



**HUNGARIAN ATOMIC ENERGY AUTHORITY**  
**Nuclear Safety Bulletin**

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## RECENT DEVELOPMENTS IN NUCLEAR SAFETY IN HUNGARY

April 2019

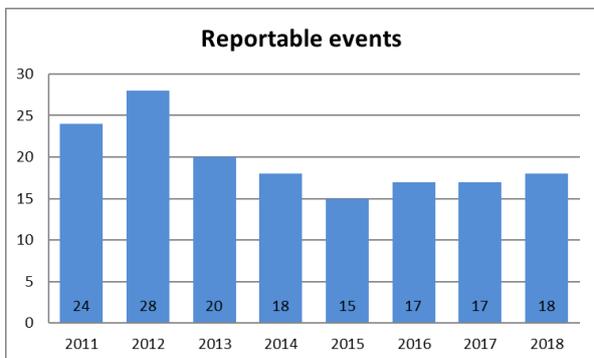
### General

#### *2018 annual safety performance assessment of nuclear facilities*

The HAEA regularly evaluates the safety performance of the operators of nuclear facilities. The main sources of data for the assessment are the regular reports and the event reports of the licensees, the protocols of regulatory inspections including the regular and comprehensive inspections focusing on specific areas, and the reactive inspections.

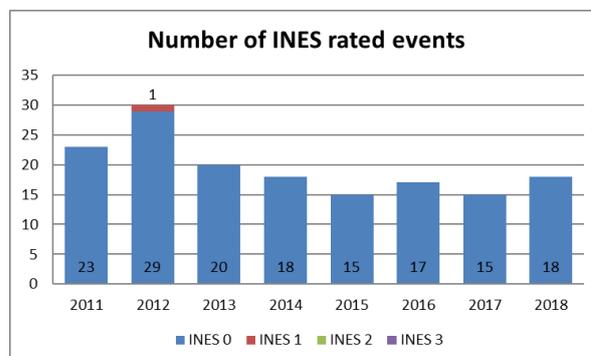
Below we give a short review on the 2018 safety performance assessment. The safety performance data are taken from the quarterly reports of Paks NPP and the semi-annual reports of the other licensees.

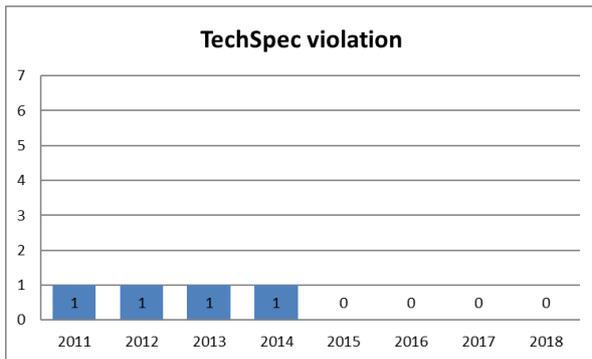
#### *Paks Nuclear Power Plant*



Eighteen reportable events occurred in 2018.

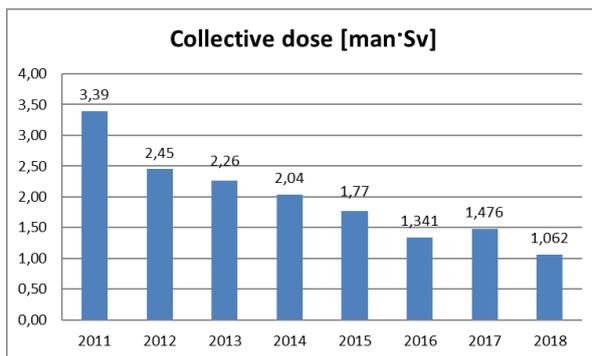
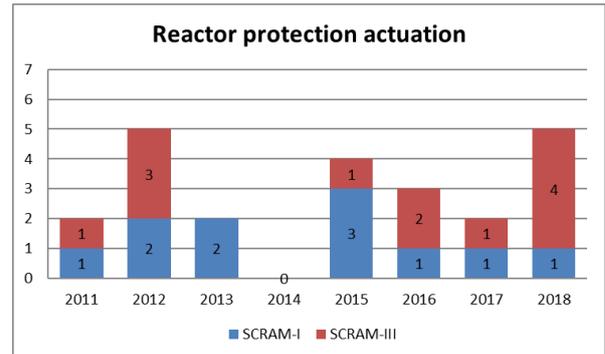
Eighteen events have been reported by the NPP altogether, all of them were of category „below scale” corresponding to Level-0 on the seven-level International Nuclear Event Scale (INES).





There has been no event causing violation of technical operating specification since 2014. On 24 October 2018, the NPP moved to Operating Conditions and Limits (OCL) based on a license by the HAEA. There was no event causing violation of OCL since then.

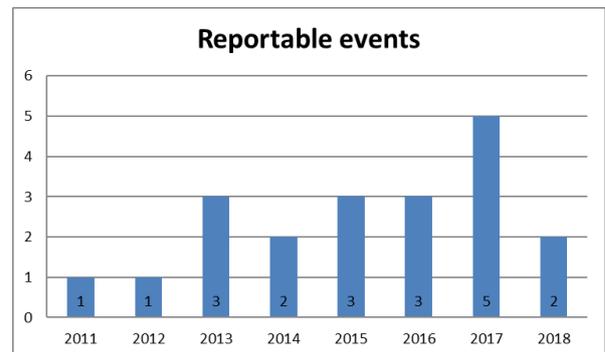
Five automatic reactor protection actuations occurred in 2018. One SCRAM-III and the SCRAM-I actuation were connected to the same event, which was caused by the low water level of steam generators of Unit 3. The other three SCRAM-III actuations occurred because of external electrical network failure.

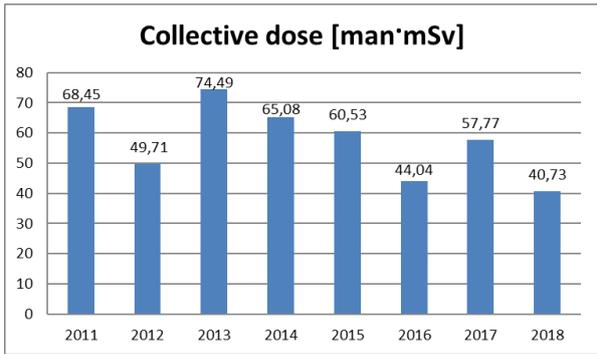


The collective radiation dose of employees is the lowest of the last twenty years. It has been declining since 2011. Concerning this indicator, the quarterly reports refer to the doses of the November 2017 to October 2018 period.

### Budapest Research Reactor

Two reportable events occurred in 2018. One event was in connection with virus infection of the computers of the Radiation Protection Measurement and Control System, the other was related to a welding seams damage of a fuel assembly.

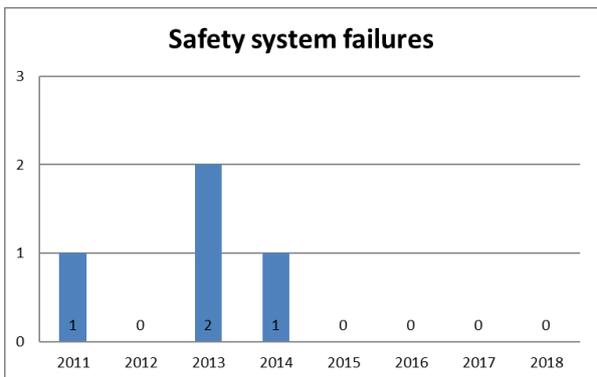
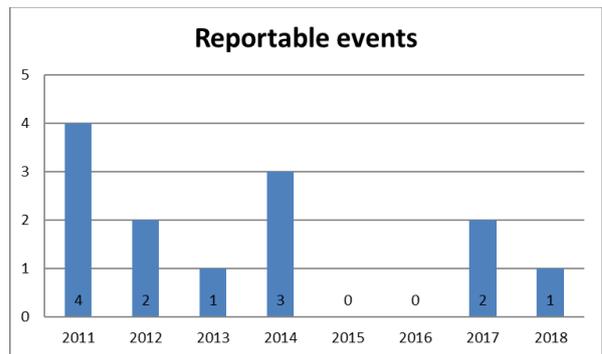




The employee's collective dose of 2018 is comparable to the previous year's values.

***BUTE Training Reactor***

One reportable event occurred in 2018. This was in connection with the position signalling failure of one of the manual control rods.

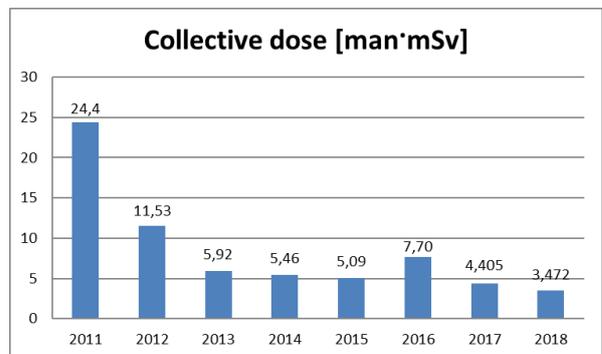


No safety system failure has occurred since 2014.

***Interim Spent Fuel Storage Facility***

The collective dose of the employees is comparable to the previous year's and semester's values, based on the data of 2018.

No reportable event occurred in the ISFSF facility during the year.



In accordance with the comprehensive safety performance assessment, during 2018 the nuclear safety of facilities inspected by the HAEA were of appropriate level, just like in previous years. The facilities operated safely, did not endanger the environment, the population and the employees.

## **Paks II project**

### ***Regulatory licensing and supervision activity of HAEA related to the new unit construction project***

In 2018, HAEA performed six inspections at the Paks II Nuclear Power Plant Ltd. in order to check – among others – the status of the compliance with the conditions prescribed in the site license, the suppliers' qualification procedures, the engineering survey activities and the licensee's human resource development efforts.

Also in 2018, the Paks II Nuclear Power Plant Ltd. performed 20 supplier qualification audits, which included 10 on-site audits (6 in Russia, 4 in Hungary). HAEA participated in these on-site audits as an observer.

In the past year HAEA issued 3 construction permits for so called construction erection base structures (two office buildings and a restaurant), and at the request of the licensee modified an earlier permit, issued in 2016 for the construction of the Paks II Nuclear Power Plant Ltd. on site office building. The construction of the above-mentioned three buildings is expected to commence this year.



*Visualization of the three permitted buildings of the construction erection base*

## Emergency Preparedness and Response

### *ECUREX-2018 emergency exercise*

The annual ECUREX-exercise was held on 19 November 2018, organized by the HAEA in coordination with the European Commission (EC) and with participation of the member countries of the ECURIE system (European Community Urgent Radiological Information Exchange).

According to the scenario, a cloud containing Cs-137 isotope, originating from a source outside the European Union spread over Europe, affecting the Member States to varying degrees.

The primary objective of the exercise was to test the communication between the participating national authorities, organizations and international organizations, to practice the use of the international procedures of particular importance in the case of emergency and to practice the systems used to implement them. Another aim was to analyse and evaluate the event and to define the necessary public protective actions.

Fulfilment of the RESPEC contract (Radiological Emergency Support Project for the European Commission) is a priority for the HAEA. Under the 2016-2019 RESPEC contract, the HAEA acts as the professional adviser of the EC in the event of a nuclear emergency. As part of this, the HAEA evaluates analyses, prepares proposals on protective measures, provides support for the EC's press releases and, in cooperation with the EC, organises and evaluates the annual ECUREX exercises at international level.



*ECUREX-2018 exercise in the HAEA CERTA (Centre for Emergency Response, Training and Analysis)*

## Physical Protection

### *The Plucky Puli national nuclear security exercise*

In 2018, a working group, coordinated by the HAEA and representing the relevant national organisations' experts, worked out a national action plan, which regulates the necessary actions and procedure of notifications against an attempted theft of a radioactive material. To test the action plan's cohesion and feasibility, the United States Department of Energy, together with the HAEA, organised the Plucky Puli national nuclear security exercise on the 6 - 7 November 2018.

Participants and observers were delegated by the National Police Headquarters, the Counter Terrorism Centre, the National Directorate General for Disaster Management, the Ministry of Defence, the Hungarian Academy of Sciences Centre for Energy Research, the National Institute of Environmental Health, the Military National Security Service, the National Ambulance Service, the Counter-terrorism Intelligence and Criminal Analysis Centre and the HAEA. The two scenarios, executed on the first day, took place in a real Hungarian location and included many modes of theft. The participants had to answer questions and solve tasks connected to the particular scenarios, using the action plan and their own internal procedures.

On the second day, based on the experience acquired during the implementation of the scenarios, participants and observers determined what modifications and improvements had to be made in the action plan and discussed the possibility of widening the scope of the plan and its integration with other existing national level plans. Following the detailed evaluation of the implementation of the exercise, the working group will continue the work started in the subject of nuclear security.



*The execution of the exercise*

## International Cooperation

### *The 62<sup>nd</sup> IAEA General Conference has concluded in Vienna*

At the 62<sup>nd</sup> General Conference of the International Atomic Energy Agency, Member States adopted the key decisions that could strengthen the IAEA's activities in the field of nuclear science and technology, nuclear safety and security and safeguards in the coming years. The General Conference offered once again the opportunity for the HAEA to hold a number of top-level bilateral meetings with representatives of the authorities with which a bilateral agreement or a memorandum of understanding is in force.

Around 2500 participants in the representation of 153 member states, international organizations and non-governmental organizations attended the plenary session and the nearly seventy side events of the General Conference between 17 and 21 September 2018.

Gyula Fichtinger, Director General of the HAEA, led the Hungarian delegation. The speech on behalf of Hungary was delivered by Ms Andrea Beatrix Kádár, Deputy State Secretary for the Ministry of Innovation and Technology. In her speech, Ms Kádár mentioned the most important events related to the nuclear field that had occurred in our country since the 61<sup>th</sup> General Conference in 2017.

Under bilateral agreements and memoranda of understanding concluded by the HAEA, regular annual meetings took place with the leaders of the Moroccan, Polish, Serbian, Ukrainian, Romanian, Saudi, Belarusian, Turkish, Finnish, Russian, Croatian and American nuclear authorities. The main topic of the meetings included the evaluation of the past year and the direction of next year's cooperation.



*Executives of the Bulgarian and Hungarian regulatory bodies*

There was a meeting for the first time with the Bulgarian nuclear authority, and in its framework, a memorandum of understanding was signed. At the meeting, the parties also determined the first practical steps for cooperation. Accordingly, expert delegations will visit each other's countries in the near future.

The respective nuclear authorities also organized a Hungarian-Slovenian-Slovak-Czech quadrilateral meeting, where the participants primarily discussed professional issues needing the establishment of a common approach towards international organizations.

Gyula Fichtinger held a bilateral meeting with Hans Wanner, head of the Swiss authority and chairperson of the Western Europe Nuclear Regulators Association (WENRA), where the most important topic was WENRA's future role and strategy.

The Radioanalytical Reference Laboratory of the National Food Chain Safety Office was redesignated as Collaborating Centre of the IAEA for the fourth time. The Collaborating Centre redesignation plaque was handed over on the margin of the General Conference.

### ***24<sup>th</sup> Austrian-Hungarian bilateral meeting***

On 15-16 October 2018, the annual Austrian-Hungarian bilateral meeting took place at the Federal Ministry for Europe, Integration and Foreign Affairs in Vienna, Austria. During the meeting attended by several Austrian and Hungarian experts, both parties informed each other about the main changes of the last year, the challenges ahead the organizations and the results and developments achieved. The main topics of the meeting were the changes in the legal framework, the recent developments at Paks NPP, the status of the Paks II project, emergency preparedness, radiation protection, radioactive waste management and the topical peer review on aging management.

At the 24<sup>th</sup> bilateral meeting, the Hungarian delegation was led by Gyula Fichtinger, Director General of the HAEA. The members of the delegation were representatives of the Ministry for Innovation and Technology, the State Secretariat for the Maintenance of the Capacity of Paks NPP, MVM Paks NPP Ltd., Paks II. Ltd., PURAM, the National Public Health Institute, the National Food Chain Safety Office and the Hungarian Meteorological Service.

The Austrian delegation, led by Ms. Ulrike Hartmann, Director of the Federal Ministry for Europe, Integration and Foreign Affairs, included representatives of the local governments in Austria, as well as officers of the Federal Ministry for Sustainability and Tourism, the Federal Ministry for Education, Science and Research, the Federal Ministry of the Interior and experts from the Institute of Safety and the Federal Environment Agency.

Both parties informed each other about the events of the past one-year period that happened in their countries in the nuclear field.

They held presentations about the legislative changes in both countries and in this context, the Austrian party reported on the results of the IRRS Mission in Austria this year.

László Juhász, HEAE head of department, presented the recent developments at the Paks NPP. Attila Aszódi, Secretary of State, gave a presentation about the status of the Paks II project and then replied to the questions of the Austrian experts.

Afterwards both parties held detailed presentations on emergency preparedness, waste treatment and management, research and training reactors and radiation protection, among others.

On the second day of the meeting, Ms. Andrea Beatrix Kádár Deputy State Secretary presented the changes in the government structure, the plans for the development of a new energy strategy and the experiences of the recent IRRS Follow-up Mission.

In her closing remarks, the head of the Austrian delegation, Ms Ulrike Hartmann, highly appreciated the openness and cooperation of the Hungarian party and stated that the Austrian delegation had received comprehensive answers to all their questions from their Hungarian colleagues.

### ***360 students and teachers participated in the „To everybody about the atomic energy” Conference in Győr***

The second conference in 2018 took place in Győr, reaching the highest number of participants; 360 students and teachers attended the event, which was supported by the Széchenyi István University. In addition to the presentations, participants were provided credible information on the use of atomic energy at the interactive exhibition.

In his opening remarks, Ottó Dóka, Vice-rector of the University underlined that Hungarian scientists had played an important role in developing the nuclear field. He expressed his hope that the conference would transform any fear of nuclear energy to confident knowledge. Gyula



*Students wearing virtual reality glasses during the event*

Fichtinger, Director General of the HAEA highlighted that the HAEA was not biased for or against the use of nuclear energy but was committed to provide the public with reliable information, in an open and transparent way, based on facts.

The interactive exhibition gave the opportunity to the students to have discussions with professionals and test their knowledge by playing games. They got information from first hand, from the experts of the National Directorate General for Disaster Management, Ministry of the Interior, the Paks NPP, the PURAM, the Hungarian Nuclear Society and the HAEA.

They could look, among others, into the reactor hall and have a bird's-eye view of the NPP through virtual reality glasses. The stair-climbing, specially equipped robot of Rescue Robotics received great attention from the students.

It is one of the statutory obligations of the HAEA to provide the public with credible information on every important aspect of the use of atomic energy. Beyond fulfilling this obligation, the goal of the Conference is to turn students' attention to technical, engineering science, demonstrating the various possibilities linked to nuclear technology.



*The robot of Rescue Robotics*

### ***Students of the National University of Public Service visited the HAEA***

On 15 November 2018, the HAEA received students from the National University of Public Service, Faculty of Military Science and Officer Training. The purpose of the 15-person group's visit was that future senior commanders could get familiar with the main tasks and activities of the HAEA.

### ***Uzbek delegations visit HAEA***

On 12 November 2018, a delegation of Uzatom and Enter Engineering Pte Ltd. paid a visit to Gyula Fichtinger, Director General of the HAEA. The representative of HAEA held a presentation in the subject of the Hungarian nuclear program and regulatory system, about the legal framework as well as the tasks of the regulatory body.

On 12-15 February 2019, an Uzbek governmental delegation also paid a visit to Hungary to observe the Hungarian experience in the licensing procedure of the new nuclear power plant units. On 14 February, the Director General received the delegation composed of members of parliament and representatives of Uzatom Agency.

### ***Visit of Chinese Delegation in the HAEA***

On 12 September 2018, a delegation from the China Atomic Energy Authority, led by Wang Yiren, Vice Chairman of the CAEA, visited Hungary. Szabolcs Hullán, Deputy Director General of the HAEA received the delegation. They had a consultation about the nuclear industry in China and Hungary including the regulations and organization of nuclear safety and security and the possible collaborations in the field of nuclear regulations in both countries.

### ***HAEA participation in the Amphitheater Cup at Árpád High School: an infographic exhibition***

On 16 November 2018, a national mathematics competition (called Amphitheater Cup) was held at the Árpád High School with several interesting side events and natural science programs. The fifth and sixth grade students were shown physical and chemical experiments; they could get acquainted with robot construction and view the infographic exhibition of the HAEA. This infographic exhibition provided detailed information on the domestic use of nuclear energy, and the students could ask questions and develop discussions with the experts of the HAEA.

## Events of Interest

### *Drop of geophysical probe containing radioactive source into a logging well*

During a geophysical test of a geothermal exploration well in an unbuilt industrial area, well-logging geophysical probe containing  $^{241}\text{Am}$ -Be sealed source of 240 GBq activity was dropped to the bottom of a 1800 m deep well. The direct cause of the event was the break of the probe head due to material failure. This break was in such a place that the available emergency probe retrieving equipment (overshot assembly) and procedure could not be used immediately. The license holder carrying out the geophysical test informed the HAEA the next day.

The event was considered as a safety failure incident, as the radioactive source might have been damaged and the systems for the safe handling of the radioactive source were damaged. After the notification and the preliminary assessment, the HAEA held an on-site inspection. The source was not expected to be open due to its design properties and the presence of  $^{241}\text{Am}$  contamination was detected neither in the environment nor in the drilling mud samples. Based on the geological features of the well, the place of the radiation source had preliminarily been considered safe for hundreds of years. After careful planning and expert's discussions, the probe was retrieved safely. According to the first results of the measurements and the in-field inspections, it was established that the sealed source was safely recovered and no indication of radioactive release into the environment was found. Considering the fact that the incident area was continuously supervised throughout the event, the incident did not pose any threat either to the population or to the environment. Taking into account all available information on the event, the final rating of the event on the International Nuclear Event Scale was INES 1. The HAEA published a press release on the event. The licensee also informs the public in accordance with the legislative provisions in the way agreed upon with the HAEA. The HAEA is currently investigating the causes of the incident.



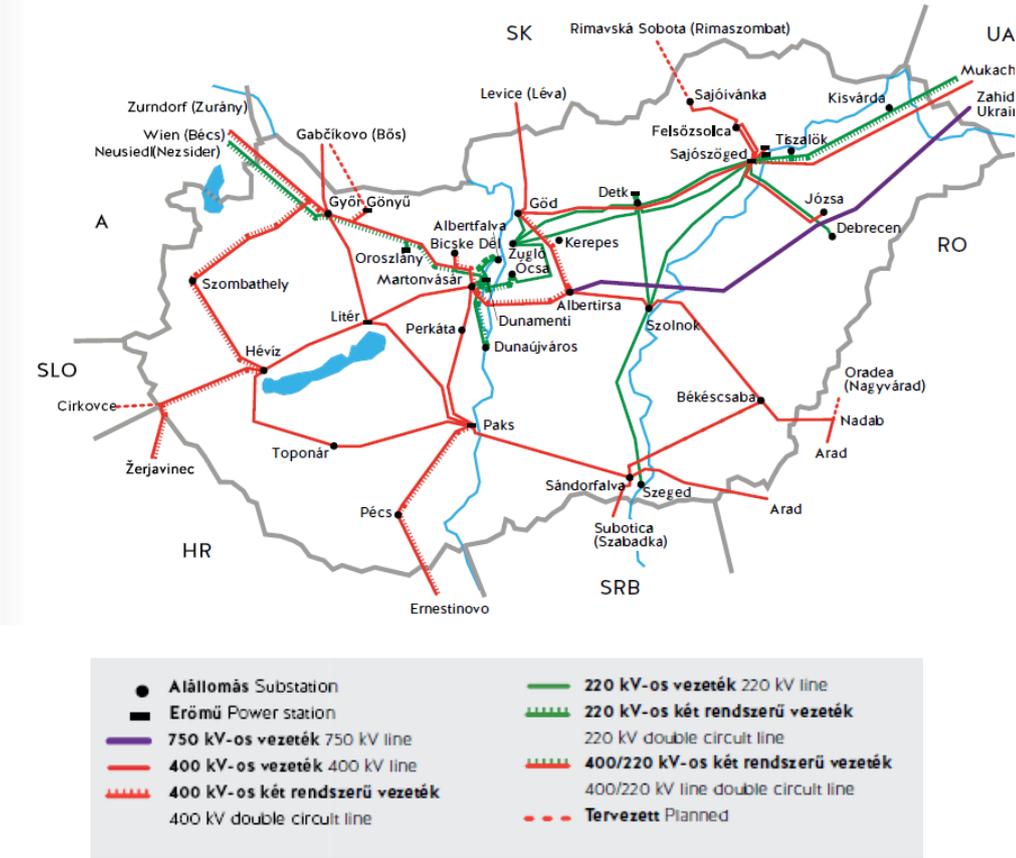
*Preparation for the rescue of the well-logging geophysical probe*

### **Protective action at Paks Nuclear Power Plant due to switching off of an electric power line**

On 11 June 2018, the Perkáta-Martonvásár 400 kV transmission line was broken, which resulted in a 3-phase final shutdown due to the proper operation of the protection. As a result, the turbines of the Paks NPP had instantaneous power strokes, which triggered a reactor protective action.

During the evaluation of the event, it was found that the protective action worked unreasonably. This resulted from the fact that due to the earlier modification of the logic of the protective action, the logic did not cover all possible occurrences. It only took into account the decrease during performance shifts and not the increase in performance.

The licensee has taken appropriate measures to remedy the non-compliances identified, according to which it will develop a technical solution for modifying the protection logic. The authority will verify the effectiveness of the corrective action in the context of an inspection in spring 2019.



*Hungary's electricity transmission network*

## Regulatory activity

### ***ENSREG issued the report of the 1st Topical Peer review on 'Ageing management of nuclear power plants and research reactors'***

In accordance with the Nuclear Safety Directive of the European Union, a Topical Peer Review (TPR) should be carried out every six years in every Member State operating nuclear installations. The first TPR, starting in 2017, covered the ageing management of nuclear power plants and nuclear research reactors with a power equal to 1 MW<sub>th</sub> or more. The report was published in autumn 2018 and it summarizes the results of the international peer review of the national reports drawn up based on a guide of the Western European Nuclear Regulators Association (WENRA).

The report was approved at the 37<sup>th</sup> ENSREG meeting in the beginning of October but several countries, including Hungary, commented on some of the findings in the report. Our country indicated that the review process was different from the preliminary specification and transparency and communication problems worsened the quality of the review process. The Reporting Expert Committee has only partially taken into account the information provided by the Member States during the review, leading to occasionally contradictory statements of reasoning in some countries that are controversial about aging management.

The main conclusion of the peer review is that Ageing Management Programmes exist in all countries for nuclear power plants (NPPs) and no major deficiencies were identified in European approaches to regulate and implement Ageing Management Programmes at NPPs. However, the review identified areas, where further work in participating countries would enhance their ageing management at the Nuclear Power Plants.

Based on the Topical Peer Review results, the ageing management programmes for Research Reactors are not regulated or implemented as systematically and comprehensively as for NPPs. This may be justifiable due to the variety of Research Reactor designs and their potentially lower risk significance compared to NPPs. However, the general conclusion of the review is that more systematic and comprehensive Overall Ageing Management Programmes should be implemented for the Research Reactors, in accordance with a graded approach and with the applicable national requirements, international safety standards and best practices. However, concerning Hungary, the report concludes that the aging management of research reactors meets the expected level.

The report highlights that the visits/involvement of international review missions (such as IAEA SALTO, OSART, etc.) specializing in aging management greatly improve the effectiveness of aging management programs. The Hungarian practice in this area has been described as a good practice. According to the report, the continuous development and evaluation of aging management programs and tools based on international experience is important. In addition to

reviewing the implementation of general aging management programs, the practical implementation of aging management has also been studied in four areas. In all topics, areas have been found where European countries face common challenges and for certain countries, areas for improvement have also been identified.

It is important to keep in mind that not all TPR expected levels of performance are applicable to all types of reactors and that the potential safety significance of each finding can be very different so misleading conclusions can be drawn if they are not carefully interpreted. The qualifications should not be used to compare countries with each another. The detailed context will need to be provided in the national action plans developed by each country. Therefore, the expected response could vary from providing a detailed explanation of the activity in the area to the determination of any necessary improvement measures.

Concerning Hungary, the report highlights as a good practice, the frequent invitations to international review missions and the systematic testing of inaccessible and/or not easily accessible concrete structure. In six findings concerning the country, the report identifies the expected level of performance and in four areas determines the need for further actions. The report qualifies the non-destructive testing of the core material of the reactor tank line and the control of the pipelines as areas to be improved. In this context, we consider it important to emphasize that current practice complies with domestic legislation and is in line with international requirements. Targeted international missions have found these two areas are in line with international requirements and practices, too. The other two areas requiring measures are beyond the original scope of the review are: delayed NPP projects and extended shutdown states and the ensuring the availability of an appropriate sample series for material tests to support the ageing management of new NPPs. These are not yet current issues in the present situation in Hungary. The HAEA is prepared to take appropriate action in this topic in time, if it becomes necessary.

ENSREG calls on the national authorities of the countries which participated in this peer review to develop a national action plan ultimately by September 2019 addressing the findings of their self-assessment and those of the peer review and to ensure timely implementation of all safety improvement measures in accordance with their safety significance.

The HAEA trusts that in the light of the experience gained by ENSREG, WENRA and the Member States, the next review will be more transparent and, as well as with international review missions, will help to maintain a high level of nuclear safety in the European Union and the Member States.

### ***IRRS Follow-up mission in Hungary***

The overview of the work of Hungarian regulatory bodies responsible for peaceful application of atomic energy, including the HAEA, were under review by the International Atomic Energy

Agency Integrated Regulatory Review service in 2015. After the IRRS mission Hungary updated its action plan based on the IRRS report to manage the 32 recommendations and 10 suggestions. To review the efforts of Hungary IRRS, Follow-up mission was conducted between 24 September and 1 October 2018.

As a result of the IRRS Follow-up mission, it was established that Hungary had made significant steps since the 2015 IRRS mission to further improve its regulatory regime. The reviewers closed 30 requirements and suggestions out of 42, arising from the 2015 IRRS mission report.

In 2015, when the IRRS mission took place in Hungary, the domestic regulatory regime was under broad reorganization. In the frame of this reorganization, among others, the radiation protection authority was moved to the HAEA, from 1 January 2016. Because of this reorganization, the connected gaps were required to be solved mainly by the HAEA. These gaps were mostly eliminated by issuing a new radiation protection regulation in the end of 2015, however, some gaps could not be eliminated until the IRRS Follow-up mission in 2018, and they can be achieved only in the long term. Therefore, some recommendations and proposals remained finally open.

Altogether, 5 recommendations (one common with co-authorities) and 1 suggestion remained open for HAEA. For the long-term elimination of these gaps, the authority elaborated an action plan. For the co-authorities, 7 recommendations remained open, and the reviewers identified three new issues, i.e. two new suggestions and one new recommendation also identified in their report.

Hungary is expecting, in harmony with the 2009/71/EURATOM directive, to invite the next IRRS Mission to Hungary in 2025. Due to this directive, every country conducts a self-assessment at least every 10 years and invites an conducting an IAEA Integrated Regulatory Review.

## **Paks Nuclear Power Plant**

### ***Closure of Periodic Safety Review of Paks NPP Units 1-4***

Annex 1, called Nuclear Safety Code Volume 1, section 1.7.3. of Govt. Decree 118/2011 (VII. 11.) on the nuclear safety requirements of nuclear facilities and on related regulatory activities, states that licensees – in this case, the Paks Nuclear Power Plant (NPP) – shall conduct a Periodic Safety Review (PSR) every 10 years.

In accordance with the legislation, the assessment shall include the identification of deviations from the nuclear safety code and internationally acknowledged good practices, the evaluation of the nuclear safety significance of the deviations, taking into account the operating experience and the results of science and technology, the identification and evaluation of changes in the conditions of the nuclear facility, and its systems, structures and components, regarding the plant site the identification and evaluation of new knowledge and facts from science results,

technical development, and parameter monitoring, also the identification and evaluation of deviations between previous results and the results of repeated analyses performed with new analysis equipment and methods. The scope of the assessment was, however, wider than these engineering factors. It covered administrative and human areas, too. The PSR did not just focus on the momentary situation, but looked back retrospectively on the past 10 years, and in some cases, looked ahead on the future, as well.

The recommendations concerning the detailed content of the Periodic Safety Review (PSR), covering also the international requirements were included in the HAEA guideline No. A1.39 published by the HAEA in 2016. The NPP submitted the PSR to the authority on 14 December 2017. Due to Annex 2 of Act CXVI of 1996 on Atomic Energy, the detailed assessment of the PSR was conducted in cooperation with the designated competent authorities of the HAEA which did not prescribe any stipulates upon accepting it.

The operating licenses of the Units could be restricted based on the results of the assessment but the inspectors did not find any deviations that could seriously affect the nuclear safety.

In addition, the NPP identified numerous deviances during the revision and addressed them in an action plan. In its own assessment of the PSR, the HAEA did not find any serious deviances but identified some non-compliances in the engineering and administrative areas. These are added to the safety-enhancing measures of the next years. The HAEA also handled the unfinished tasks of the (post-Fukushima) Stress Test in the resolution of the PSR. Overall, this resolution contained 73 measures. 70% of these are of administrative type, the remaining ones can be connected to engineering reviews and modifications.

### ***Introduction of the Operation Limits and Conditions document at Paks NPP***

In 2018, the Paks (NPP) introduced the implementation of the Operation Limits and Conditions (OLC) document for its all four units, which replaced the previously used Technical Specification (TS) document.

The operating organization created the TS in 1988 based on the design and operational documents of the NPP units. It contained all those general requirements, basic rules and operational limit parameters, which ensure the safe operational conditions of the NPP in the planned operational modes and operational states. The primary purpose of the listed operational limits and conditions was to avoid situations causing accident circumstances or mitigate the consequences of these circumstances by complying with them.

Since the introduction of the TS, it has undergone several modifications based on the operational experiences. More and more problems appeared related to the format and the extent of the TS, which made the application of the document more difficult, furthermore, the document did not either comply fully with the new international guidance that had been published in the

meanwhile. Earlier, attempts were made to supervise the TS and solve the emerged problems but these attempts were unsuccessful because of the continuous modification projects and the lack of detailed domestic regulation background.

With the modification of the Nuclear Safety Requirements and the No. 4.2. regulatory guide for OLC in operating NPP units (2015) the HAEA established the national regulatory environment to enable the full supervision of the TS document and to create the new OLC document with the aim of replacing the TS document. During the development of the OLC, Paks NPP took into account not only the national regulatory environment but the No. NS-G-2.2 „Operational Limits and Conditions and Operating Procedures for Nuclear Power Plants” Safety Standard Series guideline of the IAEA. To determine the format and the main application rules of the OLC, the US NUREG-1431 (Volume 1 and 2), and Standard Technical Specification document was used.

Taking into account the above-mentioned national and international regulations, Paks NPP created a special system of criteria for collecting those systems and system components to use as a basis to the contents of the OLC document and which system of criteria helped to eliminate the inadequacies, which the TS document contained. Because of the modification, a new OLC was developed. Comparing with the TS, it contains more information related to the use and application rules and it is easier to use, because of its practical structure and newly defined operational states. The operation limits in the OLC did not change a lot in comparison with the TS. The NPP validated the developed OLC in collaboration with the operating personnel. Taking into account the revealed errors and deviations during the process, the licensee corrected the OLC. After this, the operating personnel was given trainings related to the application of the OLC.

Finally, Paks NPP in the possession of the license issued by the HAEA, introduced the OLC on 24 October 2018.

## **Spent Fuel Interim Storage Facility**

### ***Issuance of the operating licence of vaults No. 1-24 of the expanded SFISF***

On 12 June 2018, the Public Limited Company for Radioactive Waste Management (PURAM), as the licensee of the Spent Fuel Interim Storage Facility (SFISF) – the facility designated for the storage of the Paks Nuclear Power Plant’s spent fuel – submitted its licence application to the HAEA for the operating licence of the storage vaults No. 1-24 of the facility. The submission of the licence application was necessary for two reasons: the operating licence for the vaults that were already in use (No. 1-20) was valid until 30 November 2018. According to the law, in case the validity of a nuclear facility’s operating licence expires, a new operating licence is to be obtained. The other reason was that the newly constructed vaults (No. 21-24) were

commissioned in early 2018 as per a HAEA licence, and these could only be operated in possession of an operating licence.

To support the licence application, PURAM submitted several documents: the chapter of the Final Safety Report featuring the commissioning of vaults No. 21-24, the commissioning programme, the evaluation of the commissioning and the necessary internal procedures. With this documentation, the licensee intended to verify that the SFISF could be safely operated. The HAEA also requested the submission of further documents during the procedure in order to clarify all facts.

As part of the regulatory procedure, a public hearing was announced on several forums and then was held at the Municipality of Paks on 9 October 2018, in order to inform the public of the important details of the case, and where they had the opportunity to express their opinion and ask questions from the representatives of the licensee and the authorities involved. There were no questions and no one expressed any opinion during the event.

The expansion of the SFISF with vaults No. 21-24. – in all phases of its life cycle – and the operation of vaults No. 1-20. were continuously supervised (inspected, assessed and – as necessary – licenced) by the HAEA, during which activity no circumstances were revealed that would have made it impossible to issue the operating licence. The competent authorities involved in the process – the District Office of Pécs of the Government Office of Baranya County acting as the authority competent in environmental and nature protection and the National Directorate General for Disaster Management – consented to the issuance of the licence. Based on all of these, the HAEA was able to evaluate the licence application, and authorized the operation of the whole facility (vaults No. 1-24.) until 2 March 2030.

The announcements of the regulatory procedure and the public hearing, the written record documenting the hearing, and the HAEA's decision in the regulatory procedure – the operating licence – were made available for the public in the mayor's office of Paks, on the [HAEA's website](#) and bulletin board and on the website for public administration announcements (<http://hirdetmeny.magyarorszag.hu>).