



HUNGARIAN ATOMIC ENERGY AUTHORITY

Nuclear Safety Bulletin

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RECENT DEVELOPMENTS IN NUCLEAR SAFETY IN HUNGARY

October 2014

General

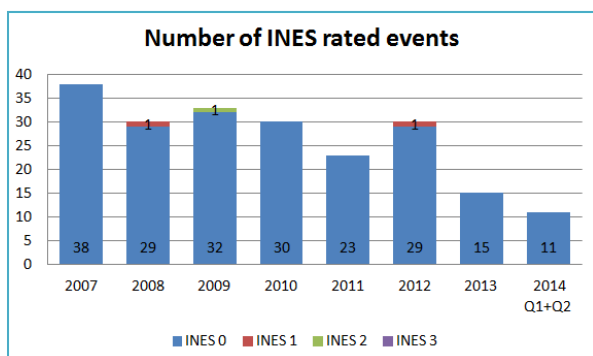
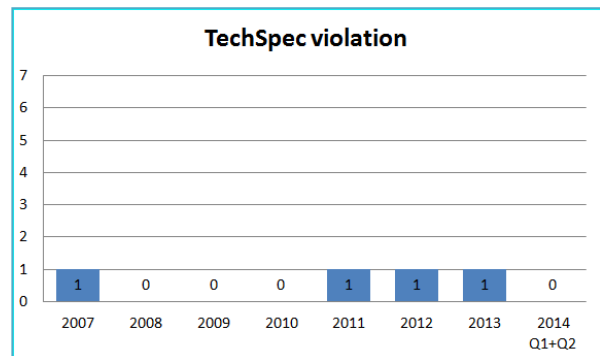
Semi-annual Safety Performance Assessment, 2014

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

The safety performance data are taken from the 1st and 2nd quarterly reports of Paks NPP and the 1st semi-annual reports of the other licensees.

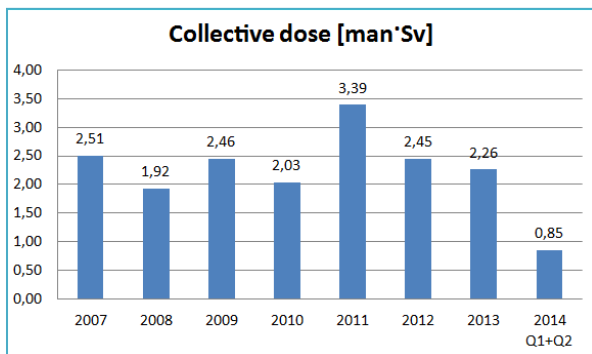
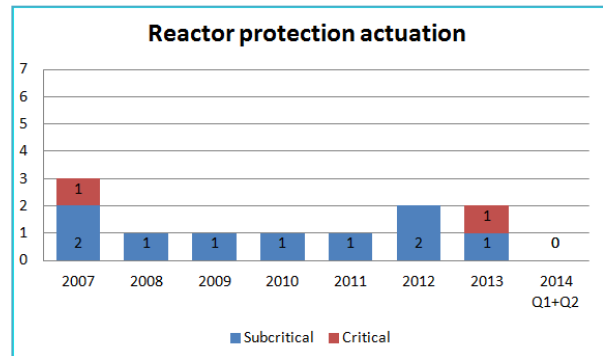
Paks Nuclear Power Plant

There was no violation of technical specification event during the examined period.



The eleven events reported by the NPP to the authority have all been classified as “anomaly”, corresponding to level 0 on the seven levels International Nuclear Event Scale (INES).

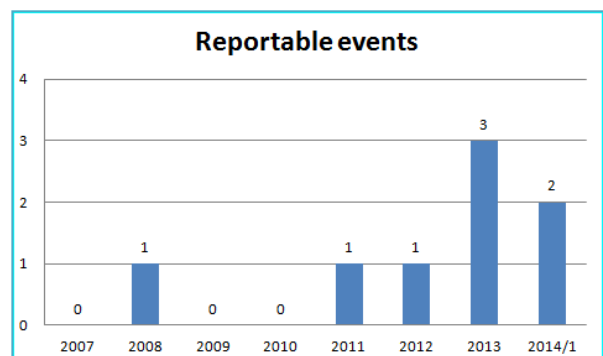
No automatic reactor protection actuation occurred in this period.



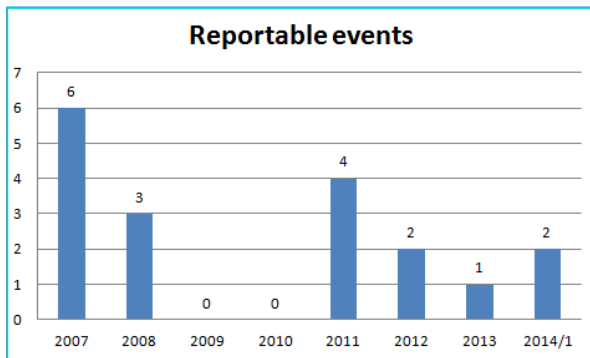
As there is a regular time lag in the reporting of collective doses, the 1st and 2nd quarterly reports refer to the doses of the November to April period. The maintenance period in the Paks NPP reactors this year began on 29th of March, so the effect of maintenance activities appears only to a certain extent in the reported collective dose. The collective dose, however, proved to be well below of the planned value.

Budapest Research Reactor

Two reportable events occurred in the first half of 2014. See details in the article below, *The long shutdown period at the Budapest Research Reactor*.

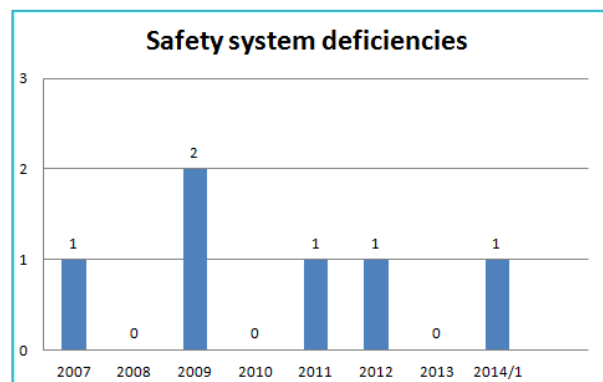


Training Reactor

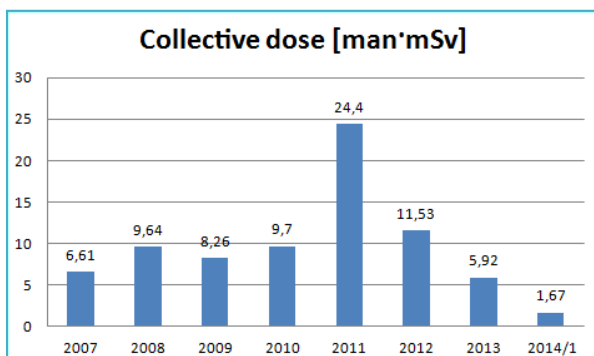


Two reportable events occurred in the first half of this year. One of them is related to a safety system deficiency. Its short description see below.

During irradiation of a sample in the reactor a false reactor protection signal occurred and the reactor power decreased from 100 kW to 95 kW. The event investigation revealed that the false signal was caused by a contact error of a switch.



Interim Spent Fuel Storage Facility



A favourably low collective dose was recorded for first half of 2014.

As a summary, it can be stated that during the first half of 2014 the nuclear facilities in Hungary operated in compliance with the limits and conditions specified in the operating and licensing documents.

Licensing of new nuclear power units

On the 11th of April, 2014 the MVM Paks II Nuclear Power Development Private Limited Company submitted an application to the Hungarian Atomic Energy Authority to obtain license to carry out site assessment and evaluation activities. With this application the multistep nuclear safety licensing process required for construction and operation of the new nuclear power units has begun. On this occasion here follows information on the procedures required for nuclear safety licensing of new nuclear installations.

The Act on Atomic Energy states that uses of nuclear energy can only be made under regulatory official supervision and with continuous possession of relevant licenses specified in the laws. The HAEA is empowered to issue licences in the field of nuclear safety, security and safeguards in relation to an NPP construction and operation. Other aspects of nuclear power usage (e.g. environmental protection) are supervised and authorized by separate authorities.

Licensing procedures for nuclear safety of nuclear installations

The Act on Atomic Energy states that a prior conceptual approval by the Parliament is required to begin any preparatory activity about a new nuclear facility or expansion of an existing nuclear power plant with additional reactor units. The Parliament made decision with 330 yes and 6 no votes and 10 abstentions for prior conceptual approval to the preparation of establishment of new unit(s) at the Paks NPP site.

Igen:	330	95,4%
Nem:	6	1,7%
Tartózkodott:	10	2,9%
Szavazott:	346	100,0%
Nem szavazott:	39	

Az Országgyűlés határozatai

Az Országgyűlés 25/2009. (IV. 2.) OGY határozata

az atomenergiáról szóló 1996. évi CXVI. törvény 7. §-ának (2) bekezdése alapján, a paksi atomerőmű telephelyén új atomerőművi blokk(ok) létesítésének előkészítését szolgáló tevékenység megkezdéséhez szükséges előzetes, elvi hozzájárulás megadásáról*

1. Az Országgyűlés előzetes, elvi hozzájárulást ad az atomenergiáról szóló 1996. évi CXVI. törvény 7. §-ának (2) bekezdése alapján – összhangban a 2008–2020 közötti időszakra vonatkozó energiapolitikáról szóló 40/2008. (IV. 17.) OGY határozat 12. f) pontjával –, a paksi atomerőmű telephelyén új blokk(ok) létesítését előkészítő tevékenység megkezdéséhez.

2. Ez a határozat a közzététele napján lép hatályba.

Dr. Szili Katalin s. k.,
az Országgyűlés elnöke

Gulyás József s. k.,
az Országgyűlés jegyzője

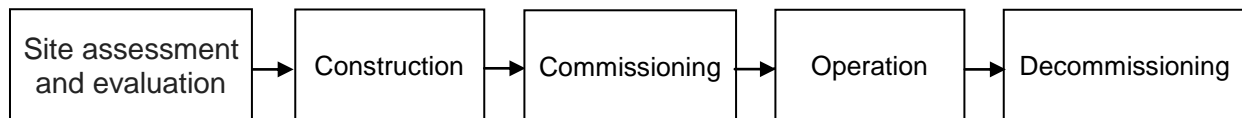
Nyakó István s. k.,
az Országgyűlés jegyzője

Decision of the Parliament: Prior conceptual approval to start preparatory activities of construction of new NPP unit(s)

The HAEA monitors the general trends in the use of nuclear energy, in particular the international developments in the regulations and based on it makes proposals, for amendment of domestic legislation or preparing new legislation. Partly in relation to these preparatory activities, a revised version of the Government Decree 118/2011 on the nuclear safety requirements and on regulatory activities, was issued in July 2011. The amended Act

on Atomic Energy and the above Government Decree specifies the licensing process of new nuclear facilities.

The nuclear facilities, such as nuclear power plants, at all stages of their life cycle shall be under continuous regulatory supervision to ensure that at all times the safety and security requirements are met. Accordingly, the sequence of regulatory approval procedures is aligned to the life-cycle stages. Life cycle of a nuclear facility can be divided into the following stages:



In line with the life cycle stages, as it is required by the Act on Atomic energy, for a nuclear facility it is necessary to obtain the following facility-level nuclear safety licenses:

- a) for site assessment and evaluation (site assessment and evaluation license)
- b) to define characteristics and to determine the suitability of the site (site license)
- c) for construction, expansion (construction license)
- d) for installation (installation license)
- e) for operation beyond its design lifetime (operating license)
- f) for modification (modification license)
- g) for the final shutdown (license to cease operation)
- h) for decommissioning (decommissioning license)

In addition to the facility-level "big" licenses the existence of other "smaller" system or component level permissions (e.g. construction, manufacturing, procurement, and installation licenses) are also required for the construction phase activities.

In connection with all facility-level licensing procedure, the HAEA shall arrange public hearings. The purpose of such a hearing is that in addition to the clients, all the persons interested or concerned in the process become acquainted with the subject matter and the course of the proceedings and in this respect express their point of view and ask questions.

The nuclear safety regulatory approval process begins with licensing of the site, which takes a two-step procedure (see the steps *a*) and *b*) in the list above).

The site licensing process

During the site assessment and evaluation of a nuclear facility, the site shall be evaluated from the point of view of its suitability for accommodating a nuclear installation. Additionally, as a result of the site assessment and evaluation it is necessary to determine those site characteristics, which must be considered in the design of the facility, including the related quantitative parameters.

The **first, separate procedure** of the site licensing process is the regulatory approval of the program for the site assessment and evaluation, with goal of defining the site characteristics. This shall be carried out in a systematic and planned manner; the program shall cover every field to be tested and the testing and evaluation methodology for determining the suitability of the site prior to the initiation of the safety assessment.

The **second procedure** of site licensing, the site license application may be submitted to the Authority after the implementation of assessments and evaluations required by the approved program. By issuing the site license the nuclear safety authority accepts the proof of absence such site features which would exclude the construction of the facility from the safety point of view, accepts the adequacy of the site assessment, the adequacy of the evaluation of the obtained data set based on site assessment, and the adequacy of the determined site-related design data derived from the evaluation, and finally accepts the site suitability.

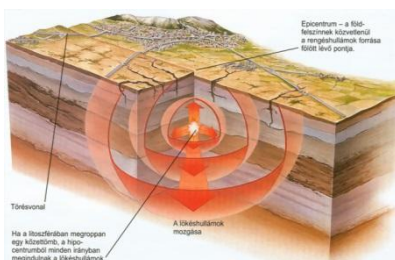
Administrative control of the assessment and evaluation of the site license application

The Paks II application for the site assessment and evaluation was submitted to the HAEA on the 11th of April, 2014, in accordance with the requirements of the first procedure (a)).

In the course of the review of the submitted license application, HAEA evaluates the assessment and evaluation methods contained in the application, whether the theoretical considerations are assessed with a view that they are suitable and sufficient to determine the site characteristics, the site suitability, and thereby compile a site license application as required.

The review and evaluation of the application by HAEA covers the following subject areas:

- assessment and evaluation of the geographical location;
- assessment and evaluation of man-made environmental hazards;
- geological assessment and evaluation;
- geotechnical and hydro geological assessment and evaluation;
- hydrological assessment and evaluation;
- meteorological assessment and evaluation;
- definition of the data required to prepare design documentation related to emissions, emergency and security plans.



Legal and Regulatory Framework

Comprehensive inspections at Paks NPP

According to the HAEA's regulatory oversight strategy concerning the nuclear power plant some sub-areas of each of the designated major safety areas (safety management, quality assurance, technical condition, operation, safety analyzes) should be reviewed by means of comprehensive inspections at least every two years. In 2014, the two areas covered in the inspection plan were the top management of the plant and the supervision of contractors by the licensee, both in relation with the safety management major area.

1. Supervision of plant top management

The three-day inspection of the top management took place in mid-September. The purpose of this inspection was to review how the management supervision, self-assessment functions are achieved and how the management culture is maintained and developed at Paks NPP. The inspection method was preliminary notified on-scene inspection containing document reviews and interviews. During the inspection the director-general and the directors of the plant responsible for the following areas have been consulted: safety, operation, maintenance, technical support, economics, and human relations. The evaluation of the gathered information is still in progress however some preliminary results could have been drawn. The management of the plant was open, transparent and cooperative to answer the questions. Altogether the management members generated the impression of a good team. The plant management is waiting for the government decision on their role the existing NPP organization shall play in construction phase of new units to be able to adjust the resource plans. Otherwise they are facing no resource problems. Some areas can be identified for further review by the regulator, based on the answers obtained: documentation of and feedback from management walkdown, role of the general designer and design authority, effective independent communication, independent internal audit of the economic area. Some good practices have also been identified: management of low significance events, knowledge management and tutoring system, safety categorization of jobs, reserve planning for safety related modifications.

The evaluation of the facts observed during the comprehensive inspection will contain the assessment of the area, the findings and the areas where the authority expects the plant to take improvement action.

The HAEA also acknowledged the plant management's initiative to hold preliminary informative consultations on the planned safety related modifications to ensure that HAEA could better plan its oversight activities for the coming period.

2. Supervision of contractors by the licensee

In recent years, the contractors of Paks NPP were involved in a number of safety-related events. For this reason, in June 2014, the HAEA carried out a comprehensive inspection to examine the licensee's activities and processes controlling, supervising and evaluating the suppliers' activities and enhancing for the appropriate working practices of main and sub-contractors.

The course of the inspection was reviewing the contracting process from the selection of the contractor, through contracting and contract implementation, to the evaluation and feed-back after the contract terminated. The major focus was on the way how the on-scene supervision of the contractors takes place and how the experiences are used in the procurement of later projects.

The inspection was carried out in three working groups:

- Working group 1: Audit Review – The registration of suppliers and subcontractors in the process of selecting and maintaining qualified status
- Working group 2: Supervision of Activities – Control of the licensee's activities in the supervision of suppliers
- Working group 3: Fulfilment of requirements by the suppliers – Control of the licensee's oversight of suppliers from supplier's perspective, by interviewing the suppliers.

The HAEA has examined the functionality and consistency of processes, the realization of management control, review and evaluation of the the implementation of the safety improvement modification to introduce external cooling of the reactor vessel in case of severe accidents. Interviews were made with the supervising persons, representatives of the suppliers and the managers involved. Observers were invited from the Paks II Company's new supervisory staff to gain experience for developing their contractor procurement system.

The evaluation of the information obtained i the inspection has not yet been completed. Based on the overall picture, some of the main findings are as follows: the HAEA experienced a positive change in the licensee's controlling system compared to the previous inspection; but the controlling system needs to be developed further; organizational unit conducting the inspection of suppliers does not have sufficient expertise in all professional field; related job descriptions are not sufficiently precise and detailed.

HAEA took over the supervision of the radioactive waste repositories

According to the recent amendment of the Act CXVI of 1996 on atomic energy, HAEA took over the task of regulatory oversight of the radioactive waste repositories as of 1st of July 2014. As a result of the preparatory work accomplished by the Radioactive Waste Working Group specially formed for this purpose and, led by the HAEA, the new Governmental Decree (155/2014. (VI. 30.)) *on the safety requirements of interim storage and final disposal facilities of radioactive waste and the related regulatory activities* was put into force on 30th of June 2014. This decree mandated the HAEA with regulatory supervision of the safe management and disposal of radioactive waste in the two operating radioactive waste repositories in Hungary with aim to protecting people and the environment from the harmful effects of ionizing radiation. The two repositories are the Radioactive Waste Treatment and Disposal Facility in Püspökszilág and the National Radioactive Waste Repository in Bataapati.

The HAEA has begun the on-site inspections soon after the takeover and has taken several measures with the aim to determine and improve the current level of the safety of radioactive waste repositories and to verify the compliance of on-site processes with the relevant legal requirements.



Radioactive Waste Treatment and Disposal Facility in Püspökszilág

HAEA internal

HAEA's practice for annual safety performance evaluation of licensees



Annual safety performance evaluation report

According to the stipulations of the Act on Atomic Energy the HAEA shall annually analyse and evaluate the safety performance of the nuclear facilities belonging to its jurisdiction.

The main purpose of the assessment is to provide feedback to the licensees of the facilities on regulatory adjudication of their achievements in nuclear safety in a given year to foster the maintenance and enhancement of the level of nuclear safety.

The safety performance of the operation can be evaluated by a multi-aspect assessment using quantitative indicators as well as engineering and safety judgement tools.

The input of the safety performance assessment includes the regulatory inspection results, the operational data, the examination and analysis of events occurred during the period. In order to carry out this task, HAEA

- collects operational data, makes trends;
- reviews and assesses the events occurred in the given year;
- performs safety assessment of the events;
- carries out probabilistic analysis of events, examines the events caused by human failure and recurrent events especially;
- evaluates the safety performance in general with the help of a safety performance indicator system.

The HAEA takes into account the measure of potential hazards of every case during the safety performance assessment of the nuclear facilities belonging to its jurisdiction.

The HAEA defines the assessment criteria of the safety performance in such a way, that the achieved level of the safety performance of the given nuclear facility is taken into account, the national and international experiences related to use of atomic energy that may help the licensee to enhance its safety performance.

The assessment of safe operation is carried out with a complex, numerically describable set of tools, so called safety performance indicators. In addition to the indicators, the regulator still uses the engineering judgement in safety assessment, because the safety performance of the facility can be determined only as result of complex assessment. In many cases comparison with the conclusions and safety indicators of previous years yields useful results.

The chapter of the performance report covering the Paks NPP includes the safety assessment of the events occurred in 2013 in the power plant and the description of the significant regulatory activities. The next chapters describe the detailed assessment based on safety performance assessment of each of the following facilities: Interim Spent Fuel Storage Facility (ISPSF), Training Reactor of Budapest University of Technology and Economics Institute for Nuclear Technology (BUTE TR) and Budapest Research Reactor (BRR).

The methodology of the regulatory assessment, the most important data on the Hungarian nuclear facilities, the summary table of the safety performance indicators of Paks Nuclear Power Plant and of the ISFSF, BUTE TR and BRR as well as the summary list and the detailed description of the events registered by the regulator in 2013 are given in the appendices of the report..

More details and results of the evaluation can be found at the English side of the HAEA website: www.haea.gov.hu.

Paksi Atomerőmű – 2. Az üzemeltetés biztonsági jellemzői																											
2.1. Biztonsági rendszerek és berendezések				2.2. Felkészültség				2.3. Kockázat																			
2.1.1. Biztonsági rendszerek tényleges működése				2.1.2. Rendelkezésre állás				2.2.1. Üzemeltetési készség				2.2.2. Baleset-elhárítási készség				2.3.1. Üzemeltetési kockázat				2.3.2. Elemzési kockázat				2.3.3. Környezeti kockázat			
2.1.1.1. Teljesítményen bekövetkezett UV-I				2.1.2.1. Próbák során feldevezett üzemképtelenség				2.2.1.1. A hatósági jogosító vizsgával rendelkező személyzet létszáma				2.2.2.1. Hiányosságok a BESz- gyakorlatokon				2.3.1.1. MÜSz-sértések száma				2.3.2.1. Az események biztonsági kockázata				2.3.3.1. Légnemű és fohékonv kibocsátás			
2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012
2.1.1.2. Összes UV-I működés				2.1.2.2. Dízelek indíthatósága				2.2.1.2. Sikertelen hatósági vizsgák aránya				2.2.2.2. A BESz- oktatáson részt vevők aránya				2.3.1.2. MÜSz- hatály alá kerülések száma				2.3.3.2. Keletkezett kis és közepes aktivitású, száradt radioaktív hulladékok							
2.1.1.3. Összes UV-III működés				2.1.2.3. Szivattyúk indíthatósága												2.3.3.3. Keletkezett nagy aktivitású, száradt radioaktív hulladékok											
2.1.1.4. ZUHR- működések				2.1.2.4. A biztonsági rendszerek rendelkezésre állása												2.3.3.4. A keletkezett fohékonv radioaktív hulladék mennyisége											
2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012

Aggregated indicator of Safe Operation field for Paks NPP

Paks Nuclear Power Plant

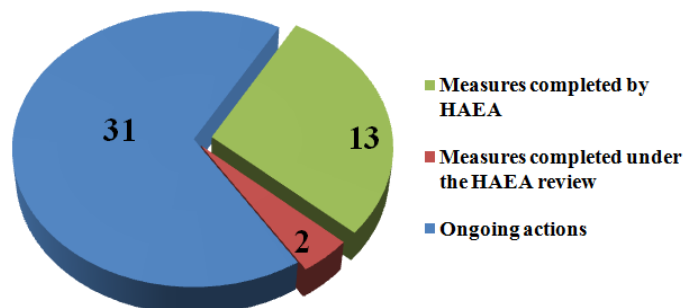
National Action Plan for safety enhancement measures on the basis of the Targeted Safety Reassessment

After the Fukushima nuclear power plant accident occurred in 2011, the EU Council has concluded that nuclear power plants in the European Union should be subject to a comprehensive safety review, assessing risks and making public the entire process.

In Hungary, this "stress test" review was called as "Targeted Safety Reassessment". The national reports with the results of the review were submitted to the EU Commission in December 2011.

The EU Council arranged an Union-wide review of the National Reports by international experts in the first quarter of 2012. The review concluded that Hungarian national report on the Targeted Safety Reassessment was comprehensive and the assessments carried out by the Paks Nuclear Power Plant revealed no major shortcoming. Note, that the report also provided a list of issues, where the safety of the plant could be further improved. In addition to the review of the Hungarian National Report, the international review team also carried out a visit at the Hungarian Atomic Energy Authority (HAEA) and at the operator onsite in order to substantiate conclusions of the report with corresponding explanations and proofs. During this visit the experts could look into the required documentation, inspect whatever they wished, and during walk down the site they got admittance to all locations they wanted.

HAEA ordered by its resolution HA5589 the implementation of a list of safety enhancement measures on the basis of the National Report and imposed reporting obligations upon Paks NPP on the progress of the implementation of the corrective measures. The ordered safety enhancement measures were divided into 46 tasks. The measures typically relate to the increase the level of protection against external hazards (such as earthquakes, flooding), to the existing and alternative supply of electric power, to alternative cooling options, to the reduction of consequences of major accidents, as well as amendment of existing operating instructions and preparation of new ones. Implementation of individual measures have different deadlines, the latest completion deadline is the 15th of December, 2018. The corresponding National Action Plan has also been reviewed by an expert group of the EU in 2013.



The HAEA inspected the progress of the measures in September 2014 on the basis of the evidences in the Progress Report of early August 2014. There are a total of thirteen tasks completed. The HAEA staff supervises the tasks to be carried out in compliance with the legal requirements via licensing and inspection of safety related modifications.

Damaged fuel elements successfully transported to Russia

In mid-August this year the nuclear fuel shipment containing the 30 irradiated fuel assemblies damaged at the Paks Nuclear Power Plant during the fuel cleaning incident in April 2003, has safely arrived at the Mayak reprocessing plant in the Russian Federation. The transport was carried out in accordance with the relevant international convention, with the permission of the Hungarian, Ukrainian and Russian authorities, countersigned by the competent body of the EU, the EURATOM Supply Agency. The HAEA made sure that all necessary licenses of the Russian and Ukrainian nuclear safety authorities existed prior to the shipment. As a technical authority for the Hungarian Trade Licensing Office, HAEA was involved in licensing the export of the nuclear material, by obtaining the necessary government guarantees.

The clearing up the consequences of the severe incident was carried out in several phases. The conditions for safe restart of Unit 2 were established within one and a half years. Since then Unit 2 is operating continuously and reliably. With the cooperation of the Russian partner – selected by competition under strict and intense regulatory control –, the associated remedial works were completed by 2007. The damaged fuel elements were encapsulated then and, after several years of storage, they were prepared for shipment the last year. Scientific studies have shown that the container filled with canisters under extreme loads protect the nuclear fuel, chain reaction cannot occur during any potential transport accident either, while the damaged fuel element fragments are always kept inside the container-canister units. The uranium dioxide ceramic tablets are not soluble in water, so they can not endanger the natural water. The dose rate at a 1 meter distance from the transport container is negligible, comparable to the natural background radiation.

The decontamination and demolition of the special equipment developed for the damaged fuel operations has been a specific task. By this phase the treatment project in order to drie the encapsulated damaged fuel was successfully completed.

The transport was preceded by a decade of preparations with coordinated work of several national and international organizations (designers, experts, authorities, administrations, Ministry of National Development, Ministry of Interior, Ministry of Foreign Affairs and Foreign Trade, etc..).

To the successful implementation of the preparation and delivery HAEA contributed significantly. Beside nuclear safety oversight the damaged fuel encapsulation, drying and shipment preparation was done under tight security and safeguards authorization and control, as well as major international supervision. Later, the preparation for shipment and the delivery also demanded significant attention from the authorities.

The HAEA approved and verified that the shipping container is suitable for the safe delivery, i.e. it is proper for radiation protection, will not let get out the radioactive materials, chain

reaction cannot start inside, further it is able to remove the heat developed in the spent nuclear fuel. These features are required not only for normal state, but also for hypothetical accident conditions.

The HAEA authorized the emergency action plan for the delivery, which sets out the measures to be followed in abnormal situations. In the area of security, the HAEA together with other organizations, determined the threat that the protection must be ensured against, and with the support of the National Police officially approved the physical security plan and monitored the implementation of the measures described therein.

Lifetime extension of Paks Nuclear Power Plant Unit No. 2

The units of the Paks NPP were put into operation between 1982 and 1987 with 30 years design lifetime. Unit 2 was connected the first time to the national electric grid in the autumn of 1984 and that time is taken into consideration as the beginning of its design lifetime.

In 2001 the general assembly of the Paks NPP Inc. has made a decision on the lifetime extension project of the NPP units. The intention was to extend the lifetime of each unit by 20 years.

In December 2005 the goal of the lifetime extension was almost unanimously supported by the Hungarian Parliament.

First an environmental impact analysis was prepared and submitted for the consideration of the public and the relevant authority in 2006. By the decision of the first level authority, the environmental approval was issued and then legally challenged by environmentalist organizations. Finally a court decision upheld the approval in 2007.

According to the legal requirements in November 2008, the Paks NPP submitted to the HAEA its program of the measures to be completed in order to completely meet the required conditions for the lifetime extension of all units. In its decision of June 19th 2009, the HAEA approved the program as declared it suitable for ensuring the conditions of the prolonged

Levél száma, kelte: 3113-H77951/2013

Ügylétező: Kovács Ferenc / Máttyási László

Országos Atomenergia Hivatal

Hullán Szabolcs mb. főigazgató-helyettes

BUDAPEST
Fényes Adolf u. 4.
1036


Tárgy: MVM Paks Atomerőmű Zrt. 2. blokk tervezett üzemidőn túli üzemeltetési engedélykérelme

MVM Paks Atomerőmű Zrt. az ÜH végrehajtási programban meghatározott feladatokat, illetve az OAH által a HA4918 és HA4919 számú határozatokban előírt feladatokat a 2. blokk vonatkozásában időarányosan végrehajtotta, illetve elkészítette a paksi atomerőmű 2. blokk üzemidő hosszabbításával kapcsolatos jogszabály szerinti dokumentációt [118/2011.(VII.11.) Korm. rendelet 20. § (3) bekezdés], amit az NBSZ 1.2.6.1400. és az NBSZ 1.2.6.1500 előírásai szerint állított össze.


A mellékelt 77951/MO/2013. számú beadvány 3. pontjában részletezett dokumentáció összeállítását a paksi atomerőmű 2. blokk üzemidő hosszabbításával kapcsolatos jogszabályi követelmények teljesítésének bemutatására, illetve a kiterjesztett üzemeltetési időszak alatt az engedélyes által tervezett intézkedések ismertetésére irányul.

A hivatkozott dokumentációra alapozva az MVM Paks Atomerőmű Zrt. kéri az Országos Atomenergia Hivatalt, hogy a paksi atomerőmű 2. blokk tervezett üzemidőn túli üzemeltetéséhez az üzemeltetési engedélyt - további 20 évre - 2034. december 31-ig szíveskedjen megadni.

Melléklet: 77951/MO/2013. számú beadvány és mellékletei – (1 példány papír formátum 4 példány elektronikus adathordozó)

Paks, 2013.10. 10.  Hamvas István
vezérigazgató

MVM Paks Atomerőmű Zrt.
Működésfejlesztési Osztály

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Application for lifetime extension of Paks NPP Unit No. 2

operation, provided that Paks NPP executes the program within the time schedule provided for in the decision.

In accordance with the applicable regulations, one year before the expiry of the design lifetime, i.e. in November 2013, the Paks NPP submitted the lifetime extension application for Unit 2. The application summarizes the results of preceding activities carried out to demonstrate the further operability. The application described that Paks NPP has implemented all tasks of the lifetime extension programme, as well as the results of the tests and their analysis which demonstrate that Unit 2 can be operated until the end of 2034.

According to the law of regulatory procedures and administrative services, the duration of the lifetime extension licensing procedure is six months, into which length of certain procedural steps do not count, e.g. the duration of the process of the involved auxiliary authority, the time needed to clarify facts and data contained in the application, and the time required to complete the application to answer questions of the regulator.

The Environmental Inspectorate of the South-trans-Danubian Region takes part in the licensing procedure of HAEA, as an auxiliary authority.

During the review and evaluation of the application and its supporting documents, HAEA several times asked additional information and documents. By the end of September, Paks NPP fully submitted the additions required by HAEA.

In accordance with the applicable legislation, HAEA – as part of the procedure – held a public hearing in the Hall of the Mayor's Office in Paks on May 6th 2014. Among others, Greenpeace Hungary also attended the public hearing and posed a number of questions connected with the lifetime extension and its licensing process.

The decision on lifetime extension of Unit 2 will be published in form of a public notice, which will be available on the Notice board of the Mayor's Office in Paks and on the website of HAEA.



Public hearing

Budapest Research Reactor

Long shutdown period at Budapest Research Reactor

On 8th February 2014 the operator on duty detected increasing power consumption of the main circulating pump. The reactor operated with the spare pump until the end of the scheduled cycle. Then, on February 17th 2014, the staff began repairing the defective pump. In the preparatory phase it was seen that the hermetic staging is not feasible due to the failure of the "TUFLIN" valves. Subsequent investigation of the problem revealed an unexpectedly fast radiation damage of seals of these valves. Previously, the seals had been operating in accordance with the expectations at least for 14 years and were replaced in 2010 and 2012. The replacement was carried out by using assigned gaskets according to the original



The regulatory inspection of damaged seals

specifications of the original manufacturer. After installation the new seals, they performed well on the tests and the degradation was not predictable. In consultation with the manufacturer revealed that the sealing ring series ordered in 2010 had a material defect. The samples from rings series, re-ordered in 2014, performed satisfactorily during the high-flux irradiation test and aging effects could not be observed. The aging management program of the Research Reactor was supplemented by monitoring the condition of the seals, thus in the future it is expected to predict the degradation of the seals in due course. Due to the incident, the environment and the nuclear safety of the reactor was not in danger. The INES classification of the event was 0, below the scale. The staff handled the situation properly; operations and troubleshooting were in line with the expectations and in accordance with the internal control documents. The official pressure test was successfully performed, and on September 3rd 2014 the reactor resumed the normal operation.



Radiation caused damage of seals of valves



The collected grit

An Event of Interest

Failure of the automatic opening of the bypass valves of the main steam collector into the condenser

On 11/05/2014 Unit 1 of the Paks NPP was operating at full power when a circuit breaker of the 400 kV transmission line opened due to a spurious actuation of the electrical protection of the transmission line. As a consequence of this, both turbines tripped and the household electrical bus bars switched over to the backup supply. The bypass valves of the steam collector into the condenser did not open, as requested due to the turbines' load drop. As a consequence, the dump valves of the main steam collector and some of the safety valves of the steam generators opened and released steam into the atmosphere. Main control room operators opened the bypass valves manually and stabilized the reactor power at 12% of the nominal value. During the immediate investigation, two different causes of the failure of automatic opening of the bypass valves were identified. It was also revealed that the spurious actuation of the transmission line protection was caused by erroneous adjustment of the protecting device set point. After repairing the revealed faults, the turbo-generators were re-synchronized to the grid and the reactor power was increased to its nominal level.

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

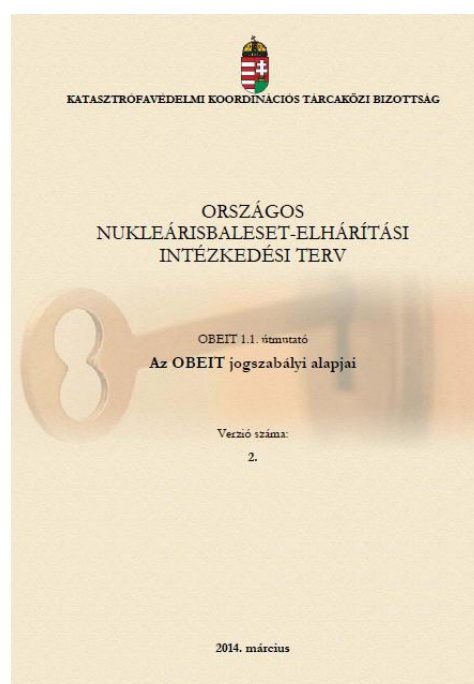
Emergency Preparedness and Response

Revision of the Nuclear Emergency Response Guidelines

The High-level Working Committee (HWC) was established in 2006 with the purpose of preparing and maintaining the Hungarian Nuclear Emergency Response Plan (HERP) and the related Guidelines. Thanks to the regular revision and update of the HERP, the latest version 2.2 was approved in January 2013.

This revision of the HERP and the recent changes in the legal background initiated the revision of the Nuclear Emergency Response Guidelines and also the preparation of new ones. The recently issued Guidelines are published on the HAEA's website.

By March 2014 the following Guidelines were revised or newly issued by the HAEA's director-general:



- No. 1.1. on the legal background of the Hungarian Nuclear Emergency Response Plan (version 2.)
- No. 3.1. on the critical tasks of the Hungarian Nuclear Emergency Response System (version 2.)
- No. 3.2. on the assessment of the critical tasks of the Hungarian Nuclear Emergency Response System (version 2.)
- No. 3.3. on the providing assistance in response (version 2.)
- No. 3.4. on the Hungarian Radiation Monitoring, Alarm and Control System (version 2.)
- No. 3.5. on the emergency monitoring strategy (version 2.)
- No. 4.1. on the planning works of the organisations of the Hungarian Nuclear Emergency Response System on preparedness (version 2.)
- No. 4.2. on the communication between the organisations of the Hungarian Nuclear Emergency Response System (version 1.)
- No. 5.1. on the preparation and maintenance of organisational Nuclear Emergency Response Plans (version 2.)

Revision of other existing Guidelines and preparation of new ones is being continued in 2014.