



NUCLEAR  
REGULATORY AUTHORITY  
OF THE SLOVAK REPUBLIC



# ANNUAL REPORT 2021



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# DEAR READERS,

Let me inform you through this Annual Report about the activities of the Nuclear Regulatory Authority of the Slovak Republic, as well as the nuclear safety status of nuclear installations in the territory of the Slovak Republic for the year 2021.

The Report provides comprehensive information on the development and updating of the legislative environment in the area of our scope, on the outcome of inspections and nuclear safety reviews of nuclear installations under construction, in operation and in decommissioning. In addition, the Report shows how we fulfilled our international obligations arising from the Slovak Republic's membership in the European Union, the International Atomic Energy Agency and other international organizations in 2021. We also report on activities related to the registration and control of nuclear materials, emergency planning and the Authority's communication activities with the domestic and foreign public.

In response to the adoption of the parliamentary amendment to the Atomic Act, we have started the drawing up of three amendments to the decrees, and to the safety guides are also being updated.

As part of our control and inspection activities in 2021, we issued 390 decisions and carried out a total of 179 inspections, of which 160 were planned and 19 unplanned.

The number and nature of events in 2021 were within the normal operating failures with no particular significance for nuclear safety. There were 7 operational events reportable to the regulatory authority at the Bohunice V-2 Nuclear Power Plant and 8 events at the Mochovce 1&2 Nuclear Power Plant.

In the Annual Report, we also provide more information on the completion of Units 3&4 of the Mochovce Nuclear Power Plant. In May 2021, the Nuclear Regulatory Authority of the Slovak Republic issued the first instance Decision No. 156/2021 authorizing the commissioning of Unit 3. An appeal was lodged against this Decision and the relevant appeal procedure has been ongoing since the second half of 2021. Unit 4 is still in the stage of installation.



In 2021, there was no need neither to limit the scope nor validity of the license, stop the operation of any nuclear installation nor to impose a fine for violation of the Atomic Energy Act. On the basis of the data and the assessment activities, we can conclude that nuclear installations in the Slovak Republic were operated safely and reliably in 2021.

In conclusion, I would like to express my gratitude to all the employees of the Authority who, with their expertise and professional approach, guarantee that the nuclear safety supervision of nuclear installations in the territory of the Slovak Republic is carried out at a high level.

Marta Žiaková  
Chairperson

# 1 LEGISLATIVE ACTIVITY

In 2021, Act No. 363/2021 Coll. was adopted, amending Act No. 541/2004 Coll. on the peaceful uses of nuclear energy (Atomic Act) and on amending and supplementing certain acts, as amended. The Act has been tabled as an amendment by the Parliament. The Nuclear Regulatory Authority of the Slovak Republic (ÚJD SR, the Authority), in cooperation with the Office of the Deputy Prime Minister for Legislation and Strategic Planning, actively ensured the inter-ministerial comment procedure, participation in the meetings of the Legislative Council of the Slovak Government and in the meetings of the Slovak Cabinet. The amendment to the Atomic Act introduced a new authorization for the siting of a nuclear installation (NI) and also complied with the veto of the President of the Slovak Republic in 2019 and removed telecommunication secrets, postal secrets, banking secrets and tax secrets from the Atomic Act, by which it also fulfilled the Decision VI/8i on the case ACCC/2013/89, reproaching the given secrets in the Atomic Act.

Due to the above-mentioned amendment to the Atomic Act, ÚJD SR has started the preparation of three amendments to the following decrees:

- ÚJD SR Decree No. 55/2006 on the details of emergency planning in case of an incident or accident, as amended by Decree No. 35/2012 and Decree No. 9/2018,
- ÚJD SR Decree No. 58/2006, laying down details on the scope, content and method of preparation of the NI documentation required for individual decisions, as amended by Decree No. 31/2012 and Decree No. 102/2016,
- ÚJD SR Decree No. 431/2011 on the Quality Management System as amended by ÚJD SR Decree No. 104/2016.

Following the above mentioned Decision VI/8i on the case ACCC/2013/89, the Authority continued to provide assistance to the Ministry of the Environment of the SR in 2021 in connection with the preparation of statements to the stakeholder opinions. An addendum to the technical opinion of the ÚJD SR was sent in that case. The Aarhus Convention Compliance Committee was satisfied with the materials submitted by the Slovak Republic (SR) for Decision VI/8i and concluded that the Slovak Republic is in compliance with the Aarhus Convention following the steps taken.

At the same time, preparatory work on a new atomic act continued in 2021. The work has progressed to a comprehensive version and the incorporation of comments from the specialized departments within the Authority. Partial preparation of the accompanying documentation and processing of impact analyses according to the

new Unified Methodology for the Assessment of Selected Impacts, approved by a Resolution of the Government of the Slovak Republic No. 234/2021, also took place.

ÚJD SR also participated in the inter-ministerial coordination group for the representation of the Slovak Republic in the courts of the European Union (EU) at the Ministry of Justice of the SR and in the inter-ministerial coordination group in the proceedings in the European Commission (EC) in the pre-trial phase at the Ministry of Foreign and European Affairs of the SR (MZVaEZ SR). Due to the continued adverse pandemic situation in 2021, some meetings were cancelled, but participation was ensured through email communication. The Authority prepared an opinion on the EC request for additional information in connection with the EC investigation within the EU Pilot on the correct transposition of Council Directive 2014/87/Euratom, which was sent by the relevant contact point to the Office of the Government of the Slovak Republic on 8 January 2021. The opinion was substantively focused on public participation in NI authorization processes and on the issue of conflicts of interest with an impact on the nuclear sector.

During the year, the Authority continued to coordinate the cooperation of the concerned entities in the framework of the Inter-ministerial Working Group on Civil Liability for Nuclear Damage. Two meetings were held in 2021. The subject of the meetings was to inform the members of the Working Group on developments in the membership base of international conventions in the field of civil liability for nuclear damage, to evaluate the implementation of tasks, to work on the Draft Report on the status and development of European and global legislation on civil liability for nuclear damage as of 31 December 2021. The central activity of the Working Group in 2021 was the work on the above-mentioned material, so that after the legislative process it would be possible to submit the report to the Government of the Slovak Republic by 31 March 2022. The task in question stems for the ÚJD SR from the Resolution of the Government of the Slovak Republic No. 139 of 22 March 2017.

As part of its agenda in 2021, the Authority consistently verified the existence of insurance coverage for operators of NIs in accordance with the requirements of Act No. 54/2015 Coll. on Civil Liability for Nuclear Damage and its Financial Coverage, and on amendments to certain Acts.

Both legislative and non-legislative materials were considered in the framework of inter-ministerial commenting procedures. The ÚJD SR made ordinary or substantial comments, many of which were subsequently discussed in dispute solving proceedings with the relevant ministries. The most important legislative materials reviewed in 2021 included the Act amending Act No. 177/2018 Coll. on certain measures to reduce the administrative burden through the use of public administration information systems and amending and supplementing certain acts (Red Tape Act), as amended by Act No. 221/2019 Coll., and amending certain acts, which dealt with the entering into the Atomic Act, in relation to which the ÚJD SR made substantial comments. Furthermore, substantial comments were made by the Authority in the legislative process on the Data Act and on the amendment and supplementation of certain acts to the Electronic Communications Act, on the Draft Action Plan for the Implementation of the National Cyber Security Strategy for the years 2021 to 2025, on the Act amending Act No. 343/2015 Coll. on Public Procurement and on the amendment and supplementation of certain acts, as amended. Relatively fundamental materials were also two proposals for new laws in the field of construction (the Act on Spatial Planning and the Act on Construction), for which two rounds of inter-ministerial commentary procedures were held. Under the proposed legislation, the Authority would once again have the status of a special building authority for NI constructions. In the period May to October 2021, the representatives of the Authority participated in several rounds of dispute solving proceedings on the two Acts, as well as in negotiations with the Ministry of Economy of the Slovak Republic (MH SR) on unification of the procedure in construction matters in the case of NIs and NI-related constructions.

The Authority did not issue any new safety guide (BN) in 2021, but at the end of the year commenting procedures were initiated on three updates of the BN and also on an update of the nuclear safety terminology glossary.

In connection with the application of Act No. 305/2013 Coll. on the electronic form of performing the powers of public authorities and on amending and supplementing certain acts (E-Government Act), the project team headed by the Vice-Chairman of the ÚJD SR continued to work at the Authority, whose task is to identify tasks, propose their solution in the conditions of the ÚJD SR and to ensure the practical application of the Act in daily processes.

An important part of the administration agenda of the ÚJD SR was also the conduct of appeal proceedings in relation to several applications of the Nuclear and Decommissioning Company, in particular the proceedings in the case of the „AKV (active comprehensive testing) incineration plant“ (under the Atomic Act) and the early use of the project „Optimization of RAW incineration capacities“ (under the Building Act).

Concerning the application for the authorization of commissioning of the Mochovce 3&4 Nuclear Power Plant (Mochovce 3&4 NPP/ MO3&4), several procedural actions were carried out in 2021, in which the staff of the Legislative and Legal Department provided assistance. These included, in particular, consultations and advice to other departments of the ÚJD SR in the preparation of documents for the authorization process from a procedural and legal point of view. On 13 May 2021, the ÚJD SR Decision No. 156/2021 was issued, authorizing the management of radioactive waste (RAW) and spent nuclear fuel (SNF) in Unit 3, the commissioning of Unit 3 of the Mochovce NPP, and the early use of the construction (according to the Building Act). The above Decision was challenged by an appeal within the statutory time limit, and in the second half of 2021 the appeal procedure was under way at the Authority, which was administratively handled by the Legislative and Legal Department.



# 2 REGULATORY ACTIVITIES

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

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

The main entities under regulation are the license holders for construction, commissioning, operation and decommissioning of NIs. The holders of such licenses in Slovakia are: Slovenské elektrárne, a. s. (SE, a. s.), and Jadrová a vyradovacia spoločnosť, a. s. – Nuclear and Decommissioning Company (JAVYS, a. s.).

## 2.1 LICENSING

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

In addition to the license holders, which are SE, a. s., and JAVYS, a. s., ÚJD SR also supervises and issues licenses to other entities and organizations that do not operate energy NIs, but perform activities related to the peaceful uses of nuclear energy in accordance with the Atomic Act. Representatives of these license holders include VUJE, a. s., which provides professional training for NI personnel, and DMS, s. r. o., which carries out activities related to the shipment of radioactive materials (RAM).

## 2.2 REVIEW AND ASSESSMENT ACTIVITIES

In 2021, ÚJD SR reviewed, assessed and approved documentation for:

- design modifications on classified equipment of operated NPPs,
- implementation of works on the completion of MO3&4, including modifications to the basic design,
- pre-operational and operational controls,
- building proceedings within the NI premises,
- changes to the documentation assessed or approved by ÚJD SR,
- quality assurance for classified equipment and NIs,
- Quality Management Systems of license holders under the Atomic Act and their suppliers,
- organizational changes of license holders.

In connection with the completion of the Mochovce 3&4 NPP, the Authority carried out a number of post-installation conformity checks aimed at verifying the conformity of the installed technological equipment with the design and the approved quality requirements. Furthermore, the progress of selected tests and works related to the commissioning of Unit 3 was checked. The assessment of the Quality Management System documentation and the quality requirements for the classified equipment in accordance with the relevant decrees continued. In the field of decommissioning of NPPs, the ÚJD SR assessed mainly documentation related to changes during the decommissioning Stages 3 and 4 of Bohunice A-1 NPP (Bohunice A-1/EBO A-1) and changes implemented during the decommissioning Stage 2 of Bohunice V-1 NPP (Bohunice V-1/EBO V-1). The assessment and evaluation activities focused on the safe operation of decommissioning support plants, such as fragmentation, decontamination technologies and facilities for the treatment of produced RAW. The Authority also assessed the documentation of the facilities intended for the management of RAW, such as documentation relating to the completion of installations, the performance of inactive tests and the preparation for active comprehensive testing of new technologies for the RAW treatment by incineration or by remelting. In parallel with the assessment of the documentation, the Authority's inspection activities were intensified, represented by the presence of on-site inspectors during the implementation of the relevant tests.



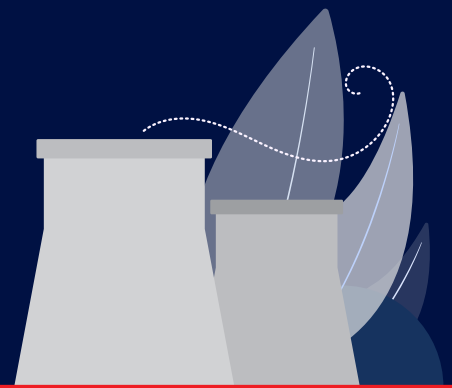


Table 1: ÚJD SR Decisions issued

Type of Decision	Number of Decisions issued
Atomic Act	237
Building Act	17
Interruption of administrative proceeding	114
Suspension of administrative proceeding	14
Appeal proceeding	8
<b>Total</b>	<b>390</b>

Table 2: Overview of inspections

NI/other	Team	Special	Routine	Unplanned	Total
Bohunice V-2 NPP	11	19	4	1	35
Mochovce 1&2 NPP	14	19	4	3	40
Mochovce 3&4 NPP	2	5	4	2	13
JAVYS, a. s.	4	22	8	0	34
VUJE, a. s.	0	2	0	0	2
NM and RAW shipments	0	9	0	0	9
Control and registration of NM	0	29	0	11	40
Other inspections	0	4	0	2	6
<b>Total</b>	<b>31</b>	<b>109</b>	<b>20</b>	<b>19</b>	<b>179</b>



## 2.3 INSPECTIONS

Inspection activity means the process of checking compliance with the requirements and fulfilment of the obligations laid down in the Atomic Act and its implementing legislation, the Building Act and its implementing legislation, fulfilment of the obligations resulting from the ÚJD SR decisions, as well as fulfilment of the measures to eliminate the deficiencies from the protocols. Inspection activities are carried out by nuclear safety inspectors of the ÚJD SR. The schedule of planned inspections is set out in the Inspections Plan, which is designed to allow for a continuous and systematic assessment of compliance with legislative requirements. The Authority shall draw up a Preliminary Inspection Plan for three years and an Inspection Plan for the year in question. In addition to planned inspections, inspectors also carry out unplanned inspections triggered by the status of the NIs (e.g. construction and installation, start-up stages) or operational events. Unscheduled inspections include inspections by the International Atomic Energy Agency (IAEA) in the field of nuclear material (NM) accountancy and control, the date of which is not announced to the ÚJD SR and the relevant license holder until immediately before the inspection itself.

170 inspections were scheduled for 2021, of which 10 were cancelled for objective reasons. There were 19 unplanned inspections in 2021. A total of 179 inspections were carried out, with 38 inspections still in progress as at 31 December 2021 and 141 completed inspections. Of the completed inspections, 4 were closed with a protocol and the others are closed by a record.

In 2021, the method of carrying out inspections was also significantly affected by the implementation of measures to protect public health during the COVID-19 pandemic. The ÚJD SR responded to the restrictions by increasing the proportion of inspections that were carried out administratively - by evaluating documentation that was submitted to the Authority's inspectors upon request. In case of the need for physical control within the framework of the inspection, such inspection was carried out by site inspectors, who were present on the site also at the time when the anti-pandemic measures were in force. Photo and video documentation were used extensively during these inspections.

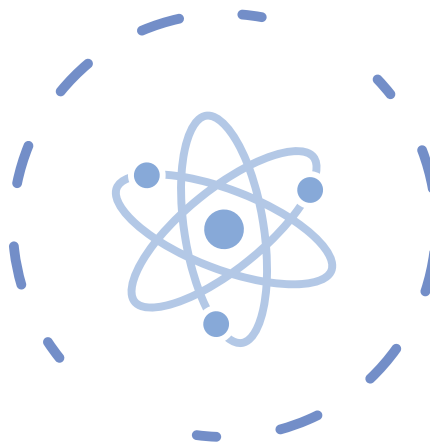
Based on the statistic data on inspection activities for 2021, we can conclude that the impact of the COVID-19 pandemic has been minimal in terms of the fulfilment of the Inspection Plan. The Authority was able to carry out sufficient inspections at the NIs to demonstrate their safe operation.

## 2.4 LAW ENFORCEMENT

In the event that the inspection activity reveals deficiencies in any of the supervised areas, the inspection report shall order the license holder to remedy the deficiencies with binding deadlines for implementation. The license holder is then obliged to notify the ÚJD SR of the manner and date of elimination of the deficiency. If the supervised entity fails to comply with the measures, as well as in the event of a serious violation of the provisions of the Atomic Act or the requirements of its implementing decrees, the ÚJD SR may initiate administrative proceedings, which may result in:

- imposition of a fine,
- limitation of the scope or validity of the permit,
- ordering implementation of necessary measures,
- shutdown of operation of an NI,
- permanent withdrawal of a certificate of special professional competence or a certificate of professional competence.

In 2021, the Authority did not revoke any certificate of special professional competence of selected employees or a certificate of professional competence of lecturers of the license holders and did not impose any fine for violation of the Atomic Act.



# 3 NUCLEAR SAFETY OF NUCLEAR INSTALLATIONS

## 3.1 NUCLEAR POWER PLANTS IN OPERATION

### EVALUATION OF SAFETY INDICATORS OF NPPS IN OPERATION

The evaluation of the NPPs operation by safety indicators is carried out by the ÚJD SR continuously and evaluated annually. The NPP units in operation in the SR are evaluated by indicators in four specific areas of operation: significant events, human factor, operation of safety systems and tightness of barriers.

#### Significant Events and Human Factor:

The following main indicators are monitored in these areas:

- the number of reactor scrams (AO1),
- the number of violations or Limits and Conditions (L&C) of safe operation (L&C is a document, in which the requirements for permitted values of NI parameters, readiness of safety systems and verification of their readiness are set, each deviation from the set values and requirements is recorded as L&Cs violation),
- the number of failures of systems and equipment that the NI operator is obliged to report to the ÚJD SR according to the set criteria,
- the contribution of the human factor (HF) in operational events (OE) reported to the ÚJD SR,
- the number of events at NI classified according to INES scale as level 1.

Table 3: Number of AO1 and violations of L&Cs on Units of NI in operation

2021	EBO3	EBO4	EMO1	EMO2
Number of AO1	0	0	0	1
L&C violations	0	1	0	1

In 2021, there was one reactor scram and two violations of L&Cs were recorded. These facts show the high operational reliability of nuclear units operated in the SR.

Table 4: Number of reported OEs, number of OEs with HF contribution and number of OEs classified as INES 1

2021	EBO3	EBO4	EMO1	EMO2
OEs reported to ÚJD SR	4	3	3	5
OEs classified as INES 1	0	0	0	0
OEs with HF contribution	0	1	1	0
Share of OEs with HF contribution [%]	0	33.3	33.3	0

The number of reported OEs is low and is indicative of the stable operation of NIs in the SR. The number of OEs with HF contribution and their share in the total number of reported failures is reasonable compared to abroad.

#### Operation of Safety Systems:

The operation of safety systems is assessed by means of unavailability factors. Unavailability factor is defined as the ratio of the sum of the period of unavailability of a given system to the total time when its availability is required. Unavailability is generally caused by the repair of faults detected during the periodic testing of systems.

In 2021, there was no failure of safety systems in Bohunice V-2 NPP (Bohunice V-2/EBO V-2), in Mochovce 1&2 NPP (Mochovce 1&2/EMO1&2) there was 1 failure of safety systems during automatic or false activations.

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

- unavailability of diesel generators (DG) providing power supply to other safety systems in case of loss of other in-house and external power supply sources,
- unavailability of primary circuit high pressure (HP) make-up pumps – these pumps are designed to cool the reactor core in case of coolant leakage from the primary circuit,
- unavailability of supply system for steam generators (SHNČ a HNČ) – SHNČ and HNČ pumps provide make-up water supply on the secondary side of steam generators and thus also heat removal from the primary circuit during abnormal operational conditions and under emergency conditions.

The unavailability factors are low, which proves a very high level of readiness of the safety systems for activation, if necessary (in the event of failure or emergency condition).

Table 5: Unavailability factors of selected safety systems for NI Units in SR

2021	EBO3	EBO4	EMO1	EMO2
Unavailability of DG	2.71E-03	4.97E-04	0	2.52E-04
Unavailability of HP	7.30E-04	5.27E-04	1.98E-03	2.57E-04
Unavailability of SHNČ+HNČ	0	2.10E-04	2.50E-04	1.95E-03

#### Tightness of barriers:

This indicator monitors the tightness of the fuel cell cladding in the reactor and the tightness of the hermetic compartments, forming barrier against the leakage of radioactive substances in the event of accidents. The values of these indicators are good and stable, meet the L&C criteria, and show an improvement compared to previous years.

The evaluation of nuclear safety indicators for 2021, together with the results of the inspections allow to state that the nuclear safety of the NPPs in operation in the Slovak Republic is at a high level.

#### a) BOHUNICE V-2 NUCLEAR POWER PLANT

Standard, planned and unplanned inspection and evaluation activities associated with day-to-day operations were carried out at both operating units in 2021. As part of its activities, the Authority monitored the implementation of the tasks arising from the ageing management programme and a number of design modifications were approved with the intention of improving the safety level of the NI.

The power plant had two planned outages for refuelling (GO). At Unit 3, from 19 June until 8 July 2021, and at Unit 4 from 17 May until 8 June 2021. Compared to the schedule, at Unit 3 the GO was extended by 5.53 hours and GO at Unit 4 only by 4 minutes.

#### Operational Controls

Operational controls were carried out in accordance with the annual plans of operational controls of classified equipment, submitted by the operator for approval to the ÚJD SR. The results of the operational controls showed a satisfactory condition at both Units. Within Units GO inspections were carried out focusing on conformity checks after repairs of classified equipment of reactor pressure vessels (RPV).

The operator also provides fatigue life assessment of main components and piping systems, as well as assessment of the resistance of RPV materials to brittle fracture. From the assessment carried out by the operator, neither the fatigue life nor the results of the analyses in the area of RPV embrittlement limit the life cycle of classified equipment and create a prerequisite for the long-term operation of the units. The hermetic zone tightness tests carried out have shown that the tightness of the hermetic compartments is in accordance with the requirements of the L&Cs and the operating procedures.

#### Operational Events

The number and nature of events in 2021 were within the range of normal operating failures with no particular significance for nuclear safety. The Authority recorded 7 operational events reportable to the Authority. All reported events were without significant impact on nuclear safety.

Based on the summary evaluation of safety indicators and after summarizing the results of inspections, the ÚJD SR concludes that in 2021 the operation of both units of the plant was without any serious nuclear safety deficiencies. The deficiencies identified during the inspections have been remedied and corrective actions have been taken to minimize the likelihood of their recurrence.

#### b) MOCHOVCE 1&2 NUCLEAR POWER PLANT

Standard, planned and unplanned inspection and evaluation activities associated with day-to-day operations were carried out at both operating units in 2021. In the course of the year, the inspectors of the ÚJD SR approved and subsequently checked the implementation of the measures from the Action Plan for Improving the Safety of the Units, which were adopted on the basis of the stress tests results as a lesson learned from the Fukushima-Daiichi NPP accident.

The power plant had scheduled outages for refuelling. At Unit 1 from 27 March until 24 April 2021, and at Unit 2 from 18 September until 12 October 2021. GO at Unit 1 was extended by 31.27 hours compared to the schedule and GO at Unit 2 by 155.95 hours. During the outage of Unit 1, the investment project to increase the efficiency of the unit was implemented. The extension of the Unit 2 GO was due to the need to reseal the main division plane following a failed tightness pressure test and replacement of the control rod drives.

The license holder implemented the seismic reinforcement project phase of the ESW and DGS building. As part of the upgrade of the instrumentation and control systems (I&C), a new control system of control rods for the Unit 1 reactor power was installed and the necessary repairs were carried out on Unit 2. The license holder also carried out the next stage of the seismic reinforcement project for major large size components of the primary circuit, the seismic reinforcement of the main circulation pump supports and part of the seismic reinforcement project for the pressurizer of both units. A number of design modifications have been approved and implemented with the intention of increasing the safety level of the NI. Also, a new control computer and software for the refuelling machine were installed. An algorithm of protections and interlocks of the refuelling machine for the checking of tightness of fuel cladding was



developed. The imaging units of the main unit parameters of the post-accident monitoring system were added to the I&C severe accident workstation. Within the framework of the ZÚB investment project, replacement of Unit transformers, modification of HP and LP parts of turbines, modification of turbine oil controls, including electronic regulators, was carried out during the outage on Unit 1.

The Authority has approved a number of changes to the quality documentation and design modifications with the intention of improving the safety level of the NI. In particular, it was the completion of IPR 20400, which is related to the seismic reinforcement of NI equipment and structures.

#### **Operational Controls**

Operational controls were carried out on both units in accordance with the annual plans for operational controls of the classified equipment. The results of the operational controls confirmed the satisfactory condition of the units. Inspections were carried out during the GO of units to carry out conformity checks after repairs to the classified equipment.

The operator submits annually to the ÚJD SR evaluation reports on the service life of the main components and selected important pipeline routes. The submitted reports show that the monitored parameters of all evaluated classified equipment, as well as the condition of RPV materials are well below the established limits.

The hermetic zone tightness tests carried out have shown that the tightness of the hermetic compartments complies with the requirements of the L&Cs and the operating regulations.

#### **Operational Events**

The number and nature of OEs in 2021 did not exceed the normal rate of operational failures. The ÚJD SR recorded 8 events reportable to the supervisory authority, but which did not have a significant impact on nuclear safety. The shutdown of the Unit 2 reactor with AO1 caused by the operation of the ESFAS System. On 7 June 2021, the unit was shut down by AO1 on both scram sets. The activation of the signal was caused by a fuse failure on the fuse card. The tripping of the protection was in accordance with the logic of the protections that are activated in the event of power loss to prevent failure in the event of power loss.

Based on the results of the inspection and assessment activities of the ÚJD SR, the operation of the plant was assessed as safe in 2021. The identified operational failures were of no particular significance from the nuclear safety point of view and corrective actions were taken to minimize the likelihood of their recurrence.

### **3.2 NUCLEAR POWER PLANTS UNDER CONSTRUCTION**

#### **MOCHOVCE 3&4 NUCLEAR POWER PLANT**

Preparatory work for the commissioning was underway at Mochovce NPP Unit 3. The control zone was established, neutron sources of the system for measuring the concentration of boric acid solution were installed, tests of in- and ex- reactor measurement systems were carried out. The immunity of the systems to electromagnetic interference was also tested, modifications and parametrization of the chemical diagnostic system were carried out. The selected approaches and evaluations applied during the verification of the as-built design were documented, the opinions documenting the required quality and characteristics of the installed components were specified. Regular tests of the operating systems and individual equipment were carried out in accordance with the applicable operating procedures.

As an appeal was lodged against the first-instance Decision of ÚJD SR No. 156/2021 concerning the authorization for the commissioning of Unit 3, activities were also carried out necessary for the preservation of the technology (ensuring the required chemical regime of the primary circuit).

In connection with the completion of Units 3&4 of the Mochovce NPP, the Authority carried out a number of post-installation conformity checks during 2021 to verify the compliance of the installed technological equipment with the design and the approved quality requirements. Physical separation of the electronic fire alarm system of Unit 4 was carried out, preparations for energization continued, documentation of the quality management system and quality requirements for the classified equipment were assessed in accordance with the relevant decrees.

ÚJD SR regularly inspected and evaluated the condition of the NI under construction, the quality of installation of the classified equipment, the implementation of post-installation checks of assembled technological units and their parts, as well as the course and results of individual tests.

In 2021, ÚJD SR evaluated or reviewed:

- electromagnetic compatibility tests (EMC) of Unit 3,
- statements of material specialists in terms of the quality and properties of the components used,
- certification of secondary circuit equipment and turbine hall of Unit 3,
- final Report on the readiness of Unit 3 for commissioning.

Work on the completion of MO3&4 Unit 3 is continuing. As of the end of 2021, evidence of the approaches taken and the evaluation of the extensive quality verification of selected piping parts supplies by SE, a. s. was still ongoing. The Authority's inspection verifying the evidence of the quality and required material properties of the metallurgical products used for the production of the classified equipment was also ongoing. The license holder has continued

to remedy deficiencies and punch list items identified during the functional testing of systems and equipment on an ongoing basis. The ÚJD SR inspectors carried out checks and inspections on a daily basis.

On 13 May 2021, after verifying that all technical and legislative requirements had been met, the ÚJD SR issued a first-instance Decision authorizing the commissioning of Unit 3 of the Mochovce NPP on 13 May 2021. One of the parties to the proceedings lodged an appeal against the authorization for the commissioning of Unit 3 (GLOBAL 2000). The first-instance administrative authority took a detailed look at GLOBAL 2000's arguments and did not share them. For that reason, it did not uphold the appeal and, in accordance with the Administrative Procedure Code, on 12 July 2021 referred the file to the body entitled to decide on the appeal, which is the top representative of the central government body - the Chairperson of the ÚJD SR. As of 31 December 2021, the appeal procedure concerning the commissioning of Unit 3 of the Mochovce NPP was still ongoing.

Unit 4 of NI is still in the installation stage. Functional tests of the systems, which are a prerequisite for the start of the integral tests on Unit 4, have not yet started. The unit's self-consumption power supply system is gradually being commissioned.

### 3.3 NUCLEAR POWER PLANTS IN DECOMMISSIONING

#### a) BOHUNICE A-1 NUCLEAR POWER PLANT

In 2021, the implementation of 3<sup>rd</sup> and 4<sup>th</sup> decommissioning stages continued in accordance with the ÚJD SR Decision No. 369/2016, which issued permits for both stages at the same time in a single permitting procedure. The work associated with the above decommissioning stages is planned until the end of 2024 and focuses on the continued treatment of liquid RAW, sludge from the long-term storage and the long-term storage casings for SNF. The license holder continued to implement activities related to the decommissioning of the original, non-functional and disused technological systems of external facilities and technological facilities of the main production units of the reactor hall and intermediate engine room. During 2021, this mainly involved the decommissioning of the cooling loops and section valves of the primary circuit, the shear module of the Long Term Storage (LTS) Casing Processing Facility and Steam Generators (SG) 3 and 4. After completion of this work the final 5<sup>th</sup> decommissioning stage is scheduled for completion in 2033.

During the year, the Authority reviewed documentation related to the reconstruction of the HVAC system and the special sewerage system in the main production unit, as well as documentation for the construction of a new liquid RAW pumping system.

The planned inspections were aimed at checking compliance with nuclear safety conditions and regulatory requirements during decommissioning of the plant and RAW management. An inspection was carried out to check compliance of the activities performed during the production, collection, sorting and handling of RAW from the decommissioning process of SG 3 and 4 with the legislative requirements.

The decommissioning of the plant in 2021 was carried out according to the plan for 3<sup>rd</sup> and 4<sup>th</sup> decommissioning stage. After summarizing the results of the inspections and based on a summary assessment of safety indicators, the ÚJD SR concludes that the activities were carried out without serious deficiencies in the field of nuclear safety.

#### b) BOHUNICE V-1 NUCLEAR POWER PLANT

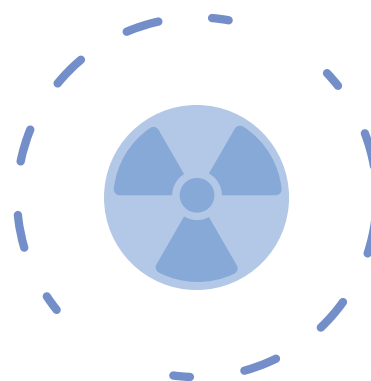
By Decision No. 900/2014, the Authority granted JAVYS, a. s., a permit for 2<sup>nd</sup> stage of the decommissioning of the power plant and at the same time a permit for the management of RAW and for the management of NM during 2<sup>nd</sup> stage of the decommissioning. The permit entered into force on 1 January 2015. 2<sup>nd</sup> stage mainly includes the decommissioning of the main production unit, the auxiliary plant building and the remaining auxiliary facilities. The most important activities are the dismantling of the reactors, the dismantling of the primary circuit equipment and the dismantling of other equipment inside and outside the controlled zone, their decontamination and radiation control.

In 2021, the ÚJD SR assessed the documentation related mainly to the continuation of dismantling and fragmentation of activated and contaminated components of the primary circuit at individual wet and dry fragmentation sites. Also assessed were the subsequent decontamination activities of the metallic RAMs for further processing or release into the environment.

The finalization of the 2<sup>nd</sup> decommissioning stage of EBO V-1 is expected by 2025 according to the submitted documentation, with the final state of the site at the end of the 2<sup>nd</sup> stage being the release of the site for limited use. After final inspection, the site will be released from the operation of the Atomic Act.

The planned inspections were aimed at checking the compliance of the decommissioning with the status described in the 2<sup>nd</sup> decommissioning stage plan and at checking the compliance with the nuclear safety conditions and regulatory requirements during the fragmentation of the RPV and the reactor internals.

The decommissioning of the plant was carried out in 2021 according to the 2<sup>nd</sup> decommissioning stage plan. ÚJD SR did not record any operational events with a particular impact on nuclear safety.





### 3.4 OTHER NUCLEAR INSTALLATIONS

#### a) INTERIM SPENT FUEL STORAGE FACILITY BOHUNICE (MSVP)

SNF from EBO V-1 (discontinued production of SNF), EBO V-2 and EMO1&2, are temporarily stored at MSVP in Jaslovské Bohunice. The fuel is stored in pools filled with demineralized water. As of 31 December 2021, the MSVP was filled to approximately 93 % of its total capacity. In 2021, the construction of the dry part of the interim storage facility has been started, which will be able to store 10,100 assemblies in dry form. These assemblies will be stored in special packaging units cooled by natural air circulation.

During the year, the evaluation activity was focused on assessing the status of operational controls of the structural and technological parts and systems of the MSVP and stored SNF.

As part of the inspection activities, two inspections of the storage of SNF were carried out at the MSVP. The aim of the inspections was to check compliance with the L&Cs and the operating procedures for the operation of the individual facilities, as well as the preparedness of the operating personnel in the event of an undesirable condition. No violation of nuclear safety conditions or operating procedures was found in any of the cases. The operating staff demonstrated a high level of preparedness and knowledge and procedures in the event of abnormal operation.

Based on the results of inspections, the operation of MSVP in 2021 was assessed as safe.

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

TSÚ RAO includes two bituminisation lines, the Bohunice Radioactive Waste Treatment Centre (BSC RAO), a fragmentation plant, a large capacity decontamination plant, a workplace for the treatment of used air filters, a wastewater treatment plant and RAW storage facilities. The bituminisation lines are designed to treat radioactive concentrates from NPP operations into 200-litre drums, which are loaded into fibre-concrete containers (FCCs) before final disposal. Part of the treatment technology of the bituminous lines is a discontinuous bituminisation line (DBL), which is used to fix the sorbents into the bitumen matrix. The BSC RAO serves as a main facility for the final treatment of RAW before disposal in the National Radioactive Waste Repository in Mochovce (RÚ RAO).

In addition to cementation, incineration, fragmentation, high-pressure compacting and concentration enhancement by evaporation are also used for the treatment and conditioning of RAW. The resulting products of the treatment and conditioning of the RAW are placed in FCCs which comply with the conditions for disposal in the RÚ RAO.

In 2021, the project “Optimization of RAW incineration capacities” continued. The incineration capacities will be optimized by completing a plant designed for volume and mass reduction of RAW by incineration, which will operate on the principle of modern incineration plants and the emissions will comply with the permitted emission values in the EU and in the Slovak Republic. A local survey was carried out, together with a site visit, and the authority issued a permit for early occupation. At the same time, the ÚJD SR issued the relevant Decision for incineration facilities in the procedure under the Atomic Act, thus creating the conditions for the preparation of the facility for the active comprehensive testing.

The construction of a facility for the remelting of metallic RAW from the decommissioning of EBO A-1 and EBO V-1 also continued. The purpose of the remelting facility is to achieve maximum release of metallic materials into the environment and minimize the RAW that is intended for final disposal in the RÚ RAO. During 2021, the installation of the systems and components of this facility was completed and a programme of tests in inactive conditions was carried out and successfully completed. Subsequently, after assessment of the submitted documentation, the ÚJD SR granted approval for the commissioning of the facility.

In connection with the implementation of the project “Modification of the discharge of contaminated water from the MSVP”, work continued to create new storage capacity for the pumping and storage of water from the MSVP pools. In 2021, the civil works were completed and the inactive pre-complex testing was successfully carried out.

The inspectors continuously checked the current state of the above-mentioned facilities and verified compliance with the conditions legislative, so that the implemented activities are aimed at ensuring their further safe operation.

Based on the results of inspections, in 2021 the operation of TSÚ RAO was assessed as safe.

#### c) NATIONAL RAW REPOSITORY MOCHOVCE (RÚ RAO)

RÚ RAO is intended for the disposal of low-level radioactive waste (LRAW) and very low-level radioactive waste (VLRW) from the operation and decommissioning of NIs. Disposal of LRAW to the FCCs in the second double-row was standard. In 2021, 408 FCCs were disposed.

In 2021 the Authority issued a decision approving the implementation of the overlay of the filled second storage lane for the VLRW and the relocation of the shed over the third storage lane. This decision also approved related changes to the RÚ RAO documentation, such as changes to the Pre-operational Safety Report (POSAR), the Technological Operating Procedure and the repository monitoring plan. The ÚJD SR also issued a decision by which the modifications to the L&Cs resulting from a change in the organizational structure of the license were approved.

The inspection activity was aimed at checking the implementation of corrective actions and safety improvements resulting from the periodic nuclear safety review carried out in the previous period.

Based on inspection activities in 2021, it is possible to assess the operation of the RÚ RAO as safe, with negligible impact on the environment.

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

The purpose of the FS KRAO facility is the final treatment and conditioning of liquid RAW (radioactive concentrates, saturated sorbents and sludges) produced in EMO1&2, some types of solid RAW from the operation of the units of the above-mentioned power plant and conditioning of treated solid RAW from other NIs. The capacity of the technological lines far exceeds the production of RAW from the Mochovce nuclear units. FS KRAO uses technologies for treatment of radioactive concentrates by bituminisation in the film rotor evaporator and thickening in the concentration evaporator. Discontinuous bituminisation plant is used to fix radioactive sorbents. The cementation line then conditions such treated RAW into FCCs, which are then disposed in RÚ RAO.

The operation of the FS KRAO in 2021 consisted mainly of the import of RAW from the Bohunice site and its treatment by cementation to the FCCs. On the basis of the assessment of the submitted documentation, the ÚJD SR issued decisions for this NI with approval for the implementation of changes in the L&Cs, the POSAR and in the conceptual decommissioning plan.

The inspection activity at the FS KRAO was focused on the control of compliance with nuclear safety conditions in RAW management and also on the control of the method of sampling and archiving of samples of treated RAW.

Based on the results of inspections, in 2021 the operation of FS KRAO was assessed as safe.

#### **e) INTEGRAL RAW STORAGE FACILITY (IS RAO)**

The facility is intended for long-term storage of RAW from NPP decommissioning. In addition, it is used for the temporary storage of intermediate RAW until a decrease in radioactivity over time allows their release into the environment. By Decision No. 423/2017, the ÚJD SR issued a permit for the operation of the IS RAO. In 2020, the Authority issued Decision No. 330/2020, permitting change in the use of IS RAO. This change consisted of changing the originally approved activity inventory of  $8.41 \times 10^{14}$  Bq to a designed inventory of  $1 \times 10^{18}$  Bq. The Decision was challenged by an appeal, which was subsequently dismissed at second instance and Decision No. 330/2020 upheld.

During 2021, RAW from the decommissioning projects of EBO V-1 and EBO A-1 was gradually received into the facility. The ÚJD SR continuously assessed the documentation related to the changes to the L&Cs, the conceptual decommissioning plan, the physical protection plan and the operating procedures, issuing consent decisions in the relevant administrative procedures.

The inspection activity was aimed at checking the way RAW is received for storage and the condition of the packaging used in the storage facility.

Based on the results of inspections, in 2021 the operation of IS RAO was assessed as safe.

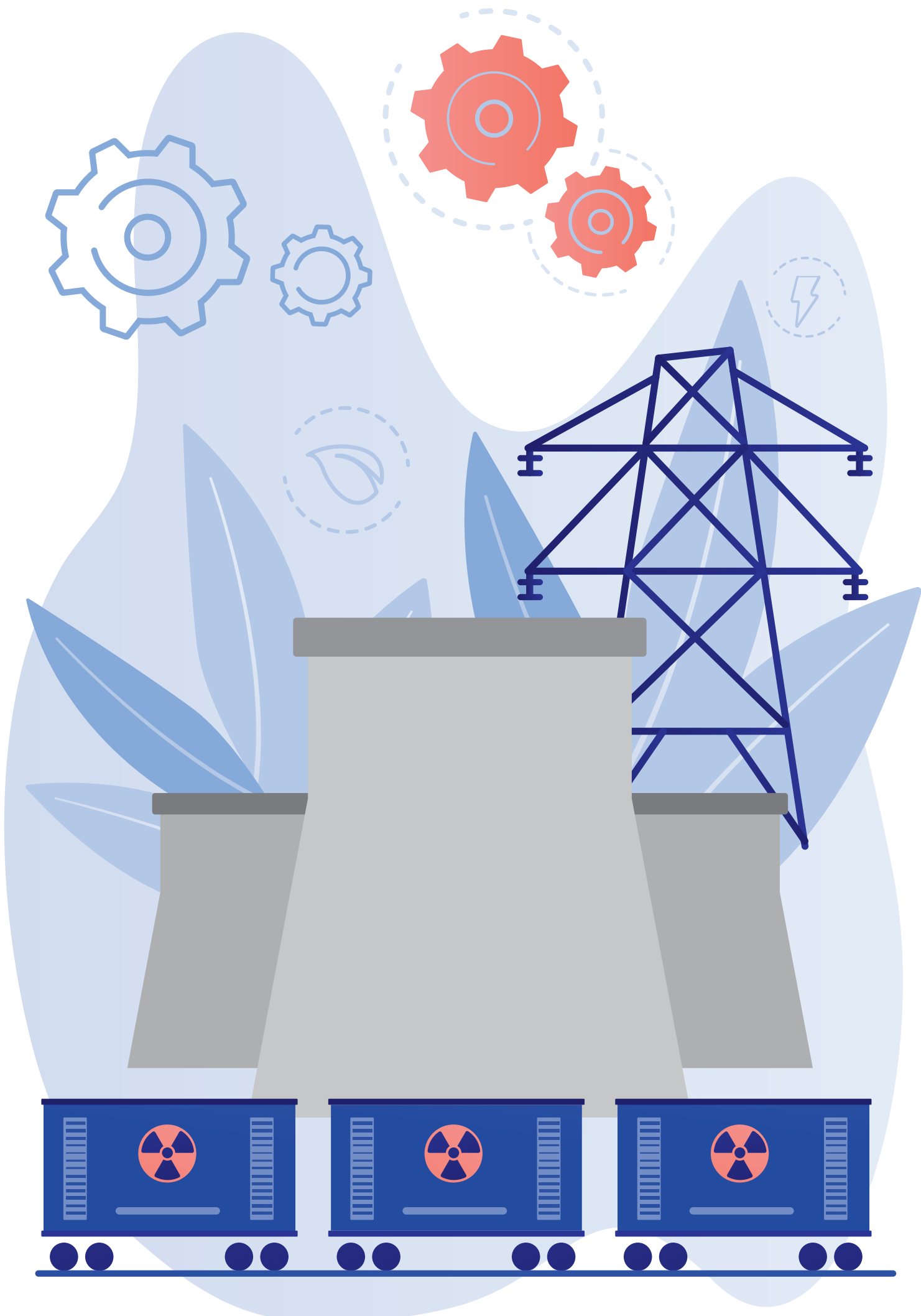
#### **f) RADIOACTIVE WASTE SHIPMENTS**

By continuous type-approval of transport equipment, issuance of transport permits and approval of international shipments in accordance with Council Directive 2006/117/Euratom on the supervision and control during shipments of RAW and SNF, the ÚJD SR created conditions for maintaining a functioning and safe system in order to ensure the necessary RAW shipments between individual technologies and NIs, as well as imports of RAW for treatment at the TSÚ RAO treatment lines and return shipments of products to the countries of origin of the RAW.

Specifically, in 2021, based on applications and after assessing the submitted documentation, ÚJD SR issued to JAVYS, a. s., permits for intra-area road transport of RAM in the PKI/DOW and PK/SK transport facilities, as well as a permit for combined (rail and road) transport of FCCs to the repository. At the same time, the 20' ISO container for the transport of RAM for Type 2 industrial shipment conditions, and the PK/SK2 container for the transport of RAM for Type A shipment conditions were type-approved. DMS, s. r. o., was authorized by the Authority for the carriage of RAM by road in a transport device of type 20' ISO container.

Inspections in the field of RAW shipments were focused on checking the validity of permits, the correctness of the accompanying documentation, the records of shipped RAW and the way the limit values for selected transport safety parameters were met.

Based on the results of the Authority's inspections, the RAW shipments area was assessed as safe in 2021. The RAW transports were carried out in accordance with the shipment plans and in accordance with the ÚJD SR Decree No. 57/2006. All RAW shipments were notified prior to shipments and subsequently evaluated.



# 4 NUCLEAR MATERIALS

## 4.1 NUCLEAR MATERIALS

The Slovak Republic is bound to accept the NM safeguards by the Treaty on the Non-Proliferation of Nuclear Weapons and the resulting Agreement on the Implementation of Article III, paragraphs 1 and 4, of the Treaty on the Non-Proliferation of Nuclear Weapons and its Additional Protocol. At the same time, the acceptance of the NM safeguards is the first essential step towards the peaceful uses of nuclear energy. An important instrument in the field of safeguards is the State System for the Registration and Control of NM, which is maintained by the Authority in accordance with the Atomic Act.

The ÚJD SR is responsible for the performance of supervisory activities in the field of NM management, accounting and control. In the Slovak Republic, NMs may be used only for peaceful purposes and in accordance with a license issued by the ÚJD SR only to those applicants who demonstrate the capability to manage NMs in accordance with the applicable legislation and international obligations.

In addition to the requirements of the NM Safeguards Implementation Agreement and its Additional Protocol, the Slovak Republic is also bound by the requirements of EU legislation stemming from the Euratom Treaty and related legislation, such as Commission Regulation (Euratom) No. 302/2005 on the application of the Euratom Safeguards Scheme. Also, UN Security Council Resolution 1540/2004 commits UN Member States to take transparent measures to enhance non-proliferation control in the field of nuclear energy use. These measures are aimed at preventing illicit trafficking of NM and other nuclear items.

### Registration and control of nuclear materials

The purpose of the State system of registration and control of NM in the Slovak Republic is to keep records of all NMs declared in the territory of the Slovak Republic, to confirm the consistency between the declared data and the actual status, to detect the loss of NM, to provide information that could lead to the recovery of missing NM, to prevent unauthorized use of NM, to cooperate in the detection of unauthorized use of NM and to provide up-to-date information on the number and location of NMs in the Slovak Republic. The accuracy of the data held in the national system for the registration of NMs shall be verified by inspections.

The basis for independent verification of NMs on the territory of the Slovak Republic by ÚJD SR, IAEA and Euratom inspectors is an

effective system of registration and control of NMs. This verification confirms that the NMs are being used as declared and that they have not been diverted for non-peaceful purposes.

Since 1 September 2009, inspection activities in the area of NM registration and control have been carried out under the Integrated Safeguards regime, which is an optimal and efficient combination of all safeguard activities carried out in accordance with the legal framework. In 2020, the „State Level Approach“ concept for the SR was approved. The concept is the next level of the IAEA's approach, in which the Agency considers and evaluates a wide range of information about a state's nuclear capabilities and tailors the results of that evaluation to the safeguards procedures applied in that state. Implementation of this approach will allow the IAEA to better allocate resources and focus its efforts on States with any suspicion related to NM safeguards.

The Authority carried out a total of 41 inspections in 2021 as part of its inspections in the field of NM registration and control. Of these, 10 inspections were carried out at the Bohunice site in the presence of IAEA and Euratom inspectors and 8 inspections at the Mochovce site. At holders of permits for the management of NM outside the NI, 8 inspections were carried out in the presence of Euratom inspector. The remaining inspections were carried out as separate inspections of the ÚJD SR.

The activities of the Authority also include the control and processing of the registration reports sent to the ÚJD SR by the license holders. These are entered into the national NM registration system, and the accuracy of the data is also checked. The ÚJD SR is responsible for keeping records of NM in the area of WSXZ material balance. As of 31 December 2021, the material balance consisted of 40 holders of permits for the management of NM outside the NI, of which three holders of the respective authorization did not have any NM in their records as of that date. For this material balance area, the ÚJD SR sends monthly registration reports to Euratom.

In 2021, the ÚJD SR also cooperated in the process of determining the method of future implementation of safeguards on NM within the framework of the project for the completion of storage capacities for SNF. Furthermore, the ÚJD SR actively cooperated with organizations that found NM in their premises from the past activities of these companies in the framework of the registration and control of NM. These were mainly chemical compounds containing natural uranium or thorium. The presence of NM in the items found was verified during international inspections.

Within its remit, the Authority is also responsible for the timely transmission to Euratom and the IAEA of the reports prepared in accordance with the requirements of Article 2 of the Additional Protocol to the Tripartite Safeguards Agreement. In total, the Authority sent 11 such reports in 2021. These reports are further confirmation of the fact that only activities related to the peaceful uses of nuclear energy are carried out throughout the territory of the Slovak Republic and that non-proliferation commitments are respected.

In 2021, pursuant to Section 5 part 2 (n) of the Atomic Act, the Authority issued permits for the management of NM outside the NI.

Based on the results of the inspections and audits of the registration and operational records of the license holders, it can be concluded that in 2021, NM in the Slovak Republic were used only for peaceful purposes, the Slovak Republic is fully complying with its international obligations in the field of safeguards on NM and the data in the state system of registration and control of NM are in full compliance with the Euratom and IAEA data.

#### **Shipments of Nuclear Materials**

Supervisory activities to ensure nuclear safety during NM shipments were carried out in accordance with the Atomic Act, Decree No. 57/2006, as amended by Decree No. 105/2016, and in accordance with international standards and recommendations. During the period under review, shipments of fresh nuclear fuel (FNF) from the Russian Federation to the Bohunice NPP and the Mochovce NPP took place. The FNF was transported by combined (air and road) transport via the trans-shipment airport. In 2021, the shipments of SNF from EBO V-2 units as well as SNF from EMO1&2 to MSVP were also carried out. In addition to the license holders and the Authority, the transport involved the Slovak Police, the Civil Protection Office of the Ministry of Interior, the Fire and Rescue Corps, the Slovak Railways and others. Nuclear safety and physical protection were ensured during transport in accordance with the legislation in force.

In 2021, the Authority's inspectors carried out a total of 8 inspections of all transports of FNF and SNF. During inspections, the inspectors found no serious deficiencies.

#### **Illicit handling of nuclear and radioactive materials**

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

Cooperation with the US under the Joint Slovak and US Government Action Plan to Combat Illicit Handling of NM, RAM and Related Technologies continues. Within the framework of this cooperation,

the ÚJD SR experts participate in conferences, workshops, courses and joint exercises are organized. Information exchange is an important part of the cooperation. The Authority ensures the exchange of information at international level in the Incident and Trafficking Database, which is operated by the IAEA. Currently, 140 States from all over the world, including Slovakia, contribute to this database. Timely exchange of information contributes to increasing the effectiveness of the fight against illicit trafficking in NM.

#### **Inspections of fresh nuclear fuel and spent nuclear fuel storage**

In 2021, planned inspections were carried out to check the storage of FNF and SNF at the NPPs. The FNF is stored in the fresh fuel storage in the main production unit of the plant. SNF is stored in the spent fuel pool at the reactors. This fuel is stored there for as long as it can be transported to the MSVP, which is between 3 and 7 years. A total of 6 inspections were performed at NPPs Bohunice V-2, Mochovce 1&2 and Mochovce 3&4. No serious deficiencies were found at Bohunice and Mochovce NPPs and the operation of the FNF storage and SNF pools was assessed as safe in accordance with the requirements of the Atomic Act, the L&Cs and the relevant regulations. No spent fuel is yet present in MO3&4. The fresh fuel is checked and ready for loading into the reactor at Unit 3 of the Mochovce NPP.

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

Physical protection consists of a set of technical, regime or organizational measures necessary to prevent and secure unauthorized activities with the NI, NM, special materials and equipment when handling RAW, SNF, transporting RAM, as well as unauthorized intrusion into the NI and carrying out sabotage.

The obligations of the Slovak Republic in the field of physical protection of nuclear material result from accession to the Convention on the Physical Protection of Nuclear Material (INFCIRC 274/rev.1), which was signed by the Government of the Czechoslovak Socialist Republic on 8 February 1987. In 2005, the Amendment to the Convention on the Physical Protection of Nuclear Material was adopted in Vienna. The National Council of the Slovak Republic gave its consent to the Amendment by Resolution No. 522 of 19 September 2007. The President of the Slovak Republic ratified the Amendment on 19 October 2007. The instrument of ratification was deposited with the Depositary, the Director General of the IAEA, on 7 March 2013. The Amendment to the Convention entered into force on 8 May 2016.

According to the Amendment to the Convention on the Physical Protection of Nuclear Material, one of the fundamental principles is Principle G: „Threat“. This principle states that „Physical protection by a State should be based on the State's current threat assessment“. Resolution of the Government of the Slovak Republic No. 229/2009 approved the „Proposal for the determination of the threat by nuclear installations and to nuclear installations and nuclear materials in the framework of the design threat to the state“. This document is the

initial basis for the determination of the design threat to NIs. On the basis of a Government Resolution, a permanent inter-ministerial working group was established by the Chairperson of the ÚJD SR to update the threat designation by nuclear installations and to nuclear installations and nuclear materials within the framework of the design threat to the State, which continued to work actively also in 2021. By Resolution of the Security Council of the Slovak Republic No. 726 of 6 May 2021, the Security Council took note of the update of the material „Determination of the threat by nuclear installations and to nuclear installations and nuclear materials in the framework of the design threat to the state“. In addition to the update of the material in question, the group dealt with the reassessment of the threat, the operational handling of situations arising from events, either in the Slovak Republic or abroad, which have had an impact on the physical protection of NMs and NIs.

The requirements for the physical protection of NMs and NIs for the Slovak Republic are defined in the Atomic Act, in the ÚJD SR Decree No. 51/2006, which establishes details on the requirements for ensuring physical protection, and the requirements for physical protection during transport of radioactive materials in the ÚJD SR Decree No. 57/2006, which establishes details on the requirements during transport of radioactive materials, as amended by the ÚJD SR Decree No. 105/2016.

Supervisory activities of the Authority in this area were focused on the control of the operation of technical physical protection systems, the level of performance of regime protection at SE-EBO, SE-EMO, JAVYS, a. s., and at MO3&4, as well as on the provision of physical protection during the transportation of FNF and SNF. Physical protection of the premises of the license holders was provided throughout the period under review by private security services and the Slovak Police in accordance with the approved physical protection plans and the Authority-approved changes to them.

In 2021, the Authority approved several changes to the physical protection plans at facilities operated by JAVYS, a. s., primarily related to the completion of the MSVP storage capacity and the downgrading of the EBO V-1 category. In 2021, the physical protection at the RÚ RAO continued to be ensured in accordance with the approved documents „Physical Protection Plan for the RÚ RAO Mochovce“ and its amendments. The provision of physical protection at the SE-EMO site was in accordance with the approved SE-EMO Physical Protection Plan and its Authority-approved amendments. Also, inspection activities in 2021 were focused on the provision of physical protection in connection with the commissioning of Unit 3 of MO3&4. Furthermore, the Authority assessed and approved the physical protection plans for the shipments of category RAM III and for the shipment of SNF from SE-EMO to the MSVP, which took place in August 2021.

Physical protection exercises were carried out at the sites with the participation of representatives of the Authority to test the effectiveness of the system. The exercises focused on the response and coordination of the activities of all physical protection services

to the situation. The readiness of the license holder's personnel, operators of the physical protection control centers, physical protection services (private security services and the SR Police) to react to the simulated situation was checked, as well as the verification of the system of connection and communication between the individual physical protection services.

In the course of 2021, the ÚJD SR carried out inspections focused on the physical protection of NIs and NMs and on the physical protection during shipments of FNF and SNF. Inspection activities focused on the regime protection, the manner of inspecting vehicle entrances and exits, the comparison of the condition of the technical means of the physical protection system with the legislation in force and with the condition agreed in the documentation for individual NIs.

The Authority carried out 14 inspections during the year, focusing on the physical protection of NI and NM, and inspections were also carried out to ensure physical protection during RAM shipments. In 2021, the Authority also carried out 2 inspections focusing on nuclear security culture. The concept of nuclear security culture is one of the fundamental principles set out in the Amendment to the Convention on the Physical Protection of Nuclear Material, which states that a nuclear security culture should be a priority for all organizations involved in the implementation of physical protection, and that it should be developed and maintained in order to ensure its effective implementation throughout the organization.

#### Cyber security

Cyber security means the protection of the confidentiality, integrity and availability of data, computer systems and their processes/networks, as well as their ability to resist unauthorized or malicious actions that could compromise the confidentiality, integrity or availability of stored, transmitted or processed data or related services provided or accessed through these networks and information systems.

In view of the obligations of the Slovak Republic arising from the Convention on the Physical Protection of Nuclear Material and its Amendment, and given the fact that the cyber security of the NIs is part of the nuclear security, cyber security inspections are also carried out by the Authority. In 2021, 3 cybersecurity inspections were carried out at license holders.



# 5 COMPETENCE OF A BUILDING AUTHORITY

ÚJD SR performs the competence of the building authority according to the Building Act for constructions of the NIs, constructions related to the NIs and located in the area bounded by the boundaries of the NI. This means permitting of constructions, changes to constructions, maintenance works, issuing decisions on the use of constructions and removal of constructions.

The most significant activities in 2021 were the issuance of building and approval permits related to the improvement of nuclear safety (the large IPR 20400 project for seismic reinforcement of NPP equipment and structures) and the modification of RAW treatment technologies for JAVYS, a. s.





# 6 EMERGENCY PLANNING AND PREPAREDNESS

The term Emergency Preparedness refers to the ability of the license holder and public authorities to activate and implement activities that lead to the detection and effective management of incidents and accidents at the NI or in the transport of RAM and to the effective suppression of their potential to endanger the life and health of employees or the public, their property or the environment.

To deal with emergency situations at the NIs and to mitigate their impact on the surroundings, license holders shall draw up emergency documentation which sets out the procedure and organization of work at the individual stages of an emergency situation. The license holders for the operation of a NI shall have on-site emergency plans, which specify the composition of the emergency response organization, describe the implementation of its activities relating to the management of the emergency situation and the protection of personnel. For the facilities under construction located at the Mochovce site, a preliminary on-site emergency plan has been developed and is in force, which contains the planned measures to be taken in the NI area during its construction. In order to ensure emergency preparedness activities, such as planning and preparation of organizational, personnel and material-technical means and measures for the successful management of crisis and emergency situations according to the classified event, the holder of the authorization has established an emergency control center and other facilities dedicated to emergency preparedness. The license holder's personnel shall participate in annual exercises and training to acquire and maintain skills in emergency operations, with exercises involving the entire emergency response organization being conducted at least once a year.

In 2021, on the basis of legislative requirements, in addition to shift drills, inter-operability exercises took place at both sites (Mochovce and Bohunice) in cooperation with the Trnava District Office, the Nitra District Office, the Ministry of the Interior, the Ministry of Health, the OS SR, the ÚVZ SR.

Applicants for permits to transport FNF, SNF, NM and RAW shall prepare emergency traffic regulations (HDPs). One of the objectives of the HDPs is to ensure preventive and protective measures in the event of an accident or incident during transport. The ÚJD SR assesses the HDP under its competence, which is subsequently approved by the Ministry of Transport and Construction of the SR. In 2021, the Authority reassessed the HDP of the RAM transport license holder (JAVYS, a. s.).

In order to ensure the protection of life, health and property of the population and the protection of the environment, the competent

state authorities shall draw up plans for the protection of the population. These documents shall contain a description of the protective measures against the effects of ionizing radiation, the tasks involved in their implementation, other technical information and various summaries necessary to ensure urgent and rapid decision-making. Furthermore, these plans describe the implementation of measures for the protection of the population in the event of an emergency occurring as a result of an accident at the NI, as well as the link to the on-site emergency plans of the holder of the NI operating license. The public protection plans shall specify the management, control, organizational and implementation mechanisms, with emphasis on ensuring the preparation of the crisis management authorities, the executive branches and the population to cope with an emergency, specifying the possible courses of action for the implementation of these tasks. In 2021, all civil protection plans were in force.

In order to ensure the receipt and transmission of notifications, announcements and other information in the event of a nuclear accident or radiation emergency (such as an incident or accident at a NI, transport of radioactive substances, seizures of RAM, loss, discovery or theft of sources of ionizing radiation) in the Slovak Republic or similar events abroad, the Authority has established a contact point, which is composed of a designated group of employees. The procedure for mutual information in the event of the occurrence or detection of an event involving sources of ionizing radiation, the obligation to inform the public and the international community of significant events related to the use of sources of ionizing radiation, as well as the criteria for informing the contact point, shall be regulated by guidance issued by the Authority. In the event of an incident at a NI on the territory of the Slovak Republic or an incident abroad with a transboundary impact, the ÚJD SR is also the competent authority for requesting assistance from the IAEA.

For the independent assessment of events at the NPP, the NPP uses the Emergency Response Centre (ERC), which in the event of an accident or incident provides an assessment of its course and possible consequences, its severity in terms of its possible impact on the surrounding area and the preparation of proposals for recommended urgent measures to protect the population at an early stage. These activities are regularly practiced in the ERC by the Emergency Staff (HS) of the ÚJD SR, which is composed of employees of the Authority. Emergency exercises are also attended by the representatives of the ÚVZ SR. The HS, supported by software prognostic evaluation tools, provides a forecast of the evolution of the event with recommended actions to eliminate or mitigate the consequences of the accident or





incident. Members of the HS participate in regular training of expert groups on an annual basis to learn how to use the emergency documentation and software tools.

In 2021, a special training of the HS Information Group was also conducted, based on the simulation of events at the Bohunice site and focused on crisis communication. The response to increased media and public interest was practiced, while the topic of the response included information published on social networks and the disinformation scene. The exercise was conducted by an independent referee with experience in crisis communications and observed by external assessors who offered an objective external view of the functioning of internal communications processes in the HS.

The Authority's inspectors also focus annually on the emergency preparedness. Inspections of license holders in 2021 focused on inspections of equipment and resources for emergency preparedness, inspections of the conduct of shift-, site- and interoperability drills, as well as inspections of monitoring equipment in the vicinity of the NI.

Inspections of RAM license holders were also carried out, reviewing the training system, the conduct of HDP exercise and related documentation.

The ERC has been involved in a number of domestic and international exercises in 2021. The HS practiced its activities in two interoperability exercises at both Bohunice and Mochovce NIs and in shift exercises of NI operations and exercises of other license holders. Members of the external unit, which assists in the design of protective measures, also participated in the HS exercises. In the framework of expanding cooperation with the Authority, observers from the Ministry of Defence of the SR also participated in some of the exercises. Among international exercises, in 2021 the ERC again participated in the ConvEx series of exercises organized by the IAEA, as well as the Ecurie exercise organized by the EC. The host country for the exercises was the United Arab Emirates, and the purpose of the exercises was to test the countries' interoperability in the event of a release of radioactive substances from the NI.

# 7 INTERNATIONAL ACTIVITIES

## 7.1 EUROPEAN AFFAIRS

### Cooperation within the European Atomic Energy Community (Euratom)

In the context of Slovakia's membership in the EU and the European Atomic Energy Community (Euratom), the Authority carried out the tasks and fulfilled the obligations arising from this membership. Activities in 2021 were significantly affected by the COVID. Representatives of the ÚJD SR participated, mainly virtually or in writing (per rollam), in the EU Council working groups and in the EC working committees and groups, where they presented the interests of the Slovak Republic as experts in areas related to the Authority's competences, in particular in relation to the obligations and activities arising from the Treaty establishing the European Atomic Energy Community.

One of the most important working groups of the EU Council related to nuclear safety is the Working Party on Atomic Questions (WPAQ). Key topics of the WPAQ deliberations were e.g. the CPPNM Review Conference or the merger of the 8th and 9th Review Meetings on the national reports under the Convention on Nuclear Safety.

In 2021, three hybrid plenary meetings of the European Nuclear Safety Regulators Group (ENSREG) were held under the Slovak chairmanship. ENSREG, as an advisory body to the EC, discussed the procedure for the preparation of the second topical review under Council Directive 2014/87/Euratom on the topic of fire safety of NIs. The Group further discussed the work of the Working Groups, the status of Stress Tests in third countries, and prepared for a conference on nuclear safety to be held in 2022. Other activities within ENSREG in 2021 were mainly focused on the continuation of the monitoring of the measures taken and on the implementation of the recommendations resulting from the stress tests (Action Plan) carried out after the Fukushima nuclear accident. An up-to-date report on the implementation of the Action Plan is published on the website of the ÚJD SR, as well as on the ENSREG website.

In August 2021, the Slovak Republic submitted to the EC its third report on the implementation of the provisions of Council Directive 2011/70/Euratom establishing a Community framework for the responsible and safe management of SNF and RAW. The report is also published on the ÚJD SR website.

During 2021, the Inter-ministerial Coordination Group for the coordination of tasks arising from the articles of the Euratom Treaty, which was established at the ÚJD SR on the basis of the Slovak Government Resolution No. 442/2006, continued its activities. As a result of the restrictions adopted reflecting the epidemiological situation, two online meetings were organized in spring and autumn. The group discussed topical issues such as the EU taxonomy in relation to nuclear energy and the planning of ARTEMIS missions.

### Cooperation with the European Regulators (WENRA)

WENRA is an independent association of European national nuclear regulators dedicated to the development, implementation and dissemination of harmonized model levels of nuclear safety. WENRA's mission is to work together with regulators to continuously improve and harmonize the safety of NIs in the EU, Switzerland and other WENRA member countries. Currently, the association has 18 full members, including the ÚJD SR. In addition to the full members, the regulatory authorities of other countries also participate in the activities of WENRA (with the status of associate member or observer). The ÚJD SR actively works in two working groups (WGs) - WG on Harmonization of Requirements for the Safety of Nuclear Reactors and WG on Harmonization of Requirements for the Safety of Radioactive Waste Management and Decommissioning of Nuclear Power Plants.







**IAEA**  
International Atomic Energy Agency

## 7.2 COOPERATION WITH THE IAEA

The IAEA plays the most important role in the field of international cooperation, given its political, technical and international importance and the wide range of possibilities for technical cooperation and assistance. The IAEA Board of Governors meetings held in March, June, September and November 2021 were also affected by the current pandemic situation. The meetings were held by online conferencing or in a hybrid format with limited physical attendance, and the participation of the Slovak delegation was ensured through the representative of the ÚJD SR at the Permanent Mission to the International Organizations in Vienna. The IAEA Board of Governors Programme and Budget Committee and the Technical Assistance and Cooperation Committee also met in 2021. The 65th Session of the IAEA General Conference was held from 20 till 24 September 2021 in a hybrid format. The participation of the Slovak delegation was also ensured in a hybrid format with limited physical participation. The Slovak delegation was led by the Chairperson of the ÚJD SR, Marta Žiaková, and consisted of representatives of the Ministry of Foreign and European Affairs, Ministry of Economy, Ministry of Health, Ministry of Environment and the ÚJD SR.

In 2021, tasks resulting from 3 national, 31 regional and 3 interregional projects were continuously implemented. Participation in workshops, training courses and meetings of IAEA Biennial Technical Cooperation projects was ensured (2020 – 2021). Events under the IAEA Technical Cooperation Programme have been carried out mainly in a virtual form. Two new national projects under the Technical Cooperation Programme were approved by the IAEA Board of Governors for the next biennium (2022 – 2023).

ÚJD SR also participates in the work of the Safety Standards Commission (SSC), whose main task is the process of preparation and assessment of new or amended safety standards. In 2021, SSC meetings were held in April and November.

During 2021, the preparation of the ARTEMIS and IRRS international peer review missions continued. Due to the ongoing pandemic, the ARTEMIS mission has been postponed to the first quarter of 2023. The IRRS mission is due to take place in September 2022 and preparations are currently underway.

For the year 2021, Slovakia's regular membership contribution to the IAEA of EUR 475,568 and USD 76,709 and the contribution to the IAEA Technical Cooperation Fund of EUR 131,650 and the National Participation Contribution of EUR 101 were paid. A one-off contribution of EUR 10,000 was also provided in 2021 to support the renovation of the IAEA Nuclear Applications Laboratories in Seibersdorf (ReNuAl2 project).



**CTBTO**  
PREPARATORY COMMISSION

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

The ÚJD SR ensures the performance of the function of the National Contact Point for the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO). Despite strong international support, the Treaty has not entered into force to date. The CTBT is currently considered one of the pillars of global nuclear disarmament.

The ÚJD SR actively participates in the process of preparation for the entry of the CTBT into force, primarily through the participation of its representatives in the meetings of the CTBTO Preparatory Commission and its WG, hosting CTBTO training courses on the territory of the Slovak Republic in the field of On-Site Inspections and supporting the training of CTBT experts and surrogate CTBT inspectors.

During the year, representatives of the ÚJD SR attended all meetings of the CTBTO Preparatory Commission and meetings of Working Group B, which deals with technical matters. All meetings were conducted in 2021 in a hybrid format.

In the first half of 2021, the Authority continued its preparatory activities for the ongoing training of CTBTO inspectors - two international field exercises „BUEs“ (Build-Up Exercises), which were originally scheduled for spring and autumn 2020 at the Lešť Training Centre in the Slovak Republic for a duration of two two-week periods, but were postponed to July 2021 due to the pandemic. As a result of the ongoing pandemic, the BUEs exercise was cancelled. The CTBTO subsequently expressed interest in holding the 24<sup>th</sup> Regional Introductory Course (RIC-24) in the Slovak Republic in 2023.

The ÚJD SR has long supported the education of experts and surrogate CTBTO inspectors and actively cooperates with the Faculty of Mathematics, Physics and Informatics of the Comenius University in Bratislava and the Slovak Academy of Sciences (SAV). On the basis of this cooperation, the SAV scientist participated during 2021 in several meetings of the CTBTO Preparatory Commission and its WG as a member of the Slovak delegation.

For the year 2021, the regular membership contribution of the Slovak Republic to the CTBTO was paid in the amount of USD 105,583 and EUR 88,922.

## 7.4 COOPERATION WITH THE OECD NUCLEAR ENERGY AGENCY (OECD/NEA)

The Authority is responsible for coordination of Slovakia's cooperation with the OECD/NEA and ensures the fulfilment of Slovakia's obligations arising from this membership.

In 2021, two meetings of the Nuclear Energy Agency Steering Committee for Nuclear Energy (SC NEA) were held online, chaired by the Chairperson of the ÚJD SR in her capacity as Chair of the SC NEA. The April meeting was also attended for the first time by a new OECD/NEA Member, namely Bulgaria. The main topic of both meetings was the 0.7 % budget increase for 2022, which was not adopted at the October meeting. This implies that the zero increase (ZNG) will be continued. During the period under review, the OECD/NEA Strategic Plan 2023-2028 was discussed and adopted at the October meeting. The OECD/NEA Secretariat reported, inter alia, on the launch of ESTER, THEMIS and webinars on breakthrough technologies.

In 2021, experts from the Slovak Republic continued to participate in the activities of the OECD/NEA Standing Technical Committees, as well as in the activities of several OECD/NEA Working and Expert Groups and joint projects (Halden Reactor Project, CODAP, CPD and THEMIS).

The assessed contributions for 2021 to OECD/NEA EUR 40,738 and NEA Databank EUR 10,882.96 were paid on time and in full.

## 7.5 FULFILLMENT OF OBLIGATIONS UNDER INTERNATIONAL CONTRACTUAL DOCUMENTS

### The Convention on Nuclear Safety

The Convention on Nuclear Safety (the Convention) was ratified by the Slovak Republic on 23 February 1995. In accordance with Article 5 of the Convention, the Slovak Republic compiled its eighth National Report, which was sent to the IAEA in August 2019. The National Report contains basic information on how the Slovak Republic complies with the provisions of the Convention. The National Report was due to be discussed at the 8<sup>th</sup> Review Meeting of the Parties to the Convention in March 2021. Due to the unfavourable pandemic situation, the meeting did not take place on the scheduled date. Following a proposal by the Presidency and a decision by the Parties to the Convention, a joint 8<sup>th</sup> and 9<sup>th</sup> Review Meeting of the Convention will be held from 20 to 31 March 2023. The 2019 National Report is available on the website of the ÚJD SR.

### The Joint Convention on the Safety of SNF Management and on the Safety of RAW Management

The Joint Convention on the Safety of Spent Nuclear Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention) entered into force on 18 June 2001. In accordance with the provisions of Article 30 of the Joint Convention, the Slovak Republic elaborated its seventh National Report, which was sent to the IAEA and other States Parties in October 2020. The present national report will be discussed at the 7<sup>th</sup> Review Meeting of the Parties to the Joint Convention, to be held from 27 June to 8 July 2022 at IAEA Headquarters. The 2020 National Report is available on the ÚJD SR website.

### The Non-Proliferation Treaty

Pursuant to 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 for the implementation of Article III (1) and (4) of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and its Additional Protocol, IAEA and Euratom inspectors have carried out inspections. In none of the cases was a violation of Slovakia's non-proliferation and safeguards obligations found. The NPT Review Conference was originally scheduled to take place in New York in 2021. Following the situation caused by COVID-19, the date of the Review Conference was postponed to 2022.

## 7.6 BILATERAL COOPERATION

Bilateral cooperation is carried out at governmental level, primarily with neighbouring countries and at the level of nuclear and radiation safety regulators. The ÚJD SR regularly organizes meetings with representatives of governmental and other partner organizations of neighbouring countries.

In 2021, due to COVID-19, the regular bilateral meetings of the senior staff of the ÚJD SR and other relevant entities for the Slovak Republic with the delegations of the Republic of Hungary, the Czech Republic, the Republic of Poland and Slovenia did not take place. A bilateral meeting between the representatives of the Slovak Republic and the Republic of Austria on issues related to the peaceful uses of nuclear energy was held online in May. In addition, three official bilateral meetings with the USA, Turkey and Argentina and two unofficial meetings with the Republic of Poland, the Czech Republic and the Republic of Hungary were held during the 65<sup>th</sup> meeting of the IAEA GC in Vienna.

During the bilateral meeting with the US, a Memorandum of Understanding between the regulatory authorities of the Slovak Republic and the US on the exchange of technical information and cooperation in the field of nuclear safety was signed. In 2021, negotiations on draft Memoranda of Understanding were also underway between the ÚJD SR and India, Morocco and Turkey.

Intensive communication with the Republic of Austria in connection with the commissioning of the Mochovce 3&4 NPP continued also in 2021. The most important activities within this communication include the finalization of the final report of the expert meetings between Slovak and Austrian experts, which were held on the basis of the final opinion of the Ministry of Environment of the SR in 2010 and concluded in 2016. Consultations between the Slovak and Austrian parties also continued, resulting in the preparation of responses to two questionnaires on emergency DGs and materials. The answers to the questionnaire on emergency DGs were processed

in 2021 and the answers to the questionnaire on materials are in the process of preparation.

Communication with other partners continued at a high level in 2021. Information was exchanged on the state of nuclear safety in national territories and issues of common interest were consulted and common positions adopted.

At the end of 2021, the ÚJD SR managed to establish communication with the State Nuclear Regulatory Inspectorate of Ukraine (SNRIU). On the basis of mutual agreements between the Prime Ministers of the two countries included in the Joint Declaration of 12 November 2021, the Authority, in cooperation with the Ministry of Economy of the SR and the Adviser to the Prime Minister of the Slovak Republic, started to develop a plan for mutual cooperation between the Slovak Republic and Ukraine in the field of nuclear safety.



# 8 PUBLIC RELATIONS

The fundamental methodological document in the framework of the Authority's external communication is the Public Communication Strategy until 2023, approved in 2019. The document defines the objective of the ÚJD SR in the field of public communication, determines the strategy and means to achieve the objective, the target groups and the principles of communication with the public. This document is directly reflected in the 2020-2021 Action Plan for the Communication of the Nuclear Safety Authority with the Public and the Media, which contains tasks, deadlines and defines responsibilities to meet the set objective.

The aim of communication with the public is to inform the domestic and foreign public about what is happening within the scope of the ÚJD SR responsibility and to build public confidence in the activities of the ÚJD SR through up-to-date, objective and comprehensible information and two-way open communication. As an objective and independent regulatory authority, the ÚJD SR continuously creates conditions for providing information to the public and the media through the press releases, news published on the Authority's website, as well as through its profile on the Facebook. The website is also available in English for the foreign public. For the Authority, the website is the main communication channel with the public, therefore the laws and regulations in the field of nuclear safety, related legislation, full texts of safety guides, the ÚJD SR decisions, as well as all administrative proceedings of the Authority are published and continuously updated on the website. The ÚJD SR through its website, and also through the open data portal [data.gov.sk](https://data.gov.sk), permanently makes available selected open data files, so-called datasets, such as all orders, contracts, invoices and the list of license holders.

In September 2021, a complete new website was made available to the general public, which, in accordance with the most up-to-date requirements of the legislation in force concerning standards for public administration information systems, provides visitors with efficient and clear access to the required information.

As communication and provision of information is one of the priorities of the ÚJD SR, the Authority allows direct contact to the public and media through a special email address: [info@ujd.gov.sk](mailto:info@ujd.gov.sk). In order to facilitate the communication of the public towards the ÚJD SR, a contact form has also been placed in the new website, through which the public can quickly and easily initiate communication with the Authority.

In 2021, ÚJD SR also answered questions from domestic and foreign media, which were mainly related to the completion and commissioning of Units 3 and 4 of the Mochovce NPP. In addition, throughout the year, the Authority issued press releases not only on the above-mentioned issues and gave interviews through the Chairperson of the ÚJD SR and senior staff on topics closely related to the Authority's activities. In connection

with the completion and commissioning of Units 3 and 4 of the Mochovce NPP, the Authority regularly informs about the individual steps not only through administrative proceedings, press releases and answers to questions from the media, but also by regularly updating the sub-page of the website devoted exclusively to completion and commissioning.

During the year, the Authority, as a central body of state administration, also responded to requests for information sent pursuant to Act No.211/2000 Coll. on Free Access to Information and on amendments to certain Acts (Freedom of Information Act), as amended. The Authority received and processed a total of 18 requests for information, of which 17 requests were processed within the statutory time limit of eight working days and one request within the extended time limit. All requests were fully processed, i.e. the requested information was made available without the application of the restriction allowed by law.

The touch-screen information kiosk, which has been operated by the Authority since 2016 and is located at the entrance to the building of the ÚJD SR in Bratislava and is accessible to the public 24 hours a day, also performs a communication function for the public. In addition to the kiosk serving as an electronic official board of the ÚJD SR, where administrative proceedings and all decisions issued by the Authority are displayed, the public also has full access to the website there. For greater clarity and easier access to information on the decision-making activities of the ÚJD SR, a section „Official Board of the ÚJD SR“ has been created on the website of the Authority, where ongoing administrative proceedings and the ÚJD SR decisions are clearly displayed.

ÚJD SR deepens public awareness of its activities and mission in order to create a favourable opinion of it as a professional and reliable regulator, which is a credible source of information, also by preparing and publishing information materials, in particular by publishing the Annual Report each year. Continued attention is paid to the comprehensibility of information to the public and the correctness of published information. At the same time, in 2021, the ÚJD SR also sought to educate the public on the peaceful and safe use of nuclear energy through the professional journal "Nuclear Energy", where it is directly represented on its editorial board and which is distributed free of charge to selected schools, libraries and institutions.

Despite the ongoing pandemic situation, communication with parliamentarians, representatives of the central government and, in particular, with local state and municipal authorities continued to be maintained in 2021, mainly through the Mochovce Regional Interest Association, the Association of Towns and Municipalities, Jaslovské Bohunice NPP Region and the Bohunice and Mochovce Civil Information Committees, with a large part of the meetings taking place online.





# 9 NUCLEAR REGULATORY AUTHORITY OF SR

## 9.1 ECONOMIC DATA

As a budget chapter, the ÚJD SR is linked to the state budget in terms of its revenues and expenditures. From 1 January 2008, the Atomic Act introduced compulsory annual contributions from license holders for the performance of state supervision over nuclear safety.

Revenue for 2021 was budgeted at EUR 9,194,000 for the Authority and the revenue budget was not amended by a budget measure during the year. Revenue actually amounted to EUR 9,405,618, of which administrative charges amounted to EUR 9,404,310 and other non-tax revenue to EUR 1,308. The expenditure limit for the year 2021 was approved for the ÚJD SR at EUR 9,327,090. Following the budgetary measures, the expenditure limit was adjusted to EUR 9,120,234. The total amount of expenditure on the activities of the ÚJD SR as at 31 December 2021 amounted to EUR 7,994,446. Of this, EUR 7,863,697 was incurred to finance current activities and EUR 130,749 was incurred for the acquisition of capital assets.

Table 6: Economic results

Item	Amount (in Euros)
<b>Limit of revenues</b>	<b>9,194,000</b>
<b>Actual revenues total</b>	<b>9,405,618</b>
of which:	
Administrative charges	9,404,310
Other non-tax revenues	1,308
<b>Limit of expenditures</b>	<b>9,120,234</b>
<b>ACTUAL EXPENDITURES TOTAL</b>	<b>7,994,446</b>
of which:	
Current expenditures	7,863,697
Capital expenditures	130,749

### Current expenditures

In the area of current expenditure, a significant share is accounted for foreign transfers, totalling EUR 1,004,401. These funds were used to pay membership fees in international organizations. Regular contributions represent two current foreign transfers to the IAEA, namely the regular membership contribution of EUR 560,383 and the contribution to the Technical Cooperation Fund of EUR 133,880. Another contribution to the IAEA was the participation contribution in the amount of EUR 11,246. In 2021, the ÚJD SR also paid Slovakia's contribution to the CTBTO in the amount of EUR 178,112. In addition, contributions to the OECD/NEA Part II programme in the amount of EUR 43,194, the contribution to the OECD/NEA/Databank Part II programme in the amount of EUR 11,106 were also paid. Under

contributions to R&D cooperation programmes, a contribution to the OECD/NEA programme PKL3 project (THEMIS) in the amount of EUR 25,250 and a contribution to the US NRC and the ÚJD SR Implementing Agreement (participation in the CSARP programme) in the amount of EUR 31,230 were paid, where members use the results of R&D programmes in improving the safety and reliability of the NIs. A financial contribution of EUR 10,000 was also paid in 2021 for the ReNuAl2 project.

*(Note: At the end of the calendar year, part of membership fees for the following year are paid in advance. The balance of the calculated membership fees shall then be paid at the beginning of the year. For this reason, the total amount paid in a calendar year may not be the same as the membership contribution to the international organization for that calendar year)*

Table 7: Foreign transfers to international organizations

Item	Amount (in Euros)
IAEA – membership fee	560,383
IAEA – Technical Cooperation Fund	133,880
IAEA – participation contribution	11,246
CTBTO – membership fee	178,112
OECD/NEA – program Part II	43,194
OECD/NEA – Databank – program Part II	11,106
OECD/NEA – PKL3 Project (THEMIS)	25,250
Implementation Agreement between US NRC and ÚJD SR (participation in CSARP program)	31,230
Financial contribution – ReNuAl2 project	10,000
<b>Total</b>	<b>1,004,401</b>

Domestic transfers amounting to EUR 60,150 were used to pay the membership fee to the non-profit organization SNUS (Slovak Nuclear Society), to compensate staff for temporary incapacity for work, for redundancy payments, severance payments and for benefits and allowances.

The necessary support for the Authority's decision-making, licensing and inspection activities is provided by expertise, opinions and analyses, for which expenditure amounting to EUR 550,586 was incurred. Expenditure of EUR 3,777,710 was spent on wage expenditure for 118 employees and EUR 1,479,041 was spent on health insurance and social security contributions.

Table 8: Current expenditures

Item	Amount (in Euros)
Foreign transfers	1,004,401
Expert opinions, assessments, analyses	550,586
Payroll (118 employees)	3,777,710
Statutory employee insurance	1,479,041
Domestic transfers	60,150
Goods and services	991,809
<b>Total</b>	<b>7,863,697</b>

An amount of EUR 991 809 was spent on the acquisition of goods and services necessary for the operation of the Authority. The basic breakdown of this expenditure follows from the economic budget classification of expenditure and its structure is shown in Table 9.

Table 9: Use of expenditures for goods and services

Items	Amount (in Euros)
Travel expenditures	13,592
Telecom and energy	71,972
Materials	165,401
Car transport	31,909
Routine and standard maintenance of the building and operating equipment	87,371
Rent for office space, garages, meeting rooms and equipment, telecommunication circuits	62,221
Services (translations, printing, cleaning, information, consultancy, equipment revision, training, advertising, catering, bank charges, contribution to the Social Fund, compensation - recreation, entertainment, etc.)	559,343
<b>Total</b>	<b>991,809</b>

#### Capital expenditures

Under the category of capital expenditure, the Authority used appropriations of EUR 130,749 for the acquisition of capital assets as follows:

Table 10: Use of capital expenditures

Item	Amount (in Euros)
Software (new website)	13,932
Purchase of SW licenses	42,752
Purchase of notebooks	3,995
Purchase of conferencing system for the meeting room	9,047
Purchase of A/C units	3,623
Communication infrastructure (servers)	57,400
<b>Total</b>	<b>130,749</b>

#### Budgetary appropriations from a separate "Donations and Grants account"

In 2021, no foreign grant funds were drawn from the separate account Donations and Grants, as these funds were mostly used for foreign business trips, which did not take place due to the COVID-19 pandemic.

Table 11: Use of appropriations

	Expenditures account	Donations and Grants account	Total (in Euros)
Current expenditures	7,863,697	0	7,863,697
Capital expenditures	130,749	0	130,749
<b>Total</b>	<b>7,994,446</b>	<b>0</b>	<b>7,994,446</b>

## 9.2 HUMAN RESOURCE MANAGEMENT AND TRAINING OF STAFF

Quality management of human resources is one of the basic prerequisites for achieving the strategic goals and objectives of the ÚJD SR and for the implementation of the approved national nuclear safety policy. Human resources management focuses in particular on transparent selection procedures, flexible remuneration of employees, as well as training of employees in order to develop human potential and create an atmosphere motivating employees to fulfil the objectives and challenging tasks of the Authority as a regulatory body.

For 2021, the budget schedule of the ÚJD SR set the total number of posts at 125, of which 110 were civil servant posts and 15 were public work posts. Of the above number, one civil servant post was temporarily allocated to the Ministry of Foreign and European Affairs of the SR for secondment abroad (Vienna) to support cooperation in the field of peaceful uses of nuclear energy.

The process of filling civil servant positions at ÚJD SR is carried out in accordance with Act No. 55/2017 Coll. on the Civil Service and on amendments to certain Acts, as amended, and Decree of the Office of the Government of the Slovak Republic No. 507/2019 amending and supplementing Decree of the Office of the Government of the Slovak Republic No. 127/2017 Coll., laying down details of selection procedures.

The process of filling vacancies in the performance of work in the public interest is governed by Act No 552/2003 Coll. on the performance of work in the public interest, as amended, and Act No 311/2001 Coll. on the Labour Code, as amended. The announcement of selection procedures to fill vacant civil servant posts was made out by the ÚJD SR by publication in the register of selection procedures on the [www.slovensko.sk](http://www.slovensko.sk) portal. The ÚJD SR also publishes selection procedures for filling civil servant posts and for filling posts in the performance of public work on the website of the Authority. In cases of filling temporary civil service posts for which there is the lowest interest and in the case of filling posts in the performance of public work, the Authority also publishes offers via the commercial job portal.

In 2021, the ÚJD SR announced 21 selection procedures to fill vacant or temporarily vacant civil servant posts, of which 11 were implemented in 2021, six of them were not implemented due to the fact that no candidate applied. The four selection procedures launched in 2021 will not be held until 2022. Eight vacant or temporarily vacant civil servant posts were filled through the 11 selection procedures held.

In 2021, a total of four staff members were recruited to civil servant posts, 14 staff members had a change of civil servant contract, two staff members took maternity/parental leave, six staff members returned from parental leave and one staff member was permanently transferred to another service office.

In 2021, nine employees left the civil service of the ÚJD SR. The reasons for termination of civil service employment were in one case the expiry of the period of extension of the civil service employment after the age of 65, in one case the death of a civil servant, and in two cases the civil service employment was terminated due to the return of female employees from parental leave, one civil servant's civil service contract was terminated due to the return of a civil servant from long-term sick leave, two civil servants' civil service contracts were terminated by mutual agreement and two civil servants' civil service contracts were terminated by mutual agreement on the grounds that, according to a medical opinion, they had lost their eligibility to perform the civil service at the civil service post due to their health condition.

In terms of the actual number of employees, the Authority had a total of 118 employees on 31 December 2021, of which 103 were civil servants and 15 were employees in the performance of public work. The Authority also had seven vacant civil servant posts. Two civil servants (a civil servant on long-term sick leave and a deputy civil servant) are registered simultaneously in one civil servant post due to long-term sick leave).

At 31 December 2021, the representation of women was 62 (48 women in the civil service and 14 women in public employment) and 56 posts were held by men (55 men in the civil service and 1 man in public employment). The total share of women employed by ÚJD SR was 52.54 %.

In terms of the systematization of civil servant posts, the Authority has a total of 76 civil servant posts in Civil Service Branch 2.05 Nuclear Supervision, of which 70 have been filled as of 31 December 2021 (the Chairperson and Vice-Chairman of the Authority become Nuclear Safety Inspectors on the date of their appointment).

Table 12: Civil service posts in Civil Service Branch 2.05 Nuclear supervision

	Total	Women	Men
2.05 Nuclear supervision	70	26	44

The educational structure of the employees directly influenced the professional level of performance of the activities of the individual departments of ÚJD SR. The educational structure of the employees shows that 89.83 % of the employees of the ÚJD SR have completed the second level of higher education. This percentage of university-educated employees is based on the demanding nature of the work of the Authority's employees and is well above the educational level of the population of the Slovak Republic.

Table 13: Educational structure of staff as at 31 December 2021

Education	2 <sup>nd</sup> level higher education	1 <sup>st</sup> level higher education	Complete secondary education	Total
Women	51	1	10	62
Men	55	0	1	56
<b>Total</b>	<b>106</b>	<b>1</b>	<b>11</b>	<b>118</b>

In terms of the age structure, the group of employees aged 56 years and over represents 22.88 % of the total number of employees, employees aged 36-55 years represent 62.71 % of the total number of employees and employees aged 18-35 years represent 14.41% of the total number of 118 employees as of 31 December 2021. The age structure of the employees of the ÚJD SR confirms the long-term trend that the performance of state supervision was also provided in 2021 by employees with many years of professional experience, employees aged 36 years and over, who accounted for a total of 85.59 % of the total number of employees of the ÚJD SR.

In the framework of the systematization, the ÚJD SR has 16 civil servant posts of senior staff, which represents 12.80 % of the total number of 125 budgeted posts as of 31 December 2021. Acquiring, deepening and maintaining the professional competences of the employees of the ÚJD SR is another prerequisite for coping with the new challenges of the current legal, economic and highly demanding technical environment, of which nuclear energy is a part. Education is nowadays one of the basic objectives, but also one of the requirements of modern society. The requirements for knowledge, skills, abilities and experience of an employee in modern society are constantly changing and in order to function as a highly professional workforce, an employee must continuously deepen and broaden his or her knowledge and skills.

The computerization of public administration and transparency in the performance of the supervisory authority's activities, which require the active involvement of staff in solving the new issues posed by these areas, constitute a separate chapter of training. To this end, it is necessary to learn about the new requirements and obligations of public authorities, which staff must fulfil.

Employee training was elaborated in the Continuous Training Plan of the Nuclear Regulatory Authority of the Slovak Republic for the year 2021 with a year-round content focus on the training needs of all organizational units. As part of the training process, employees were offered (and sent even on an ad hoc basis) training activities. The training was oriented to all professional areas executed by the ÚJD SR.

The staff of the ÚJD SR used various forms of training such as E-learning, self-study, online conferences, etc. Senior staff took advantage of the offer of the Education and Evaluation Centre of the Government Office of the Slovak Republic and participated in training courses aimed at supporting the development of management skills.



Senior staff were also trained in ethics, corruption and whistleblowing. The staff of the ÚJD SR regularly participated in workshops and training events organized by the IAEA and the OECD/NEA. Training and the development of professional skills and competences is becoming a lifelong process in the conditions of the ÚJD SR, as it is necessary to take into account the current needs arising from the reality of change on a permanent basis.

Expenditures for the training of the ÚJD SR employees were budgeted in the amount of EUR 201,603 in the Plan of Continuous Training of Staff of the Nuclear Regulatory Authority of the Slovak Republic for the year 2021. More than 61 % of the funds spent in 2021 for training of the employees of the ÚJD SR were allocated to professional training, mainly in the field of nuclear supervision. It is evident from the above that in the field of training, the ÚJD SR places great emphasis on highly specialized training of employees in the area of the Authority's competence, through which inspectors and inspectors-in-waiting, in particular, acquire the necessary knowledge and skills to carry out inspection activities.

Separate funding has also been earmarked for IT and cyber security trainings. The same emphasis is placed on the training of civil servants in other branches of the civil service and on the training of staff in

the performance of public service work, to ensure that their training is continuous and up-to-date in the light of ongoing changes in legislation and in the civil service.

Adaptation of new civil servants was ensured by adaptation training and mentoring (through an assigned mentor). Four civil servants completed the process in 2021. As part of the adaptation training, the new recruits acquired the basic skills and information necessary for the performance of the civil service in the relevant branch of the civil service.

Proper attention was paid to language training, in particular to the learning of English, Russian and French. The Service Office has introduced systematic training of the staff of the ÚJD SR in the field of language culture, and this has had a highly positive impact on the linguistic content of documents and materials produced by the Service Office.

The ÚJD SR, as the other central state administration body, has achieved the quality of work of its employees, which is highly positively evaluated in the domestic environment as well as abroad, which proves the high expertise and professionalism of the regulatory authority's employees.

### 9.3 DEVELOPMENT OF REGULATORY ACTIVITIES

Maintaining a high level of expertise and professionalism of the Regulator's staff is facilitated by the application of the results of science and research at the Authority and by the exchange of experience and knowledge within the framework of the active participation of the ÚJD SR in various international expert teams.

The ÚJD SR is involved in the US Nuclear Regulatory Commission's research project on severe accidents. Thanks to participation in the project, the ÚJD SR has access to the US MELCOR (MELting CORE) computational programme and its supplementary tool MACCS („MELCOR Accident Consequence Code System“). It uses them for verification calculations of severe accident analyses submitted by license holders to the ÚJD SR in the framework of administrative proceedings. During the working meetings of the project, its members exchange experience and knowledge in the field of severe accident modelling and evaluation of reactions of NIs to accidents. They also inform each other about modifications to the NIs aimed at preventing potential accidents or mitigating their consequences. The working meetings in 2021 were organized exclusively online.

ÚJD SR also gains experience and technical information through participation in international projects and the OECD/NEA WG. In the framework of the so-called WGAMA joint projects, the Authority is involved in the new experimental project THEMIS from November 2020 (THAI Experiments on Mitigation measures, and source term issues to support analysis and further Improvement of Severe accident management measures). Due to administrative complications related to the COVID-19 situation, the finalization of the project contract was delayed and the contract was not distributed to the partners for signature until March 2021. The project will run until April 2024. Its objective is the experimental and analytical investigation of late-phase severe accident processes and phenomena, focusing on the behaviour of typical flammable/explosive gases and fission products in the reactor containment areas. In October 2021, a second meeting of the project Steering and Programme Committees was held by videoconference. The Committees approved the Financial Report for the period 2020-2021 and the experimental programme for the period 2021-2022. The OECD/NEA WGs also organize various international conferences, seminars and workshops aimed at addressing current issues of NI safety, exchange of experience and mutual assistance. Experts of the ÚJD SR are actively involved in the preparation and assessment of many expert reports, proposals and concepts. This contributes to their further professional growth, awareness and exchange of knowledge and experience in the field of nuclear safety improvements.

The Authority participated as a member of the Organizing Committee in the preparation and conduct of the RCCS-2021 workshop on the issue of long term management and reliability of system for heat removal from the reactor and containment cooling systems (Reactor core and containment cooling systems - long term management and reliability workshop). The main organizers of the workshop were VÚEZ Levice and IRSN France. The workshop was held by videoconference from 18 to 20 October 2021.

Within the framework of international cooperation in the field of nuclear safety, the ÚJD SR also assists in the development of nuclear regulatory authorities of other countries. Examples of such assistance are three EC projects in support of the Iran Nuclear Regulatory Authority (INRA) and an EC project in support of the Regulatory Authority of Ghana.

All projects aim at enhancing the nuclear and radiation safety capabilities of third country regulators through the exchange of experience and promoting the use of international best practices. In the INRA supporting projects, the ÚJD SR is involved in a consortium with ENCO and the partner regulators of the Czech Republic, Hungary and Slovenia.

The first project (from 2017) is the coordinated and efficient implementation of nuclear safety stress tests at Iran's Bushehr NPP, based on the experience after the accident at Japan's Fukushima-Daiichi NPP. The contribution of the ÚJD SR in the second project (from 2018) is aimed at assisting INRA with the preparation of the IRRS mission in Iran, as well as supporting INRA in the further development of the legislative and regulatory framework for nuclear safety in Iran in line with international standards. The third project (from June 2020) is aimed at enhancing Iran's nuclear safety culture and implementing the highest standards of nuclear safety and radiation protection. In this third project to support INRA, as well as in the project to support the development of Ghana's nuclear regulator (from November 2019), the ÚJD SR is involved in a consortium with ENCO and the partner regulators of Hungary and Slovenia. In 2021, any activities under all projects in support of third country regulators were organized exclusively online.

As already mentioned in chapter 7.1 Cooperation with the European Regulators (WENRA), the experts of the ÚJD SR are actively working in two WENRA Working Groups - the WG on Harmonization of Requirements for the Safety of Nuclear Reactors (RHWG) and the WG on Harmonization of Requirements for the Safety of Radioactive Waste Management and Decommissioning of NIs (WGWD).

The RHWG aims to continuously improve the safety of nuclear reactors and reduce unnecessary differences in the safety standards of Member States. To this end, it has already established safety reference levels (SRLs) for existing NIs in 2006. Member States have committed to implement the requirements of these Reference Levels in their supervisory framework. They have also committed themselves to updating the requirements on a regular basis in the light of new experience and knowledge. For this reason, the original 2006 edition of the SRLs has undergone several revisions. The latest revision was issued in February 2021 and the changes take into account in particular areas that were not updated in the 2014 edition (the lessons learned after the Fukushima NPP accident):

- introduction of the term leadership in IAEA standards (Area C),
- the outcomes of the first Peer Review carried out under Council Directive 2014/87/Euratom (ENSREG Topical Peer Review) on the ageing management (Area I),
- completing the scope of the risks or hazards to be investigated as part of the safety demonstration of nuclear installations.

In 2021, the RHWG began processing the reference level gap analysis, which represents the first phase of the forthcoming review of SRL2024. The outputs from the analysis are intended to help inform decisions on whether or not a review of requirements in any of the areas is needed. The RHWG is also involved in the preparation of the technical specification for the second Topical Peer Review (TPR II), which focuses on fire protection in the NIs.

The aim of the WGWD is to harmonize national legislation with the reference levels that have been gradually developed for the following areas:

- RAW and SNF storage,
- decommissioning of nuclear installations,
- RAW disposal,
- RAW treatment.

In the area of storage and decommissioning, the SR has achieved full compliance with the relevant Reference Levels already in 2012 and 2013 respectively. In the area of RAW disposal, an Action Plan is under preparation to fully harmonize the three missing requirements. The review process of the level of harmonization in the field of RAW treatment is planned within the WGWD for March 2022.

The ÚJD SR is a founding member of the Forum of State Nuclear Safety Regulators of countries operating VVER NPPs (VVER Forum), which was established in 1993. The aim of the VVER Forum is to promote the improvement of the level of nuclear safety and protection against the adverse effects of ionizing radiation. It is a platform for the exchange of information and experience in this field, and its members meet at regular annual intervals. Working groups are established within the VVER Forum to address specific issues. There are currently three working groups. ÚJD SR is a member of two of them - the WG on Probabilistic Safety Assessment (PSA) and the WG on Ageing Management. Due to the unfavourable pandemic situation, the 27<sup>th</sup> annual meeting of the VVER Forum was held from 30 November till 2 December 2021 by video conference. The event was hosted by the Hungarian nuclear regulator, which chairs the VVER Forum.

## 9.4 MANAGEMENT SYSTEM

The management system of the ÚJD SR is built in accordance with the requirements of EN ISO 9001:2015 and supplemented by specific IAEA requirements in the field of nuclear safety assurance. The Management System Board is an advisory body to the Chairperson, which assesses the concept of the management system development, issues of its progress and application, the need to carry out reviews, their conditions and requirements, reports from audits, evaluations and comparative studies, issues of cooperation, exchange of experience and best practice in the framework of the implementation of the management system in the state administration of the Slovak Republic and abroad, proposes procedures for its improvement and increasing the efficiency and effectiveness of individual activities of the Authority.

Risk management is the continuous activity of interrelated tasks designed to reduce the likelihood of risks occurring or to reduce their impact, thereby increasing the likelihood that an organization will achieve its objectives and will be able to ensure customer satisfaction. Risk management was integrated into the management system in 2016 with the development of a risk register. The risk register defines and evaluates in a classified manner the possible or practically occurring risks associated with the activities of the ÚJD SR and includes all other information necessary for risk management. The risk register is regularly updated, while monitoring the identified risks and implementing measures to eliminate or mitigate the most serious risks is executed.

In accordance with the annual management system audit plan, six specifically targeted internal audits were performed in 2021. The audits confirmed that the activities performed in the ÚJD SR are governed by the applicable management system directives and procedures. The audits resulted in a number of actions to address non-conformities and suggestions for improvement, some of which have already been implemented in 2021 and other will be implemented on an ongoing basis in 2022.

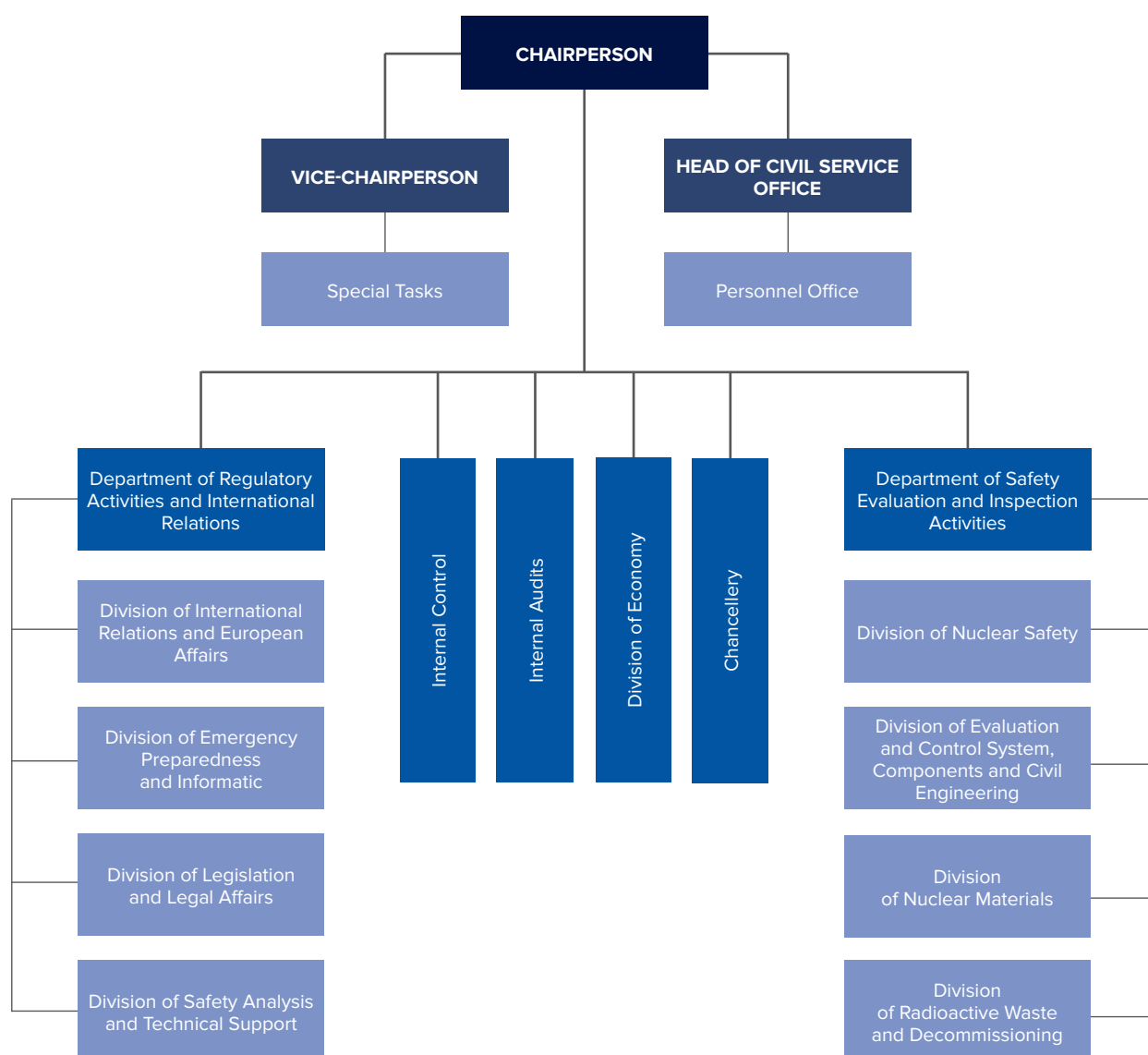
The management system was expanded in 2021 to fully reflect the changes that have taken place in the areas of IT and cyber security management and anti-corruption activities.

The annual review of the quality management system by the top management of the organization, in the evaluation of which all process owners participate, is assessed by the Management System Board of the ÚJD SR. The output document is an integral assessment of the status of implementation of the quality policy and objectives, results of audits, periodic review of quality guidelines, implementation of related requirements, describes process performance, product conformity, provides description of the status of preventive and corrective actions and changes with potential impact on the management system, while also identifies recommendations for process, activity and product improvements related to legitimate stakeholder requirements and necessary resources.



# 10 ORGANIZATION STRUCTURE OF ÚJD SR

## ORGANIZATION STRUCTURE OF ÚJD SR AS OF 31 DECEMBER 2021





# 11

# ABBREVIATIONS

ACCC	Aarhus Convention Compliance Committee	NR SR	National Council of the SR
AO1	Reactor scram	OE	Operational event
BN	Safety guide	OECD/NEA	Nuclear Energy Agency at the Organization for Economic Cooperation and Development
BSC RAO	Bohunice RAW Treatment Centre	OS SR	Armed Forces of the SR
CSS	Commission on Safety Standards, IAEA	OÚ	District Office
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organization	PHJB	Periodic Nuclear Safety Review
DBL	Discontinuous bituminization line	POSR	Pre-operational Safety Report
DG	Diesel Generator	PSA	Probabilistic Safety Assessment
DGS	Diesel generator station	RAM	Radioactive material
EBO	Bohunice Nuclear Power Plant	RAW	Radioactive waste
EC	European Commission	RHWG	WG for harmonization of requirements for the safety of nuclear reactors
EMO	Mochovce Nuclear Power Plant	RPV	Reactor pressure vessel
ENSREG	European Nuclear Safety Regulators Group	RÚ RAO	National RAW Repository
ERC	Emergency Response Centre	SAV	Slovak Academy of Sciences
EU	European Union	SC	Steering Committee
Euratom	European Atomic Energy Community	SE, a. s.	Slovenské elektrárne, a. s.
FCC	Fiber-concrete container	SG	Steam generator
FNF	Fresh nuclear fuel	SHNČ	pumps of the super-emergency supply system for steam generators
FS KRAO	Final Treatment of Liquid RAW	SNF	Spent nuclear fuel
GO	General Overhaul	SNRIU	State Nuclear Regulatory Inspectorate of Ukraine
HDP	Emergency means of transport	SNUS	Slovak Nuclear Society
HF	Human factor	SR	Slovak Republic
HNČ	Pumps of the emergency supply system for steam generators	SRL	Safety Reference Levels
HŠ	Emergency Staff	TG	Turbo-generator
I&C	Instrumentation and Control systems	TSÚ RAO	Technology for RAW Treatment and Conditioning
IAEA	International Atomic Energy Agency	TVD/ESW	Essential service water
INES	International Nuclear and Radiological Event Scale	ÚJD SR	Nuclear Regulatory Authority of the SR, Authority
INRA	Iran Nuclear Regulatory Authority	ÚVZ SR	Public Health Authority of SR
IRRS	Integrated Regulatory Review Service	VLRAW	Very low-level radioactive waste
IS RAO	Integral RAW Storage Facility	VT	High pressure emergency make-up system
JAVYS, a. s.	Nuclear and Decommissioning Company	VUJE, a. s.	VUJE, a. s., Trnava – Engineering, Design and Research Organization
L&C	Limits and Conditions	WG	Working Group
LRAW	Low-level radioactive waste	WGWD	WG for harmonization of requirements for the safety of RAW management and decommissioning of NIs
MH SR	Ministry of Economy of the SR	WPAQ	Working Party on Atomic Questions
MRPS OBPZJŠ	Inter-departmental working group on civil liability for nuclear damage		
MSVP	Interim Spent Fuel Storage Facility		
MV SR	Ministry of Interior of the SR		
MZ SR	Ministry of Health of the SR		
MZVaEZ SR	Ministry of Foreign and European Affairs of the SR		
MŽP SR	Ministry of Environment of the SR		
NI	Nuclear installation		
NM	Nuclear materials		
NPP	Nuclear Power Plant		



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