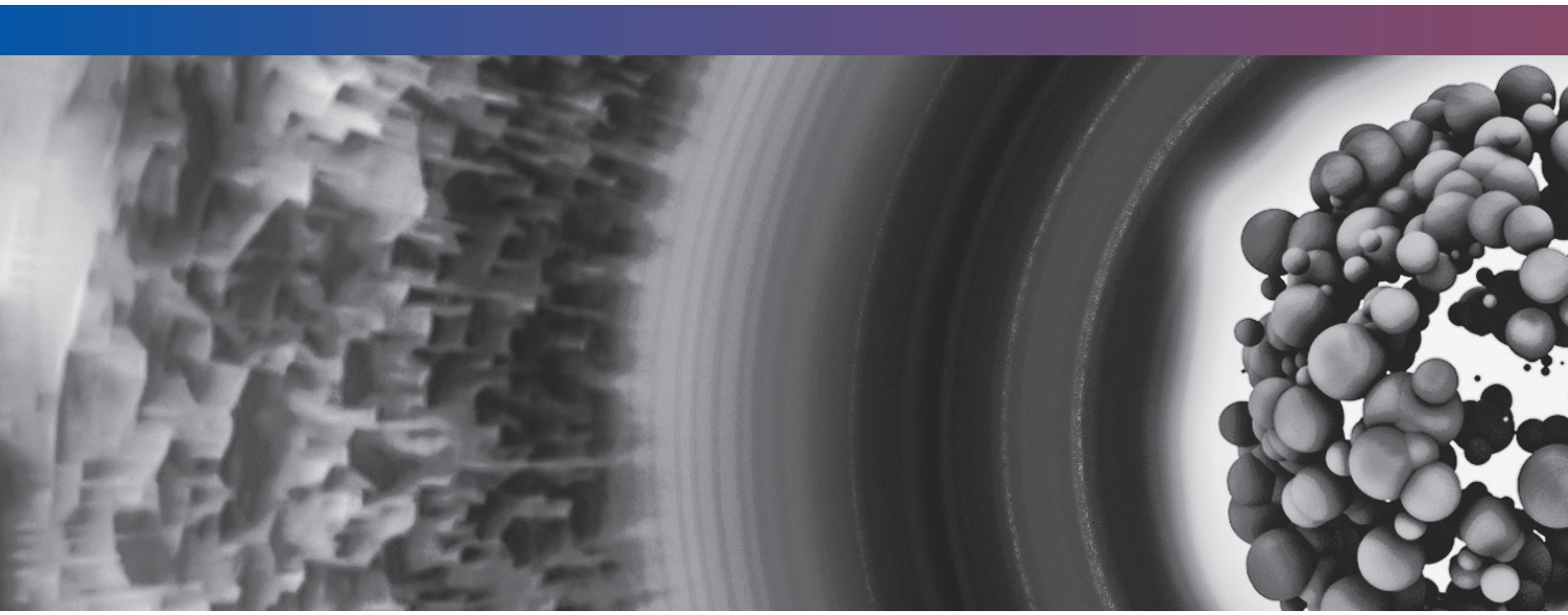
Inspection activity means a process that monitors compliance with the requirements and the fulfilment of obligations laid down in the Atomic Act and its implementing legislation, in the Building Act and its implementing legislation, fulfilment of obligations arising from the ÚJD SR decisions, as well as the implementation of measures for the elimination of deficiencies from the protocols. Inspection activities are carried out by nuclear safety inspectors of ÚJD SR. The schedule of planned inspections is set out in the Inspection Plan, which is designed to allow for a continuous and systematic assessment of compliance with the legislative requirements. ÚJD SR develops both Preliminary Inspection Plan for three years, and an Inspection Plan for the respective year. In addition to planned inspections, the inspectors also perform unscheduled inspections that are triggered by the state of the NI (such as, for example: construction and installation, commissioning phases) or operational events. Unscheduled inspections include also the International Atomic Energy Agency (the IAEA) inspections in the field of registration and control of NM, the date of which is announced to ÚJD SR and the relevant license holder only immediately before the inspection itself.

For the year 2017, 157 inspections were planned, of which 6 were canceled for objective reasons. There were 32 unscheduled inspections in 2017.

The ÚJD SR inspectors carried out in total 183 inspections, of which 5 ended in a form of protocol, others as a record (Table 2).

Table 2 Overview of inspections performed

Nuclear installations/other	Team	Special	Routine	Unscheduled	Total
NPP Bohunice V-1	4	5	3	1	13
NPP Bohunice V-2	6	15	11	4	36
NPP Mochovce 1 & 2	6	16	11	5	38
NPP Mochovce 3 & 4	4	7	6	5	22
JAVYS, a. s.	4	12	3	0	19
VUJE, a. s.	0	3	0	0	3
Shipments of NM and RAW	0	3	0	3	6
Control and registration of NM	0	29	0	13	42
Other inspections	0	3	0	1	4
Total	24	93	34	32	183



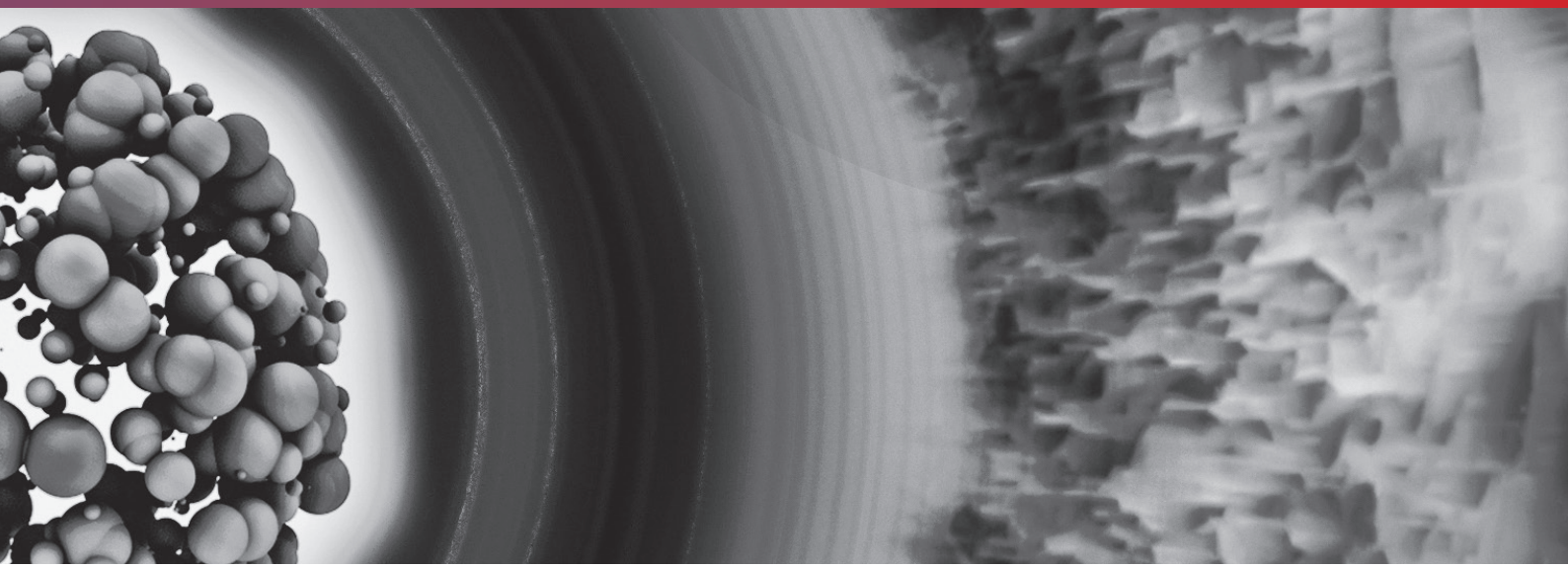
2.4 LAW ENFORCEMENT

In case the inspection activity reveals deficiencies in one of the supervised areas, in the inspection report (protocol) the license holder is required to remove the deficiencies within the binding deadlines for their fulfilment. The license holder is then required to notify ÚJD SR about the method and the deadline for remedying the deficiency.

If the regulated entity fails to fulfil the measures, as well as in the event of serious breach of the Atomic Act or of the requirements of the implementing decrees, the ÚJD SR may initiate administrative proceeding, which may result in:

- imposing a fine,
- limitation of the scope or validity of the license,
- imposing necessary measures,
- stopping the operation of NI,
- withdrawal of a certificate of special professional competence or certificate of professional competence permanently.

In 2017, ÚJD SR did not impose any fine, did not limit the scope or validity of the license and did not stop the operation of any NI.



3. NUCLEAR SAFETY OF NUCLEAR INSTALLATIONS

3.1 NUCLEAR POWER PLANTS IN OPERATION

a) Bohunice V- 2 Nuclear Power Plant

On both operating units of NPP Bohunice V-2, in 2017 a standard, scheduled and also unscheduled inspection and assessment activity were performed, connected with the daily operation of NPP. From May 18 until June 7, 2017 the general overhaul (GO) of unit 4 was performed and from June 12 until July 4, GO of unit 3. The license holder implemented measures from the Action Plan to increase safety of NPP units as lessons learned from the event at NPP Fukushima Daiichi. The measures were adopted on the basis of results from the stress tests.

Operational checks

Operational checks were carried out by the operator in accordance with the annual plans of operational checks of selected equipment, which it submits to the ÚJD SR. The results of the operational checks showed on both units satisfactory condition.

During the planned GO of units 3 & 4 of NPP Bohunice V-2 for refueling, the outages were prolonged on both units by 3 days compared to the plan. The prolongation of outages was due to a wider range of work than in the planned schedule.

The operator also provides for an assessment of the fatigue life of the main components and piping systems, as well as the assessment of the resistance of reactor pressure vessel materials to brittle fracture. The assessment showed that neither the fatigue life, nor the results of the analyses of brittleness of reactor pressure vessels limit the lifetime and create precondition for a long-term operation of both units. The tightness tests of the hermetic area in both units have shown that the tightness of the hermetic compartments is consistent with the L&C requirements, it is permanently monitored and the leak removal program is being fulfilled.

ÚJD SR carried out inspections aimed at verification of the implementation of operational non-destructive tests (NDT) on the welded joints of selected equipment executed during the scheduled GO of the units and selected electrical systems and the instrumentation and control system (I&C). For the deficiencies found ÚJD SR imposed corrective actions in the protocols for their removal.

Operational events

The number and nature of events in 2017 was within the range of normal operational events without special significance in terms of nuclear safety. ÚJD SR registered 9 operational events subjected to reporting to the nuclear regulator.

In NPP Bohunice V-2 there was one case of reactor scram. During the scheduled outage of unit 3 for refueling during cooling down the primary circuit, the reactor was shut down by activation of the automatic protections 1 (AO1) with the primary cause – disconnected 4 loops. The activation was caused by an increase in the pressure differential on the steam generator (SG) 4. During the gradual replacement of the impellers on the main circulation pumps, the average pressure drops on all components of the primary circuit increased. The most significant increase in the pressure drop was recorded on the loop No. 4, which due to its shape and dimensional deviations shows an increased pressure drop compared to other loops.

Another safety significant event was an undesired short-term opening of the safety valve (SV) on SG33 at a lower pressure than the pressure specified by the operating procedure. The event occurred during scheduled power reduction to detect leakage on unit 3. Subsequent check of the setting of pressure switches of the control devices it was found that the measured values of the activation pressures at all SG safety valves of both units are not satisfactory. All pressure switches were then reset to the required values. ÚJD SR reacted to the event by unscheduled inspection, during which it identified misconduct by the license holder. Based on the findings a protocol was prepared.

ÚJD SR also closely followed the development of the situation and the approach by the SE, a. s. management, in solving collective notice of employment termination given by the operators of the Unit Control Room, the shift supervisor and reactor unit supervisor at NPP V-2 in October 2017. This was due to not satisfying their request for 30% wage increase for these positions. The matter was resolved by negotiation between the management and staff of SE, a. s. In this context, ÚJD SR has started to prepare more inspections in the field of safety culture and paying more attention to the relationship between the management and an employee.

After summarizing the results of inspections, and on the basis of a summary assessment of safety indicators, ÚJD SR states that the operation of both units of NPP Bohunice V-2 was in 2017 without any major deficiencies in the field of nuclear safety. Identified operating failures, except the failure due to incorrect setting of control cabinets of safety valves at SG, were without particular importance in terms of nuclear safety. Deficiencies found during inspections have been removed and corrective actions were taken to minimize the likelihood of their recurrence.

b) Mochovce 1 & 2 Nuclear Power Plants

In 2017, ÚJD SR inspectors carried out standard inspection and assessment activities connected with the day-to-day operation of NPP. GO on unit 1 was from March 26 until 17 April and on unit 2 from October 7 until 27 October. In the course of the year NPP Mochovce 1 & 2 implemented measures from the action plan to increase safety of NPP units as lessons learned from the accident at NPP Fukushima Daiichi. The measures were adopted based on the results of the stress tests. Additionally, measures have been implemented to deal with severe accidents, of which only those deficiencies in terms of technology will be removed next year that were found during handing over the equipment for operation.

Operational inspections

On units 1 & 2 of NPP Mochovce the operator carried out operational inspections in accordance with annual plans of operational inspections of selected equipment, which are submitted to ÚJD SR. The results of the operational inspections confirmed the satisfactory condition on both units. Every year the operator submits to ÚJD SR assessment reports on the use of lifetime of the main components and selected important piping routes. The reports show that the monitored parameters of all selected equipment under assessment, as well as the condition of the reactor pressure vessel materials are well below the set limits. The tightness tests and the strength of the hermetic area on both units showed that the tightness of hermetic compartments is in compliance with the requirements of L&Cs and the operational regulations, is constantly monitored, continuously improving and the system for finding and then removing any leakages found is functional.

In 2017, ÚJD SR inspectors carried out scheduled inspections aimed at verifying the implementation of operational NDT inspections of welded joints on selected equipment, selected electrical equipment and I&C. For the deficiencies found, ÚJD SR imposed corrective actions to remove them.

Operational events

The number and character of events in 2017 was within the normal operational failures. ÚJD SR registered 10 events subjected to reporting to the regulator.

The most significant operational event on unit 1 of NPP Mochovce 1 & 2 was the bending of the working rod of the loading machine in DEBLOK regime during checking the tightness of fuel assemblies using SIPPING method. The ÚJD SR responded to this event by unscheduled inspection, which was concluded with protocol containing identified findings.

Based on the results of control and assessment activities in 2017, ÚJD SR assessed the operation of NPP Mochovce 1 & 2 as safe operation. Identified operating failures, other than the failure with bending of the working rod of the loading machine, were of no particular significance in terms of nuclear safety and such corrective actions were adopted to minimize the likelihood of their recurrence.

3.2 NUCLEAR POWER PLANTS UNDER CONSTRUCTION

Mochovce 3 & 4 Nuclear Power Plants

In January 2017, the license holder successfully completed the pressure test of the detachable parts of the primary circuit at unit 3. The installation moved to the final phase of completion and testing the systems. The license holder verified the compliance of installed equipment with the implementation project and approved quality requirements. Among other things, by pressure tests it verified the strength and tightness of the piping systems and other pressure equipment and also tested the protections and blocking for the equipment and continued in the functional tests of electrical equipment of own consumption. Successfully tested and connected power supply through 400 kV line, also functional tests of emergency systems, essential and non-essential service water and the system of demineralized water. Gradually, the license holder handed over the individual ventilation systems and electronic fire protection system, as well as a fixed fire-fighting system. The ÚJD SR inspectors took part in selected testing of sys-

tems, compliance checks (compliance of installed equipment with the implementation project and approved quality requirements), pressure tests and functional tests.

In August, ÚJD SR interrupted the administrative procedure for the granting of authorization for the commissioning, for handling NM, spent nuclear fuel and radioactive waste in NI, as well as early use of selected building objects of phase 3 of the Project due to incomplete documentation for the procedure and also inadequate demonstration of physical readiness of unit 3 for commissioning.

ÚJD SR has regularly checked and evaluated the condition of NIs under construction, the quality of installation of selected equipment and building structures, realization of post-assembly checks of assembled technological units or parts thereof, as well as the course of the tests, whether on site or directly at the manufacturer during acceptance tests of safety relevant equipment. In cases where it found deficiencies in complying with the quality requirements of selected equipment, it did not allow starting the system tests, until their removal.

3.3 NUCLEAR POWER PLANTS IN DECOMMISSIONING

a) Bohunice A-1 Nuclear Power Plant
In 2017, at NPP Bohunice A-1 work was realized related to phase III and IV of decommissioning, in accordance with the ÚJD SR Decision No. 369/2016, which granted authorization for both phases in one authorization procedure. Work related to these decommissioning phases is scheduled until the end of 2024 and focus on continuing treatment of liquid RAW, sludges from long-term storage facility and shells originally intended for long-term storage of SNF.

The license holder realized activities related to decommissioning of the original, non-functional and unused technological systems of the external objects and technological equipment of the main generating block of the reactor hall and intermediate room. Upon their completion it will be followed by the final, phase V of decommissioning, the completion of which is scheduled for 2033.

During the last year, ÚJD SR reviewed documentation related to the modernization of components of sludge fixation facility, the modification of the mobile workstation for fragmentation of large-scale metallic materials and the equipment for blowdown and drainage of the media.

Scheduled inspections at NPP Bohunice A-1 focused on checking compliance with the conditions of nuclear safety and requirements of the regulator during decommissioning of NPP Bohunice A-1, and in the management of RAW from decommissioning. In the framework of inspections the sampling, analysis and keeping representative samples in the decisive steps in RAW management were checked.

The decommissioning of NPP Bohunice A-1 was carried out in 2017 according to phase III and IV of decommissioning plan. After summarizing the results of inspections and on the basis of summary assessment of safety indicators, ÚJD SR states that the activities at NPP Bohunice A-1 were performed without serious 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., authorization for phase II of decommissioning of NPP Bohunice V-1, and at the same time issued permit for RAW management and handling of NM during phase II of decommissioning. The authorization entered into force on January 1, 2015. Phase II includes mainly decommissioning of objects of the main generating block, auxiliary building and remaining auxiliary objects. The most important activities are: dismantling of reactors, dismantling of primary circuit facilities and dismantling of other equipment in the controlled area and outside the controlled area, their decontamination and radiation control.

In 2017, the decontamination of both primary circuits of NPP Bohunice V-1 was successfully completed and also the construction of the integral RAW storage facility (ISRAO) was completed. The systems of the auxiliary building were dismantled – phase I, the optimization of the electrical scheme and decontamination of the storage pools and other contaminated tanks of the power plant – part I. In October 2017, the demolition of cooling towers started. Equally important was the preparation of new projects, such as the dismantling of systems in the controlled area, the construction of facility for melting metal RAW, the dismantling of large scale components of the primary circuit and the dismantling and demolition of external objects.

The completion of phase II of decommissioning JE Bohunice V-1, according to the submitted documentation, is foreseen until 2025, the final state of the premises at the end of phase II will be releasing the site for limited use. After the final inspection, the site will be released from control by regulatory authorities.

Scheduled inspections at NPP Bohunice V-1 focused on checking compliance between the state of decommissioning and the state described in the plan for phase II of decommissioning and on checking compliance with the conditions for nuclear safety and requirements of the regulator for decommissioning.

Decommissioning of Bohunice V-1 NPP in 2017 was realized according to the plan for phase II of decommissioning. ÚJD SR did not record any operational events with special impact on nuclear safety.

3.4. OTHER NUCLEAR INSTALLATIONS

a) Interim Spent Fuel Storage Facility Jaslovské Bohunice (ISFS)
ISFS Bohunice serves for temporary storage of SNF from Bohunice V-1 NPP (SNF production completed), Bohunice V-2 NPP and Mochovce 1 & 2 NPP. As of December 31, 2017, ISFS was filled up to approx. 85.3% of its total capacity.

In the course of the year 2017, the assessment activity focused on the evaluation of the operational checks of the building and technological parts, systems of ISFS Bohunice and the stored SNF.

As part of the inspection activity, two inspections of SNF storage were carried out in ISFS Bohunice. The inspections aimed at checking compliance with the Limits and Conditions (L&Cs) and with the operating regulations for individual equipment. There was no case of violation of conditions for nuclear and radiation safety and operating procedures.

In 2017, JAVYS started with the preparatory work on the project to extend the storage capacity of ISFS.

ÚJD SR did not record any operational events with particular impact on nuclear safety.

b) Technology for RAW Treatment and Conditioning (TSÚ RAO)
TSÚ RAO consists of two bituminisation lines, Bohunice treatment center for radioactive waste (BSC RAO), a fragmentation line, a large capacity decontamination line, a workplace processing used air-conditioning filters, a waste water treatment station and a RAW storage. Bituminous lines are designed for the processing of radioactive concentrates from the operation of NPP into 200-liter drums, which are placed in fiber-concrete containers (VBK) prior to their final deposition. As part of the processing technology of the bituminous lines, there is a discontinuous bituminisation line, to fix the sorbents to the bitumen matrix. The BSC RAO serves as the main facility for final treatment of RAW prior to their depositing in the National Radioactive Waste Repository in Mochovce (RÚ RAO). For the treatment and conditioning of RAW, besides cementation it uses also combustion, fragmentation, high-pressure compacting and increasing concentration by evaporation. The resulting products of RAW treatment and conditioning are placed into VBK, which comply with the conditions for disposal in RÚ RAO in Mochovce.

In 2017, ÚJD SR issued a decision for JAVYS, a. s. for the construction of a metal smelting plant for RAW originating from the decommissioning of Bohunice A-1 NPP and Bohunice V-1 NPP in Jaslovské Bohunice site. Its purpose is to achieve maximum release of metallic materials into the environment and minimization of RAW intended for final disposal at the RÚ RAO in Mochovce.

The ÚJD SR inspections were mainly focused on the control of safe operation of individual processing lines and on the control of RAW storage.

Based on the results of the control activity, in 2017 the operation of NI technology for treatment and conditioning of RAW was assessed as safe.

c) National Repository for RAW, Mochovce (RÚ RAO)
In 2017, ÚJD SR issued authorization for commissioning the second module of the repository for disposal of very low-level RAW, intended for the disposal of very low-level RAW from the decommissioning of Bohunice V-1 NPP. In February 2017, ÚJD SR after assessing the safety documentation, issued a building permit for phase 3 of the double row

of disposal boxes at the RÚ RAO site. Other activities in disposal of low-level RAW in VBK to the second double row were performed in a standard manner. By the end of 2017, there were 5,158 VBKs disposed, of which 354 VBKs were disposed in 2017. In the section for the disposal of very low-level RAW, in 2017 2,577 m^3 of handling containers with very level waste (MEVA drums and large volume bags) were disposed, in total 3,177 m^3 of very low-level RAW.

Inspection activity in RÚ RAO in 2017 was focused mainly on control of disposal of VBKs and large volume bags in RÚ RAO, inventory of RAW disposed, current state of RÚ RAO extension, control of monitoring data RÚ RAO and control of RAW conditioning to VBK.

Based on the control activities of ÚJD SR in 2017, the current operation of NI, RÚ RAO Mochovce can be assessed as safe, with negligible impact on the environment.

d) Final Treatment of Liquid RAW, Mochovce (FS KRAO)
The objective of FS KRAO is the final treatment and conditioning of liquid RAW (radioactive concentrates, saturated sorbents and sludges) produced by Mochovce NPP, certain types of solid RAW from the operation of units of the said power plant, and the conditioning of solid RAW from other NIs. The capacity of technological lines far exceeds the production of RAW from Mochovce nuclear units. In FS KRAO, technologies are used for treatment of radioactive concentrates bituminisation in a film rotor evaporator and concentrated on a concentration evaporator. The discontinuous bituminisation line is used to fix radioactive sorbents. On the cementation line then the treated RAW is conditioned to VBK, which is subsequently disposed in RÚ RAO.

In 2017, ÚJD SR reviewed the Report on Periodic Nuclear Safety Assessment (PHJB) of this NI and issued for JAVYS, a. s. an opinion on further continuation of operation of NI FS KRAO.

PHJB for this facility was prepared for the first time since coming into force of the Decision No. 329/2007, by which ÚJD SR issued a license for operation of NI FS KRAO. The process of assessment has not identified such safety significant circumstance that would prevent the continuation of operation. Based on the results of PHJB, ÚJD SR concluded that the license holder credibly demonstrated the safety of NI FS KRAO for the continuation of operation.

Inspection activity at FS KRAO in 2017 was aimed at checking compliance with the conditions of nuclear safety and requirements of the regulator in RAW management, minimization of RAW, and also control of the sampling method, analyzing and storage of representative samples for documenting and assessment of RAW management.
Based on the results of the control activity of ÚJD SR in 2017, the operation of FS KRAO was assessed as safe.

e) Integral Storage of Radioactive Waste (IS RAO)
Operating permit was issued on December 1, 2017

4. NUCLEAR MATERIALS

4.1 NUCLEAR MATERIALS

ÚJD SR is the state authority responsible for supervision in the field of NM management, their registration and control. NM under the jurisdiction of SR may be used only for peaceful purposes and in accordance with the authorization of ÚJD SR, issued only to applicants, who demonstrate their ability to manage NM in accordance with valid legal regulations and international obligations of SR. The state system of registration and control of NM is an important tool in the area of safeguards for NM, the introduction of which is the first important step in the use of nuclear energy resulting from the international commitments of SR.

International obligations stem from the Nuclear Non-Proliferation Treaty and its Nuclear Safeguards Agreement. After the accession of the Slovak Republic to the EU it is a trilateral safeguards agreement between the IAEA, the European Atomic Energy Community and the Slovak Republic and its Additional Protocol. At the same time, the Slovak Republic is obliged to fulfil the requirements of the EU legislation resulting from the Euratom Treaty and its related legislation, such as the Commission Regulation (Euratom) No. 302/2005 on the application of Euratom Safeguards System. The UN Security Council Resolution 1540/2004 also obliges the UN Member States to adopt transparent measures to increase nuclear non-proliferation control in the field of nuclear energy use. The aim of these measures is to prevent the illicit trafficking of NM and other nuclear items.

Records and control of nuclear materials

ÚJD SR maintains a state system of registration and control of NM in accordance with the Atomic Act. The details on keeping records and the control of NM are set out in the ÚJD SR Decree No. 54/2006 Coll. on record keeping and control of NM and on the notification of selected activities. To simplify the compliance with the ÚJD SR requirements by the regulated organizations, ÚJD SR issued a safety guide on keeping records and control of NM. The safety guide concerns the performance of control and record keeping of all NM, which are located on the territory of SR and are under the jurisdiction of the SR. An effective system of record keeping and control of NM is the basic prerequisite for independent verification of NM in the territory of SR by the inspectors of the ÚJD SR, the IAEA and the European Atomic Energy Community (Euratom). This verification confirms that there has been no misuse of NM for undeclared purposes and no diversion of NM for non-peaceful use.

The inspection activity in the field of record keeping and control of NM continued in the regime of Integrated Safeguards, which are an optimal and effective combination of all safeguards activities. In 2017, the process of the IAEA´s new approach to the SR, the state level approach, was completed.

As part of the inspection activity in the field of record keeping and control of NM, in 2017 ÚJD SR carried out 42 inspections.

The activity of ÚJD SR also includes control and processing of registration reports sent to ÚJD SR by the license holders, which are subsequently entered in the state system of registration and control of NM, where also the data correctness is checked. ÚJD SR is fully responsible for keeping records on NM in the field of material balance WSXZ, where there are 47 holders of permits for NM

management outside of NIs. For the given material balance area, ÚJD SR sends registration reports to Euratom every month.

ÚJD SR is also responsible within the framework of its competencies for the timely transmission 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. These reports are further confirmation of the fact that only activities related to peaceful use of nuclear energy are carried out on the whole territory of SR and that non-proliferation obligations are observed.

Part of the registration and control of NM activities is also issuing permits for management of NM. In 2017, 6 permits were issued for management of NM outside the NI pursuant to Section 5 par. 2 n) of the Atomic Act.

Based on the results of the inspections and control of the registration and operating records of license holders it was concluded that the SR has a functioning system of NM registration and respects the international obligations in this area.

Transportation of NM

Supervisory activity in ensuring nuclear safety during shipments of NM was carried out in accordance with the Atomic Act, ÚJD SR Decree No. 57/2006 Coll., the amended ÚJD SR Decree No. 105/2016 Coll., and the international standards and recommendations. During the assessed period, fresh nuclear fuel (FNF) shipments were made from the Russian Federation to Bohunice NPP and Mochovce NPP. Shipments of FNF were secured by combined air and road transport.

In 2017, SNF was transported from Mochovce NPP to MSVP Bohunice. The preparations involved, in addition to the ÚJD SR, JAVYS, a. s., and SE, a. s., also other organizations – the Police Corps of SR, Civil Protection Office of the Ministry of Interior of SR, the Public Health Office of SR, Ministry of Transport and Construction of SR, the Fire and Rescue Corps and others. Nuclear safety and physical protection were secured during shipments in accordance with the valid legislation. SNF was transported from Bohunice V-2 NPP units to ISFS Bohunice.

In 2017, the ÚJD SR inspectors conducted 8 inspections of all FNF and SNF shipments. During these inspections of NM shipments, the inspectors did not find any major deficiencies. The conditions required by the law and by the ÚJD SR decisions were complied with. NM shipments were carried out in accordance with the plans for shipments and no events occurred.

Illicit trafficking of nuclear and radioactive materials

The fight against illicit handling of NM has an international character and various state authorities coordinate their activities to prevent and detect illicit trafficking of NM not only between themselves, but they also

engage in cooperation with international organizations. Illicit trafficking in NM is an international crime and such international cooperation facilitates its early and successful detection. Collaboration is being developed with the IAEA, the Joint Research Centre in Karlsruhe, but also with Interpol and Europol. Cooperation continues also with the US as part of the Joint Action Plan of the Government of SR and the US Government to combat illegal handling of NM and radioactive materials and related technologies.

As part of this cooperation, the ÚJD SR experts take part in conferences, working meetings and courses, organize joint exercises. An important part of this cooperation is the exchange of information. At the international level, the information exchange is provided by the Incident and Trafficking Database, operated by the IAEA in Vienna. At present, 136 countries from around the world, including the Slovak Republic, contribute to this database. The timely exchange of information contributes to increasing effectiveness of the fight against illicit trafficking in NM.

Control of storage of fresh and spent nuclear fuel

In 2017, there were 6 scheduled inspections to check the storage of FNF and SNF in Bohunice V-2 NPP, Mochovce 1 & 2 NPP and Mochovce 3 & 4 NPP. In Bohunice NPP and Mochovce 1 & 2 NPP, there were no major deficiencies found and the operation of storage for FNF and the SNF pools was assessed as safe in accordance with the requirements of the Atomic Act, the L&Cs and the relevant regulations. In Mochovce 3 & 4 NPP, the inspectors checked the state of preparation of the documentation necessary for granting permit for handling of NM, the progress in installation of technological systems of the FNF storage pool and SNF pools for receiving NM. There is no nuclear fuel yet in Mochovce 3 & 4 NPP.

In 2017, no major deficiencies were found during inspections of storage of FNF and SNF at NI.

4.2 PHYSICAL SECURITY OF NUCLEAR INSTALLATIONS AND NUCLEAR MATERIALS

Physical protection is a set of technical, regime or organizational measures necessary to prevent and secure unauthorized activities with NI, NM, special materials and equipment, in management of RAW, SNF, in shipment of radioactive materials, as well as during unauthorized entry into NI and performing sabotage.

The obligations of SR in the field of physical protection of NM arise from its accession to the Convention on the Physical Protection of Nuclear Material. In 2005, the

Amendment to the Convention on the Physical Protection of Nuclear Material was adopted in Vienna, which entered into force on May 8, 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 the current assessment of the threat by the state". Government Resolution No. 229/2009 approved the material "Proposal for determination of threats by nuclear facility and for nuclear facilities and nuclear materials as part of the design threat to the state". This document is a starting point for determination of design threat for NIs. In addition to the update of the document "Determination of threat by nuclear facility and for the nuclear facilities and nuclear materials as part of the design threat to the state", which was presented to the Security Council of the SR for information, the group dealt also with the update of the design threat for NIs by regular threat reassessment, the operational solution of situations resulting from the events either in SR or abroad, which had an impact on the physical protection of NM and NIs.

Requirements posed on the physical protection of NM and NIs for the SR are defined in the Atomic Act, in the ÚJD SR Decree No. 51/2006 laying down the details of the requirements for ensuring physical protection and physical protection requirements during shipments of radioactive materials, and in the ÚJD SR Decree No. 57/2007 laying down the details of requirements during transport of radioactive materials.

Regulatory activity in this area ÚJD SR focused on the control of operation of the technical systems of physical protection of the level of regime protection in Bohunice NPP, Mochovce NPP, JAVYS, a. s. and Mochovce 3 & 4 NPP, and ensuring physical protection during shipments of FNF and SNF.

ÚJD SR also pays due attention to increased cyber security risks that may have a negative impact on the safe operation of nuclear installations and on the physical protection of nuclear materials and nuclear installations. Measures to ensure cyber security are part of the physical protection plans for nuclear materials and nuclear installations. The Authority, when acquiring and evaluating information on cyber security risks, cooperates with intelligence services, Ministry of Interior of SR and Ministry of Defense of SR in an inter-ministerial working group on "Determination of threat by nuclear facility and for the nuclear facilities and nuclear materials as part of the design threat to the state".

5. COMPETENCE OF A BUILDING AUTHORITY

ÚJD SR performs the competence of a building authority according to Act No. 50/1976 Coll. on land-use planning and building regulations (the Building Act) for structures of the NIs and those related to NIs and located within the premises delineated by the boundaries of the NI. That means permitting construction, changes to the buildings and maintenance work, decisions on the use of buildings and removal of buildings.

In Bohunice V-2 NPP premises the following buildings were put into use: "Robust covers for mobile DG 0.4 kV", a decision was issued to change the date of completion of the building for "IPR EBO 10074 Ensuring spare power supply for Bohunice V-2 NPP".

In Mochovce 1&2 premises the decision on a building permit was issued for "Robust covers for mobile DG 0.4 kV EMO 1&2 NPP" and a decision to change completed building IPR EMO 204 00 – Seismic reassessment of EMO 1 & 2 for a new value of a seismic load "SO 803/1-01 Ventilation stack I. HVB and SO 804/1-01 Air duct to the ventilation stack I. HVB".

For JAVYS, a. s., a building permit was issued for a "Disposal facility for NAO (construction of a third double row)" in the premises of RÚ RAO Mochovce, for "Dismantling systems of auxiliary building" and for a "Facility for melting metal RAW". Permit was issued for removal of the structure "Dismantling and demolition of cooling towers of Bohunice V-1 NPP". The following structure was put into use "I00RPVS10031 SO 640:V1 Storage facility". A decision was issued to change the deadline for completion of "I00RPVD10031 SO 640:V1 Storage facility".

6. EMERGENCY PLANNING AND PREPAREDNESS

Emergency preparedness is the ability of the license holder and of the public authorities to activate and implement activities and measures that lead to the detection and effective handling of incidents and accidents at NIs or during shipment of radioactive materials and to effectively suppress their potential to threaten their life, health of staff, population or their property and environment.

6.1 INTERNAL EMERGENCY PLANNING

In order to cope with emergency situations at NI and to mitigate their impact on the environment, the license holders develop emergency documentation, which sets out the procedure and organization of the work at individual stages of emergency situation.

Holders of license for operation of NI have:

- Internal emergency plans that provide for the organization of emergency response and its implementation regarding the coping with an emergency situation and protection of the staff, including health protection of employees;
- preliminary internal emergency plan containing planned measures on the territory of NI or several NIs during their construction.

In 2017, the internal emergency plan was approved for NI ISRAO. Other internal emergency plans remain valid from previous years.

In order to provide for activities of emergency preparedness, such as planning and preparation of organizational, staffing and material and technical means and measures to successfully cope with crisis and emergency situations according to a classified event, the license holder has an established organization of emergency response, an emergency control center and other facilities intended for emergency preparedness.

Employees of the license holder take part in exercises and training courses to acquire and retain skills for activities under emergency conditions every year, while the whole emergency response organization is practiced at least once per year.

The same way as the license holders for operation of NIs have to have approved internal emergency plan, also the applicant for a permit to transport FNF and SNF, NM and RAW develops emergency transport rules (HDP). One of the objectives of these HDP is to provide preventive and protective measures in case of an incident or accident during transport. As part of its competence, ÚJD SR reviews emergency transport rules (HDP), which is then approved by the Ministry of Transport and Construction of SR.

For year 2017 all the emergency transport rules approved by then remain valid.

6.2 EXTERNAL EMERGENCY PLANNING

In order to ensure protection of life, health and property of the population and the protection of the environment, the plans for the protection of the population are developed by the locally competent state authorities. This documentation contains the description of protective measures against the impact of ionizing radiation and the tasks related to their implementation, additional technical information and various overviews needed to ensure urgent and rapid decision-making, protection of the population in case of extraordinary event due to accident at the NIs, as well as interconnection to internal emergency plans of the license holder for operation of NIs. Population Protection Plans determine management, control, organizational and implementation mechanisms with a focus on ensuring the preparation of management bodies for crisis management, executive units, and the population to cope with an extraordinary event, specifying possible procedures for implementation of these tasks.

For the year 2017, all approved population protection plans remain to be in force (for the Banská Bystrica, Nitra, Trnava and Trenčín regions).

6.3 INSPECTION ACTIVITY IN THE FIELD OF EMERGENCY PREPAREDNESS

Inspection activity in the field of emergency preparedness in 2017 was aimed at control of the course of shift emergency exercises, verifying cooperation of emergency response organization during site exercises, verification of facilities and means designed for emergency preparedness, checks on the fulfilment of obligations arising for the license holder from the law, in transmission of on-line data from NIs to ÚJD SR. ÚJD SR also carried out reviews of the trainings system and the update of the preliminary internal emergency plans, and review of the training system on Emergency Transport Rules connected with checking the documentation and practicing ETR for the holders of authorization for transport of radioactive materials.

Within the framework of international cooperation, in the fourth quarter of the year ÚJD SR provided an internship for the staff of the Polish Atomic Energy Agency. The aim of the internship was to share experience, knowledge and procedures for the regulatory and inspection activities in the field of emergency planning.

6.4 EMERGENCY RESPONSE CENTRE

At the ÚJD SR, an Emergency Response Centre (ERC) was established to provide an assessment of the course and the consequences in the event of an incident or an accident, its seriousness in terms of its possible impact on the environment, and the preparation of proposals for recommended measures to protect the population at an early stage. All these activities are regularly reviewed and practiced at the ERC by the Emergency Headquarters of ÚJD SR (HŠ). The HŠ, supported by software forecasting assessment tools, within a short time can provide a forecast of development of an incident with recommended measures to eliminate or mitigate the consequences of an incident or accident. The ERC is also integrated in the emergency preparedness system of SR as one of the technical supports of the Central Crisis Staff.

In 2017, the computer technology used by ERC for the needs of the Emergency Staff was updated along with integration of the new format of meteorological data transmitted from the Slovak Hydrometeorological Institute. The purpose of this update was to modernize obsolete IT, to simplify the interconnection between the systems and thus making the work of HŠ more effective.

As part of the amendment to emergency planning decree, the point of contact is governed in more details. The purpose of the point of contact is to exchange information on radiation or nuclear incidents with stakeholders within the SR and international community. Together with the role of a point of contact, it also governs the cooperation between ÚJD SR and the public authorities in providing information on radiation or nuclear incidents.

6.5 DOMESTIC AND INTERNATIONAL EXERCISES

In 2017, the ERC of ÚJD SR was involved in several domestic, as well as international exercises. The HŠ practiced its activity during site exercises at both Bohunice and Mochovce NIs and some shift exercises of NI operation. HŠ exercises were attended also by observers from the cooperating countries, Poland and Czechia.

Every year, HŠ members participate in regular trainings of expert groups to learn the skills how to use emergency documentation and use of support software tools.

From the international exercises, in 2017 ÚJD SR participated again in ConvEx exercises, organized by the IAEA. The host country of the ConvEx 3 exercise this year was Hungary, the purpose of which was to test the interoperability of the countries in cross-border release of radioactive substances from NIs.

7. INTERNATIONAL ACTIVITIES

7.1 EUROPEAN AFFAIRS

Cooperation within the European Atomic Energy Community (Euratom)

In the context of Slovakia's membership in Euratom, throughout 2017 ÚJD SR covered the European agenda in the field of peaceful use of nuclear energy, securing the tasks and fulfilling the obligations that result from its membership. Representatives of ÚJD SR regularly participated in meetings of working groups of the EU Council, as well as the meetings of working committees and groups of the European Commission (EC), as experts in the areas affected by the ÚJD SR competences, especially in relation to the obligations and activities resulting from the Treaty establishing the European Atomic Energy Community (the Euratom Treaty), advocating the interests of the Slovak Republic.

One of the most important working groups of the EU Council in terms of nuclear safety is the Working Party on Atomic Questions (WP ATO). In the context of the agreement concluded between Slovakia and Malta, in the first half of 2017 Slovakia continued during the Maltese Presidency (MT PRES) in the role of the chair of this working group (covered by the Permanent Representation of SR to the EU in Brussels). During MT PRES, 4 WP ATO sessions were held with staff representation and support of experts from ÚJD SR and close cooperation with the Ministry of Economy of SR. Organizational and administrative support was provided, problem-free negotiations, expert coverage of the relevant agenda, as well as mediation in promoting interests of individual member states and seeking compromise solutions. MT PRES ended as at June 30, 2017. During the second half of 2017, under the Estonian Presidency the Report of the Euratom community on the Joint Convention on the Safety of Radioactive Waste and Spent Nuclear Fuel Management, the Commission Report on the Implementation of Works under the Decommissioning Assistance Program for NPPs in Lithuania, Bulgaria and SR were adopted, and also other topics were discussed, such as for example, the radioisotopes for medical purposes, or the Annual Report of the Euratom Supply Agency (ESA).

In May 2017, the EC published the first ever EC Report to the Council and the European Parliament on the progress made in implementing the Council Directive 2011/70/Euratom and on the inventory of RAW and SNF located within the Community territory and on the forecast of future development. This is an important document, developed and published by the EC in the field of safe management of RAW and SNF based on reports sent by the member states, including Slovakia. Equally important document published by the EC in the spring in accordance with Article 40 of the Euratom Treaty, was the Nuclear Illustrative Program. It provides an overview of investments made by the Euratom Community covering all the life-cycle phases of NIs. Both documents were discussed by the ATO WP.

Activities within the European High Level Group on Nuclear Safety (ENSREG) and its sub-groups in 2017 were aimed at continuing to monitor the measures taken and implement recommendations resulting from the Peer Reviews as part of the Stress Tests (Action Plan) carried out following the Fukushima nuclear disaster. On its basis, in December 2017, ÚJD SR sent the EC an updated evaluation of the implementation of the National Action Plan based on the results of NPP Stress Tests. The SR is continuously implementing it and fulfils all recommendations made. In June 2017, the 4th ENSREG Conference was held on current issues in the field of

nuclear safety. The conference participants discussed issues of safe management of SNF and RAW, NPP licensing, long-term operation of NIs and also dealt with the system of management and control of the supply sector. Throughout 2017, the ENSREG group discussed and coordinated preparations for the first thematic peer review of the Euratom member states, which is being prepared in accordance with the provisions of Council Directive 2014/87/Euratom. The objective of the thematic peer review process is to:

- Allow participating countries to review their measures for aging management of NPPs, identify good practice and areas for improvement;
- Carry out European peer reviews, share operational experience and identify common issues faced by Euratom member states;
- Provide an open and transparent framework for participating countries to identify appropriate follow-up measures to remedy areas for improvement.

In this respect, ÚJD SR in cooperation with the license holder developed and in December 2017 sent to EC the National Assessment Report of the Slovak Republic on aging management of nuclear power plants, which will be discussed during the peer review of member states in 2018.

At the end of 2017, ÚJD SR in cooperation with the Public Health Office of SR and the Ministry of Transport and Construction of SR worked out and sent to EC already the third National Report of SR on the implementation of Council Directive 2006/117/Euratom on supervision and control during shipments of RAW and SNF for the period 2015 – 2017. Slovakia fulfils all its obligations arising from the Directive.

In the course of 2017, the inter-ministerial coordination group continued to coordinate the tasks resulting from the Articles of the Euratom Treaty, which was established at ÚJD SR based on Government Resolution No. 442/2006. Two meetings were held during the year, in April and in November 2017. Discussions focused on current issues and adopted recommendations mainly on the transposition of the Council Directive 2013/59/Euratom. Next year the group will continue its work and address current issues.

7.2 COOPERATION WITH THE IAEA

The most important role in international cooperation in terms of political and expert and international significance and a wide range of possibilities for technical cooperation and assistance, is played by the IAEA based in Vienna.

In 2017, five meetings of the IAEA Board of Governors were held (March, June, September – 2 meetings, November), attended by representatives of the ÚJD SR. In April and November a meeting of the Safety Standards Commission, and in June meetings of safety standards committees with the participation of representatives of ÚJD SR and other experts from Slovakia. Slovak experts have been involved in the work of the IAEA expert groups. Representatives of the ÚJD SR attended the international conference dedicated to 60th anniversary of the IAEA Technical Cooperation (May 30 – June 1, 2017). From September 18 to 22, 2017, the 61st session of the IAEA General Conference (IAEA GC) was held with the participation of the Slovak delegation, headed by the Chairperson of ÚJD SR, who made a speech in the general debate during the GC. Staff was represented in plenary, plenary committee, at key accompanying events and bilateral and multilateral meetings throughout the

GC session. From the point of view of the interests of SR, the EU and its partners, the progress and the outcomes of the 61st session of GC can be evaluated positively. Conclusions and resolutions of the Conference will be reflected in the activities of relevant sectors during the implementation of cooperation with the IAEA in the following period. Information about this session was presented to the Slovak Government in October 2017.

In 2017, the tasks from three national and some 30 regional projects have been continuously fulfilled. Participation in workshops, training courses and sessions regarding projects in the biennium 2016-2017 was secured. Design for three national and one regional project for biennium 2018-2019 was developed and presented to the IAEA. At the end of May and beginning of June, the national coordinators meeting was held in Vienna, discussing the regional projects for the next biennium (2018 – 2019) and the European regional profile for technical cooperation. In November 2017, a meeting of the Technical Assistance and Cooperation Committee of the IAEA Board of Governors took place in Vienna and approved national and regional technical cooperation projects of the IAEA for the next two-year period 2018 – 2019.

All contributions to the IAEA (451,227 euros + 67,194 US dollars), as well as to the Technical Cooperation Fund of the IAEA (130,769 euros) were paid in time.

ARTEMIS MISSION

With regard to the upcoming deadline for fulfilment of Art. 14 par. 3 of the Council Directive 2011/70/Euratom, representatives of the ÚJD SR actively participated in the international working meeting concerning ARTEMIS mission, the IAEA service providing expert peer reviews in the field of management of RAW and SNF, decommissioning of NIs, remediation programs, and also legislative and regulatory framework in line with the requirements of the Council Directive 2011/70/Euratom. The subject of this working meeting was, among others, also presentation of methodological guidance and the methodological guidance on ARTEMIS peer reviews, a related self-assessment process, mediating exchange of views and experience between member states.

Currently there is a proposal for joint missions IRRS and ARTEMIS, which is provisionally scheduled for 2021 (alternatively 2022). Such a timetable was chosen because the IRRS mission in SR was in 2012 and needs

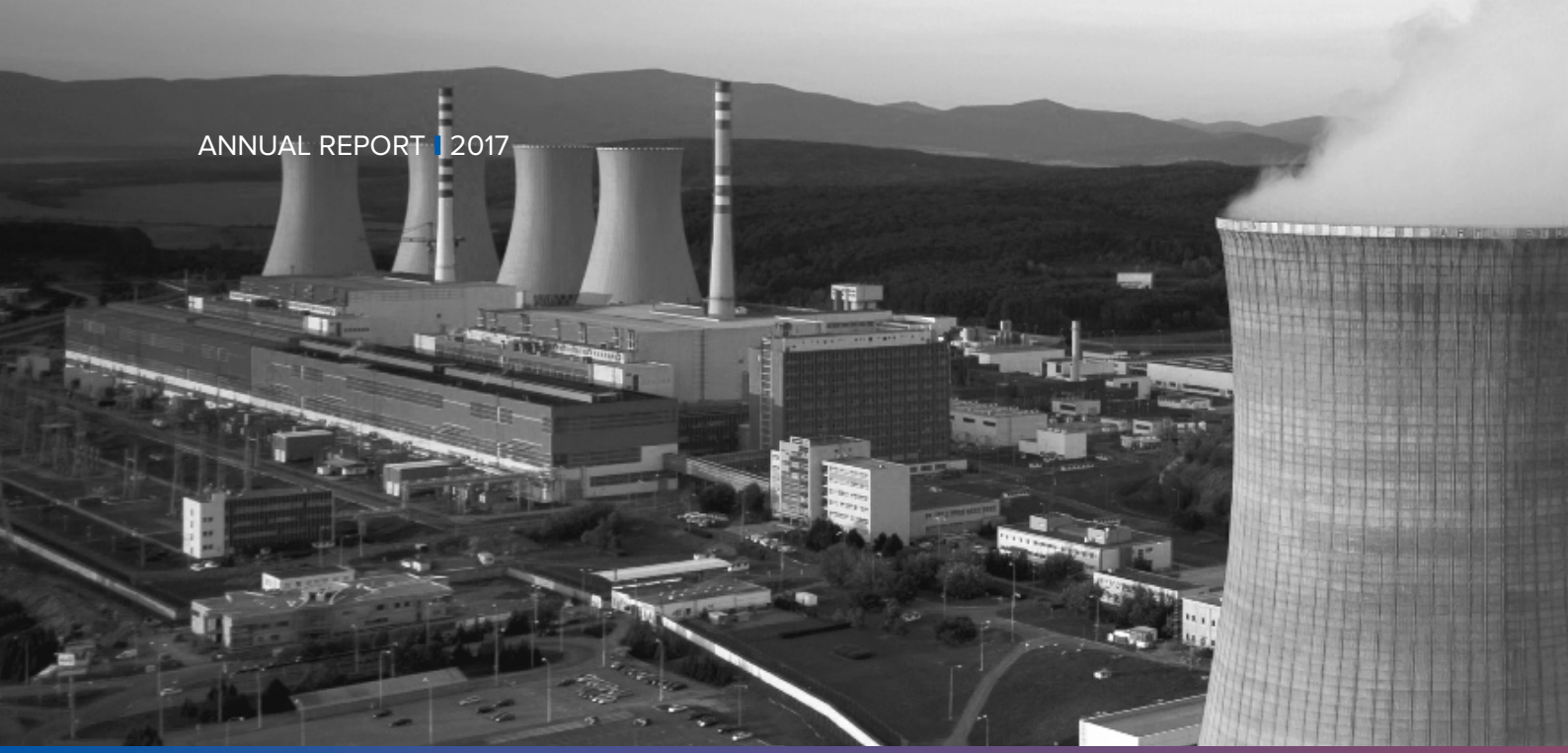
to be repeated with 10-year periodicity, i.e. until 2022. The ARTEMIS mission (for the purpose of conducting peer review according to the Council Directive 2011/70 Euratom) must be invited by August 2023 at the latest.

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

In 2017, ÚJD SR provided for the tasks resulting from the conclusions of the meeting of Preparatory Commission of the CTBTO and from the discussions of its working groups. The ÚJD SR experts participated in the 48th and 49th meeting of the Preparatory Commission and in the 48th and 49th meetings of the Technical Working Group B in Vienna. In particular, it was important to follow the planned activities in the third training cycle and planned exercises for future CTBTO inspectors. Slovakia actively engages in these activities – until now, there were 8 international field exercises organized in military area "Turecký vrch (Turkish Hill)" and one course for future inspectors in Lešť training center. ÚJD SR representatives participated in several working meetings during 2017 with the members of the Preparatory Commission of the CTBTO on the organization of further exercises and training courses in Slovakia under the Agreement between the Government of SR and the Preparatory Commission for the CTBTO on mutual cooperation in training and Commission activities related to on-site inspections.

The SR is actively involved in the process of preparing for the entry into force of the CTBT. An example, is a scientific cooperation between ÚJD SR and the academic institutions in SR in the area of seismology, thanks to which SR also participates in completing CTBTO verification system. On the basis of this cooperation, in June 2017 the ÚJD SR representatives attended the "The CTBT: Science and Technology 2017 Conference" in Vienna, where together with experts from the Slovak Academy of Sciences (SAV) and Faculty of Mathematics, Physics and Computer Science of the Comenius University in Bratislava presented jointly achieved scientific results on the topic of historical seismographic records from nuclear explosions.

ÚJD SR as the paying agent for selected international organizations, paid a membership contribution for 2017 to the CTBTO (61,206 US dollars + 119,820 euros).



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

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

In April and October 2017, the ÚJD SR representatives participated in regular meetings of the NEA Nuclear Energy Steering Committee (NEA SC). The NEA SC meetings were chaired by the ÚJD SR Chairperson, who is currently the chair of the NEA SC. The main points of the agenda of these meetings was a discussion on the recommendation for the accession of Argentina and Romania to the Agency and subsequent adoption of the two countries as new members; information on changes for 2017 within the already approved budget for the years 2017 – 2018; cooperation with the industry and the proposal to establish a new standing technical committee dealing with decommissioning and residues from radiological activities in the past (legacy management), the adoption of which, by the decision of the NEA SC members was so far postponed to the next meeting of the NEA SC. As part of the political debate in April, three entities were presented, to which NEA provides the services of Secretariat – IFNEC (International Framework for Nuclear Energy Cooperation), GIF (Generation IV International Forum) and MDEP (Multinational Design Evaluation Programme), then in October, the political debate was dedicated to current situation in supplies of medical radioisotopes.

Slovak experts continue to actively engage in the work of all standing technical committees OECD/NEA, as well as a number of working and expert groups. The ÚJD SR continues to be engaged in the OECD/NEA joint projects, namely the Halden Reactor Project and THAI-3.

In 2017, the membership contributions paid to the OECD/NEA and to the NEA Databank (in total EUR 41,280), to Halden Reactor Project (EUR 14,000) and the THAI-3 project (EUR 14,250) were paid on time and in full. ÚJD SR positively reacted to the call of the OECD Secretariat to make an early payment of the part of regular membership contributions to the NEA and the NEA Databank for 2018.

7.5 MEETING THE OBLIGATIONS ARISING FROM INTERNATIONAL CONTRACTUAL DOCUMENTS

Convention on Nuclear Safety

From March 27 until April 7, 2017, the 7th Review Meeting of the States Parties to the Nuclear Safety Convention was held at the IAEA headquarters in Vienna. At this meeting, the seventh National Report of SR was discussed under the Nuclear Safety Convention. The representatives of the participating states have expressed their positive opinion on the comprehensive and informative nature of the National Report, highly appreciated its compactness, transparency and the amount of technical information provided. The National Report from 2016 is available on the website of ÚJD SR at: www.ujd.gov.sk.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention)

In accordance with the Article 30 of the Joint Convention, Slovakia drafted already the 6th National Report of SR, which was sent to the IAEA in Vienna in October 2017, and to other participating states. This National Report will be

discussed at the 6th Review Meeting of the Parties to the Joint Convention from 21 May until 1 June, 2018 at the IAEA headquarters in Vienna (the National Report from 2017 is available at the ÚJD SR website at: www.ujd.gov.sk).

Non-Proliferation Treaty

Under the Agreement between the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, the Republic of Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the European Atomic Energy Community on the implementation of Article III par. 1 and 4 of the Nuclear Non-Proliferation Treaty and its Additional Protocol, the Euratom and the IAEA inspectors performed inspections. None of the cases showed any violation of Slovakia's obligations in the field of non-proliferation of nuclear weapons and the safeguards system.

7.6 BILATERAL COOPERATION

Bilateral cooperation takes place at government level, in particular with neighbouring countries, and at the level of regulatory bodies for nuclear and radiation safety. ÚJD SR regularly organizes meetings with the representatives of governmental and other partner organizations of the neighbouring states. In 2017, regular annual bilateral meetings of senior officials of the ÚJD SR were held with the delegations of the neighbouring countries – Hungary, Czechia, the Republic of Poland, the Republic of Austria – and also Slovenia.

On October 16 and 17, 2017, a bilateral meeting between the ÚJD SR and the US Nuclear Regulatory Commission (US NRC) was held in Bratislava. As part of the agenda, the representatives exchanged information on the activities of regulators, the Slovak officials informed about the Slovak nuclear program, the regulatory challenges related to Mochovce NPP units 3 & 4 under construction, on the state of planned NPP in Jaslovské Bohunice and others. They also discussed cyber security issues and the possibilities of implementing the US NRC guidelines in the field of cyber security in ÚJD SR. Within the framework of bilateral meeting the delegation visited NIs in SR – Mochovce NPP 3 & 4, RÚ RAO, as well as the SE information center in Mochovce – Energoland.

On April 28, 2017, the Chairperson of the ÚJD SR and the Minister for Emergency Situations in Belarus signed a Memorandum on Exchange of Information and Cooperation in the Field of State Regulation over Nuclear Safety, confirming the common interest in cooperating in the field of regulation over safe use of nuclear energy for peaceful purposes. In December, a technical visit was paid by the representatives of the Belarusian Nuclear Safety Regulator (Gosatomnadzor – GAN) to Slovakia, based on the technical cooperation project of the IAEA in support of the Belarusian Regulatory Authority, as well as in cooperation between regulatory authorities on the basis of a signed memorandum. The purpose of the visit was to get acquainted with the procedures of the regulatory authority at the stage of commissioning of NI, and preparations for its physical start-up. The program of the technical visit of the members of the Belarus delegation included also visit to the Mochovce 3 & 4 NPP, where accompanied by the ÚJD SR site inspectors, they paid special attention mainly to the state of completion and preparation for the cold hydrotest from the point of view of regulatory activities. On this occasion the delegation from Belarus also got acquainted with inspection procedures also directly on the site of NI under construction. The next two days expert meetings were held at the ÚJD SR offices in Bratislava, where the relevant ÚJD SR experts gave a detailed clarification on the approach and procedure for the individual inspections.

8. PUBLIC RELATIONS

For the ÚJD SR, communication and information to the public is one of the priority tasks, resulting from the mission of the ÚJD SR. The purpose of communication to the public is to inform the domestic and foreign public about the activities that are under the competence of the Regulatory Authority and by means of topical, objective and comprehensible information and on both sides open communication, to build confidence of the public towards the activities of ÚJD SR. In order to increase credibility and information to the public, ÚJD SR has its Public Communication Strategy.

As an objective and independent regulatory authority, it is constantly creating conditions for the provision of information to the public and to the media, whether through the publication of press releases and news published on the website of ÚJD SR, but also through Facebook. The ÚJD SR website is also prepared and managed in English version, to provide information for the international community. The laws and regulations in the field of nuclear safety and related legislation, as well as the full texts of safety guides, are published. On the website are also published the ÚJD SR decisions, as well as all administrative procedures of the ÚJD SR. ÚJD SR enables the public and the media to communicate via an e-mail address: info@ujd.gov.sk.

ÚJD SR as the central body of state administration is obliged to respond to the questions sent pursuant to Act No. 211/2000 Coll. on free access to information. In 2017, ÚJD SR handled 12 such requests for information and issued 3 decisions as a result.

At the same time, ÚJD SR regularly answers questions from the public and the media. In 2017, the topic of completion of units 3 & 4 of Mochovce NPP was the most frequently asked by the media.

ÚJD SR is increasing public awareness of its activities and its mission in order to create a favourable opinion as a professional and reliable regulator, which is a credible source of information in the form of publication of information materials (annual reports, leaflets), as well as other activities, such as meetings and seminars with the public, but also with students and schools. In October, the Chairperson and other officials of ÚJD SR participated in a workshop and discussion with secondary school students on the topic: “Climate change in Nitra region: how can nuclear power plants contribute to limiting global warming”, organized by the Nitra self-governing region and the municipality of Nitra. ÚJD SR plans to continue in this also in the future.

ÚJD SR continues to communicate with the population in the vicinity of NPP. Representatives of ÚJD SR actively participated in the discussions of the Civil Information Commissions (OIK) at NI in Bohunice and at NI in Mochovce, as well as at the meetings of the Association of the Towns and Municipalities Bohunice and Interest Regional Association of Towns and Municipalities Mochovce. Information on current issues in the field of nuclear safety in SR an abroad, as well as activities of ÚJD SR, were presented. In addition, the mayors of municipalities have direct contact to the Chairperson of ÚJD SR, from whom they can directly ask for information, if needed.

9. NUCLEAR REGULATORY AUTHORITY OF SR

9.1 ECONOMIC DATA

ÚJD SR as a budget chapter is connected to the state budget with its revenues and expenditures. From January 1, 2008, the Atomic Act imposed an obligation to the license holders to pay annual contributions for discharging state supervision over nuclear safety. The revenue for 2017 for the ÚJD SR was budgeted in the amount of EUR 8,960,000, the revenue budget was adjusted in the course of the year by a budgetary measure to EUR 8,947,082. The actual revenue was EUR 8,962,359, of which non-tax revenue of EUR 8,948,425 and income from foreign grants of EUR 13,934. The expenditure limit for 2017 was approved for ÚJD SR in the amount of EUR 9,122,604. Following the budgetary measures, the limit of expenditures was adjusted to EUR 9,067,138. The total volume of expenditures for the activity of ÚJD SR as at December 31, 2017 reached EUR 8,451,110. Of this, expenditure in the amount of EUR 8,208,367 was earmarked for the financing of routine activities and EUR 242,743 for procurement of fixed assets.

TABLE 3 ECONOMIC RESULTS FOR 2017

Item	Amount (in Euros)
Limit for revenues	8,960,000
Total actual revenue	8,962,359
Of which:	
Non-tax revenues	8,948,425
Foreign grants	13,934
Limit for expenditures	9,122,604
Actual expenditures in total	8,451,110
Of which:	
Current expenditures	8,208,367
Capital expenditures	242,743

Drawing of current expenditures was significantly represented by drawings for foreign transfers in the amount of EUR 1,101,611. These funds were used to pay membership contributions to international organizations. Regular contributions are two current foreign transfers to the IAEA, namely a full membership contribution of EUR 622,553 and a contribution to the Technical Cooperation Fund in the amount of EUR 130,769. In 2017, ÚJD SR also paid the contribution of SR to the CTBTO in the amount of EUR 177,687. Other contributions of SR are membership contributions to the OECD/NEA of EUR 58,492 and to NEA/DATABANK in the amount of EUR 19,941 (the amounts represent a full membership contribution for 2017 and part of the contribution for 2018), and also contributions for participation in the OECD/NEA projects: PKL3 of EUR 14,250 and Halden Reactor Project of EUR 14,000. As part of contributions to the scientific and technical cooperation programs, the contribution to the Implementation Agreement of US NRC and ÚJD SR (participation in CSARP program) in the amount of EUR 63,129 was paid, where members use the results of research and development programs to increase the safety and reliability of NIs. From foreign transfers item the contribution to the European Nuclear Safety Conference was also paid in the amount of EUR 790.

TABLE 4 FOREIGN TRANSFERS TO INTERNATIONAL ORGANIZATIONS IN 2017

Financial contributions to international organizations	Amount (in Euros)
IAEA – membership contribution	622,553
IAEA – Technical Cooperation Fund	130,769
CTBTO – membership contribution	177,687
OECD/NEA – membership contribution	58,492
OECD/NEA – PKL3 project	14,250
OECD/NEA – Databank	19,941
OECD/NEA – Halden Reactor project	14,000
Implementation Agreement between US NRC and UJD SR (participation in CSARP program)	63,129
Contribution to the European Conference on Nuclear Safety	790
Total	**1,101,611**

Domestic transfers amounting to EUR 26,327 were used to cover membership contribution to a non-profit organization, as a compensation to the staff (for the first 10 days of the sick leave), for severance payments.

Expenditures on expertise, assessments and analyses, which represent necessary support for the decision-making, licensing and inspection activity of ÚJD SR, were used in the amount of EUR 786,356.

Payroll expenditures for 125 represented EUR 3,352,974 and on health insurance and social security contributions amounted to EUR 1,334,039.

TABLE 5 CURRENT EXPENDITURES IN 2017

Current expenditures	Amount (in Euros)
Foreign transfers	1,101,611
Expertise, assessments, analyses	786,356
Wages (for 125 employees)	3,352,974
Statutory employee insurance	1,334,039
Domestic transfers	26,327
Goods and services	1,607,060
Total	**8,208,367**

A total of EUR 1,607,060 was spent on procurement of goods and services necessary for the operation of ÚJD SR. The basic breakdown of these expenditures is based on the economic budget classification of expenditures and their utilization is shown in Table 6.

TABLE 6 USE OF EXPENDITURES FOR PROCUREMENT OF GOODS AND SERVICES IN 2017

Item	Amount (in Euros)
Travel expenses	171,505
Telecommunications and energy	67,140
Material	128,629
Cars	47,855
Routine and standard maintenance of building and operating facilities	164,947
Rent for rental of office premises, garages, meeting rooms and facilities	64,213
Services (printing, reproduction, cleaning, translation, information, equipment revisions, trainings, advertising, catering, bank fees, contributions to the Social Fund, and other)	962,771
Total	**1,607,060**

Capital expenditures

In the category of capital expenditures of EUR 242,743 ÚJD SR used the budget funds to procure capital assets as follows:

TABLE 7 USE OF CAPITAL EXPENDITURES IN 2017

Item	Amount (in Euros)
Software purchase	98,775
Communication infrastructure (server, UPS)	16,505
Purchase of passenger cars	92,953
Software reconstruction	34,510
Total	**242,743**

Extra-budgetary funds

The expenditures include also extra-budgetary funds from abroad amounting to EUR 13,934. Drawn funds from foreign grants were from SARNET project.

TABLE 8 DRAWING FUNDS IN 2017 (IN EUROS)

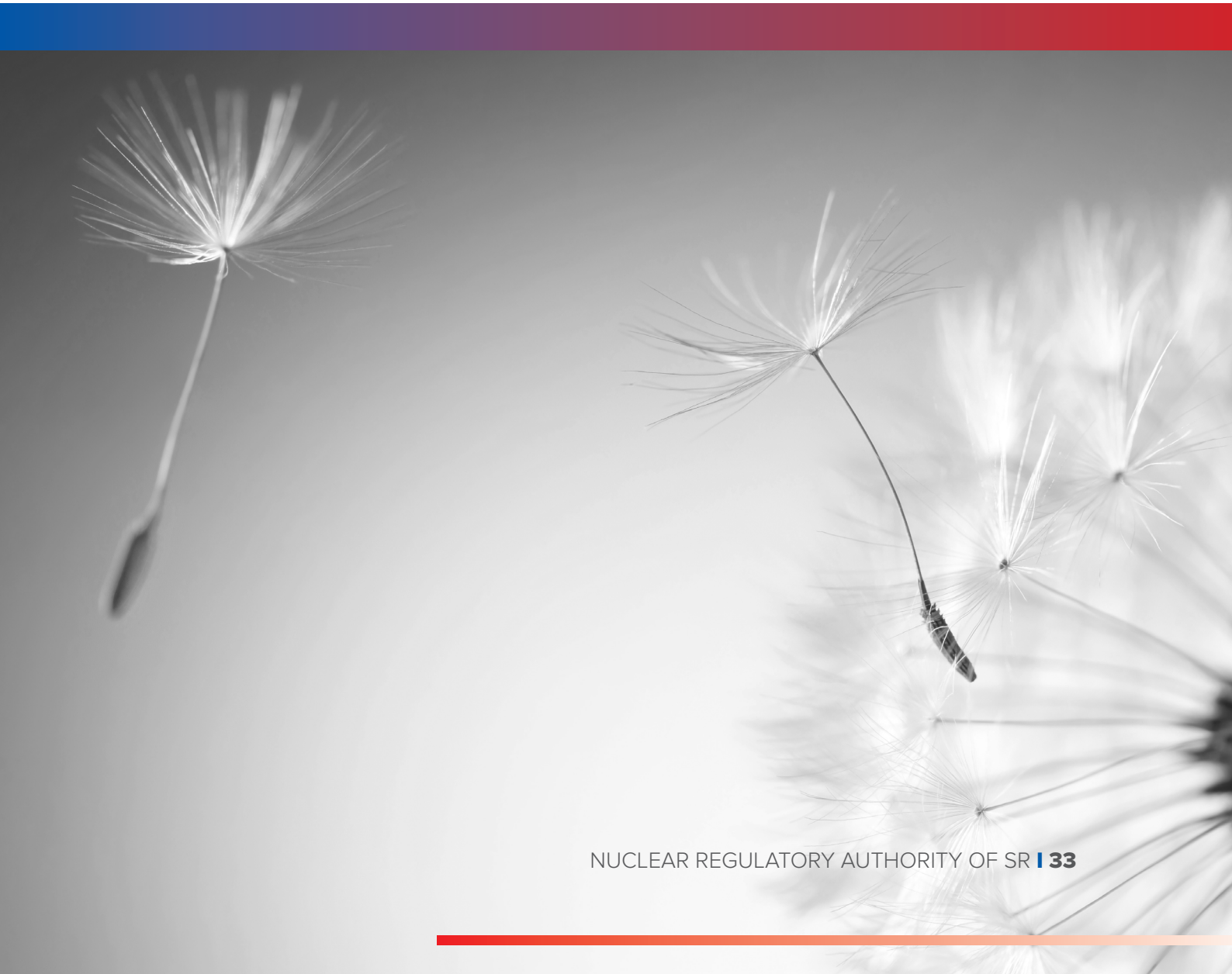
	Budget	Extra-budgetary	Total
Current expenditures	8,194,434	13,934	8,208,367
Capital expenditures	242,743	-	242,743
Total expenditures	**8,437,177**	**13,934**	**8,451,110**

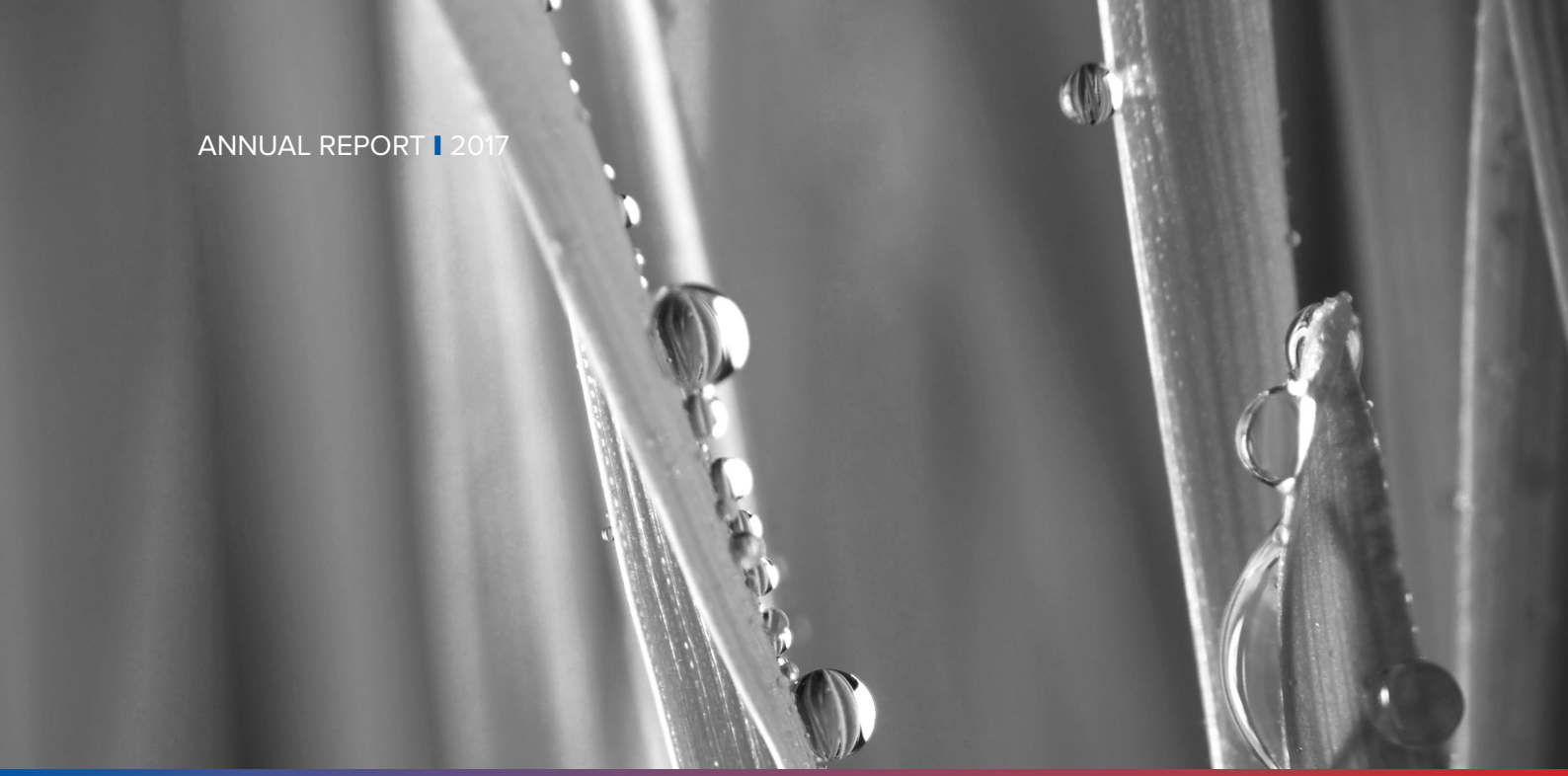
9.2 HUMAN RESOURCES MANAGEMENT AND TRAINING OF STAFF

In 2017, ÚJD SR managed to create sufficient material, financial and information resources, as well as to strengthen human resources to ensure a demanding process of assessment and review of documentation, especially in connection with the construction of Mochovce 3 & 4 NPP. The quality of human resources is one of the basic preconditions for the achievement of strategic objectives and tasks of the ÚJD SR and the fulfilment of the adopted nuclear safety policy.

Human resources management was mainly focused on recruitment and selection of new staff to secure current and future work activities, but also to ensure and deepen staff training to develop human potential and create an atmosphere motivating staff to meet the objectives of ÚJD SR. For 2017, ÚJD SR had a total budget of overall headcount of 125, from which 109 posts were defined as civil service positions and another 16 jobs were intended for the performance of work in public interest. In the course of 2017, ÚJD SR created 3 civil service positions to address cyber security challenges, as well as to ensure the development of international cooperation and the fulfilment of international commitments in the field of the IAEA's competence.

The process of filling vacancies, both for civil service positions, as well as the posts for performance of work in public interest, was carried out in a standardized form, in accordance with the Civil Service Act and the Internal Staff Regulation. In 2017, ÚJD SR announced 19 selections and selection procedures for filling the vacancies or temporarily vacant civil service positions. Selections and selection procedures were announced using several channels, on one hand by publishing on the ÚJD SR website, then through publishing on the most widely known job offer portal, but also general announcement to the ÚJD





SR staff through an e-mail and by posting offers on the notice boards in Bratislava and in Trnava. After launching the register of selection procedures on the portal www.slovensko.sk, which according to the new Civil Service Act serves for the publication of all civil service positions, ÚJD SR announces selection procedures in this way from June 21, 2017 and continues to also use its website and internal e-mail to inform about the announced selection procedures.

Of the 19 selection procedures announced 18 were carried out. One selection procedure was moved to 2018. In the case of 4 internal competitions, the selection procedure itself was not carried out due to the fact that there was no candidate applying from among the civil service staff of ÚJD SR (i.e. these were declared unsuccessful), 2 selection procedures were declared unsuccessful due to failure of registered candidates to attend the competition or because of unsuccessful candidates. Based on 18 competitions, 11 vacant positions or temporarily vacant civil service positions were filled (of which in two cases these were managerial staff positions).

In the course of 2017, 14 civil service positions were filled and on the basis of concluded service contracts additional 2 civil servants started their work with effect from January 1, 2018. Out of the total number of 14 civil servants, 9 employees were admitted into permanent civil service for the vacant civil service positions, 5 employees were admitted to temporary civil service (of which 1 for the representation of an employee in the public position and 4 employees for representation during maternity or parental leave). In addition, one employee returned from parental leave and 5 employees started maternity or parental leave. With regard to the termination of civil service employment, in case of one employee the employment was terminated due to the death of the employee, 2 civil servants ended civil service employment with agreement, of which one employee left on the expiry of the period of extension of civil service employment after reaching 65 years of age and one civil servant terminated civil service employment in temporary civil service. In addition, one civil servant was temporarily transferred for posting to the Ministry of Foreign and European Affairs of SR. As regards positions in the performance of work in public interest, one employee has terminated the employment contract by agreement and one employee continued for an indefinite term.

As regards the total headcount, as at December 31, 2017, UJD SR had 116 employees, of which 100 civil servants in service and 16 employees working in public interest. Additional 9 civil servants went on maternity or parental leave or time off. At the end of the year, 9 civil service positions remained vacant (of which 1 position was blocked by concluded service contract with the start of work from January 1, 2018 and 5 positions were vacated in the meantime due to maternity or parental leave or time off). All positions performing work in public interest were filled. There are 51 women and 65 men. Additional 8 women and 1 man are taking maternity or parental leave or time off. The total share of employed women is 44%, which shows that the proportion of women in active work declined slightly compared to the previous year due to the higher number of employees taking maternity or parental leave.

The employees' educational structure also directly affected the professional level of performance of the activities of the individual departments of ÚJD SR. The education structure declares that 90.5% of the employees have university education and 9.5% have full secondary educa-

TABLE 9 PROFESSION STRUCTURE OF STAFF AS AT DECEMBER 31, 2017

	Total	Women	Men
Inspectors	72	19	53
Professional staff	28	18	10
Other	16	14	2
Total	**116**	**51**	**65**

tion. Towards the end of 2017, out of actually occupied positions by men, 98.5% has university education and in case of women, the percentage share represents 80.4%. This percentage share of university educated staff is derived from the demanding job of the ÚJD SR staff and is well above the educational level of the population of SR.

In terms of age structure, the 51 – 60 age group represents 24.1% of the total number of employees. The age structure of employees at the same time documents that employees aged 41 – 60 constitute up to 53.4% of the total number of employees, employees aged 18 – 40 represent 32.8% and the remaining 13.8% belong to category of

TABLE 10 EDUCATIONAL STRUCTURE OF STAFF AS AT 31 DECEMBER 2017

Education	University	Complete secondary education	Total
Women	41	10	51
Men	64	1	65
Total	**105**	**11**	**116**

employees over 61 years of age from the total number of staff (116). This situation confirms the long-term trend that the state regulation was provided also in 2017 mainly by employees having many years of professional experience, i.e. staff from 41 to 60 years of age and over 61, who made a total of 67.2% share on the total number of staff. The average age of the authority's staff as at December 31, 2017 was 47 years of age.

The share of managerial staff represented 13.8% of the total headcount.

Employing training and development of staff is another of the prerequisites for managing new tasks of the current demanding legal, economic and high-demanding technical environment, part of which is also nuclear energy sector. Education today belongs to the basic objectives, but also to the demands of the modern society. Requirements for the knowledge and skills of an employee in a modern company are constantly changing and for an employee to be a highly professional workforce, he/she must continuously deepen and expand their knowledge and skills. A separate chapter of education is the computerization of the public administration and transparency of the performance of regulatory activities that require active involvement of employees in solving new issues in these areas. To this end, it is necessary to adopt the new requirements and responsibilities of public authorities that employees must fulfil.

Training program for all ÚJD SR staff was elaborated in the trainings plan, which is the normative act of the authority with a full year content focused on the training needs of all organizational units of ÚJD SR. In addition, ad hoc also general and vocational training activities were utilized, organized by different educational institutions. Training focused on all professional areas provided by ÚJD SR. In the course of the year, ÚJD SR staff used also other forms of education – flexible education, e-learning, information and communication technology in education, in addition to the traditional forms of education. Education and formation of skills and competencies in ÚJD SR becomes a life-long process, as it must permanently take into account all current needs induced by the reality of changes.

Also, in 2017 ÚJD SR paid due attention to education and training of all its staff, as the performance of civil service and work in public interest required high demands on the professional, expert and effective activities of the regulator's staff. Expenditure on staff training was budgeted at EUR 356,182, of which more than 78% was allocated for training in the area of nuclear regulation. It is clear from this that ÚJD SR puts a great emphasis on highly

specialized training of staff in the field of competence, through which in particular inspectors and trainee inspectors acquire necessary knowledge, skills and attitudes towards the performance of licensing, assessment, review and inspection activity. Separately, funds have been earmarked for IT trainings. For 4 employees the employer created conditions for postgraduate studies focused on the safety of operation of nuclear installations and organized by the Faculty of Electrical Engineering and Computer Science of the Slovak Technical University.

In addition to specific training, education has been divided into thematic areas – international relations, legislation and law, economics and public procurement, computer science, human resource management, control, language courses and other trainings.

Adaptation of new employees was ensured through adaptive training and in the second half of the year also through mentoring, which focused on the acquisition of basic skills needed to perform civil service in the respective field of activities entrusted to a particular employee.

ÚJD SR paid also continuous attention to language education, which aimed at gaining and supplementing the capabilities of ÚJD SR staff to master foreign languages. English and Russian lessons were attended by nearly 50% of staff. In addition, the Service Office also pays attention to the state language and provides regular trainings to strengthen knowledge as for the form and content when preparing official documents and cultivation of writing skills in Slovak language.

ÚJD SR as an independent central government authority achieved with the quality of work of its staff a status that is highly appreciated in the domestic environment, but also abroad, which demonstrates the high professional level of staff of the regulator.

9.3 DEVELOPMENT OF REGULATORY ACTIVITIES

Development and implementation of results of science and research at ÚJD SR contributes to maintaining high professional level of performance of state regulation in nuclear safety of NIs in SR, as well as promotion of knowledge and experience exchange through active participation of ÚJD SR in international expert teams.

ÚJD SR is a party to a research project on severe accidents organized by the US Nuclear Regulatory Commission (US NRC). Through participation in the project, ÚJD SR has access to US MELCOR computational program (MELting CORe), which it uses for the verification calculations for severe accident analyses submitted to ÚJD SR in the framework of administrative proceedings. As part of this collaboration with the US NRC, ÚJD SR also gained access to the supplementary instrument MACCS (MELCOR Accident Consequence Code System), designed to estimate radiological consequences of severe accidents. ÚJD SR is preparing for the use of MACCS for verification analyses of projections of radiological consequences of some hypothetical accidents. At the working meetings on the research project its members exchange experiences and knowledge in the field of modeling and assessing response of NIs to severe accidents. For the assessment activity of ÚJD SR, the information and data on modifications made on nuclear installations in the world, which are realized in order to prevent or mitigate consequences of potential accidents with serious damage to nuclear damage, are also important.

ÚJD SR acquires further experience and technical information through its participation in international projects and the OECD/NEA working groups. ÚJD SR supports a project that continues to examine the behavior of fission products in the reactor containment area and to reduce

the risk associated with hydrogen and its combustion. It is the specific issue of water cooled reactors under severe accidents. The Project officially started in February 2016 and will continue until the end of July 2019. Within the OECD/NEA working groups various international working meetings and conferences are organized, focusing on addressing the current issues of safety of NIs, exchange of experience and mutual assistance. The ÚJD SR experts drafted or reviewed a set of documents, expert papers, proposals and concepts. Activity in the groups contributes to their professional growth, awareness, exchange of experiences, knowledge in the field of nuclear safety development and application of this knowledge in practice.
Within the framework of international cooperation in the field of nuclear safety, ÚJD SR also assists in development of nuclear regulatory bodies of other countries. An example of such assistance is the EC Project to support the development of the Iranian Nuclear Regulatory Authority, INRA, in which ÚJD SR is involved within a consortium with ENCO and peer regulators in the Czech Republic (SÚJB), Hungary (HAEA) and Slovenia (SNSA). The Project aims to increase the capabilities of the Iranian regulator in the field of nuclear and radiation safety through exchange of experience and the promotion of the best international practice. The contribution of ÚJD SR is in particular assistance to INRA in coordinated and effective implementation of nuclear safety stress tests, which are done based on the experience after the accident in the Japanese Fukushima NPP. The assistance is aimed at supporting INRA in its review of the self-assessment report of the regulator and in preparation of the Iranian National Report from the stress tests.

As part of cooperation between the regulatory authorities of countries operating NPPs with VVER reactors (VVER Forum), ÚJD SR participates in the tasks of several working groups. One of the tasks is to compare and harmonize approach to nuclear safety assessment. The main objective of the working groups in the period 2014 to 2017 was to support national regulators in their regulatory activities. They focus on exchange of national experience in the field of enhancement of safety of NPPs, analyses and classification of operational events, integrated decision-making process and many others, which significantly contributes to increasing level of nuclear safety and protection against the adverse effects of ionizing radiation.

In 2017, ÚJD SR coordinated the elaboration of the National Assessment Report (NAR) within the meaning of Council Directive 2014/87 Euratom of July 8, 2014, amending Directive 2009/71 Euratom establishing a Community framework for nuclear safety of NIs in the EU. This NAR includes an assessment of the aging management process at NIs in SR for the purposes of thematic peer review in 2018. The aims of the European peer review are: to share operational experience and identify common issues faced by the EU Member States, to identify good practice and areas for improvement. The participating countries will thus be provided with an open and transparent framework to identify appropriate follow-up measures to address the areas to be improved.

9.4 MANAGEMENT SYSTEM

The ÚJD SR management system is built in accordance with the requirements of EN ISO 9001:2015 and supplemented by the specific requirements of the IAEA for the area of nuclear safety. The advisory body to the Chairperson is the Board for the management system, which assesses the concept of the development of the management system, the issues of its development and application, the need for reviews, their conditions and requirements, audit reports, evaluations and comparative studies, issues of cooperation, exchange of experience and good practice within the implementation of the management system in the public administration of SR and abroad and proposes procedures for its improvement and increasing the effectiveness and efficiency of ÚJD SR activities.

In 2016, the risk management was integrated into the management system and the risk register was developed. The risk register in a defined manner defines and classifies the potential or practical risks associated with the activities of ÚJD SR and includes all other information necessary for the risk management. In 2017, ÚJD SR updated the register, monitored identified risks and implemented measure to eliminate or mitigate the greatest identified risks.

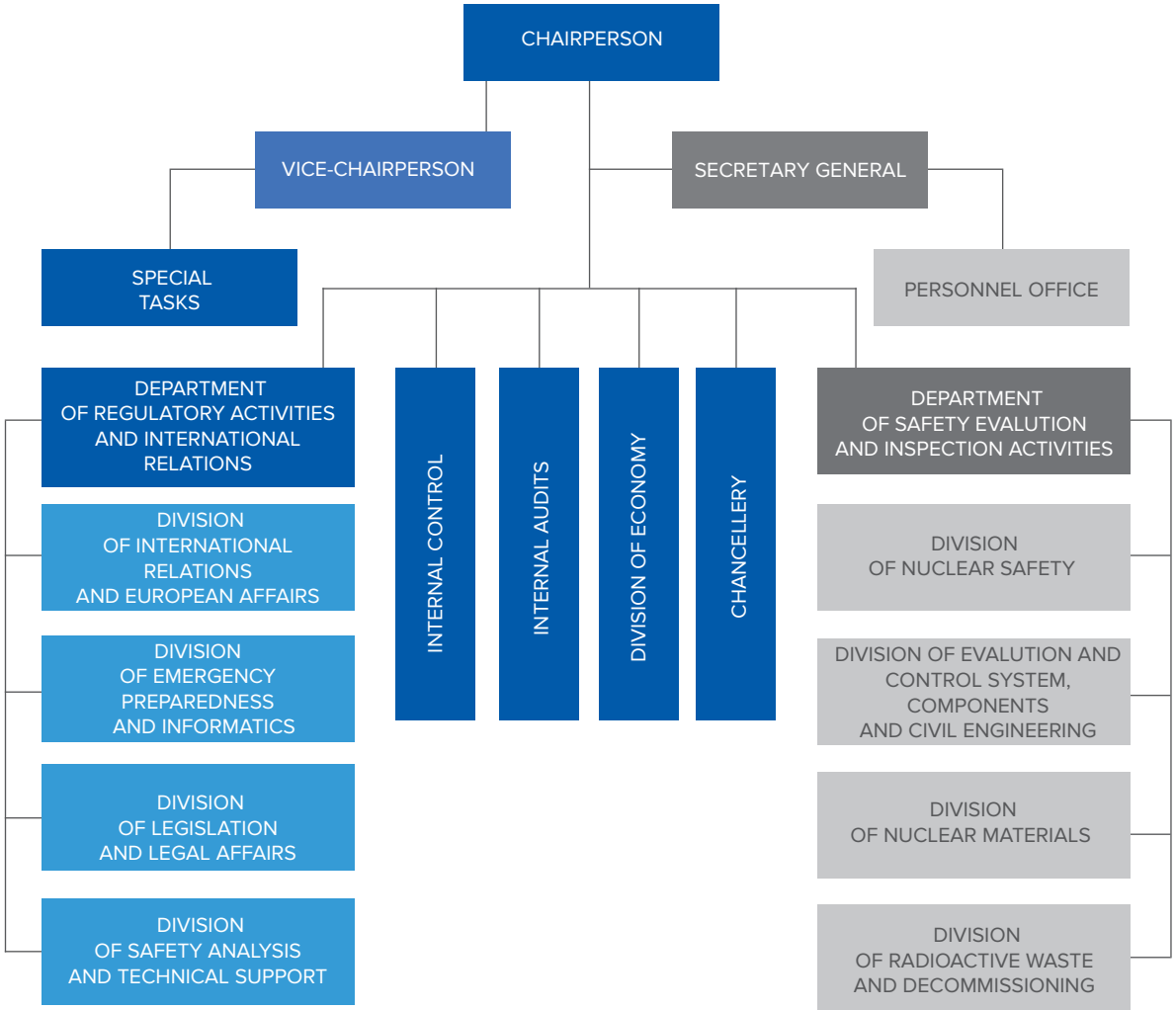
In line with the management system audit plan, three specifically focused partial internal audits were carried out. The audits have confirmed that the activities carried out in ÚJD SR are governed by valid directives and management system procedures. The audits revealed that a systematic process of assessing safety culture and leadership has to be implemented at ÚJD SR.

A questionnaire survey was conducted to measure satisfaction of ÚJD SR employees. Its results were evaluated and discussed.

Management review of the quality management system, on the evaluation of which all process owners participated, is assessed by the Management System Board of ÚJD SR. The output document is an integral assessment of the state of implementation of the policy and quality objectives, the results of the internal audits, the regular review of the quality directives, the fulfilment of the related requirements, the description of the process performance, the product conformity, the description of the preventive and corrective actions and modifications with a potential impact on the management system, while stating also suggestions for process and activity improvements, and product enhancements related to legitimate stakeholder requirements and the necessary resources.

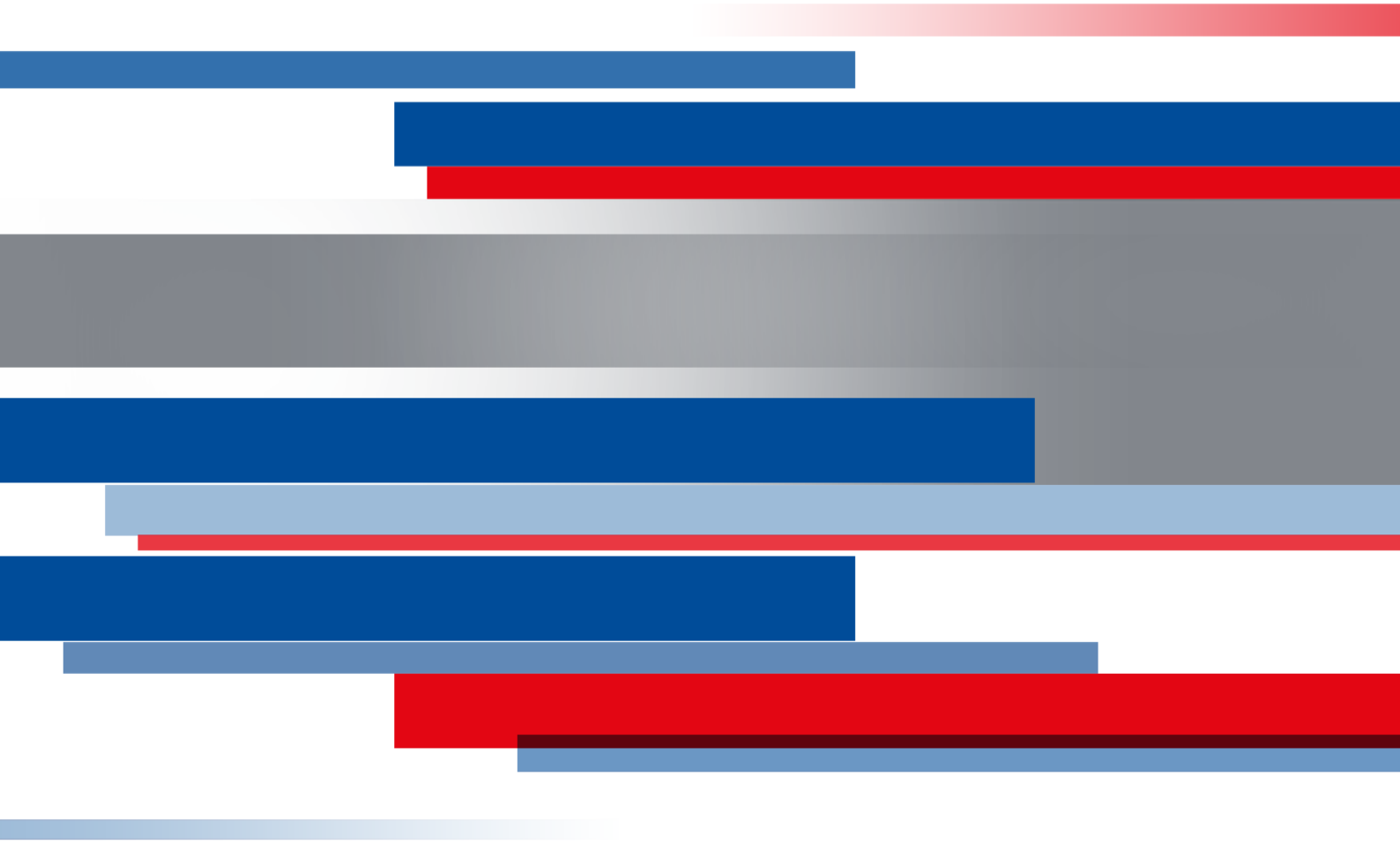
10. ANNEXES

ORGANIZATIONAL CHART



11. ABBREVIATIONS USED

ACCC	the Aarhus Convention
ATO	Working group for Atomic Questions within the EC
BSC RAO	Bohunice Treatment Centre for Radioactive Waste
ConvEx	Communication exercise under the IAEA Convention on Early Notification of Nuclear Accident
CTBTO	Comprehensive Test-Ban Treaty Organization
EC	European Commission
ENSREG	European Nuclear Safety Regulators Group
ERC	Emergency Response Centre of ÚJD SR
ESW	essential service water
EU	European Union
Euratom	Treaty establishing the European Atomic Energy Community
FNF	fresh nuclear fuel
FS KRAO	Final treatment of liquid radioactive waste
GO	general overhaul
HDP	emergency transport rules
HŠ	Emergency Headquarters
HaZZ	Fire and Rescue Service
IAEA	International Atomic Energy Agency
IRRS	Integrated Regulatory Review Service
ISRAO	integral radioactive waste storage facility
I&C	instrumentation and control
JAVYS, a. s.	Nuclear and Decommissioning Company, plc.
KO	pressurizer
L&C	limits and condition
MELCOR	Computational Code for modeling severe accidents
MSVP	Interim Spent Fuel Storage Facility
MH SR	Ministry of Economy of the Slovak Republic
MT PRES	Maltese Presidency
MV SR	Ministry of Interior of the Slovak Republic
MŽP SR	Ministry of Environment of the Slovak Republic
NAR	National Assessment Report
NEA SC	Steering Committee for nuclear energy
NI	nuclear installations
NPP	nuclear power plants
NM	nuclear materials
NDT	non-destructive tests
OECD/NEA	Organization for Economic Cooperation and Development/Nuclear Energy Agency
OIK	Civic Information Committee
PHJB	Periodic nuclear safety assessment
PO	primary circuit
PSA	probabilistic safety assessment
RAW	radioactive waste
RÚ RAO	National Repository for radioactive waste
SARNET	Severe Accident Research NETwork of Excellence
SG	steam generator
SNF	spent nuclear fuel
SR	Slovak Republic
SZ	Slovak representation
SE, a. s.	Slovenské elektrárne, a. s.
SV	safety valve
TSÚ RAO	Technology for treatment and conditioning of radioactive waste
ÚJD SR	Nuclear Regulatory Authority of SR
ÚVZ SR	Public Health Authority of SR
ÚCO MV SR	Civil protection office of the Ministry of Interior of SR
ÚVZ MDV SR	Public Health Authority, Ministry of Transport and Construction of SR
VBK	fiber concrete container
VNAO	very low active waste
VUJE	Research Institute for Nuclear Power Plants
VZ	selected equipment



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