EPREV REPORT

IAEA

Emergency Preparedness Review

EPREV

PEER APPRAISAL OF THE ARRANGEMENTS IN HUNGARY REGARDING THE PREPAREDNESS FOR RESPONDING TO A RADIATION EMERGENCY

2016-06-13 to 2016-06-24

International Atomic Energy Agency

FOREWORD

Within the United Nations system, the International Atomic Energy Agency (IAEA) has the statutory functions of establishing standards of safety for the protection of health against exposure to ionizing radiation, and of providing for the application of these standards. In addition, under the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention) the IAEA has a function, if requested, to assist Member States in preparing emergency arrangements for responding to nuclear accidents and radiological emergencies.

In response to a request from the Government of Hungary, the IAEA fielded an Emergency Preparedness Review (EPREV) mission to conduct, in accordance with Article III of the IAEA Statute, a peer review of Hungary's radiation emergency preparedness and response arrangements vis-à-vis the relevant IAEA standards.

The number of recommendations, suggestions and good practices is in no way a measure of the status of the emergency preparedness and response system. Comparisons of such numbers between EPREV reports from different countries should not be attempted.

Contents

Executive Summary

This report provides the results of the Emergency Preparedness Review (EPREV) mission to Hungary from 13 to 24 June 2016. The mission was undertaken by the International Atomic Energy Agency (IAEA) based on a request from the Hungarian Government to have a full scope EPREV. EPREV missions are designed to provide an independent review of emergency preparedness and response (EPR) arrangements in a country based on the IAEA safety standards. The EPREV team consisted of international EPR experts from IAEA Member States and a team coordinator from the IAEA Secretariat.

Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSR Part 7 (GSR Part 7) was published in November 2015 and supersedes the previous Safety Requirements, GS-R-2. GSR Part 7 takes into account, among other things, experience gained from studying the responses to emergencies since 2002, including but not limited to the Fukushima Daiichi accident in Japan in 2011. Also considered are findings from exercises and feedback obtained from Member States since 2002.

Hungarian authorities are being proactive in their commitment and efforts to align their EPR program with GSR Part 7 and the EPREV team would like to acknowledge the enhancements made so far. It is also recognized by the EPREV team that a number of recommendations and suggestions related to changes arising from GSR Part 7 could not be expected to be fully implemented at the time of the mission.

The findings are based on the results of the self-assessment completed by Hungary prior to the EPREV mission, comprehensive reference documents, as well as interviews with stakeholders and site visits conducted during the EPREV mission. The self-assessment completed by Hungary was thorough and objective, and was performed utilizing the newly developed Emergency Preparedness and Response Information Management System (EPRIMS). Throughout the preparation and the mission the EPREV team noted the openness and transparency of the organizations involved and their willingness to discuss EPR arrangements in great detail.

The EPREV team has identified a number of recommendations and suggestions intended to assist Hungary in the further enhancement of its EPR program. In addition, the team also identified a number of good practices.

The establishment of the High Level Working Group (HLWG) is to be commended and, in particular is an effective tool for ensuring that up to date EPR arrangements are in place. However, it was noted that the National Nuclear Emergency Response Plan (NNERP) does not fully reflect the changes recently made to the legislation and does not identify the primary organization responsible for the implementation of all critical tasks. In addition, it was suggested that the relevant guideline should be revised regarding the termination of a nuclear or radiological emergency.

Hungary should consider reinstating a mechanism to coordinate the development of an annual national training and exercise plan. In addition, at some facilities, further improvements should be made to enhance their training and exercise programmes.

Issues were identified about the training available for general practitioners and other medical staff in the diagnosis of clinical symptoms of radiation exposure.

A number of organizations noted that they have a shortage of trained emergency response personnel. An analysis of EPR positions should be conducted to clearly identify the personnel required for sustained operations during an emergency. This report also identifies the need for succession management planning and establishing knowledge management and transfer systems to ensure appropriately qualified staff is available for EPR.

The EPREV team noted the need for the NPP to ensure that the alternate emergency operations centre (EOC) is able to operate under severe emergency situations. The alternate EOC has been exercised and includes the required infrastructure, but it lacks sufficient protection from radiation and other potential hazards.

Further areas where improvements could be made include:

- Public warnings should be prepared and issued in languages other than Hungarian;
- The NNERP should contain further arrangements to deal with the non-radiological hazards and consequences that could arise from a nuclear or radiological emergency;
- The management and protection of emergency workers and helpers should be improved; and
- Facilities with the potential of encountering dangerous sources should be identified.

The EPREV team was impressed with the overall level of emergency preparedness in Hungary. In particular, the support and dedication to nuclear and radiological EPR is to be commended. Implementation of the recommendations and suggestions contained in this report will further support and enhance the EPR program in Hungary. The concerned organisations are expected to adopt an action plan to implement these recommendations and suggestions. It is suggested that the action plan should be approved at an appropriate level, and should identify organization(s) responsible for the implementation of specific recommendations and include a process to monitor the status of their implementation.

1. INTRODUCTION

1.1. Objective and Scope

The purpose of this EPREV mission was to conduct a review of the Hungarian EPR arrangements and capabilities. This EPREV was a full scope mission. The review was carried out by comparison of existing arrangements against the IAEA safety standards on emergency preparedness and response.

It is expected that the EPREV mission will facilitate improvements in emergency preparedness and response arrangements of Hungary and other Member States from the knowledge gained and experiences shared between Hungary and EPREV team and through the review of the effectiveness of the Hungarian arrangements and capabilities and its good practices.

The key objectives of this mission were to enhance, EPR arrangements and capabilities by:

- Providing Hungary with an opportunity for self-assessment of its activities against IAEA safety standards;
- Providing Hungary with a review of its EPR arrangements;
- Providing Hungary with an objective review of its EPR arrangements with respect to IAEA safety standards;
- Providing Hungary with recommendations and suggestions for improvement;
- Contributing to the harmonization of EPR approaches among IAEA Member States;
- Promoting the sharing of experience and exchange of lessons learned;
- Providing reviewers from IAEA Member States and the IAEA staff with opportunities to broaden their experience and knowledge of EPR;
- Providing key staff in relevant Hungarian organizations with an opportunity to discuss their practices with reviewers who have experience with different practices in the same field; and
- Providing other States with information regarding good practices identified in the course of the review.

1.2. Preparatory Work and Review Team

At the request of the Government of Hungary, a preparatory meeting for EPREV was conducted from 25 to 26 June 2015. The preparatory meeting was carried out by the appointed Team Leader and the IAEA Team Coordinator.

The EPREV team had discussions regarding EPR (and policy issues) with the Hungarian Liaison Officer and key organizations in Hungary. The discussions resulted in agreement on the scope of the EPREV mission.

The Hungarian liaison officer presented the national context, the current status of EPR in Hungary and the self-assessment results to date.

The EPREV team presented the EPREV principles, process and methodology. This was followed by a discussion on the tentative work plan for the implementation of the

EPREV Mission in Hungary in June 2016.

The proposed EPREV team composition (experts from Member States to be involved in the review) was discussed and the size of the EPREV team was tentatively confirmed. Logistics including: meeting and work space, counterparts and Liaison Officer identification, proposed site visits, lodging and transportation arrangements were also addressed. All relevant aspects were included in the agreed Terms of Reference (TOR).

The Hungarian Liaison Officer provided IAEA (and the review team) with the advance reference material for the review during the agreed period, including the self-assessment results.

In preparation for the mission, the IAEA review team members conducted a review of the advance reference material and provided their initial review comments to the IAEA Team Coordinator prior to the commencement of the EPREV mission.

1.3 Reference for the Review

IAEA safety standards GSR Part 7 (Preparedness and Response for a Nuclear or Radiological Emergency) [1], GSG-2 (Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency) [2], and GS-G-2.1 (Arrangements for Preparedness for a Nuclear or Radiological Emergency) [3] were used as review criteria.

The terms used in this report are consistent with those found in the IAEA safety standards referred in the above paragraph.

2. DETAILED FINDINGS ON GENERAL REQUIREMENTS

2.1. Emergency management system

The structure of emergency management for all types of emergencies and irrespective of its origin is described in the Act CXXVIII of 2011 on Disaster Management and Govt. Decree 234/2011. Korm. on the implementation of the Act CXXVIII of 2011 on disaster management. The structure of emergency preparedness and response (EPR) for nuclear or radiological emergencies is described in Act CXVI of 1996 on Atomic Energy (Atomic Energy Act). Supporting information and additional requirements are found in the Govt. Decree 487/2015, the Govt. Decree 167/2010, the Govt. Decree 165/2003, the Govt. Decree 490/2015 and the Govt. Resolution 1150/2012.

The NNERP and other relevant documents are based on IAEA's standards and guides, mainly GS-R-2 and EPR-Method 2003. The current version of the NNERP was published in the end of 2015. The NNERP and other relevant documents are under revision to align them with GSR Part 7, but no comprehensive timeline was given. This is considered of high importance from the EPREV team's perspective given the updates in the new document on hazard assessment, protection strategy, emergencies initiated by nuclear security events, as well as some concepts and terminology.

Suggestion 1
Observation: The current version of the NNERP and relevant documents addressing EPR in Hungary are based on GS-R-2 which has been superseded by GSR Part 7. Hungary already started with the alignment of relevant documents with this new standard.
Basis for suggestion: GSR Part 7 paragraph 4.1 states: "The government shall ensure that an emergency management system is established and maintained on the territories of and within the jurisdiction of the State for the purposes of emergency response to protect human life, health, property and the environment in the event of a nuclear or radiological emergency."
Suggestion: The High Level Working Group should consider accelerating the revision of the NNERP and other relevant documents to align them with the revised IAEA safety standard on EPR, GSR Part 7.

Hungary has separate agreements with neighbouring countries on issues of mutual interest related to nuclear safety and emergencies. Early notification and information exchange as well cooperation in emergencies is part of the agreements. The differences in the content of these agreements may increase the burden on Hungarian authorities.

2.2. Roles and responsibilities in emergency preparedness and response

The roles and responsibilities of relevant organizations are described in the Act CXXVIII of 2011 on Disaster Management, the Act CXVI of 1996 on Atomic Energy, the Govt. Decree 167/2010 and the NNERP.

The Atomic Energy Act, section 45, states that the user of atomic energy shall first inform the Mayor in case of an emergency. In Govt. Decree 490/2015it is written that the acting authority shall notify the local competent unit of the central disaster management authority.

The NNERP identifies “critical tasks” that must be carried out in an emergency response and identifies responsible organizations. In the recent assessment of the NNERP, an average of six responsible organizations are assigned for each critical task. In some cases, the number of responsible organizations was as high as 15. It was noted that the NNERP does not identify the main organization responsible for every critical task. It was also observed that the NNERP does not fully reflect the changes recently made to the legislation.

Recommendation 1
Observation: The NNERP does not fully reflect the changes recently made to the legislation. The NNERP does not identify a main organization responsible for every critical task.
Basis for recommendation: GSR Part 7 paragraph 4.7 states: “The government shall ensure that all roles and responsibilities for preparedness and response for a nuclear or radiological emergency are clearly allocated in advance among operating organizations, the regulatory body and response organizations.”
Recommendation: The High Level Working Group should ensure that the NNERP reflect the recent changes in legislation and also identify a primary organization responsible for the implementation of a critical task.

The Hungarian Government has established through Govt. Decree 167/2010. (V. 11.) Korm., the HLWG in which senior representatives of key organizations participate to ensure coordination of emergency plans and procedures. The HLWG brings together the relevant experts to discuss revisions of the NNERP and other plans and procedures. This group can be seen as a valuable asset and a practical implementation of the national coordinating mechanism.

Good Practice 1
Observation: The High Level Working Group plays an important role in the preparedness for a nuclear or radiological emergency, and works effectively to update national arrangements.
Basis for good practice: GSR Part 7 paragraph 4.10 states: “The government shall establish a national coordinating mechanism to be functional at the preparedness stage, consistent with its emergency management system, with the following functions: … (c) To coordinate and ensure consistency between the emergency arrangements of the various response organizations, operating organizations and the regulatory body at local, regional and national levels under the all-hazards approach, including those arrangements for response to relevant nuclear security events, and, as appropriate, those arrangements of other States and of international organizations; …”
Good practice: The establishment of the High Level Working Group with the participation of senior experts of key organizations is a critical asset of

Good Practice 1
the preparedness for a nuclear or radiological emergency. The HLWG in Hungary has been particularly effective in its methods for ensuring up to date arrangements are in place and coordinated between all response organizations.

Relevant staff at Agroster Co Ltd. and at the National Institute of Oncology did not demonstrate a clear understanding of the roles and responsibilities conveyed in the Emergency Response Plan of the facility.

Suggestion 2
Observation: Staff at some facilities (Agroster Co Ltd. and the National Institute of Oncology) are not aware of their roles and responsibilities as conveyed in the emergency response plan of the facility.
Basis for suggestion: GSR Part 7 paragraph 4.10 states: "The government shall establish a national coordinating mechanism to be functional at the preparedness stage, consistent with its emergency management system, with the following functions: (a) To ensure that roles and responsibilities are clearly specified and are understood by operating organizations, response organizations and the regulatory body …"
Suggestion: Agroster Co Ltd. and the National Institute of Oncology should consider ensuring that roles and responsibilities are understood by their staff.

As it was highlighted during the IRRS mission in 2015, there are no clear guides or regulations specifying the EPR requirements for operating organizations using radioactive sources.

Since the 1st of January 2016, the Office of the Chief Medical Officer of State of the National Public Health and Medical Officer Services (NPHMOS) is not the regulatory body anymore. HAEA has been overseeing the radiation protection at the radioactive associated facilities since then. Based on this new competence, HAEA licences and inspects the EPR arrangements at facilities. According to the Hungarian legislation the licences remain valid until expiration. New requirements are expected to be included during the next licensing cycle.

There are no comprehensive EPR regulatory requirements or guidance for nuclear fuel transportation (as stated in the IRRS's report from 2015). It was observed that the relevant guideline is under preparation.

Recommendation 2
Observation: In some facilities the requirements already defined in the newest legislation are not fully implemented. This applies, among others, to the coordination between safety and security, implementation of training and exercise programmes, analysing the response and the emergencies and off-site/on-site coordination.
Basis for recommendation: GSR Part 7 paragraph 4.12 states: "The regulatory body is required to establish or adopt regulations and guides to specify the principles, requirements and associated criteria for safety upon

Recommendation 2
which its regulatory judgements, decisions and actions are based [7]. These regulations and guides shall include principles, requirements and associated criteria for emergency preparedness and response for the operating organization (see also paras 1.12 and 4.5)."
Recommendation: HAEA should complete its regulatory guide to facilitate the preparation of the emergency response plans of the operators to be submitted as a part of their radiation protection plan, and further enforce the implementation of the new EPR related requirements at facilities.

2.3. Hazard assessment

As specified by the Govt. Decree 234/2011. (XI.10.) Korm. on the implementation of the Act CXXVIII of 2011 on Disaster Management, and on the amendment of the related acts, the counties conduct their own hazard assessment and are classified into different disaster management categories based on this assessment.

According to the self-assessment document, the National Directorate General for Disaster Management (NDGDM) has developed a methodology in accordance with EU regulation and ISO 31010 for national disaster risk assessment that covers a wide range of risks that might impact the country, including nuclear or radiological emergencies.

Regarding the assessed hazards, the Institute of Isotopes Co. Ltd. (II Ltd.) is classified as a facility of emergency preparedness category II. No radiological consequence modelling was provided to the EPREV team for which on-site events would warrant urgent off-site protective actions.

The NNERP specifies in its section 7.4.4. arrangements to deal with emergency situations in connection with a found dangerous radioactive source. Nonetheless, the EPREV team could not identify specific arrangements in place to identify facilities and locations with a significant likelihood of encountering dangerous sources (emergency preparedness category IV). There are no practical instructions for operators of these activities.

Recommendation 3
Observation: There are no specific arrangements to identify facilities and locations with a significant likelihood of encountering dangerous sources.
Basis for recommendation: GSR Part 7 paragraph 4.21 states: "The government shall ensure that the hazard assessment identifies those facilities and locations at which there is a significant likelihood of encountering a dangerous source that is not under control."
Recommendation: The HLWG should ensure that all facilities with potential of encountering dangerous sources are identified in order to develop the necessary procedures and analytical tools and be able to identify dangerous sources and contaminated material and respond accordingly.

2.4. Protection strategy for an emergency

The strategy for the protection of the public in a nuclear emergency is well thought out and comprehensive. Appropriate measures are considered and agreed by all administrative levels of the country (national, county and settlement levels). However the NNERP has not been updated to align with protection strategy criteria identified in GSR Part 7.

Recommendation 4
Observation: In the NNERP generic intervention levels in terms of avertable dose and generic action levels are considered to determine what protective actions and other response actions should or could be taken.
Basis for recommendation: GSR Part 7 paragraph 4.28 states: "Development of a protection strategy shall include, but shall not be limited to, the following: … (2) "A reference level expressed in terms of residual dose shall be set, typically as an effective dose in the range 20–100 mSv, acute or annual, that includes dose contributions via all exposure pathways. This reference level shall be used in conjunction with the goals of emergency response (see para. 3.2) and the specific time frame in which particular goals are to be achieved …"
Recommendation: The HLWG should review the existing reference levels and align them with GSR Part 7, Appendixes 1 and 2.

3. DETAILED FINDINGS ON FUNCTIONAL REQUIREMENTS

3.1. Managing emergency response operations

In the early stages of an emergency, the Mayor has the decision making authority in extraordinary circumstances when rapid decisions need to be made. However, a review of a hypothetical scenario where an ice storm made evacuation dangerous, there appeared to be no one willing to make a decision about proceeding with the evacuation or not. It was clarified notwithstanding that in the early stages of an emergency the method of decision making is clearly described by the Disaster Management Act and Govt. Decree 234/2011 (point 46, paragraph 1).

In each county there is one person who works in the Mayor's office serving as a liaison officer with the national disaster management structure. This person is trained and knowledgeable of the risks characteristics and emergency management aspects in the settlement, builds relationships in peace time, prepares plans and can collect data related to emergencies. However this person is an advisor to the decision maker, the Mayor.

If an emergency impacts more than one county, the Disaster Management Interministerial Coordination Committee (DMCC) may dispatch a professional incident commander to lead the emergency. This person has the right to give commands and even overrule the local authorities' decisions. At the conclusion of the emergency, this person will write a report signed by the local authority confirming or not approval of the report.

The emergency response plan for the Training Reactor is loosely embedded and articulated with the more general Emergency Response Plan of the Campus, not allowing a strong coordination with other emergencies occurring in the vicinity of the reactor. The respective plans do not completely identify and consider the impacts of an emergency or emergency response on the operations or safety of other facilities and activities on the Campus.

Suggestion 3
Observation: The Emergency Response Plan for the Training Reactor is loosely embedded and articulated with the more general Emergency Response Plan of the Campus.
Basis for suggestion: GSR Part 7, paragraph 5.2 states: "For facilities in categories I, II and III, arrangements shall be made for the on-site emergency response to be promptly executed and managed without impairing the performance of the continuing operational safety and security functions both at the facility and at any other facilities on the same site. The transition from normal operations to operations under emergency conditions on the site shall be clearly specified and shall be effectively made. The responsibilities of all personnel who would be on the site in an emergency shall be designated as part of the arrangements for this transition. It shall be ensured that the transition to the emergency response and the performance of initial response actions do not impair the ability of operating personnel (such as operating personnel in the control room) to ensure safe and secure operation while taking mitigatory actions."

Suggestion 3
Suggestion: The Training Reactor should consider further integrating its Emergency Response Plan with the Emergency Response Plan for the Campus of the University.

At the Institute of Isotopes Co. Ltd. the control and the leadership of the emergency response are performed by the Emergency Response Operational Staff (BEOT). The managing director of this institute directs the BEOT.

3.2. Identifying, notifying and activating

Generally, identifying, notifying and activating procedures are well developed and effective. Many organizations have specific minimum time requirements for these actions to take place and these procedures have been validated through exercises.

The Budapest Research Reactor (BRR) is required by HAEA to classify nuclear emergencies. Its emergency response plan provides this classification following various initial events. The emergencies classes considered are: potential emergency (alert); facility emergency; and site area emergency.

The BRR plan mentions that the occurrence of general emergencies resulting in severe accident consequences off-site was not probable even in the event of complete core melting. However, during the interview with the representatives of the BRR it was noted that postulated emergencies include an airplane crash, an earthquake and a terrorist attack; and the ERP lists a loss of coolant accident (LOCA) as a possible consequence (break of 400 mm tube). This postulated consequence could be classified as general emergency leading to a total core meltdown with release of noble gases and radioiodine (more than 2 GBq/m^3).

Recommendation 5
Observation: The classification of emergencies described in the Budapest Research Reactor's Emergency Response Plan is not consistent with the postulated emergencies and resulting consequences referred to in this Plan.
Basis for recommendation: GSR Part 7 paragraph 5.14 states: "The operating organization of a facility or activity in category I, II, III or IV shall make arrangements for promptly classifying, on the basis of the hazard assessment, a nuclear or radiological emergency warranting protective actions and other response actions to protect workers, emergency workers, members of the public and, as relevant, patients and helpers in an emergency, in accordance with the protection strategy (see Requirement 5). This shall include a system for classifying all types of nuclear or radiological emergency …"
Recommendation: The Budapest Research Reactor should make arrangements to ensure that the hazard assessment and classification of the emergencies are aligned.

Not all first response teams can detect radiation. It was observed for instance that at the airport, only the hazardous material (HAZMAT) response team has detectors. Other first response organizations (that may be the first to arrive at the scene) do not have ways to detect this hazard.

Suggestion 4
Observation: The first responders at the airport are equipped with electronic dosimeters, but general first responders (ambulance, police, firefighters) are not equipped.
Basis for suggestion: GSR Part 7, paragraph 5.17 states: “For facilities and activities in categories I, II and III, and for category IV, arrangements shall be made: (1) to promptly recognize and classify a nuclear or radiological emergency; (2) upon classification, to promptly declare the emergency class and to initiate a coordinated and preplanned on-site response…”
Suggestion: The Ministry of Interior and the Ministry of Human Capacities should consider providing relevant first response teams with simple radiation detectors able to alert them about hazardous conditions.

It was noted that the Training Reactor building does not have a dedicated sound alarm that warns of the need for immediate evacuation.

3.3. Taking mitigatory actions

MVM Paks NPP Ltd. has well established plans and procedures to take mitigatory actions, which include an assessment of external events. Procedures, agreements and equipment are in place and exercised.

For the Training Reactor, it was noted that the connection with the off-site response organizations is made through the campus emergency response structure. It was also noted that for the BRR the relation with security off-site response is done through the Centre for Energy Research of the Hungarian Academy of Sciences (HAS CER).

3.4. Taking urgent protective actions and other response actions

In relation to the strategy for iodine thyroid blocking, Potassium Iodine (KI) pills for the public are stored in the counties at Mayors’ offices for areas within the designated urgent protective action planning zone (UPZ) of the Paks Nuclear Power Plant, for distribution upon notification of an emergency. It was indicated that it could take up to 11 or 12 hours to prepare Mayors’ offices, poll stations and police to distribute KI pills to the public. In the UPZ, surrounding MVM Paks NPP Ltd. some agencies expressed their concern about whether this could be accomplished effectively. Discussions regarding KI pills pre-distribution have taken place at the national level and the decision was made not to pre-distribute pills, out of concern that some individuals may misuse the pills. In a rapidly unfolding emergency with a quick release, it is unlikely, however, that KI pills could be distributed in time to be effective. The distribution beyond the UPZ has not been considered.

3.5. Providing instructions, warnings and relevant information to the public

The County Defence Committees are mandated to provide information to the residents that may be affected by an emergency situation. The residents living in areas at risk learn about the instructions on protective measures through public communication channels in the national and local media, the internet, as well as in

any other manner used locally (e.g., flyers and announcements). At present, this task is performed in Hungarian language only. If required, short information could also be prepared in other languages, although this would currently have to be done during the emergency response with whichever resources are available.

There are digital information boards on highways (M6), where emergency information can be displayed in different languages.

Suggestion 5
Observation: The current information (instructions, warnings and relevant information to the public) for the public is available only in Hungarian language.
Basis for suggestion: GSR Part 7 paragraph 5.45 states: "For facilities in category I or II and areas in category V, arrangements shall be made to provide the permanent population, transient population groups and special population groups or those responsible for them and special facilities within the emergency planning zones and emergency planning distances (see para. 5.38), before operation and throughout the lifetime of the facility, with information on the response to a nuclear or radiological emergency. This information shall include information on the potential for a nuclear or radiological emergency, on the nature of the hazards, on how people would be warned or notified, and on the actions to be taken in such an emergency. The information shall be provided in the languages mainly spoken by the population residing within the emergency planning zones and emergency planning distances. The effectiveness of these arrangements for public information shall be periodically assessed."
Suggestion: DMCC should consider having arrangements to provide information (instructions, warnings and relevant information to the public) in other languages for the transient population groups within the emergency planning zones and emergency planning distances.

During the interview with the team from the Radioactive Waste Processing and Storage Facility (RWPSF) at Püspökszilágy, it was noted that the associations from neighbourhood communities are invited any time they want, to visit the facility, observe, ask questions, make measurements and report on their findings.

Real time dose rate information for the whole country is available to the public on the national government disaster website, including the MVM Paks NPP Ltd. and for waste facilities through PURAM Plc. websites. This practice is very transparent and contributes to public knowledge about radiation and their acceptance of the facilities.

Good Practice 2
Observation: Real time dose rate information is available to the public on the internet.
Basis for good practice: GSR Part 7 paragraph 5.45 states: "For facilities in category I or II and areas in category V, arrangements shall be made to provide the permanent population, transient population groups and special population groups or those responsible for them and special facilities within the emergency planning zones and emergency planning distances (see para. 5.38), before operation and throughout the lifetime of

Good Practice 2
the facility, with information on the response to a nuclear or radiological emergency. This information shall include information on the potential for a nuclear or radiological emergency, on the nature of the hazards, on how people would be warned or notified, and on the actions to be taken in such an emergency. The information shall be provided in the languages mainly spoken by the population residing within the emergency planning zones and emergency planning distances. The effectiveness of these arrangements for public information shall be periodically assessed.”
Good practice: Posting real time radiological data from monitoring stations contributes to facility transparency and public awareness and understanding.

3.6. Protecting emergency workers and helpers in an emergency

For facilities in emergency preparedness category I and II, emergency workers are provided with protective equipment and they are monitored. Where necessary, shelters are available on-site to accommodate and protect emergency workers. Individuals involved in the response teams are also supplied with KI pills from the central stocks on-site.

Several facilities in emergency preparedness category II and III, such as the Training Reactor, Semmelweis University, University of Szeged, the National Institute of Oncology and the Institute of Isotopes Co., Ltd. have not designated their workers with specific duties in response to an emergency as emergency workers.

Recommendation 6
Observation: Emergency Workers are not designated in several facilities of categories II and III.
Basis for recommendation: GSR Part 7 paragraph 5.49 states: “Arrangements shall be made to ensure that emergency workers are, to the extent practicable, designated in advance and are fit for the intended duty. These arrangements shall include health surveillance for emergency workers for the purpose of assessing their initial fitness and continuing fitness for their intended duties ..."
Recommendation: HAEA should ensure that emergency workers are designated in advance to the extent practicable.

There is no system to record the doses of off-site emergency workers. This was confirmed during the interviews with the HAZMAT team at the airport, with the National Public Health Centre, and the National Research Directorate for Radiobiology and Radiohygiene.

Recommendation 7
Observation: There are no arrangements in place to keep records of the doses received by off-site emergency workers.
Basis for recommendation: GSR Part 7 paragraph 5.58 states: “Arrangements shall be made to assess as soon as practicable the individual doses received in a response to a nuclear or radiological emergency by emergency workers and helpers in an emergency and, as

Recommendation 7
appropriate, to restrict further exposures in the response to the emergency (see Appendix I).”
Recommendation: The Ministry of Human Capacities should make arrangements to establish a national system for recording doses received by emergency workers.

Members of the public who are willing to provide voluntary help (helpers in an emergency) can be involved during the response to an emergency situation. There are no arrangements for the protection of voluntary helpers. This is not addressed in the existing legislation or in the NNERP. As per current arrangements helpers are not allowed to approach the contaminated area and it is expected that their tasks would be limited to simple tasks like food distribution among the evacuated population.

Suggestion 6
Observation: There is no national system in place to ensure that protection of helpers in an emergency will be provided as this is not considered necessary given the current arrangements.
Basis for suggestion: GSR Part 7 paragraph 5.52 states: “The operating organization and response organizations shall ensure that arrangements are in place for the protection of emergency workers and protection of helpers in an emergency for the range of anticipated hazardous conditions in which they might have to perform response functions …”.
Suggestion: The DMCC should consider developing arrangements to protect helpers in an emergency.

3.7. Managing the medical response in a nuclear or radiological emergency

According to the Ministerial Decree 16/2000 EüM, nine dedicated hospitals provide special treatment to radiation injured persons (or those suspected) and these hospitals provide decontamination of patients. Both the medical units belonging to the Semmelweis University (SuB) and the University of Szeged (UoS) have arrangements to deal with these situations.

The National Institute of Oncology is also one of the special health institutions designated for the specialized treatment of the radiation injured or potentially injured persons. The Institute has arrangements and capabilities to discharge the assigned competencies.

Dedicated medical staff working at the designated hospitals attend regular special radiation courses. In Hungary, the National Research Directorate for Radiobiology and Radiohygiene (NRDRR) is authorized to organize these training activities by the Ministerial Decree 16/2000. This issue is considered in the new Govt. Decree 487/2015 replacing MD 16/2000.

It was noted that knowledge about symptoms of radiation exposure has not been systematically addressed in medical institutions for general practitioners.

Recommendation 8
Observation: There are no systematic arrangements in place for general practitioners and medical emergency staff to be made aware of the symptoms of radiation exposure.
Basis for recommendation: GSR Part 7 paragraph 5.63 states: "Arrangements shall be made for medical personnel, both general practitioners and emergency medical staff, to be made aware of the clinical symptoms of radiation exposure, and of the appropriate notification procedures and other emergency response actions to be taken if a nuclear or radiological emergency arises or is suspected."
Recommendation: The Ministry of Human Capacities should make arrangements for medical personnel, both general practitioners and emergency staff, to recognize the symptoms of radiation exposures.

3.8. Communicating with the public throughout an emergency

The DMCC has a public communication strategy. During a nuclear or radiological emergency, all activities related to communications to the public are managed from the DMCC's National Emergency Response Centre. This includes media messaging, publishing information of general interest and using other network services (e.g. Facebook and application for smart phones). In nuclear emergencies, it was indicated that messaging to the public through this media could be delivered within 5 minutes of a decision being made to notify the public.

3.9. Taking early protective actions

The necessary planning and operational capability exists for taking early protective actions. Responsibilities are assigned, particularly with respect to food control and sampling in the Ingestion and Commodities Planning Distance (ICPD). One area of concern (addressed in section 4.2 of this report) is the availability of the necessary staff to implement widespread early protective actions in the event of a severe accident resulting in a large release.

3.10. Managing radioactive waste in an emergency

The BRR could store 300 cubic meters of low activity liquid waste resulting from an emergency situation. The Training Reactor has the capacity to manage small volumes of radioactive waste. Similarly the Semmelweis University (SuB) and the University of Szeged (UoS) could store small amounts of radioactive waste resulting from an emergency. All these facilities rely on the Hungarian Nuclear Emergency Response System (HNERS) for support if these capacities are exceeded.

3.11. Mitigating non-radiological consequences

In the NNERP there are limited measures in place (e.g. media and press releases) to mitigate the non-radiological consequences of an emergency. Arrangements have not been identified in the NNERP to address and alleviate a number of possible non-radiological consequences. This includes, among others: public concerns, risk to the unborn child, anxiety, political and media pressure, and economic impact.

Suggestion 7
Observation: The NNERP does not address arrangements for the mitigation of non-radiological consequences.
Basis for suggestion: GSR Part 7 paragraph 5.89 states: "Non-radiological consequences of a nuclear or radiological emergency and of an emergency response shall be taken into consideration in deciding on the protective actions and other response actions to be taken in the context of the protection strategy (see Requirement 5)."
Suggestion: The HLWG should consider developing arrangements and articulate them in the NNERP to address non-radiological consequences

3.12. Requesting, providing and receiving international assistance

Hungary is party to the Convention on Early Notification of a Nuclear Emergency and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. It has also registered seven capabilities from various organizations with the IAEA's Response Assistance Network (RANET).

Good Practice 3
Observation: Hungary has registered 7 national assistance capabilities into the IAEA's Response and Assistance Network .
Basis for good practice: GSR Part 7 paragraph 5.93 states: "Governments and international organizations shall put in place and shall maintain arrangements to respond in a timely manner to a request made by a State, in accordance with established mechanisms and respective mandates for assistance in preparedness and response for a nuclear or radiological emergency."
Good practice: Hungary has registered national capabilities in the IAEA's RANET which demonstrates its willingness to provide assistance to requesting States, under conditions to be agreed with the Accident State and the IAEA after receiving request for assistance.

3.13. Terminating an emergency

Criteria for terminating an emergency and the transition from emergency exposure situation to an existing exposure situation or planned exposure situation are defined in section 4.1.4. of the NNERP and in the disposition (1) b) of the Section 9 of the Govt. Decree 487/2015.

Several facilities, such as the RWPSF, the Institute of Isotopes Co. (II Ltd.), the Agroster Co Ltd. and the National Institute of Oncology, do not consider criteria or arrangements for terminating an emergency within their emergency response plans.

Suggestion 8
Observation: There is no process in place for terminating an emergency in several emergency response plans.
Basis for suggestion: GSR Part 7 paragraph 5.95 states: "Adjustment of protective actions and other response actions and of other arrangements that are aimed at enabling the termination of an emergency shall be made by a formal process that includes consultation of interested parties."

Suggestion 8
Suggestion: HLWG should consider revising the relevant guideline to consider the termination of an emergency.

3.14. Analysing the emergency and emergency response

Operating organizations are required to provide information to HAEA about nuclear and radiological emergencies and implemented response measures. There is no consistent method or process of reporting, documenting and preserving this information.

NDGDM's Central Duty Service is a central point for national exchange of information about any radiological or nuclear emergencies and all information is archived there. NDGDM has a mechanism for reporting and analysing nuclear and radiological emergencies and the off-site response.

HAEA has a process for analysing nuclear emergencies and response at nuclear facilities and activities. However, there are different levels of details for different facilities and activities.

4. DETAILED FINDINGS ON REQUIREMENTS FOR INFRASTRUCTURE

4.1. Authorities for emergency preparedness and response

Authorities for emergency preparedness and response are clearly defined in the HNERS. The coordination and execution of the HNERS tasks is assigned for central, sectoral, regional and local organs. In particular the roles of the NDGDM, the DMCC, the HAEA, and the County Defence Committees are well established. It should also be noted that counties are able to activate quickly and have the authority to commence protective actions rapidly and until the national structure is ready to take over. When necessary and dispatched at the local level, the role and authority of the Incident Commander from the DMCC is clear.

4.2. Organization and staffing for emergency preparedness and response

There is insufficient staffing in many organizations to fulfil their responsibilities under the acts and NNERP. Given the demands of a prolonged emergency response, adequate staffing arrangements are paramount. This situation was also validated by the survey that was prepared by an independent expert.

Suggestion 9
Observation: Adequate staffing for all shift positions in response organizations has been identified as a concern.
Basis for suggestion: GSR Part 7 paragraph 6.10 states: “Appropriate numbers of suitably qualified personnel shall be available at all times (including during 24 hour a day operations) so that appropriate positions can be promptly staffed as necessary following the declaration and notification of a nuclear or radiological emergency. Appropriate numbers of suitably qualified personnel shall be available for the long term to staff the various positions necessary to take mitigatory actions, protective actions and other response actions.”
Suggestion: The HLWG should consider developing a proposal to the DMCC to review and identify all required positions and the required human resources necessary to fill the positions in a nuclear or radiological emergency.

Several organizations such as HAEA have experienced the departure of key staff with expertise in EPR and have struggled to implement a systematic approach to training that can ensure continuity of expertise, not only during a response, but also in preparedness for an emergency.

Similarly it was observed that some organizations such as the Training Reactor have experienced the attrition of professionals working in emergency preparedness in recent years.

Suggestion 10
Observation: Numerous organizations have experienced departure of key professional staff and there is a lack of succession management planning and knowledge transfer to carry out emergency preparedness activities.

Suggestion 10
Basis for suggestion: GSR Part 7 paragraph 6.10 states: “Appropriate numbers of suitably qualified personnel shall be available at all times (including during 24 hour a day operations) so that appropriate positions can be promptly staffed as necessary following the declaration and notification of a nuclear or radiological emergency. Appropriate numbers of suitably qualified personnel shall be available for the long term to staff the various positions necessary to take mitigatory actions, protective actions and other response actions.”
Suggestion: The HLWG should carry out an analysis and propose to the DMCC to develop and implement a succession management programme to ensure a sustainable capacity for emergency preparedness and response.

4.3. Coordination of emergency preparedness and response

MVM Paks NPP Ltd. sends a technical officer to each of the three counties surrounding Paks NPP and to the NDGDM upon declaration of a General Emergency. The role of these officers is to provide technical support to the off-site agency and aid in the understanding of the emergency situation.

MVM Paks NPP Ltd., Agroster and the RWPSF all consider the coordination of security aspects in the response to emergency situations.

MVM Paks NPP Ltd. has several agreements with off-site organizations. The agreements refer to the specific roles, responsibilities and procedures in the event of a nuclear emergency. For example, the NPP has an agreement with local police forces that addresses how NPP staff would be able to get through police blockades to access the NPP for their respective shifts.

These agreements are updated every 5 years or as required.

Good Practice 4
Observation: MVM Paks NPP Ltd. has specific agreements with outside organizations detailing arrangements for emergency response
Basis for good practice: GSR Part 7 paragraph 6.17 states: “Each response organization shall prepare an emergency plan or plans for coordinating and performing their assigned functions as specified in Section 5 and in accordance with the hazard assessment and the protection strategy. An emergency plan shall be developed at the national level that integrates all relevant plans for emergency response in a coordinated manner and consistently with an all-hazards approach. Emergency plans shall specify how responsibilities for managing operations in an emergency response are to be discharged on the site, off the site and across national borders, as appropriate. The emergency plans shall be coordinated with other plans and procedures that may be implemented in a nuclear or radiological emergency, to ensure that the simultaneous implementation of the plans would not reduce their effectiveness or cause conflicts. Such other plans and procedures include:

Good Practice 4
(a) Emergency plans for facilities in category I and for areas in category V; (b) Security plans and contingency plans [9, 10]; (c) Procedures for the investigation of a nuclear security event, including identification, collection, packaging and transport of evidence contaminated with radionuclides, nuclear forensics and related activities [11]; (d) Evacuation plans; (e) Plans for firefighting.”
Basis for good practice: GSR Part 7 paragraph 6.19 states: “The operating organization of a facility or for an activity in category I, II, III or IV shall prepare an emergency plan. This emergency plan shall be coordinated with those of all other bodies that have responsibilities in a nuclear or radiological emergency, including public authorities, and shall be submitted to the regulatory body for approval.”
Good practice: Specific and detailed agreements with outside organizations are in place. This facilitates the implementation of procedures and protocols.

4.4. Logistical support and facilities

The alternate EOC for MVM Paks NPP Ltd. is located in an office building approximately 5 km from the NPP. While this alternate EOC has been exercised and includes relevant and needed infrastructure, it lacks protection from radiation and the impacts of other potential hazards. Consideration should be given to "hardening" this facility to protect the facility, its technology and those individuals using it. A review of the potential impact of a large release would help determine an appropriate distance for the alternate EOC to be located away from the NPP.

Recommendation 9
Observation: The NPP’s alternate Emergency Operations Centre lacks protection from natural and radiological hazards.
Basis for recommendation: GSR Part 7 paragraph 6.24 states: Emergency response facilities or locations to support an emergency response under the full range of postulated hazardous conditions shall be designated and shall be assigned the following functions, as appropriate: (a) Receiving notifications and initiating the response; (b) Coordination and direction of on-site response actions; (c) Providing technical and operational support to those personnel performing tasks at a facility and those personnel responding off the site; (d) Direction of off-site response actions and coordination with on-site response actions; (e) Coordination of national response actions; (f) Coordination of communication with the public; (g) Coordination of monitoring, sampling and analysis; (h) Managing those people who have been evacuated (including reception, registration, monitoring and decontamination, as well as provision for meeting their personal needs, including for housing, food and sanitation);

Recommendation 9
(i) Managing the storage of necessary resources; (j) Providing individuals who have undergone exposure or contamination with appropriate medical attention including medical treatment.”
Recommendation: The MVM Paks NPP Ltd. should review the need for an alternate Emergency Operations Centre and/or implement modifications in the current alternate EOC to ensure its operation under emergency conditions.

The national capacity of twenty fully equipped HAZMAT vehicles for carrying emergency response actions is well distributed over the respective counties in Hungary. Through this distribution, a sound coverage of Hungary’s territory is achieved which assures an adequate response time of less than 30 minutes from the base to the emergency location. In addition, the Hungarian Defence Forces can deploy additional equipment. With this additional equipment the coverage is expanded and the capacity for decontamination is also significantly increased.

Good Practice 5
Observation: The 20 fully equipped HAZMAT vehicles and teams are well distributed over the counties.
Basis for good practice: GSR Part 7 paragraph 6.22 states: “Adequate tools, instruments, supplies, equipment, communication systems, facilities and documentation (such as documentation of procedures, checklists, manuals, telephone numbers and email addresses) shall be provided for performing the functions specified in Section 5. These items and facilities shall be selected or designed to be operational under the conditions (such as radiological conditions, working conditions and environmental conditions) that could be encountered in the emergency response, and to be compatible with other procedures and equipment for the response (e.g. compatible with the communication frequencies used by other response organizations), as appropriate. These support items shall be located or provided in a manner that allows their effective use under the emergency conditions postulated.”
Good practice: Hungary is well covered by rapidly deployable and specialized HAZMAT response teams, which are positioned strategically around the country and on duty on a 24/7 basis.

People who will be evacuated from the area surrounding the MVM Paks NPP Ltd. have designated evacuation sheltering locations in case of an emergency. Each village is assigned to a county where its people will go to. People also know which train stations they will go to for transportation and arrangements with transportation companies are already in place. This will reduce uncertainty and can speed up the decision making during an accident.

Good Practice 6
Observation: Each village surrounding the MVM Paks NPP Ltd. is assigned to a county for evacuation. The assigned counties accept a number of people and know exactly the place for housing. This can speed up the decision making process in case of a considered evacuation and

Good Practice 6
give peace of mind to the evacuees who know that arrangements are already in place for their care.
Basis for good practice: GSR Part 7 paragraph 6.24 states: “Emergency response facilities or locations to support an emergency response under the full range of postulated hazardous conditions shall be designated and shall be assigned the following functions, as appropriate: … (h) Managing those people who have been evacuated (including reception, registration, monitoring and decontamination, as well as provision for meeting their personal needs, including for housing, food and sanitation)…”
Good practice: There are specific arrangements for temporary housing of evacuated people.

NDGDM operates two independent systems for radiological data collection and display. Both data sets are displayed at the Nuclear Emergency Response Centre and the same data is also available in the European Radiological Data Exchange Platform (EURDEP). HAEA operates a similar but separate display system.

The Nuclear Emergency Information and Analysis Centre of the NDGDM is responsible for analysing radiological data collected by the national monitoring stations (owned by themselves, the National Meteorological Service, the Hungarian Defence Forces, MVM Paks NPP Ltd., the Ministry of Human Capabilities, and the RWPSF). This centre also has a system to monitor the alarms associated to these stations. Improvements are under implementation.

The capacity for decontamination of buildings, constructions and urban areas is very limited. In case the national capacity is not sufficient for a timely decontamination of the affected area, Hungary may need to request international assistance.

4.5. Training, drills and exercises

According to Subchapter 5.1 of the NNERP, all organizations participating in the HNERS are responsible for the implementation of training in the preparedness period.

The DMCC used to have a Training and Exercise Working Committee. The committee was in charge of developing an annual exercise plan involving all members of the HNERS. However, this committee has not been operational for some years and since then, HAEA has been assigned the responsibility for the development an annual exercise plan. Members continue to submit their exercises plans to HAEA who compiles them in an integrated national plan approved thereafter by the DMCC chair. While the conduct of identified exercises on the plan is mandatory, the follow up for lessons learned is left to each individual organization. HAEA follows up on its own lessons and those of its licensees. There is therefore a lack of consolidated follow up on lessons learned from exercises for a consolidated continuous improvement.

Suggestion 11
Observation: The Training and Exercise Working Committee has not been operational for a number of years. While HAEA has tried to fill the gap, it cannot fulfil the role initially devoted to the Training and Exercise Working Committee.
Basis for suggestion: GSR Part 7 paragraph 6.30 states: "Exercise programmes shall be developed and implemented to ensure that all specified functions required to be performed for emergency response, all organizational interfaces for facilities in category I, II or III, and the national level programmes for category IV or V are tested at suitable intervals. These programmes shall include the participation in some exercises of, as appropriate and feasible, all the organizations concerned, people who are potentially affected, and representatives of news media. The exercises shall be systematically evaluated (see para. 4.10(h)) and some exercises shall be evaluated by the regulatory body. Programmes shall be subject to review and revision in the light of experience gained (see paras 6.36 and 6.38)."
Suggestion: The DMCC Scientific Council should consider reinstating a mechanism to coordinate the development of an annual training and exercise plan, and following up on the lessons learned from these activities.

The HNERS shows some areas for improvement, particularly in trainings and exercises. Exercises carried out by some facilities are limited in their audience and do not involve all relevant personnel, safety/security interface, off-site organizations or potentially affected population. For a number of facilities, some exercises are only directed to the leaders of the Emergency Response Organization but not to other relevant staff.

During the interview with the team from the Semmelweis University it was observed that some of the exercises were designed based on past real events of the facility.

Good Practice 7
Observation: Some of the exercises at Semmelweis University are based on past real events of the facility. This ensures that the exercises accurately validate the ability of personnel to take their actions effectively under realistic postulated emergencies
Basis for good practice: GSR Part 7 paragraph 6.31 states: "The personnel responsible for critical response functions shall participate in drills and exercises on a regular basis so as to ensure their ability to take their actions effectively."
Good practice: Using past real events of the facility as a scenario for some of the exercises allows for applying the lessons from real events.

4.6. Quality management programme for emergency preparedness and response

There is a quality management mechanism at the coordinating and regulatory level of the emergency system (DMCC, NDGDM and HAEA). Operating organisations

expressed that they have their quality management systems for EPR in place, however the external audit component is missing in some.

Hungarian authorities have a strong involvement in activities at international level. They not only participate but also host different activities and exercise at international level. As part of this, Hungary will host the IAEA's ConvEx-3 exercise in 2017. Hungary also invited a number of international peer review missions that reviewed EPR arrangements.

Good Practice 8
Observation: Hungary has an active participation in international peer review services and exercises to test EPR arrangements.
Basis for good practice: GSR Part 7 paragraph 6.35 states: "The programme shall also include periodic and independent appraisals against functions as specified in Section 5, including participation in international appraisals."
Good practice: Hungary actively participates in testing emergency preparedness and response arrangements, and takes advantage of international peer review services.

Appendix I: Mission Team Composition

No.	Name and LAST NAME	Position	Organization
1.	Chris DIJKENS	EPREV Team Leader	The Netherlands
2.	Genaro Rodrigo SALINAS MARIACA	EPREV Coordinator	IAEA
3.	Albinas MASTAUSKAS	EPREV Team Member	Lithuania
4.	Dave NODWELL	EPREV Team Member	Canada
5.	Dominique NSENGIYUMVA	Observer	Canada
6.	Frédéric MARIOTTE	EPREV Team Member	France
7.	João OLIVEIRA MARTINS	EPREV Team Member	Portugal
8.	Radek HLAVACKA	EPREV Team Member	IAEA
9.	Thorsten HACKL	EPREV Team Member	The Netherlands

Appendix II: Mission Schedule

EPREV mission to Hungary, 13-24 June 2016 Names and abbreviations of organs of the Hungarian Nuclear Emergency Response System Table 2		
Institution	**Department**	**Name**
AGROSTER		Agroster Co. Ltd
NDGDM	NEIAC	National Directorate General for Disaster Management, Nuclear Emergency Information and Analysis Centre
	NRMEWS	National Radiation Monitoring Early Warning and Surveillance System
	Mobile Laboratories	NDGDM HAZMAT units and Disaster Management Radiological Mobile Detection Systems
	HNERS ANDS	HNERS Alerting and Notification Duty Service
TUB INT TR		Budapest University of Technology and Economy, Institute of Nuclear Techniques, Training Reactor
DMCC	NERC	Disaster Management Interministerial Coordination Committee, National Emergency Response Centre
	PIG	DMCC Public Information Working Group
	DMCC NERWC	DMCC Nuclear Emergency Response Working Committee
	DMCC NERWC EP	DMCC NERWC Expert Panel
HAS CER	BRR	Hungarian Academy of Sciences, Centre for Energy Research, Budapest Research Reactor
HAS	II Ltd.	Hungarian Academy of Sciences, Institute of Isotopes Co., Ltd.
HNERS		Hungarian Nuclear Emergency Response System
HP		Hungarian Police
CDC		County Defence Committees (BKMVB, FMVB and TMVB are the CDCs of the counties around Paks NPP)
MVM Paks NPP Ltd	Paks NPP EMC	MVM Paks Nuclear Power Plant Ltd Emergency Management Centre
NFCSO	RMN	National Food Chain Safety Office, Radioanalytical Monitoring Network
HAEA	ERO	Hungarian Atomic Energy Authority, Emergency Response Organization
NIO		National Institute of Oncology
NPHC NRDRR		National Research Directorate for Radiobiology and Radiohygiene of National Public Health Centre

EPREV mission to Hungary, 13-24 June 2016 Names and abbreviations of organs of the Hungarian Nuclear Emergency Response System		Table 2
Institution	**Department**	**Name**
	NRHPS	National Radiation Hygiene Preparedness Service (NRHPS) presented by Division of Occupational Radiation Protection (DORP)
	RAMDAN IC NERMS IC	Information Centre of Radiological Monitoring and Data Acquisition Network (RAMDAN IC) and Information Centre of National Environmental Radiological Monitoring System (NERMS IC) presented by Division of Environmental and Residential Radiohygiene (DERR)
PURAM Plc	ISFS	Non-profit Public Limited Company for Radioactive Waste Management, Interim Spent Fuel Storage Facility
	RWTDF	Radioactive Waste Treatment and Disposal Facility at Püspökszilágy
	NRWR	National Radioactive Waste Repository at Bátaapáti
SUB	DBRB	Semmelweis University Budapest, Department of Biophysics and Radiation Biology
UoS	INM	University of Szeged, Institute of Nuclear Medicine

EPREV mission to Hungary, 13-24 June 2016 EPREV sub-teams and their respective responsibility areas	Table 3
Team	**Review area**
A	General EPR issues at national level and EPC-5 - National Directorate General for Disaster Management and its organs - Disaster Management Coordination Committee and its organs - Hungarian Atomic Energy Authority - Defence Committees of Komárom-Esztergom and Pest Counties - Ministry of Agriculture, National Food Chain Safety Office, Radioanalytical Monitoring Network `- Hungarian Police - Ministry of Human Capacities, State Secretariat for Public Health and National Ambulance Services
B	EPC-2 facilities in Budapest - Budapest Research Reactor - Institute of Isotopes Co., Ltd.
C	EPC-1, -2 and -3 facilities around Paks and preparedness at regional/county level - Paks Nuclear Power Plant + transport of fresh/spent nuclear fuel - Spent Fuel Interim Storage Facility - National Radioactive Waste Repository at Bátaapáti - Defence Committees of Bács-Kiskun, Fejér and Tolna Counties
D	EPC-3 facilities in and around Budapest - Training Reactor of the Budapest University of Technology and Economy, Institute of Nuclear Techniques - Radioactive Waste Processing and Storage Facility at Püspökszilágy - Agroster Co. Ltd - Universities = Semmelweis University Budapest, Department of Biophysics and Radiation Biology = University of Szeged, Institute of Nuclear Medicine - Hospital: National Institute of Oncology
E	EPC-4 activities and practices - NRDRR Radiological Monitoring and Data Acquisition Network, National Environmental Radiological Monitoring System and National

	Radiation Hygiene Preparedness Service - Missing, found and seized nuclear and other radioactive materials - Border crossing stations for train and road trafficking - Transport of radioactive materials and sources - International airports with permanent border crossing stations (Budapest Airport)

EPREV mission to Hungary, 13-24 June 2016 Schedule of Activities Table 4					
Day	**Team A**	**Team B**	**Team C**	**Team D**	**Team E**
Sunday 12 June	1000-1200. HAEA CERTA Training Centre EPREV team internal meeting. 1200-1300. Lunch break 1300-1600. HAEA CERTA Training Centre EPREV team internal meeting. 1540-1600. HAEA CERTA Training Centre Representatives of Hungarian EPREV Coordinator joins for discussions on schedule, final administrative arrangements and clarifications as required.				
Monday 13 June	1000-1200. NDGDM Ground floor Conference Hall 1000-1005. Opening by the DG of NDGDM. 1005-1010. Opening by the Chairman of DMCC. 1010-1015. Opening by the DG of HAEA. 1015-1030. Introduction of the EPREV team. 1030-1045. Introduction of the representatives of HNERS organs. 1045-1100.Coffee break 1100-1130. Presentation by EPREV Team Coordinator on EPREV objectives and process. 1130-1215. Presentations by NDGDM: overall national framework for EPR, legal framework, roles and responsibilities of HNERS organs. 1215-1225. Group photo with all participants				
	1225-1330. Lunch break				
	1330-1600. NDGDM Ground floor Conference Hall 1330-1425. Presentation by HAEA on the structure of the NERP and the role of the High Level Working Group 1425-1520. Presentation by Dr. A. Kerekes on the results of the national assessment of capabilities based on NERP Guidelines 3.2 1520-1535.Coffee break 1535-1630. Presentation by HAEA on self-assessment results based on the GSR Part 7 1630-1700. Travel to HAEA				

EPREV mission to Hungary, 13-24 June 2016 Schedule of Activities Table 4					
Day	**Team A**	**Team B**	**Team C**	**Team D**	**Team E**
	1700-1800. HAEA CERTA Training Centre EPREV team daily meeting. Representative of Hungarian EPREV Coordinator joins the meeting as observer and to clarify some misunderstandings.				
Tuesday 14 June	0830-0900. Travel to NDGDM 0900-1200. Presentations on NEIAC, NRMEWS, Mobile Laboratories, DMCC NERWC and HNERS ANDS 1200-1300. Lunch break 1300-1630. Presentations on NEIAC, NRMEWS, Mobile Laboratories, DMCC NERWC and HNERS ANDS 1630-1700. Travel to HAEA	0830-0900. Travel to HAS CER 0900-1200. Presentations on EPR arrangements of BRR 1200-1300. Lunch break 1300-1600. Presentations on EPR arrangements of BRR 1630-1700. Travel to HAEA	0700-0900. Travel to Paks NPP EMC 0900-1200. Presentations on Paks NPP EPR arrangements 1200-1300. Lunch break 1300-1500. Presentations on ISFS EPR arrangements 1500-1630. Presentations on EPR arrangements for transport of nuclear fuel 1630-1700. Travel to hotel at Paks	0815-0900. Travel to TUB TR 0900-1200. Presentations on TUB TR EPR arrangements 1200-1300. Travel to HAEA 1300-1400. Lunch break 1400-1700. Meeting and interview with the representatives of Hungarian universities on their EPR arrangements	0800-0900. Travel to Budapest Airport 0900-1130. Presentations on responsibilities and capabilities of Budapest Airport 1200-1300. Travel to HAEA 1300-1400. Lunch break 1400-1700. Meeting with the representatives of organs responsible for the defence of national borders
	1700-1800. HAEA CERTA Training Centre EPREV team daily meeting. Team C will join through Skype. Representative of Hungarian EPREV Coordinator joins the meeting as observer and to clarify some misunderstandings.				
Wednesday 15 June	0830-0900. Travel to DMCC 0900-1200.	0830-0900. Travel to II Co 0900-1200. Presentations on	0800-0900. Travel to NRWR 0900-1100.	0800-9000. Travel to RWTDF 0900-1200.	0845-0900. Visit to HAEA 0900-1200. Presentations by

EPREV mission to Hungary, 13-24 June 2016 Schedule of Activities Table 4					
Day	**Team A**	**Team B**	**Team C**	**Team D**	**Team E**
	Presentations on DMCC, NERC and PIG 1200-1230. Travel to HAEA 1230-1330. Lunch break 1330-1630. Presentations on HAEA ERO and CERTA	EPR arrangements of II Co 1200-1300. Lunch break 1300-1600. Presentations on EPR arrangements of II Co 1630-1700. Travel to HAEA	Presentations on NRWR EPR arrangements 1100-1200. Travel to Paks NPP EMC 1200-1300. Lunch break 1300-1700. Interview with the representatives of BKMVB, FMVB and TMVB CDCs 1700-1800. Participation in EPREV team daily meeting via Skype 1800-2000. Travel to hotel at Budapest	Presentations on RWTDF EPR arrangements 1200-1300. Travel to HAEA 1300-1400. Lunch break 1400-1700. Report writing	experts of the HAEA on regulations and arrangements for missing, found and seized nuclear and other radioactive materials. 1200-1300. Lunch break 1300-1600. Presentations by experts of the HAEA on regulations and arrangements for transport of radioactive materials and sources.
	1700-1800. HAEA CERTA Training Centre EPREV team daily meeting. Team C will join through Skype. Representative of Hungarian EPREV Coordinator joins the meeting as observer and to clarify some misunderstandings.				
Thursday 16 June	0845-0900. Visit to HAEA 0900-1000. Presentation on the Expert Panel of the DMCC NERWC. 1000-1200. Presentations on training and exercise planning, preparation for, conduct and evaluation of exercises at national level, management of RANET. 1200-1300. Lunch break 1300-1530. Interview with representatives of the Hungarian Police 1530-1700. Interview with the representatives of Ministry of Human Capacities and National Ambulance Services			0800-9000. Travel to Agroster Co 0900-1200. Presentations on Agroster Co EPR arrangements 1200-1300. Lunch break 1300-1400. Travel to NIO 1400-1630.	0815-9000. Travel to NRDRR 0900-1130. Presentations on the Radiological Monitoring and Data Acquisition Network, the National Environmental Radiological Monitoring

EPREV mission to Hungary, 13-24 June 2016 Schedule of Activities Table 4					
Day	**Team A**	**Team B**	**Team C**	**Team D**	**Team E**
				Presentations on roles and responsibilities of NIO 1630-1700. Travel to HAEA	System and the National Radiation Hygiene Preparedness Service 1130-1200. Travel to HAEA 1200-1300. Lunch break Joins Team A
	1700-1800. HAEA CERTA Training Centre EPREV team daily meeting. Representative of Hungarian EPREV Coordinator joins the meeting as observer and to clarify some misunderstandings.				
Friday 17 June	0730-0830. Travel to Ministry of Agriculture, National Food Chain Safety Office. 0830-1030. Presentation on roles and responsibilities. 1030-1100. Travel to the Radioanalytical Monitoring Network. 1100-1200.Visit of the Radioanalytical Monitoring Network. 1200-1300. Travel to HAEA. 1300-1400. Lunch break. 1400-1600. Interview with the representatives of Defence Committees of Komárom-Esztergom and Pest Counties.				
	1700-1800. HAEA CERTA Training Centre EPREV team daily meeting. Representative of Hungarian EPREV Coordinator joins the meeting as observer and to clarify some misunderstandings.				
Saturday 18 June	Consolidation and report writing by EPREV team				
Sunday 19 June	Social activity 0900- Sightseeing (from Hotel Aquincum) 1230- Lunch (at Trófea Grill Óbuda)				
Monday 20 June	am	Follow up adhoc meetings for clarifications Team Leader and IAEA Coordinator prepare draft press release			

EPREV mission to Hungary, 13-24 June 2016 Schedule of Activities Table 4						
Day	**Team A**	**Team B**	**Team C**	**Team D**	**Team E**	
	pm	Experts meet with their key counterparts to discuss the details of the report. Review of draft press release with National Counterpart Draft press release submitted to IAEA for clearance				
Tuesday 21 June	am	Report finalization				
	-1400 Draft EPREV report submitted to National Counterpart for review before 1400. 1400-1415 National Counterpart distributes the draft EPREV report to members of HLWG. 1415-1700 Self study of the draft EPREV report by members of HLWG.					
Wednesday 22 June	0800-1200 Self study of the draft EPREV report by members of HLWG.					
	1300-1700 Meeting of HLWG on sharing information on and establishment of a harmonized position on comments to the draft EPREV report.					
Thursday 23 June	0900-1200 Final review meeting with the participation of the EPREV team and the members of HLWG: - draft EPREV report; - draft press release					
	pm	Final changes to draft EPREV report and press release 1800- Farewell dinner (at Kaltenberg Restaurant)				
Friday 24 June	0830-1000 Exit meeting (at Hotel Aquincum) 1030-1130 Press conference (at the HAEA)					
	pm	EPREV mission closes EPREV team leaves				

Appendix III: List of Attendees to EPREV Mission Meetings

No.	Name	Position	Organization
Meeting with Hungarian Universities 14 06 2016			
1.	João Oliveira Martins	EPREV team member	IAEA
2.	Gabriella Taba	Head of Radiation Protection Service	Semmelweis University
3.	Teréz Sera	Radiation Protection Officer	University of Szeged
Meeting with BUTE Institute of Nuclear Techniques, Training Reactor 14 06 2016			
1.	András Kármán	inspector	HAEA
2.	João Oliveira Martins	EPREV team member	IAEA
3.	Szabolcs Czifrus	Director	TUB INT
4.	Attila Tormási	Head of Reactor	TUB INT TR
Meeting with MVM Paks NPP Ltd (transport of nuclear fuel) 14 06 2016			
1.	Anita Kantavári	Inspector	HAEA
2.	Dave Nodwell	EPREV team member	IAEA
3.	Attila Herman	Member of EP	MVM Paks NPP Ltd
4.	János Bana	Head of EP	MVM Paks NPP Ltd
Meeting with MVM Paks NPP Ltd (EMC) 14 06 2016			
1.	Anita Kantavári	inspector	HAEA
2.	Dave Nodwell	EPREV team member	IAEA
3.	Attila Herman	Member of ERO	MVM Paks NPP Ltd.

No.	Name	Position	Organization
4.	János Bana	Head of ERO	MVM Paks NPP Ltd
Meeting with National Directorate General for Disaster Management (NDGDM) 14 06 2016			
1.	Csaba Balogh	inspector	HAEA
2.	Chris Dijkens	EPREV team leader	IAEA
3.	Dominique Nsengiyumva	EPREV observer	IAEA
4.	Radek Hlavacka	EPREV team member	IAEA
5.	Rodrigo Salinas	EPREV team coordinator	IAEA
6.	József Hesz, Dr.	presenter	NDGDM
7.	László Csók	presenter	NDGDM
8.	Anita Szeitz	presenter	NDGDM
9.	Eszter Szilágyi	presenter	NDGDM
Meeting with PURAM Plc. Interim Spent Fuel Storage Facility 14 06 2016			
1.	Anita Kantavári	inspector	HAEA
2.	Dave Nodwell	EPREV team member	IAEA
3.	István Barnabás	Chief Engineer	PURAM Plc.
4.	Róbert Tóth	Plant Manager	PURAM Plc.
5.	Zoltán László	Head of Operation	PURAM Plc.
Meeting with HAS CER, Budapest Research Reactor 14 06 2016			
1.	Márton Keresztes	Inspector	HAEA
2.	Ferenc Gajdos	Reactor Manager	HAS CER BRR

No.	Name	Position	Organization
3.	Péter Zagyvai	Radiation Protection Officer of KFKI Campus	HAS CER BRR
4.	Frédéric Mariotte	EPREV Team Member	IAEA
Meeting with Budapest Airport 14 06 2016			
1.	Rudolf Jambrik	colonel	South-Pest Territorial Office of Capital Directorate of Disaster Management
2.	Zoltán Cséplő	base commander and HAZMAT Unit leader	
3.	Gergely Szkotinczky	industrial safety inspector	
4.	Balázs Laczik	duty officer of HAZMAT unit	
5.	Albinas Mastauskas	EPREV Team Member	IAEA
6.	Thorsten Hackl	EPREV Team Member	IAEA
7.	Sándor Kapitány	section head	HAEA
Meeting with organs responsible for the defence of national borders 14 06 2016			
1.	Zsolt Tóth	policy officer	National Police Headquarter, Border Police Department
2.	Imre Szabó	lieutenant-colonel	National Police Headquarter
3.	Szabolcs Töreki	mayor, policy officer	National Tax and Customs Authority, Border Police Department
4.	Albinas Mastauskas	EPREV Team Member	IAEA
5.	Thorsten Hackl	EPREV Team Member	IAEA
6.	Sándor Kapitány	section head	HAEA
Meeting with County Defence Committees 15 06 2016			
1.	Zoltán Mészáros	Secretary of CDC	Bács-Kiskun CDC

No.	Name	Position	Organization
2.	Zsolt Istella		Bács-Kiskun CDC
3.	Nagy Lajos	Senior Inspector	Fejér County Directorate for Disaster Management
4.	Zoltán Bárdos	Secretary of CDC	Fejér DCD
5.	Anita Kantavári	Inspector	HAEA
6.	Dave Nodwell	EPREV Team Member	IAEA
7.	Ildikó Metz	Secretary of CDC	Tolna CDC
8.	Zoltán Vass	Representative of Defence Force	Tolna CDC
9.	Gábor Balázs	Director	Tolna County Directorate for Disaster Management
10.	Gábor Sárossy	Senior inspector	Tolna County Directorate for Disaster Management
Meeting with PURAM Plc. National Radioactive Waste Repository at Bátaapáti 15 06 2016			
1.	Anita Kantavári	Inspector	HAEA
2.	Dave Nodwell	EPREV team member	IAEA
3.	Beáta Volentné		PURAM
4.	Csaba Bertalan	Site Manager	PURAM
5.	István Barnabás	Chief Engineer	PURAM
Meeting with Institute of Isotopes Co., Ltd. 15 06 2016			
1.	Márton Keresztes	Inspector	HAEA
2.	Frédéric Mariotte	EPREV team member	IAEA
3.	Lajos Tyukodi	Environmental Protection and Security Director	Institute of Isotopes Co., Ltd.
4.	László Vida	Radiation Protection Officer	Institute of Isotopes Co., Ltd.

No.	Name	Position	Organization
5.	Mihály Lakatos	Managing Director	Institute of Isotopes Co., Ltd.
Meeting with Hungarian Atomic Energy Authority Emergency Response Organisation 15 06 2016			
1.	Anita Kantavári	Inspector	HAEA
2.	Csaba Balogh	Inspector	HAEA
3.	András Kármán	Inspector	HAEA
4.	Márton Keresztes	Inspector	HAEA
5.	Chris Dijkens	EPREV Team Leader	IAEA
6.	Dominique Nsengiyumva	EPREV Observer	IAEA
7.	Fréderic Mariotte	EPREV Team Member	IAEA
8.	Radek Hlavacka	EPREV Team Member	IAEA
9.	Rodrigo Salinas	EPREV Team Coordinator	IAEA
Meeting with Disaster Management Interministerial Coordination Committee and its organs 15 06 2016			
1.	István Szendrő	Interpreter	
2.	Sándor Haragos	Interpreter	
3.	Balogh Csaba	Inspector	HAEA
4.	Chris Dijkens	EPREV Team Leader	IAEA
5.	Dominique Nsengiyumva	EPREV Observer	IAEA
6.	Radek Hlavacka	EPREV Team Member	IAEA
7.	Rodrigo Salinas	EPREV Team Coordinator	IAEA
8.	Attila Szabó	Head of Department	NDGDM

No.	Name	Position	Organization
9.	Eszter Bónyai, Dr.		NDGDM
10.	Eszter Szilágyi		NDGDM
11.	Zsolt Szarka	Deputy Head of Department	NDGDM
Meeting with Hungarian Police 16 06 2016			
1.	Anita Kantavári	Inspector	HAEA
2.	Árpád Vincze	Head of Department	HAEA
3.	Márton Keresztes	Inspector	HAEA
4.	Albinas Mastauskas	EPREV Team Member	IAEA
5.	Chris Dijkens	EPREV Team Leader	IAEA
6.	Dave Nodwell	EPREV Team Leader	IAEA
7.	Dominique Nsengiyumva	EPREV Observer	IAEA
8.	Frédéric Mariotte	EPREV Team Member	IAEA
9.	João Oliveira Martins	EPREV Team Member	IAEA
10.	Radek Hlavacka	EPREV Team Member	IAEA
11.	Rodrigo Salinas	EPREV Team Coordinator	IAEA
12.	Thorsten Hackl	EPREV Team Member	IAEA
13.	Imre Szabó	Representative of The Hungarian Police	Police
14.	Zita Bencsik	Interpreter	Police
Meeting with National Institute of Oncology 16 06 2016			
1.	Tímea Hülber	Medical Physicist	NIO

No.	Name	Position	Organization
2.	András Kármán	Inspector	HAEA
3.	João Oliveira Martins	EPREV Team Member	IAEA
4.	Gábor Székely	Radiobiologist	NIO
5.	Géza Varjas	Radiation Protection Officer	NIO
6.	Gyöngyi Farkas	Radiobiologist	NIO
7.	István Sinkovits Dr.	Chief Medical Officer	NIO
8.	Judit Székely	Radiotherapeutic	NIO
9.	Károly Baricza	Medical physicist	NIO
10.	László Fábry	Chief Radiotherapeutic	NIO
11.	Réka Király	Medical Physicist	NIO
12.	Tibor Major	Medical Physicist	NIO
13.	Zsolt Jurányi	Chief Radiobiologist	NIO
Meeting with Ministry of Human Capacities and National Ambulance Services 16 06 2016			
1.	Sándor Kapitány	Head of Section	HAEA
2.	Albinas Mastauskas	EPREV Team Member	IAEA
3.	Chris Dijkens	EPREV Team Leader	IAEA
4.	Dave Nodwell	EPREV Team Member	IAEA
5.	Dominique Nsengiyumva	EPREV Observer	IAEA
6.	Frédéric Mariotte	EPREV Team Member	IAEA
7.	João Oliveira Martins	EPREV Team Member	IAEA

No.	Name	Position	Organization
8.	Radek Hlavacka	EPREV Team Member	IAEA
9.	Rodrigo Salinas	EPREV Team Coordinator	IAEA
10.	Thorsten Hackl	EPREV Team Member	IAEA
11.	Gábor Csehi		Ministry of Human Capacities
12.	Zsigmond Göndöcs Dr.	Regional Director	National Ambulance Services
Meeting with Hungarian Atomic Energy Authority 16 06 2016			
1.	Anita Kantavári	Inspector	HAEA
2.	Árpád Vincze	Head of Department	HAEA
3.	Csaba Balogh	Inspector	HAEA
4.	Márton Keresztes	Inspector	HAEA
5.	Chris Dijkens	EPREV Team Leader	IAEA
6.	Dave Nodwell	EPREV Team Member	IAEA
7.	Dominique Nsengiyumva	EPREV Observer	IAEA
8.	Radek Hlavacka	EPREV Team Member	IAEA
Meeting with Agroster 16 06 2016			
1.	Miklós Bánréti	Director	Agroster
2.	Zoltán Zsuppán	Radiation Protection Officer	Agroster
3.	Zsuzsa Pethőné Láng	Technologist	Agroster
4.	András Kármán	Inspector	HAEA
5.	João Oliveira Martins	EPREV Team Member	IAEA

No.	Name	Position	Organization
Meeting with Radioactive Waste Treatment and Disposal Facility at Püspökszilágy 16 06 2016			
1.	João Oliveira Martins	EPREV Team Member	
2.	András Kármán	Inspector	HAEA
3.	Péter Farkas	Operational Engineer	PURAM
4.	Viktor Hák	Site Leader	PURAM
5.	Zoltán László	Head of Operation	PURAM
Meeting with National Research Directorate for Radiobiology and Radiohygiene 16 06 2016			
1.	László Juhász	head of division	NPHC
2.	Máté Lajos		NRDRR
3.	Júlia Kövendiné Kónyi		NRDRR
4.	Géza Sáfrány		NRDRR
5.	Tamás Pándics, Dr.		NRDRR
6.	Nándor Fülöp		NRDRR
7.	Nándor Glavatszkih		NRDRR
8.	Albinas Mastauskas	EPREV Team Member	IAEA
9.	Thorsten Hackl	EPREV Team Member	IAEA
10.	Sándor Kapitány	section head	HAEA
Meeting with Ministry of Agriculture, National Food Chain Safety Office Radioanalytical Monitoring Network 17 06 2016			
1.	Csaba Balogh	Inspector	HAEA

No.	Name	Position	Organization
2.	Albinas Mastauskas	EPREV Team Member	IAEA
3.	Chris Dijkens	EPREV Team Leader	IAEA
4.	Dave Nodwell	EPREV Team Member	IAEA
5.	Dominique Nsengiyumva	EPREV Observer	IAEA
6.	Frédéric Mariotte	EPREV Team Member	IAEA
7.	João Oliveira Martins	EPREV Team Member	IAEA
8.	Radek Hlavacka	EPREV Team Member	IAEA
9.	Rodrigo Salinas	EPREV Team Coordinator	IAEA
10.	Thorsten Hackl	EPREV Team Member	IAEA
11.	Attila Nagy	NFCSO Deputy Director	NFCSO FFSD
12.	Tímea Sebestyén	Deputy Head of the Laboratory	NFCSO FFSD RRL
13.	Tünde, Ádámné Sió	NFCSO Head of Laboratory	NFCSO FFSD RRL
Meeting with Defence Committees of Komárom-Esztergom and Pest Counties 17 06 2016			
1.	Albinas Mastauskas	EPREV Team Member	IAEA
2.	Chris Dijkens	EPREV Team Leader	IAEA
3.	Dave Nodwell	EPREV Team Member	IAEA
4.	Dominique Nsengiyumva	EPREV Observer	IAEA
5.	Frédéric Mariotte	EPREV Team Member	IAEA
6.	João Oliveira Martins	EPREV Team Member	IAEA
7.	Radek Hlavacka	EPREV Team Member	IAEA

No.	Name	Position	Organization
8.	Rodrigo Salinas	EPREV Team Coordinator	IAEA
9.	Thorsten Hackl	EPREV Team Member	IAEA
10.	Sándor Bakos	Secretary of Komárom-Esztergom CDC	Ministry of Defence
11.	Zsolt Vitár	Secretary of Pest CDC	Ministry of Defence
12.	István Lisztes	Secretary of Pest CDC	NDGDM
13.	László Balogh	Deputy Secretary of Komárom-Esztergom CDC	NDGDM
14.	Nándor Horváth	Pest CDC	NDGDM
15.	Attila S.	Komárom-Esztergom CDC	NDGDM
Closing meeting 24 06 2016			
1.	Juan Carlos Lentijo	deputy director general	IAEA
2.	Chris Dijkens	EPREV Team Leader	IAEA
3.	Zoltán Góra	deputy director general	NDGDM
4.	Gyula Fichtinger	director general	HAEA
5.	Kristóf Horváth, Dr.	deputy director general	HAEA
	representatives of the HNERS organisations		
	members of the EPREV team		

References

[1] INTERNATIONAL ATOMIC ENERGY AGENCY, Preparedness and Response for a Nuclear or Radiological Emergency, GSR Part 7, IAEA, Vienna (2015).

[2] INTERNATIONAL ATOMIC ENERGY AGENCY, Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency, GSG-2, IAEA, Vienna (2011).

[3] INTERNATIONAL ATOMIC ENERGY AGENCY, Arrangements for Preparedness for a Nuclear or Radiological Emergency, GS-G-2.1, IAEA, Vienna (2007).

Acronyms
(Alphabetic order)

Name	Position
BRR	Budapest Research Reactor
DMCC	Disaster Management Interministerial Coordination Committee
EOC	Emergency Operations Centre
EPR	Emergency Preparedness and Response
EPREV	Emergency Preparedness Review
EURDEP	European Radiological Data Exchange Platform
HAS CER	Centre for Energy Research of the Hungarian Academy of Sciences
HAZMAT	Hazardous Materials
HNERS	Hungarian Nuclear Emergency Response System
IAEA	International Atomic Energy Agency
KI	Potassium Iodine
LOCA	Loss of Coolant Accident
NDGDM	National Directorate General for Disaster Management
NNERP	National Nuclear Emergency Response Plan
NPP	Nuclear Power Plant
NRDRR	National Research Directorate for Radiobiology and Radiohygiene
RANET	Response and Assistance Network
RWPSF	Radioactive Waste Processing and Storage Facility