



HUNGARIAN ATOMIC ENERGY AUTHORITY
Nuclear Safety Bulletin
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RECENT DEVELOPMENTS IN NUCLEAR SAFETY IN HUNGARY

October 2019

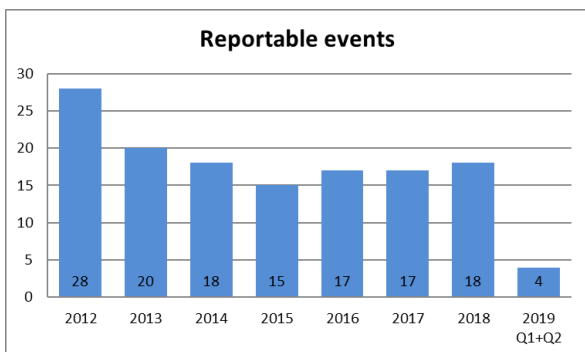
General

2019 semi-annual safety performance assessment of nuclear facilities

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

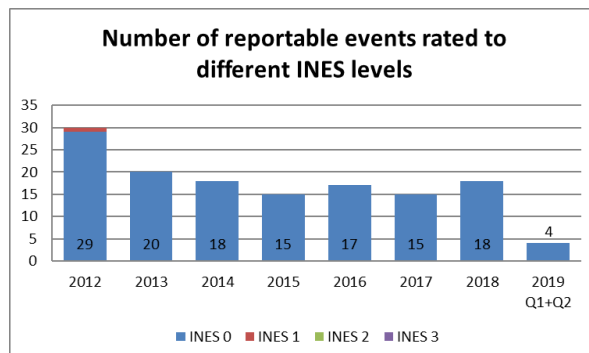
A brief extract is provided below from the semi-annual safety performance assessment. The safety performance data is taken from the first and second quarterly reports of Paks NPP and the first semi-annual reports of the other licensees.

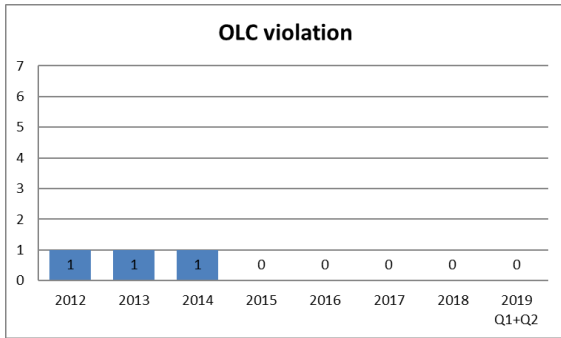
Paks Nuclear Power Plant



Four reportable events occurred in the first half of 2019.

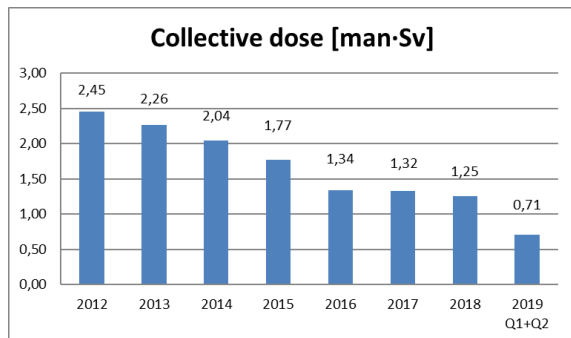
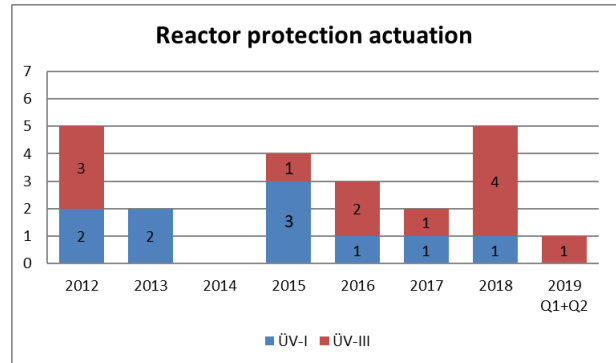
Four events have been reported by the NPP altogether, all of them were „below scale” corresponding to Level-0 on the seven-level International Nuclear Event Scale (INES).





There hasn't been any events which caused violation of technical specification since 2014. On 24 October 2018, the NPP modified this document by approval of the HAEA and started to use the Operational Limits and Conditions (OLC). There hasn't been any events which caused violation of OLC since then.

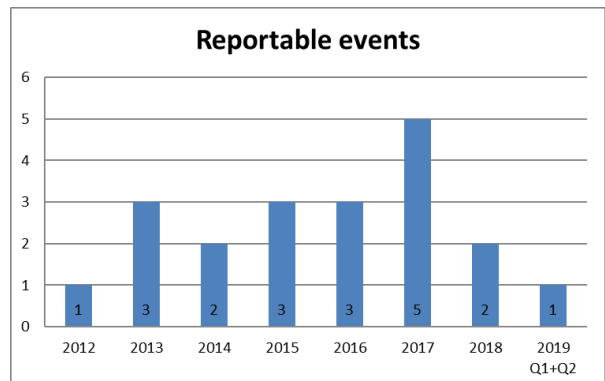
One automatic reactor protection actuation occurred in the first half of 2019. This SCRAM-III was caused by the low level of steam generators of Unit 1.



The collective radiation dose of employees has been declining since 2011.

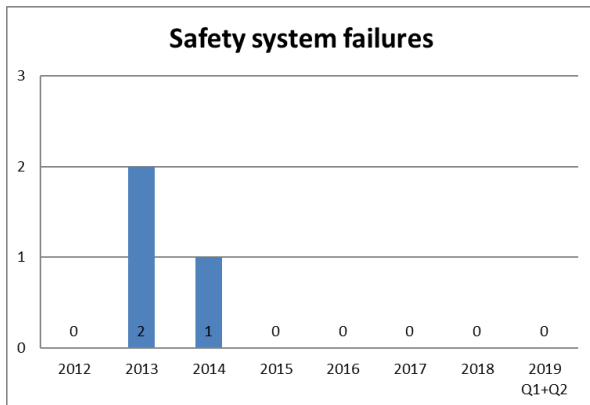
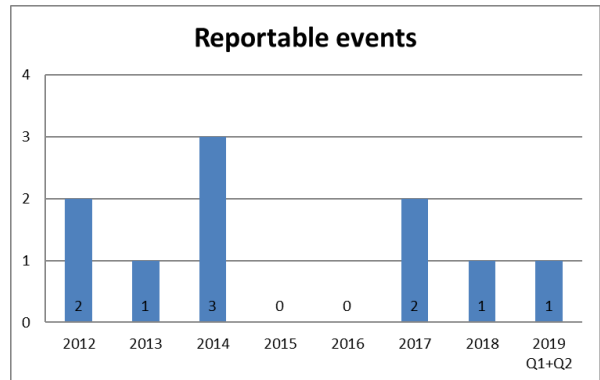
Budapest Research Reactor

One reportable event occurred in the first half of 2019, due to an erroneous operator action.



Budapest University of Technology and Economics Training Reactor

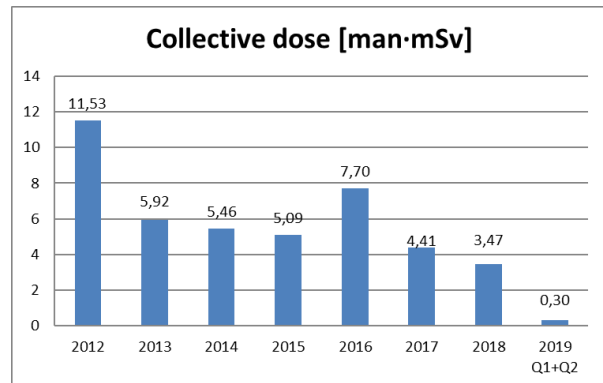
One reportable event occurred in the first half of 2019, because of malfunction of a logical unit.



No safety system failure has occurred since 2014.

Interim Spent Fuel Storage Facility

The collective dose in the first half of 2019 is comparable to the previous year's values, and it shows a downward trend. The reason for this half-year's low value is the low volume of storage and maintenance works.



There was one reportable event, because of a malpractice in radiation protection.

Based on the comprehensive safety performance assessment it can be stated that during the first half of 2019 the nuclear safety of facilities inspected by the HAEA were of appropriate level, as in previous years. The facilities operated safely, did not endanger neither the environment, nor the population, nor the employees.

ECCS14 protection signal's deviation caused by erroneous adjustment of 'incredible value' of the low range containment pressure measurement

During simulator trainings it was revealed that the 'p_c>100 mbar Containment Overpressure Protection - ECCS14' signal disappeared upon reaching p_c>195 mbar and reappeared upon the pressure decreasing below p_c<195 mbar. This phenomenon was caused by the following fact: when approaching the upper limit (200 mbar) of the low range containment pressure measurement, the measured value become 'incredible' in the reactor protection system software.

The analysis of the impact of the ECCS14 protection signal's off-design status determined that in design basis accident analyses, the TLSP starts and the containment isolation is completed as required, thus the water supply from the low-pressure emergency core coolant system (LP ECCS) and the containment spray system starts at the expected time as per the safety analyses. Since in safety analyses of design basis accidents actions made by operators are not considered during 30 minutes, these analyses are not really impacted by that the ECCS14 signal disappears. In spite of the deviation revealed, incidents are adequately managed in the SBEOPs.

In order to deal with the short-term and long-term divergence, the power plant has developed a task plan. In Unit 4, the signal is re-parameterized, and in other Units, the software is updated after main overhauls.

The event was rated on the INES scale as level 0.

Legal changes of the first half of 2019

In the first half of 2019 the Act on Atomic Energy was amended by Act XXXIX of 2019. The purpose of the amendment of the Atomic Act was to comply with the Act CL of 2016 on the General Administrative Procedures (hereinafter referred to as CGAP) and to establish procedural issues not covered by CGAP where it is allowed by this Act. On this basis, the provisions of the Atomic Energy Act were supplemented with those relating to communication by announcement, as well as the provisions concerning the payment in instalments, the payment discount and the obligations for carrying out a specific act.

The amendment to the Atomic Act contained the sectoral statutory provisions necessary for the entry into force of Act CXXV of 2017 on Sanctions for Administrative Violations.

In addition, the provisions on certain administrative deadlines, on fire and disaster management special authority procedures, as well as on the obligation to report on work subject to a public security license, are amended.

Internal Affairs

Successful external audit of integrated management system

On 15 April 2019, the HAEA successfully completed the supervisory audit of the integrated management system. According to the leading auditor of the Hungarian Standards Board, the areas examined met the requirements of the standard MSZ EN ISO 9001:2015.

In the framework of the certificate renewal audit, the HAEA management system received a three-year certificate in 2018, in line with the standard MSZ EN ISO 9001:2015. During the years between renewal audits, two supervisory audits are due to ensure the management system functions properly as well as between certificate renewal procedures. The first supervisory audit took place on 15 April 2019. This performed by auditors of the Hungarian Standards Board was based on sampling. During the procedure, auditors reviewed the basic documentation of the HAEA and then, on the spot, the suitability of certain processes of the Repository Oversight Department, the Legal Department, the External Relations Department and the Office of the Director General as well as the compliance with the requirements of the management system were examined.

Based on the evaluation, the HAEA's integrated management system meets the requirements of the applicable standard and is capable of achieving the specified quality policy objectives, the HAEA is able to meet the high standards of its services continuously.

The leading auditor deemed the oversight procedure successful and closed the audit with some improvement suggestions.

International Cooperation

Japanese delegation visit in the HAEA

The delegation of the Japan Engineers Federation (JEF) visited HAEA on June 17, 2019. The main topic of the meeting was the physical protection of nuclear facilities, and in particular, the protection of programmable systems against attacks from the global cyberspace. On June 18, the delegation visited the Paks Nuclear Power Plant, where, in addition to the guided tour, they discussed the physical protection of the site with the representatives of the NPP.

Reporting under Convention on Nuclear Safety

The Convention on Nuclear Safety (CNS), adopted in 1994, obliges the signatory states to produce a report on a regular basis (every three years) about the safety of operational land-based civil nuclear power plants. At the beginning of 2019, the HAEA prepared Hungary's 8th Report for the period of 2016-2018, in accordance with its obligations under the Convention. In

the preparation of the report of the HAEA involved the licensees of the nuclear facilities, the co-authorities and the public administration bodies. In August 2019, the Hungarian Government approved the text of the report, which was uploaded on the IAEA's website. The report presents details of the nuclear safety related achievements, the performance of the nuclear facilities and the evolution of the regulatory system over the three-year period. Furthermore, in line with the Vienna Declaration on Nuclear Safety adopted in 2015, the Report gives priority to demonstrating compliance with the three main principles described in the Vienna Declaration. The Report will be subject to a detailed review by the Contracting Parties starting in the coming months and ending with a review meeting in Vienna in 2020.

WENRA Spring Plenary Meeting in Budapest

In the 20th year of the association, the 2019 spring plenary meeting of the Western European Nuclear Regulators Association (WENRA) was organized by the Hungarian Atomic Energy Authority in Budapest. About 60 participants of 25 countries attended the event. During the plenary meeting, participants discussed and adopted the new strategic objectives of WENRA and the new terms of reference of the association. At the end of the meeting, the delegates specified the main topics of the WENRA Fall Plenary Meeting 2019, which will take place this autumn in Basel.



Participants of the meeting

Hungary received the IAEA's Board of Governors membership

In September 2019, at the General Conference of the International Atomic Energy Agency, Hungary was elected as a member of the Board of Governors. It gives us the opportunity to participate in the work of the IAEA at the highest level directly and actively.

„About atomic energy to everyone” Conference in Veszprém

On 30 May 2019, Veszprém hosted this year's first „ About atomic energy to everyone” event, attended by 150 students, which is less than the number of previous events’ visitors. As a result, the interactive exhibition provided an opportunity for longer discussions and more active information-sharing.



Physical Protection

Radiological Source Security Inspector Training Course

The United States Department of Energy together with the HAEA between 1-4th April organised a training course for the inspectors of the HAEA and the representatives of the relevant partner organisations about the inspection of physical protection systems related to radiological sources.

At the training, beside the HAEA's regional and security inspectors, the National Police Headquarters and the Ministry of Defence delegated participants. To strengthen the cooperation between the field of nuclear safety and security, inspectors from the other Departments of the HAEA also took part.

The instructors from the United States presented the methods to prepare, conduct and evaluate an inspection of a physical protection system. Next to the US presentations, a representative of the HAEA introduced the Hungarian nuclear security regulatory system and inspection procedures.

During the small group works of the training course the participants prepared an inspection at one of the licensee's site in Budapest and later that week they also conducted the inspection, using the skills and techniques learnt from the instructors.

On the final day the groups evaluated the inspections and presented the findings. After the exercise, the instructors evaluated the four days of the course: they emphasized the good cooperation between the different Hungarian regulatory organisations, the strong regulatory system and the outstanding feasibility and user-friendly form of the inspection reports used by the HAEA's regional inspectors.



Participants of the course

Radioactive Waste Repositories

Issued site survey framework programme licence for repository of the high level and long lived radioactive waste in Hungary

The Public Limited Company for Radioactive Waste Management (PURAM) in Hungary submitted an application to the HAEA for the site survey framework programme licence of a research project for investigating the possible site for the repository of high-level and long lived radioactive waste. After a 120-day review of the application documentation the licence was issued on 9 July 2019. Based on this licence the PURAM is entitled to submit applications for site survey licences required for the actual research activities, which will qualify the Boda Claystone Formation (BCF) for hosting the repository, otherwise the country shall find another place for the radioactive waste deposition.

The suitability of the BCF was already examined between 1989 and 1992 by the Mecsek Ore Mining Company. Later in 2000 the PURAM (established for decommissioning of nuclear installations and waste management) made a survey on the whole territory of Hungary and ranked the appropriate areas even from geological, social and ecological point of view. The most applicable ones were the BCF and the Kiscell Claystone Formation. According to the relevant governmental decree (which complies with the IAEA recommendations too), the site investigation shall fit in the research framework programme which last until 2032 based on the licence issued now. It is important to emphasize that under this authorization no waste can be placed in the area, no exploration drilling is allowed to be carried out; and additional permissions are needed from the HAEA as well as from the mining and environmental authorities.

In order to inform the public and to learn its opinion, on 25 April 2019, the HAEA held a public hearing in Boda, one of the villages situated at the proposed research area. About a hundred people participated in it, including local inhabitants and some citizens from Pécs, representatives of environmental organizations and Member of Parliament. Several questions aimed the alternative locations for the repository. As PURAM answered, more than 95% of the territory of the country is excluded by several reasons and BCF is expected to be the most suitable option from the remaining possibilities according to the preliminary surveys. PURAM applies for site investigation licence of another place only if the currently investigated one is dropped out for safety or other reasons. Answering questions related to the financial background of the repository PURAM stated that the Central Nuclear Financial Fund ensures it. A number of issues raised by participants concerning the influence of the city of Pécs. For these questions Director General of the HAEA emphasized that any facility which gets license shall meet all the safety requirements before.

Notes made on the public hearing and the issued licence are open for insights via the HAEA website.

Paks Nuclear Power Plant

The implemented safety enhancement actions of the PSR in Paks NPP in the second half of 2019

The Periodic Safety Review of Paks NPP was completed in January 2019. The HAEA identified a number of deviations and defined 73 measures in the decision. 70% of these are of administrative type, the remaining ones can be connected to engineering reviews and modifications. By the end of August 2019, 21 actions were implemented and approved by the HAEA. These actions are mainly concern the amendment of administrative, internal regulations or the introduction of new practices.

In the field of I&C, the expired environmental classifications were replaced, their touch protection regulations were updated and the earthquake classifications were replaced. The seismic rating and FBOS classification of SSC's was replaced and the applicability of graphite seals were investigated. The impact of accidents that may have occurred during the transport of chlorine and the treatment of hydrochloric acid stored in the nuclear power plant has been reviewed. Detection and management of Almost Event-type deviation has been introduced into the internal regulations, the procedure for reporting events has changed, and just-in-time operational experience has been integrated with the FTE methodology. The power plant has introduced a new TLD dosimetry system and modernization and refurbishment of the reception F1 and F4 has been completed.

The power plant will send the reports in every six months, and the next status report is going to arrive in January 2020.