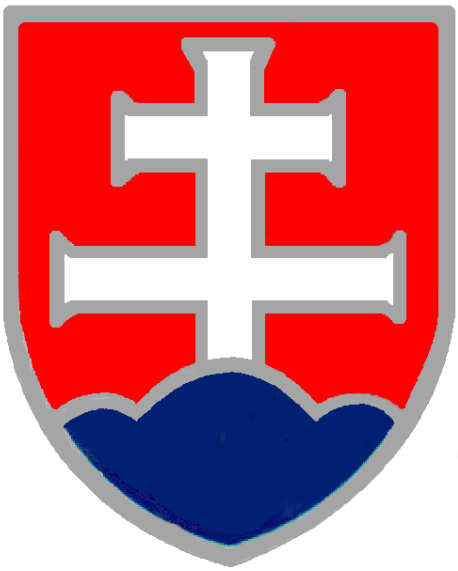
ANSWERS TO QUESTIONS

ON

NATIONAL REPORT OF

THE SLOVAK REPUBLIC



COMPILED ACCORDING TO THE TERMS OF THE CONVENTION ON NUCLEAR SAFETY

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1.	Country **Austria**	Article **General**	Ref. in National Report **Section 1.4 VDNS, p21**
Question		In subsection 1.4.1 "Implementation of the IAEA safety standards", under section 1.4 "Vienna Declaration on Nuclear Safety", p21, the National Report states that UJD SR has performed an assessment of the coverage of the WENRA Safety Reference Levels (SRLs) 2014 into the national legislation and found that almost 60% are covered. Could you provide more details on which of the revised/new SRLs (topics) are already covered in Slovak legislation? Are there any challenges envisaged in relation to the adoption of those which are not already covered and in their implementation in the NPPs?	
Answer		WENRA SRLs revision 2014, contains 342 RLs in total, and 298 of them have been already transposed into national requirements (87.1%). The number of RLs which were in 2014 modified or newly added in relation to lessons learned from Fukushima accident, represents totally 101 RLs. Self-assessment on fulfilment of WENRA 2014 SRLs was related only to those 101 newly added or modified RLs which were taking into account "Fukushima lessons learned". Thus 60% of covered SRLs mentioned in the national report are related to those 60 of 101 SRLs, related to Fukushima. After peer-review of the self-assessment performed by the end of 2016, the numbers are slightly different, 57 of 101 RLs related to "Fukushima lessons learned" are considered to be fully transposed into published national requirements. It represents 56.4% of these modified RLs. Majority of the revised/new RLs (57 of 101) has been covered by existing national requirements. Among already covered requirements are: - all related to Safety Policy (issue A), to Training and Authorization (issue D), Safety Classification of SSCs (issue G), Contents and Updating of Safety Analysis Report (issue N), Periodic Safety Review (issue P) and Protection against Internal Fires (issue S), - Majority of requirements related to Design Basis Envelope for Existing Reactors (issue E, 11 of 13) and Design Extension of Existing Reactors (issue F, 17 of 25), - More than half of those related to PSA (issue O, 1 of 2), - Less than a half of those related to Management System (issue C, 1 of 3), EOPs and SAMGs (issue LM, 3 of 10), On-site Emergency Preparedness (issue R, 4 of 12), Natural Hazards (issue T, 7 of 19). The remaining open items will be considered during the next revision of the Atomic Act (see also Chapter 3.1.2.3).	

2.	Country **Austria**	**Article** **General**	Ref. in National Report **Section 5.4, p141**
Question		Has UJD SR issued an official requirement for the further assessment of plant resistance to SBO and UHS, considering SA at several/all units on a site? Has the timeline for implementation as indicated in the National Report (3 years) been agreed with the operator?	
Answer		An official document was not issued, all assessments were performed within the ENSREG Stress Tests framework. The implementation timeline has been agreed with the operator.	
3.	Country **France**	Article **General**	Ref. in National Report **Summary, 15 to 19**
Question		Could Slovakia describe its international commitment in research on safety?	
Answer		As a member of OECD/NEA (since 2002), Slovakia has been involved in various OECD/NEA activities. Experts and Institutions from Slovakia contributing to the activities of selected research and development projects – HALDEN Reactor Project, Cabri International Project, Primary Coolant Loop Test Facility Project (PKL), Cooperative Programme for the Exchange of scientific and technical Information Concerning Nuclear Installation Decommissioning Project (CPD), Thermal-hydraulics, Hydrogen, Aerosols and Iodine Project (THAI-3), Cable Ageing Data and Knowledge Project (CADAK), Component Operational Experience, Degradation and Ageing Programme (CODAP), etc. The Nuclear Regulatory Authority uses about 15 – 25% of its annual budget for supporting various research and development activities in the field of nuclear safety. Science and research are an integral part of the activities of the NPPs, too. Their research focuses mainly on activities aimed at nuclear safety, support for the completion of units 3 and 4 of the Mochovce NPP, improvement of operational parameters and ageing. The company "Slovenské elektrárne, a. s." (Slovak Power Plants, Inc., further "SE, a. s.") cooperates with a range of partners, particularly Slovak Technical University and the Slovak Academy of Sciences (SAV), supporting in this way science and research in Slovakia. In cooperation with SE, a. s. cooperates with (WANO – World Association of Nuclear Operators, Halden reactor project, SNETP – Sustainable Nuclear Energy Technology Platform, ENIQ – European Network for Inspection Qualification). The common objective of these international projects is to bring together financial and human capital to carry	

		out projects that transcend national borders, to connect Slovak scientists with international teams and to recruit international experts into projects carried out in Slovakia.	
4.	Country **France**	Article **General**	Ref. in National Report **Summary, 19**
Question		Could Slovakia mention the safety goals fixed for the new nuclear reactor to be erected in Jaslovské Bohunice site (NJZ Project) in terms of releases or consequences reduction in case of severe accident? How multi-unit accidental situations are taken into account?	
Answer		At present a project to build a new nuclear source in Jaslovské Bohunice site (NJZ Project) is under preparation by the Nuclear Energy Company of Slovakia, a. s. (hereinafter JESS). Feasibility study was completed. Since the preparation of the national report the EIA process has been completed too. Report on the impact assessment of proposed activity on the environment notes that: „The project will be developed in a way that ensures compliance with all relevant legislative regulations and safety standards in accordance with the regulations and requirements as set out by the Nuclear Regulatory Authority of the Slovak Republic (UJD SR), IAEA and WENRA“. Specific safety goals will be subject to the initial safety report to be revised by UJD SR. The first para of the Vienna Declaration will be incorporated into the national legal framework during the transposition of the Council Directive 2014/87/Euratom (see chapter 3.1.2.3). Article 8a) of the directive contains provisions with the same safety objective.	
5.	Country **Germany**	Article **General**	Ref. in National Report **p. 15, 18**
Question		Could you refer in more detail on the safety related activities and programmes planned or proposed for the period until the next National Report?	
Answer		The activities untill the next NR will focus on the completion of the National Action Plan as contained in Chapter 6.5 of the National Report.	
6.	Country **Portugal**	Article **General**	Ref. in National Report **92**
Question		What percentage of your NPP's already have a containment venting-filtration system installed.	

Answer		Extensive analyses were performed to assess the necessity of containment filtered venting system. Based on the outcomes of analyses, taking into account all SAM modifications implemented, containment filtered venting system is not the prefered solution for maintaining containment integrity.	
7.	Country **Portugal**	Article **General**	Ref. in National Report **92**
Question		What percentage of your NPP's already have autocatalytic hydrogen recobiners installed in the containment.	
Answer		All NPPs.	
8.	Country **Sweden**	Article **General**	Ref. in National Report **20, 1.4.1**
Question		What is logic behind to mention WENRA referens levels in 1.4.1 in connection to implementation of the IAEA safety standards?	
Answer		There were two main reasons why the head of regulators for nuclear safety within the European Union and Switzerland decided to start a co-operation in 1999 in the framework of WENRA (Western European Nuclear Regulators Association). Firstly, nuclear safety was included in the European Union set of enlargement criteria, and secondly, national safety approaches have been developed from IAEA Safety Standards, the Convention on Nuclear Safety, but independently. The main objectives of WENRA at that time were to develop a common approach to nuclear safety and to provide an independent capability to examine nuclear safety in applicant countries. Secondly, the reference levels represent good practices in the WENRA member countries to further improve nuclear safety and its regulation. The IAEA safety standards form a basis for this continuous improvement. Consequently the WENRA Reference Levels are primary based on IAEA safety standards.	
9.	Country **Sweden**	Article **General**	Ref. in National Report **General comment, p. 21, 1.4.1.**
Question		It is stated that Slovakia achieved full harmonization with the WENRA 2008 reference levels. During 2015 and 2016, UJD SR performed a self-assessment on fulfilment of the WENRA 2014 SRLs and 60 % are implemented while the remaining will be accounted for in the next revision of the Atomic Act. The difference between the 2008 and 2014 set of SRLs amount to about 100 modified or new SRLs, bringing the total to about 340. However, 40 % of this would be more than 100, could you please comment on this?	

Answer		Self-assessment on fulfilment of WENRA 2014 SRLs was related only to those 101 newly added or modified RLs which took into account "Fukushima lessons learned". Self-assessment showed that 41 of 101 RLs (what represented 40.6% of Fukushima related RLs) had not been fully transposed into published national requirements. After peer-review of the self-assessment performed by the end of 2016, the numbers are slightly different, 44 of 101 RLs related to "Fukushima lessons learned" are considered not to be fully transposed into published national requirements. It represents 43.6% of these modified RLs (see also question on this topic from Austria).	
10.	Country **Switzerland**	Article **General**	Ref. in National Report **Vienna Declaration**
Question		Principle 1 1.1 How do you define 'a new nuclear power plant'? For example: do you consider a power plant to cease being a 'new nuclear power plant' once operation begins?	
Answer		With a view to new NPPs, account has to be taken of the Euratom nuclear safety framework, which imposes obligations on the Euratom Community Member States to establish and maintain a national framework for nuclear safety. The Nuclear Safety Directive (Council Directive 2009/71/Euratom as amended by Council Directive 2014/87/Euratom, hereinafter „the Directive") sets out, in its Article 8a, a nuclear safety objective which has similar aims to Principle 1 of the Vienna Declaration. The nuclear safety objective for nuclear installations applies to nuclear installations for which a construction licence is granted for the first time after 14 August 2014. This reference date and the licencing status serve to define the „new" nuclear installations, including nuclear power plants, to which the objective is primarily addressed, although it also concerns existing installations.	
11.	Country **Switzerland**	Article **General**	Ref. in National Report **Vienna Declaration**
Question		Prevention 1.2 How does your national requirements and regulations incorporate appropriate technical criteria and standards to address the objective of preventing accidents in the commissioning and operation of new nuclear power plants? For example: can you describe the basic design objectives and the measures you have in place to ensure the robustness and independence of defense in depth measures? Consider for instance inclusion of implementation of Regulatory requirements for:	

	• Robustness of DiD and independency of the levels of DiD; • Design Extension Conditions (DEC); • practical elimination of high pressure core melt scenarios; • achieving a very low core melt frequency; • protecting digital safety equipment against Common Cause Failure (CCF). • External events analysis
Answer	Nuclear safety objective must be implemented by a thorough design and assessment process. Furthermore, a rigorous application of defence-in-depth principles has to be applied. The emphasis is on accident prevention foremost. The EU Directive makes reference, in its Article 8b(1), to the principles of defence-in-depth, as the basis of implementation of the nuclear safety objective. On issues such as robustness of DiD, prevention of severe accidents, and the practical elimination of accident sequences that could lead to early or large releases, since the Directive refers to the work of WENRA and IAEA on safety objectives for new nuclear power plants, their standards and guidance should be taken into account for implementation of regulatory requirements. However, the nuclear safety directive calls for significant safety enhancements in the design of new nuclear power plants for which the state of art knowledge and technology should be used, and therefore implementation practices take account of the latest international safety requirements where they exist. At present a project to build a new nuclear source in Jaslovské Bohunice site (NJZ Project) is under preparation by the Nuclear Energy Company of Slovakia, a.s. (hereinafter JESS). Feasibility study was completed. Since the preparation of the national report the EIA process has been completed too. Report on the impact assessment of proposed activity on the environment notes that: „The project will be developed in a way that ensures compliance with all relevant legislative regulations and safety standards in accordance with the regulations and requirements as set out by the Nuclear Regulatory Authority of the Slovak Republic (UJD SR), IAEA and WENRA“. Specific safety goals will be subject to the initial safety report to be revised by UJD SR. The first para of the Vienna Declaration will be incorporated into the national legal framework during the transposition of the Council Directive 2014/87/Euratom (see chapter 3.1.2.3). This directive article 8a contains provisions with the same safety objective. The present requirements are specified in Decree No.430/2011 Coll. on Requirements for Nuclear Safety –

	Appendix No.3, Requirements for Nuclear Safety of Nuclear Installations. There is a part of general requirements for NI related to basic safety principles, safety functions and characteristics, defence in depth, preventing the emergence and development of equipment failures, protection against external events, accidents considered in the design, safety and control systems, approach to tackling nuclear safety, safety functions and safety features, heat removal, protection against external events, etc. Another part of the Appendix of the requirements for design is related to specific requirements for NI with a nuclear reactor, i.e. to NPPs. This part is covering specific requirements for a primary circuit, pressure vessel and core, for systems of primary make-up and cleaning, core cooling systems, containment, safety systems, systems of power supply, safety analyses including severe accident analyses, acceptance criteria, fire protection, etc. The design extension conditions and related requirements for them are explicitly mentioned in all relevant sections of the Decree. There are explicit formulation like e.g.: in DEC the containment must be isolated, pressure and temperature in the containment shall be managed in DEC, high pressure core melt scenarios must be prevented, the design must include analyses that verify the behaviour of nuclear facilities during design extension conditions, including severe accidents, so that the radioactive releases harmful to the population and the environment are minimized as far as reasonably practicable, acceptance criteria for protection of the containment shall be defined, acceptance criteria for protection of the primary and secondary circuits integrity including allowable pressure, temperature, pressure and temperature transients and internal stresses shall be defined, etc. The requirements for specifying quantitative safety goals, covering radiation goals, PSA safety goals and safety criteria, methodology of PSA, requirements for specifying the acceptance criteria for keeping the integrity of the barriers during normal operation, shutdown states, for DBA, DEC and severe accidents, etc., are specified in Decree No.431/2011 Coll. on Quality Management System – Appendix No.6, Requirements for the Quality of Nuclear Installations. A list of recommended acceptance criteria for safety analyses, related to the integrity of fuel, primary and secondary circuits, containment and reactor pressure vessel, are in the regulatory guide on Requirements for Deterministic Safety Analyses for NPPs (BNS I.11.1/2013). Requirements related to operating procedures including emergency operating procedures and severe accident guidelines (EOPs and SAMGs) are in Decree No.430/2011 Coll., Appendix No. 4 e. g.: “EOPs shall be provided to cover Design Basis Accidents. These EOPs shall provide instructions for recovering the plant state to a safe condition.”

		"EOPs shall be prepared also for DEC until the beginning of core damage, but without its inclusion. Their aim is to restore or replace loss of safety functions and perform interventions to prevent core damage." The whole set of valid decrees and regulatory guides is accessible through the official regulatory website (www.ujd.gov.sk). Compliance with the requirements is regularly inspected, reviewed and justified.	
12.	Country **Switzerland**	Article **General**	Ref. in National Report **Vienna Declaration**
Question		Mitigation 1.3 How do your national requirements and regulations incorporate appropriate technical criteria and standards to address the objective of mitigating against possible releases of radionuclides causing long-term offsite contamination and avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions. For example: can you describe the measures you have in place to protect against severe accidents and your accident management arrangements - how do you protect staff during accident management? Consider for instance inclusion of implementation of Regulatory requirements for: • engineered systems to protect the containment; • engineered systems to cool the molten core; • severe accident management, protection of staff during the accident; • Provision and resilience of Emergency Mitigation Equipment (EME).	
Answer		The EU Directive requires that licence holders are to regularly assess, verify, and continuously improve, the nuclear safety of their nuclear installations. That shall include verification that measures are in place for the prevention of accidents and mitigation of the consequences of accidents, including the verification of the application of defence-in-depth provisions. Amongst these, it requires that severe conditions are controlled, including prevention of accident progression and mitigation of the consequences of severe accidents. This applies also to mitigation of severe accident conditions with external releases of radioactive materials. The Directive also requires more specific arrangements for accident management and on-site emergency response to address mitigation measures. In particular, licence holders have to provide for appropriate on-site emergency procedures and	

	arrangements, including severe accident management guidelines or equivalent arrangements, for responding effectively to accidents in order to prevent or mitigate their consequences. Practical implemention of this provision is described in Chapters 2.2.1, 2.3.1, 2.3.2.2 and 6.5 of the National Report. There are several requirements related to accident management and mitigation of their consequences defined by the Atomic Act and Decree No.430/2011 Coll., on the Requirements for Nuclear Safety – Appendix No.3, Requirements for Nuclear Safety of Nuclear Installations during their Design. They specify general principles of peaceful use of nuclear energy: to achieve such a high level of nuclear safety that a risk of threat to life, health hazards, or the environment respects the ALARA principle. There is a general obligation of the licensee to apply the defence in depth principle, to ensure fundamental safety functions and to establish mandatory procedures for dealing with incidents and accidents, to prepare and carry out preventive as well as mitigation measures for coping with accidents and/or mitigate their consequences. Besides these, there are also general and/or some specific requirements related to engineered systems for protecting the containment (systems for hydrogen management, management of radiological releases, management of containment pressure and temperature, avoiding high pressure melt ejection, etc.), for cooling the molten core (reliable, redundant and backup decay heat removal, reliable ultimate heat sink), etc. (Some other details related to general and specific requirements for nuclear safety are formulated and described in our answer to the question on prevention). Requirements related to accident procedures and severe accident management guidelines are specified in Appendix No. 4 of the same Decree (No. 430/2011 Coll.). Besides a clear general obligation of licensee to have accident procedures (EOPs) and severe accident management guidelines (SAMGs), this Appendix defines also more specific requirements related to the scope, purpose, content, development, verification and validation, documentation, training, exercising, regular review and update of the EOPs and SAMGs. Severe accident management (SAM) measures and SAMGs have been implemented in all NPPs. Various hardware modifications have been completed, to assure success of the accident management strategies for coping with severe accident (e.g. SAM valve on pressurizer to depressurise primary circuit, in-vessel melt retention concept by external cooling of the reactor vessel, additional emergency sources of power and coolant supply, etc.). Besides the Atomic Act, more specific requirements related to protection of staff during accident management are in Decree

		No.55/2006 Coll., on Details for Emergency Planning in Case of Incidents or Accidents. On-site emergency plans are subject of approval by the Regulatory Authority. Compliance with all requirements is regularly inspected, reviewed and justified. The whole set of the Atomic Act, valid decrees and regulatory guides is accessible through the official regulatory website (www.ujd.gov.sk).	
13.	Country **Switzerland**	Article **General**	Ref. in National Report **Vienna Declaration**
Question		Principle 2 2.1 How do your national requirements and regulations address the application of the principles and safety objectives of the Vienna Declaration to existing NPPs?	
Answer		Article 8a(2)(b) of the Directive on the nuclear safty objective enshrines the principle of continuous improvement of nuclear safety by indicating the need to identify and implement in a timely manner reasonably practicable safety improvements to existing nuclear installations. Practical implemention of this provision is described in Chapters 2.2.1, 2.3.1, 2.3.2.2 and 6.5 of the National Report.	
14.	Country **Switzerland**	Article **General**	Ref. in National Report **Vienna Declaration**
Question		2.2 Do your national requirements and regulatory framework require the performance of periodic comprehensive and systematic safety assessments of existing NPPs – if so, against what criteria/benchmarks are these assessments completed and how do you ensure the findings of such assessments are implemented?	
Answer		The nuclear safety objective must be implemented by a thorough design and assessment process. The 2009 Nuclear Safety Directive already requires licence holders, under the supervision of the national regulator, to regularly assess, verify and continuously improve the nuclear safety of their nuclear installations. However, periodic safety reviews at least every 10 year are now made mandatory under Article 8c of the amending Nuclear Safety directive. More specifically, the licence holder is obliged to re-assess systematically and regularly, at least every 10 years, the safety of the nuclear installation under the control of the competent regulatory authority. That safety reassessment aims at ensuring compliance with the current design basis and identifies further safety improvements by taking into account ageing issues, operational experience, most recent	

		research results and developments in international standards, using as a reference the objective set in Article 8a. Moreover, Article 8e(2) and (3) of the amending Directive lays down a European system of topical peer reviews on specific safety issues to be organised every six years. The topic chosen for the first review to begin in 2017 is the ageing management of nuclear power plants as well as or research reactors of a capacity of 1 MWth and above. The Commission is involved in the preparation and carrying out of the peer review process and will ensure the effective implementation by Member States of the relevant provisions, in its role as guardian of the Treaties. Breach of the obligations contained in the Euratom acquis may lead to infringement actions against Member States. Practical implemention of this provision is described in Chapters 2.2.1, 2.3.1, 2.3.2.2 and 6.5 of the National Report.
15.	Country **Switzerland**	Article **General**	Ref. in National Report **Vienna Declaration**
Question		2.3 Do your national requirements and regulations require reasonably practicable/achievable safety improvements to be implemented in a timely manner – if so, against what risk/engineering objective or limit are these judged and can you give practical examples?	
Answer		Article 8a of the Directive specifically requires that the objective of preventing accidents, and should an accident occur, mitigating its consequences, and avoiding early/large releases is used as a reference for the timely implementation of reasonably practicable safety improvements to existing nuclear installations. For the practical implementation at nuclear power plants, the expectations relate to the latest IAEA safety requirements, and to WENRA documents for design of new nuclear power plants, as well as specific approaches and standards developed by European utility companies. For new NPPs, the full application of these standards and guidance should bring about significant safety improvements consistent with the objectives of the Directive. As for existing NPPs, these same standards and guidance should be used as a benchmark for identifying reasonably practicable safety improvements called for in the Directive, as well as in the Vienna Declaration. Practical implemention of this provision is described in Chapters 2.2.1, 2.3.1, 2.3.2.2 and 6.5 of the National Report. ENSREG invited WENRA to provide guidance on “timely implementation of reasonably practicable safety improvements to existing NPPs. This work is expected to be finished in the first half of 2017.	

16.	Country **Switzerland**	Article **General**	Ref. in National Report **Vienna Declaration**
Question		Principle 3 How do your national requirements and regulations take into account the relevant IAEA Safety Standards throughout the life-time of a Nuclear Power Plant.	
Answer		Under the EU Directive, the nuclear safety objective covers all stages of the lifecycle of nuclear installations (siting, design, commissioning, operation, decommissioning). This objective calls for significant safety enhancements in the design of new reactors for which the state of the art knowledge and technology should be used, taking into account the latest international safety requirements, including those developed by IAEA. In 2015, assessment of implementation of the IAEA standards (requirements) in the legislative documents was undertaken. The following IAEA documents were subject to review: - IAEA SSR-2/1 – Safety of Nuclear Power Plants: Design Specific Safety Requirements, - IAEA SSR-2/2 – Safety of Nuclear Power Plants: Commissioning and Operation Specific Safety Requirements, - IAEA SSG-25 – Periodic Safety Review for Nuclear Power Plants, - IAEA SSR-5 – Disposal of Radioactive Waste, - NG-T-6.4 Nuclear Engineering Education: A Competence Based Approach to Curricula Development. The results of this assessment are used in the process of revising the Atomic Act (chapter 3.1.2.3). Practical Application of IAEA Safety Standards are in the Chapters e. g. 4.4.1, 4.4.3, 4.5.2, 4.5.6, 5.1.1.	
17.	Country **Switzerland**	Article **General**	Ref. in National Report **Vienna Declaration**
Question		General question What issues have you faced or expect to face in applying the Vienna Declaration principles and objectives to your existing fleet or new build of Nuclear Power Plants	
Answer		Untill now no difficulties are identified. This is because the relevant provisions were implemented or being initiated before the adoption of the Vienna Declaration.	

18.	Country **Ukraine**	Article **General**	Ref. in National Report **(general questions)**
Question		Have requirements been established for risk-informed decision-making? If yes, what quantitative criteria for their application have been identified? What upgrades or administrative and technical measures have been implemented and/or planned for the ex-vessel phase of severe accidents? Is it planned to enhance qualification requirements for the design equipment involved in mitigation of severe accidents Does the severe accident management guideline include ranking of personnel actions in case of a severe accident at multiple units at the same time? If yes, how the technical and human resources are redistributed? Does the methodology for determining human errors in PSA take into account additional stress caused by increase in peer reviews (internal and by external organizations)?	
Answer		1. Criteria for risk-informed decision-making are based on US NRC Regulatory Guidelines for risk oriented decision making and applied by the operator. 2. Measures for the ex-vessel phase of severe accidents: ➢ Technical measures: - Implemented Severe Accident Management Hardware – high and low pressure injection pumps with independent volume of boron acid solution; - SAM dedicated primary circuit depressurization system; - Reactor cavity flooding system. ➢ Administrative mesures: - Emergency response and SAMG strategies to provide for intentional flooding of reactor cavity with coolant and debris quenching. 3. NPPs are equipped with full scope new HW qualified for SA mitigation. (SAM project). Therefore requalification of design equipment is not relevant. 4. Yes, severe accident management guidelines provide high level strategies in case of a severe accident at multiple units. This strategy is developed based on a set of deterministic and probabilistic analyses. Technical and human resources for emergency preparedness are enhanced and redistributed according to adopted strategies. 5. The question is undestood in manner whether the PSA considers human factor (stress) during an accident. The stress during SA is reflected in the methodology for human errors (HRA) in the PSA study. HRA is developed based on EPRI HRA calculator.	

19.	Country **Austria**	Article **6**	Ref. in National Report **Section 2.2.1, p22-25**
Question		1) What improvement is expected by the battery monitoring and the interventions it will permit (in terms of hours gained) for EBO V2? 2) What is the status of implementation?	
Answer		1) The significance of monitoring of accumulator batteries for the power plant safety consists in the fact that in case of accident of the extent at which home consumption from operation sources (generators or external power grid) is not available, diesel generators and the third power source (hydro power plant) fail, the accumulator batteries will become a single power source. Their capacity is limited but despite this limitation they must be sufficient for assurance of operation of safety systems, namely heat removal from the reactor core and primary circuit cool-down. Under such circumstances information about the condition of accumulator batteries, mainly the residual capacity and the time remaining to their complete discharge, are very important for control room operators. In addition to measurement of electric current and voltage of the entire accumulator battery, the monitoring system will provide the operators with measurement of voltage of all accumulator battery cells. The operators will have very useful information about residual capacity of accumulator batteries and time remaining to their complete discharge in relation to the accumulator battery environment at disposal as well. The monitoring system will enable the operators to monitor the condition of accumulator batteries and to adjust their discharge rate. The operators may achieve this functionality by switching off less important equipment, and they can save power from the accumulator batteries for equipment more important from the nuclear safety viewpoint. 2) The system has been already implemented in EBO V2 NPP and EMO 1,2 too.	
20.	Country **France**	Article **6**	Ref. in National Report **§ 2.3.1, 29**
Question		Slovakia mentions “modification of instrumentation and control systems in order to improve performance of safety functions (modifications to emergency protection systems, addition of diagnostic systems, etc.)”. Could Slovakia provide detail on how the HOF aspects were taken into account all along the engineering process which leads to implement these modifications?	

Answer		HOF (Human and organisational Factors) aspects were treated by the implementation of QA requirements and multilayer indepent verification and validation process for any design change to be implemented on operator level, TSO/designer level as well as on regulatory level. All of these aspects and processes were defined within the project QA framework.	
21.	Country **Hungary**	Article **6**	Ref. in National Report **p.39**
Question		"For this reason it is envisaged to extend the repository to 7,5 of double-rows of disposal boxes for low activity RAW and construction of a storage space for very low activity RAW." When it is planned to realize the extension of the repository?	
Answer		Capacity of the erected and operated two double-rows of the repository (80 disposal boxes) is sufficient for disposal of 7 200 FCCs containing low-level radioactive waste. The assumption of its filling is approximately by 2023. The planned date of the third double-row construction completion is 2019. In March 2016, the first disposal module for disposal a very low-level radioactive waste with a disposal capacity of 20 000 m3 was put into operation. The second disposal module will be built by 2019. Further enlargement of the repository (LLW and VLLW) will depend on the real needs for disposal capacity, i.e. on the production of radioactive waste. The closure of the repository is expected approximately in 2100.	
22.	Country **Poland**	Article **6**	Ref. in National Report **Chapter 2.3.2.2, p. 34**
Question		You report a list of some areas of the safety measures. Could you please provide more information about prevention of high-pressure core-melt scenarios and additional instrumentation for severe accident scenarios?	
Answer		High-pressure core-melt scenarios are prevented. The primary circuit is to be depressurized prior to the core melt relocation in RPV at the beginning of SA according to SAMG strategies. A new depressurization line with a qualified valve was installed. Additional instrumentation qualified for SA conditions was installed to provide for necessary supporting information needed for successful implementation of SAMG strategies.	

23.	Country **Russian Federation**	Article **6**	Ref. in National Report **Section 5.3.3.4**
Question		According to the Report, the safety analysis report for Bohunice 2 was updated in the period from mid-2011 to the end of 2013 because of the life extension of this unit. Could you please tell more about an approach that was used to arrange expert review of this updated safety analysis report. In particular, please tell whether the review of the safety report lasted from mid-2011 to the end of 2013 (i.e. as the report was being updated), or it was made for the final version of the report as of the end of 2013? What were the man-hours and work hours to conduct the expert review of the updated safety analysis report?	
Answer		Legislative requirements for long-term operation (LTO) are stipulated in the UJD SR Decree No. 33/2012 Coll. "On the regular, comprehensive and systematic evaluation of the nuclear safety of nuclear facilities (periodic safety review)" Section 18 "Operation of the nuclear facility after expiration of its service life calculated by the project" prescribes, among others, examination of complex program for long-term operation including safety analyses with time-limited validity of safety relevant equipment, ageing management programmes for active and passive safety relevant equipment, operating procedures in terms of long-term operation, etc. (simplified and shortened). There is a legislative requirement that programs and aspects of long-term operation should be adequately documented in safety analysis report (SAR) and related documentation. The process of examination of long-term operation uses similar procedures like those for periodic safety review. The SAR for Bohunice NPP was updated after its review to reflect the long-term operation of the NPP after 30 years of operation. Because of the complexity of the process involving several institutions and organisations it is difficult to provide a figure for man-hours spent for the SAR update.	
24.	Country **Sweden**	Article **6**	Ref. in National Report **p 22-29, General comment**
Question		Some abbreviations cannot be found in the list, e.g. EBO (Bohunice NPP), EMO (Mochovce NPP), mDG (mobile? diesel generator), LRKO, SFP (Spent fuel pool?), ESW (essential service water system?), PFB (Plant Fire Brigade?) which for a non-specialist makes the reading a bit difficult. This is in fact a general comment to the document where abbreviations of different type, some perhaps understood anyhow from the context (HMI (human machine interface), PAMS (post accident monitoring system), MCR (main control room), SBO (station black out), PGA (peak ground acceleration)), some are explained	

		(TSSM, NSSS), some can be understood by searching through other Slovakian reports (e.g. stress test report etc.) but essentially the CNS-report should be stand-alone. Perhaps feed-back for next report is to include a bit more explanations of abbreviations and to get rid of some of them when they are not really necessary.	
Answer		The list of abbreviations is at the beginning of the National Report. However during the process some new abbreviations were introduced. Some of them are will known other are less. The meaning of the mentioned abbreviations is as follows: EBO – Nuclear Power Plant Jaslovské Bohunice EMO – Nuclear Power Plant Mochovce mDG – Mobile Dieselgenerator LRKO – Off-site Radiation Monitoring Laboratory SFP – Spent Fuel pool ESW – Essential Service Water PFB - Plant Fire Brigade HMI – Human-Machine Interface PAMS – Post-Accident Measurement System MCR – Main Control Room SBO – Station Blackout PGA – Peak Ground Acceleration	
25.	Country **Sweden**	Article **6**	Ref. in National Report **page 30**
Question		Under the header Unit Power Uprate Program it is reported that also at NPP EMO 1&2 uprates similar to NPP V2, i.e. NPP EBO 3&4, were implemented and that the thermal reactor outpurt was icreased by 7 % to 1471 MW per unit. Could you comment on the fact, also indicated in the Table at page 16, that the units NPP EBO 3&4 has a gross electric power of 505 MW and the units NPP EMO 1&2 has a gross electric power of 470 MW despite having the same reactor thermal power, 1471 MW? What is/was the rationale for this?	
Answer		The EMO 1&2 NPP has a gross electric power of 470 MWe, because no HW changes on the secondary side were made (at the EBO NPP generators, turbines, unit transformers were changed).	
26.	Country **Sweden**	Article **6**	Ref. in National Report **page 37, 2.5 Interim Spent Fuel Storage**
Question		At what time does expanded capacity of the ISFS become critical for the operation of the Slovak reactors? Are there any fixed time limits set for the development project (although developed in steps)? The extension is built on the "dry storage", rather than the earlier "wet storage", concept. Are there any time limits set in the licence for wet storage or is the change in concept due to safety	

	reasons (or technological)? Under the title 2.5.3 ISFS Safety Improvement Programs the extended reconstruction of ISFS is described as having been driven by seismic resistance and capacity reasons. Were there any safety implications to issues like likely burn-up, cooling times, etc. which should be mentioned in this context? How is/were damaged fuel stored? How did the change in geometry and container type affect criticality issues. Is credit taken for boron (if used)/fuel burn-up?
Answer	Current capacity of the ISFS will be sufficient until 2024. The storage capacity extension of the ISFS – 1st stage has to be finished at latest by 2024. Capacity of the extended part of the ISFS built in the 1st stage will be approx. 10100 fuel assemblies and will be sufficient until 2048. The storage capacity extension of the ISFS – 2nd stage has to be finished at latest by 2048. Capacity of the extended part of the ISFS built in 2nd stage will be approx. 8500 fuel assemblies. Overall storage capacity of ISFS after two extensions will be sufficient for storing of all assemblies of type VVER-440 produced in the Slovakia during the assumed 60 years of reactor operation. Current ISFS was reconstructed as minimum for 50 years of operation. Reconstruction of ISFS required, inter alia, an extensive change of technology systems. Due to the larger amount of stored fuel the output of cooling system was increased from 700 kW to 2533kW, storing baskets of type T-12 were replaced by storing baskets KZ-48 type and complete reconstruction of controlling system was implemented. Curently, in ISFS there are 20 pcs of assemblies, which by hermetic tests showed leakage, but limits for the leakage stated by the producer were not reached. These assemblies are stored in hermetic casings placed in the basket of type T-13. The change to basket KZ-48 type required the use of special material for the production of hexagonal tubes inside the basket. It is manufactured from austenitic steel ATABOR. Calculations of criticality show, that in standard operation is $k_{ef} < 95$ and in emergency condition it is $k_{ef} < 98$. Boron credit is taken into account. The boron is part of boron steel and mechanical leakage from basket is not possible. The second possibility to boron loss is burning of boron B10 by neutron absorption. Decrease of boron concentration by neutron flux in basket KZ-48 below level to reach limit for criticality is more than 3000 years and for transport has relevance. Burn-up credit was not applied/granted.

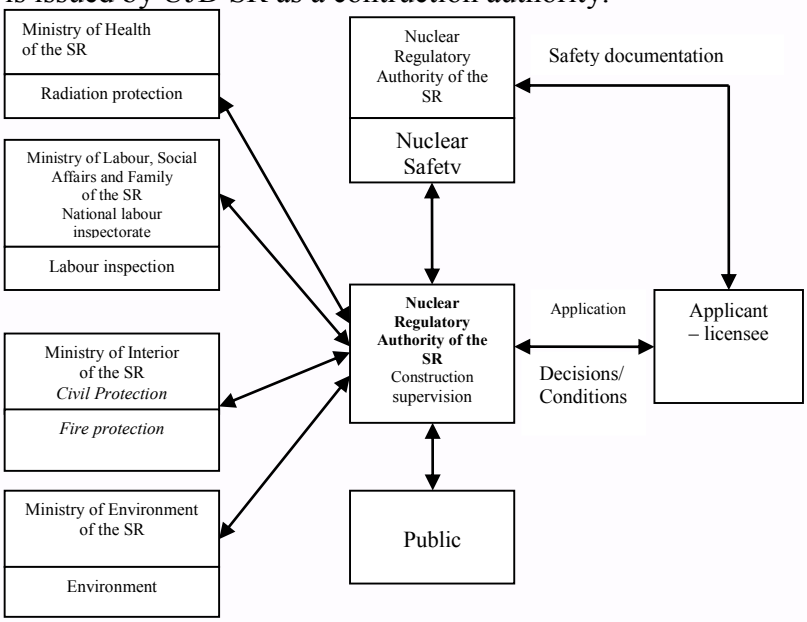
27.	Country **Austria**	Article **7**	Ref. in National Report **Section 3.1, Subsection 3.1.2.3, p47**
Question		Section 1.4.1 states that the approximately 40% of new/revised 2014 WENRA Safety Reference Levels (SRLs) which are not yet covered by the Slovak legislation will be included with the revision of the Atomic Act. However, subsection 3.1.2.3 states that the amendment to the Atomic Act will only concern the transposition of relevant EU Directives, while other issues, including the WENRA SRLs, will be resolved subsequently. Does this mean that successive revisions of the Atomic Act are planned, the first of which will not include the revised WENRA SRLs, and if yes what is the timeline envisaged for the subsequent revisions? In other words when does UJD SR envisage the adoption of the revised WENRA SRLs?	
Answer		In early May 2016 UJD SR started a consultation process on the new Atomic Act with stakeholders. Due to the high number of received comments, UJD SR decided to prepare a short purposeful amendment to the Atomic Act transposing EU Directive 2014/87/Euratom, amending Directive 2009/71/Euratom establishing a Community Framework for the Nuclear Safety of Nuclear installations (deadline for transposition is 15. 08. 2017) and transposing some elements of the new EU Diredtive 2013/59/Euratom laying down new EU BSS 2013/59/Euratom was already submitted to the National Council for approval. The work on a new Atomic Act will continue with no fixed deadline. Revised WENRA SRL will be taken into account during the next revision of the Atomic Act.	
28.	Country **Sweden**	Article **7.1**	Ref. in National Report **44, 3.1.2.1**
Question		It is understood that UJD SR is authorized to issue Degrees and measures within its given area of competence. The Degrees are also understood as top level regulations with basic requirements. Please, explain closer the role of Regulatory guides in respect of the fact that they are also often titled as “requirements” (see Annex 6.2 page 149).	
Answer		Acts stipulate rights and obligations specifying principles in various areas. Regulations (Decrees) are rules issued by Ministries and other central state administration authorities like UJD SR in order to set forth details in relation to the relevant act. Regulatory (safety) guides are issued by UJD SR according to the Annual Plan of issuing Safety Guides. These guides are recommendatory (not legaly binding) documents on how to	

		implement legaly binding documents such as the Atomic Act and Decrees. (See also page 44 of the NR).	
29.	Country **Sweden**	Article **7.1**	Ref. in National Report **page 44, 3.1.2.2 and p. 147, 6.2**
Question		In Annex 6.2 are listed legally binding Acts, Ordinances and Decrees. It is noted that Government Ordinances (No.234/2015 and No.1/2016, respectively) are addressing the issues of making "simple pressure vessels" and "pressure equipment" available on the market. Could you very briefly explain the scope and issue addressed in these Ordinances?	
Answer		Government Ordinance No. 234/2015 Coll. on making simple pressure vessels available on the market transposes Directive 2014/29/EU on the harmonisation of the laws of the Member States relating to the making available on the market of simple pressure vessels. The scope of this Ordinance are basic safety requirements for simple pressure vessels, duties of producer, importer and distributor, conformity procedures and duties of notified body. This Ordinance is mentioned in the national report because it belongs to a set of legislation in the nuclear industry, but does not apply to vessels specially designed for nuclear use, failure of which may cause an emission of radioactivity but is used by the operators of NI. The same is valid for the Government Ordinance No. 1/2016 Coll.	
30.	Country **Tunisia**	Article **7.1**	Ref. in National Report **3.1.2.2**
Question		Legislative and Regulatory Framework/ Legislation: Act No. 238/2006 Coll.l. On the National Nuclear Fund for the decommissioning of nuclear installations and for the management of spent nuclear fuel and radioactive waste (Act on Nuclear Fund). Could you please explain the responsibility of the license holder for the safe management of the spent fuel and the decommissioning process of the NPP more than his financial contribution on the Nuclear Fund?	
Answer		Act No. 238/2006 Coll. stipulates only financial contributions to the Nuclear Fund. General responsibilities of the licensee are in § 10 of the Atomic Act and special responsibilities are in § 20 and § 21 of the Atomic Act (http://www.ujd.gov.sk/ujd/WebStore.nsf/viewKey/AA_541-2004_014.pdf/$FILE/AA_541-2004_014.pdf). According the Atomic Act (§ 10) licence holder is obliged to comply with the limits and conditions for safe decommissioning.	

		The licence holder, during the commissioning and operation of nuclear installation, is obliged to transfere its radioactive waste at the latest 12 months after their production and as regards the spent fuel without any delay to the legal entity as settled in § 3 paragraph 9 for their further management (i.e. company JAVYS). § 20 of the Atomic Act specifies provisions for decommissioning e. g.: (1) The licensee is obliged to provide for decommissioning after completion of operation of a nuclear installation. Holder of license for decommissioning is responsible for the decommissioning. (2) The licensee is obliged prior to the scheduled shutdown of a nuclear installation for the purpose of completing the operation to submit to UJD SR a conceptual plan for decommissioning according to the current knowledge as at the moment of shutdown of a nuclear installation, etc. § 21 of the Atomic Act specifies provisions for Radioactive waste management and spent nuclear fuel management e. g.: (1) The originator of the radioactive waste (e. g. operator of a NPP) is responsible for the safe management of radioactive waste in compliance with the National Programme prior to their placement at the repository.The licence holder for management of radioactive waste (company JAVYS) is responsible for the safety of the radioactive waste management facilities, etc. (10) All activities in the management of radioactive waste must lead to their safe disposal, etc.
31.	Country **Poland**	Article **8**	Ref. in National Report **Chapter 3.1.3.3, p. 53**
Question		You mentioned that "on the basis of evaluated development of trends in findings from inspection activity it is possible to modify the inspection plan for the following period, in particular to those areas, where deficiencies of the regulated entity were detected the most". Could you please provide details concerning deficiencies which were detected most frequently in recent years?	
Answer		Each year UJD SR prepares a report on “Analyses of inspection activities”. One chapter dealth with findings (deficiencies) during the previous years. The findings are categorised into following categories: - Status of the installation (ES) - Operational documentation (OD) - Training and performance of staff (TP) - Nuclear safety (NS) - Testing of equipment (ET) - Physical security (PS)	

		- QA - Emergency preparedness (EP) The overall trend for all categories is decreasing (from 103 in 2002 to 25 in 2015). Findings in some categories are systematically decreasing (e. g. ES, NS) while in other categories there is no clear tendency (fluctuation in OD, QA). More details are possible to find on the UJD SR website, where the Analysis of the Inspection Activities are published. Unfortunately the Analysis is only in Slovak language.	
32.	Country **United States of America**	Article **8**	Ref. in National Report **3.1.2.3 / 3.1.3**
Question		The Slovak Republic National Report discusses preparation that began in 2013 to revise the Atomic Act. The revision plan included multiple areas to be addressed, however, the current plan is to only address one of these areas due to the complexity of the multiple topics and to address the remaining areas "subsequently." (1) Does the Slovak Republic plan to address the remaining topics through additional amendments to the Act? (2) Is there a schedule for addressing the remaining topics? (3) Please describe the Slovak Republic's process for involving the public in revisions to its legislation and regulations. For example, is there a process built in for stakeholders including the general public to provide comments for consideration?	
Answer		1) In early May 2016 UJD SR started a consultation process on the new Atomic Act with stakeholders. Due to the high number of received comments, UJD SR decided to prepare a short purposeful amendment to the Atomic Act transposing EU Directive 2014/87/Euratom, amending Directive 2009/71/Euratom establishing a Community Framework for the Nuclear Safety of Nuclear installations (deadline for transposition is 15. 08. 2017) and transposing some elements of the new EU Diredtive 2013/59/Euratom laying down new EU BSS 2013/59/Euratom was already submitted to the National Council for approval. 2) The work on a new Atomic Act will continue with no fixed deadline. Revised WENRA SRL will be taken into account during the next revision of the Atomic Act. 3) Public participation in the development of legislation is generally regulated at national level for all legal documents by the central state administration. The Act. No. 400/2015 Coll. on law-making and on the Collection of Laws of the Slovak Republic in § 9 stipulates that the public has to be informed about upcoming draft	

		legislation. One of the essential elements of the prepared legislation is a report on public participation in law-making. The submitter in this report indicates the way of involving the public in the development of the bill. According to § 10 of the above mentioned act the inter-ministerial commenting procedure is conducted through the publicly accessible portal „Slov-Lex" to ensure that the public has the right to particpate in the process and to poste comments. Access to this portal is unlimited. Consultation on the draft act is also being made with Higher Territorial Units, association of self-governing regions, Association of Towns and Municipalities, Union of Town and Cities, Capital city – Bratislava, etc.	
33.	Country **Sweden**	Article **8.1**	Ref. in National Report **51, 3.1.3.3**
Question		Comment - subtitle "Methods of Regulation"; with regards to the contents, it would probably be aimed more at the "Methods of regulatory supervision".	
Answer		The comment will be taken into account during the preparation of the next National Report using the terminology according to INFCIRC/672/Rev. 5 and GSR Part 1 (Rev. 1).	
34.	Country **Sweden**	Article **8.1**	Ref. in National Report **53, 3.1.3.4**
Question		Would not be suitable to mention WENRA activites and its working groups in this subchapter?	
Answer		Yes, mentioning of WENRA activities would fit well also with the indicated subchapter 3.1.3.4. However, since description of the majority of WENRA activities is included in subchapter 1.4.1 and partly in 5.4, our attempt was to avoid repetition of the same pieces of information.	
35.	Country **Sweden**	Article **8.1**	Ref. in National Report **page 49, 3.1.3.1 Nuclear Installation.**
Question		Please explain the statement: "Authorization for nuclear installation construction, permission for temporary use of the facility instruction (including authorization for trial operation) and decision on construction approval (including operation for operation of nuclear installation) are issued by UJD SR already as a construction authority"? It is probably correct but we do not follow the logic - perhaps it can be split up to make it more readily understandable.	

Answer	The text explains Fig. 3.1.3.1: Decision on siting is made by the relevant district authority. Decision on: - construction, - permission for temporary use of the NI, is issued by UJD SR as a contruction authority.  *Fig. 3.1.3.1 Licensing procedure for construction, commissioning, operation and decommissioning* It should be noted that UJD SR has a double function: - construction authority according to Act No. 50/1976 Coll., - nuclear licensing authority according to the Atomic Act.

36.	Country **Sweden**	Article **8.1**	Ref. in National Report **page 52, 3.1.3.3 Role of the Reg. Aut.,**
Question		Unplanned inspections are also performed as routine, special or team inspections, they are however "a reaction of UJD SR to the situation that occured at NI". This could then not be arranged in the same way as the routine inspections since, there is no tally in advance on the number of occuring events? Should we read the text with the meaning that unplanned inspections can be announced as well as unannounced? Otherwise, if an accident/incident occurred, would it be optimal to carry out an unplanned inspection or would that be a planned one (e.g. being announce in advance)?	
Answer		Regarding the first part of the question, there are four routine inspections per year on one NI performed by site inspectors. The routine inspection can be unplanned in the way that the content respectively subject of the routine inspection can be changed or revised based on the actual situation.	

		Regarding the second part planed inspections are submitted to UJD SR management for approval. Unplanned inspection can be unannounced as well as announced. Unplanned means that the inspection is not a part of the inspection plan approved for the relevant year. But both of them planned as well as unplanned can be announced as well as unannounced.	
37.	Country **Sweden**	Article **8.1**	Ref. in National Report **page 56, 3.1.3.5 Finacial**…
Question		Apparently the alternative funding of the regulator (as introduced from January 1, 2008) is visible in the Figure 3.1.3.5, rougly doubling the economical resources (is this correct, text not in English?). What is the cause of the second sharp rise in funding (2014, 2015)? Is this a result of the same legislative change or due to something else?	
Answer		The amendment of the Atomic Act. No. 143/2013 Coll. increased contributions to state supervision. This was made because of the increased costs of state supervision both in carrying out responsibilities under the Atomic Act in the operation of nuclear facilities, but also in carrying out responsibilities in relation to NPP EMO 3&4 (under construction). Between 2014 and 2015 increased contributions were used for new employees as well as to cover increased costs on research and development and technical support.	
38.	Country **Germany**	Article **9**	Ref. in National Report **p. 60, 61**
Question		By which mechanism does the Slovak Republic ensure that the licence holder of the nuclear installation has appropriate resources (technical, human, financial)?	
Answer		According to the Atomic Act §23 the licensee is required to maintain financial resources and human resources for ensuring nuclear safety, including appropriate working conditions and the necessary engineering and technical support in all areas relating to nuclear safety". This provision is (for example) implemented as illustrated by the figure on page 35. The regulator issues decisions on safety upgrading measures, which are preconditions for the safe operation of the relevant nuclear installation. It is the licensee´s responsibility to decide on the ways and means to comply with regulatory requirements (see also Chapter 4.2, 5.3.4 of the National Report).	

39.	Country **Sweden**	Article **9**	Ref. in National Report **page 60-61, 3.2 Operators responisbility**
Question		Under Article 9 is reported that the licence holder is obliged to take the prime responsibility for safety (not delegate safety, safety first, modifications of facility only after UJD SR approval, notifications, periodic reviews of safety). Could you give more information about how the operator meet (implements) these requirements in practice? How is it ensured that the requirements are met?	
Answer		According to Article 23 of the Atomic Act, a licensee holder is responsible for the fulfilment of requirements for nuclear safety and cannot get rid of this responsibility. The licensee holder must pay priority attention to safety aspects to the detriment of all other aspects of the permitted activity. Legislative requirements are included in the integrated policy of the company, and they are applied and developed in the SE, a. s. Management System Manual approved by UJD SR. The licensee may change classified equipment, amend documentation approved or reviewed by UJD SR, and implement changes leading to change of Limits & Conditions (Technical Specifications) only if approved byUJD SR, and implement changes in nuclear installation that may affect nuclear safety only if communicated and reviewed by UJD SR in advance. Based on the Management System Manual, SE, a. s. may procure supplies of products and services from external supplies. However, the company is fully responsible for safety, in particular nuclear safety, and observance of integrated management system requirements. Based on UJD SR Regulation No. 431/2011, the licensee´s quality management system must include, beside others: • evaluation and selection criteria of supplies including administration of suppliers records, • requirements regarding procurement and purchase of goods and services including requirements regarding input checks of purchased products, • requirements regarding quality management systems of suppliers of goods and services, which have or could have impacts on nuclear safety of the nuclear installation including requirements regarding methods and scope of checks of quality management systems of such suppliers, • adherence to and communication of quality policy including safety policy to suppliers so as it is accepted by the suppliers and adapted to suppliers' conditions.	

		• checks of the suppliers and activities performed by the suppliers including a possibility of check audits at the suppliers and participation the regulator at those audits. These requirements are implemented in the SE, a. s. Management System Manual approved by UJD SR. Based on Art. 8 of UJD SR Decree No. 411/2011, the licensee shall check conformity of classified equipment with the requirements regarding quality of classified equipment and with the accompanying technical documentation at its supply to the site, and make a record thereof. The licensee shall check conformity of classified equipment with the requirements regarding quality of classified equipment and with the accompanying technical documentation, quality plans, conformity of the accompanying technical documentation with requirements of the Decree for this documentation after completing the assembly of classified equipment into integrated systems or their parts (hereinafter referred to as "Post-Installation Tests"), and make a record thereof. The requirements are implemented in the SE, a. s. Nuclear Power Plants Stage Quality Assurance Programme for Operation approved by UJD SR.	
40.	Country **Germany**	Article **10**	Ref. in National Report **p. 62, 63**
Question		Could you report some measures which are taken to improve the safety culture?	
Answer		Measures to improve the safety culture are aimed at three areas. The first area is implementation of new or enhancement of existing tools to support the safety culture. They have led to implementation or enhancement of tools such as confidential reporting of problems, just culture culpability mode, recognizing employees demonstrating exceptional safe behaviour, nuclear internal communication and safety culture committee communication campaign. The second area is the reaction to safety culture weakening symptoms identified within the periodical nuclear safety assessment. The third area is systematic activity of the safety culture committee in the power plant adopting measures mainly proactively to improve or at least maintain the nuclear safety level. In this way measures were implemented for instance for systematic cascade communication to support behavioural attributes in individual safety culture pillars, to provide trainings in engineering tools to prevent human errors, to prepare and implement a thematic set of activities and "safety week"	

		communication, or measures to reduce unscheduled non-readiness of safety systems.	
41.	Country **Russian Federation**	Article **10**	Ref. in National Report **Section 4.3.3**
Question		According to the Report, safety culture indicators have been defined to assess operator. Could you please give examples of safety culture indicators. What quantitative and qualitative characteristics are used in safety culture assessment? What criteria are applied to assess provision of safety culture?	
Answer		SE, a. s. evaluate the safety culture in two ways: 1. Globally as a process for each NPP – set of 17 indicators, evaluation is done for all indicators quarterly, selected ones are additionaly evaluatd monthly. Few examples: a) Number of approved proposals and awards for safe behaviors - The number of appreciations and approved proposals at the commission of safety culture for the monitored period submitted via the form for exemplary safe behavior and handed over to the secretary of the safety culture commission. (no duplicity permitted) - the date of proposal submission is decisive. b) Significant events related to reactivity control, heat removal, defence in depth or physical barriers (SL1 + SL2) - The number of events SL1, SL2 for the monitored period related to activities that can affect reactivity control, heat removal, in-depth protection or barriers withholding the radioactive materials. Note: The value of the indicator is the sum of individual SL1 and SL2 events. c) Approach to safety during works preparation (SL1, SL2) - The number of SL1, SL2 events that were caused by insufficient work preparation or insufficient risk management, etc. 2. Independent evaluation is done once per two years – based on the WANO Principles PL 2013-1. Evaluation is done for following 10 attributes: PA- Personal Accountability QA- Questioning Attitude CO- Effective Safety Communication DM- Decision making LA- Leadership Safety Values & Actions WE- Respectful work environment CL- Continuous learning PI- Problem identification & resolution WP- Work processes RC- Environment for raising concerns	

42.	Country **Sweden**	Article **10**	Ref. in National Report **page 63, 4.1.2 Concept of NS & RS**
Question		It is described what the purpose of a safety policy of a nuclear installation operator, that it is pursued through internal management acts, as through checking compliance etc. Could you explain more about what is actually written in the nuclear safety policies of the licence holders (Bohunice, Mochovce) and how they implement, in practice, the derived requirements and principles (The list on page 63 could be read as a partly being a mixture of policy and requirements)?	
Answer		Principles defined in the Safety Policy (Integrated Policy) are further elaborated mainly in the company's Management System Manual and the Quality Assurance Program of NPPs for Operation (both are licensing documents approved by regulatory authority). The implementation is regularly monitored via a system of specific and operative self-assessments, independent nuclear safety assessments and IMS process audits (including nuclear safety audits), as well as externally, in a form of regulatory authority inspections, certification and supervisory audits, WANO, OSART peer missions, etc. The Company is main goals, and tasks are defined on yearly basis. System of Key Performance Indicators, icluding reporting on various levels of management is implemented. Other forms of application, e.g. in area of enhancement of human factor reliability, minimalization of human failures are elaborated by the Values and Behaviours Model, where the expectations and standards of employee and manager behaviour are stated.	
43.	Country **Germany**	Article **11**	Ref. in National Report **p. 65, 66**
Question		Could you give a description of the Slovak Republic arrangements for ensuring that the necessary financial resources are available in the event of a radiological emergency?	
Answer		Authorities responsible for off-site response are obliged to have basic human and material resources to deal with an emergency situation in general. Moreover in case that an emergency state is declared, they can also be supported by additional resources as envisaged in §11 (1) Act 387/2002 Coll. on Administration in Crisis Situations (see chapter 4.7.1 of the NR). There is an obligations of all state institutions to provide the necessary resources they own (in kind contribution).	

44.	Country **United States of America**	Article **11**	Ref. in National Report **4.2 / 5.3.3.5**
Question		The National Report discusses actions taken for the operating plants to address severe accidents. The report states that actions to address severe accidents involving multiple units will take place following the projects to address severe accidents for individual units. (1) Please clarify if all of the actions to address severe accidents involving multiple units have been implemented and what activities remain to be completed? (2) How will these evaluations be implemented for the two units currently under construction?	
Answer		(1) The SAM project was implemented at all NPPs and units. Additional analyses in case of SA occurrence at multiple units were performed and results were implemented in the SAMG strategy for emergency response. The outcomes of the project on "Improvement of Emergency Planning" was taken into account and human resources for a TSC (technical support center) and other sections of ECC (emergency and control center) were enhanced. (2) Such approach was also adopted for the two units currently under construction. Each of the units must be able to cope alone with Design Extension Conditions (DEC), including severe accident (further "SA"). Hardware measures to cope with SA occurring on both units simultaneously MO34 (i.e. a "multi-unit SA") has been developed in a modified initial project for MO34. Additional measures have been implemented based on the results arising from the "stress tests" (e.g. a doubling tanks of SAM emergency source of coolant, adding another pump for this SAM system), in order to ensure coping with the SA on both units simultaneously. Hardware resources for coping with SA are implemented to the extent that each of MO34 units is able to manage SA individually, i.e. without the need for resources from neighbouring unit (systems are independent and twin-unit systems have double capacity). Westinghouse (as an author and developer of the generic SAMGs) is currently preparing a program of updating the generic SAMGs which is comprehensively addressing the issue of developing "multi-unit SA". This program will be implemented in SAMG documentation for MO34 within the maintenance program for SAMG ("SAMG maintenance").	

45.	Country **Sweden**	Article **11.1**	Ref. in National Report **page 67, 4.2.3 Human Res.**
Question		"The direct supervisor of an employee is responsible for meeting these requirements", i.e. is responsible for that the employee has the education, experience, training, health and mental capacity which a person in his or her position is required to have/met. How is this arranged for hired staff and people from TSO:s? Is there a shared responsibility between the different employeers, and if, how is this arranged? On page 68, in Fig. 4.2.3, what does RFS stand for (is probably Plant Full-scope Simulator not in abbreviations)?	
Answer		Ad1) How is this arranged for hired staff and people from TSOs? All personnel of the contractor entering the premises of SE's a. s. plants shall take part at the entry clearance course (including verification of knowledge, e.g. in the form of a test) before the beginning of the performance in order to gain or maintain general capability for entry and safe movement, stay and execution of contract performances in the premises of SE, a. s. depending on the particular plant, in accordance with the following provisions. The contractor's personnel is required to attend the entry clearance course periodically at least once every 24 months, unless stated otherwise. The respective trainings shall not replace periodical trainings of personnel in occupational safety and health and fire protection obligatory by law, for passing of which the contractor is responsible. The validity of the entry clearance course is in general up to 24 months. The following documents for every entrance of contractor's personnel are required: - Document on completing the entry clearance course, - Excerpt from the Register of criminal records - no older than 3 months before the first assumed accession of contractor's personnel to provision of performance in NPP and it is required to be submitted every three years thereafter; any eventual criminal record is assessed individually and may be a reason for refusal of entry to the premises of SE, a. s. Depending on the type of SE, a. s. areas, in which the performance will be executed, the contractor shall be also obliged to submit: - Certificate from test of mental capability (for entering the protected or internal area of the NPP) - passed in the psychological workplace holding a certificate for performance of psychological activities, and its submission is required every 3 years thereafter, unless other certificate validity was defined for the workplace. - Documents for entry into areas with ionizing radiation.	

	Depending on the requirements on professional competence defined in the contract or in the technical specification, the contractor shall be also obliged to submit: - List of professional competences (qualifications) of the personnel in electronic form in the requested structure. - Copies of the documents on professional competence and education of the personnel if it is necessary for the performance of the subject matter in compliance with the legal regulations of the Slovak Republic and requirements of SE, a. s. The Contractor shall hold respective valid authorizations relevant to the subject of contract performance pursuant to legal requirements of the Slovak Republic. Contractual performance can be executed by professionally and medically capable personnel only. All the Contractor's authorizations and certificates of professional competence of its personnel must remain valid for the entire duration of the contractual relation. The Contractor's personnel shall be obliged to carry the respective documents on site and on demand of SE, a. s. to prove their health and professional competence. SE, a. s. reserves the right of unlimited inspection of validity of authorizations, certificates of professional capability, instructing of individual personnel at any time during the contract execution. SE, a. s. also reserves the right to assess the Contractor's personnel. The results of assessment of the contractor's personnel can be provided by issuing „Skills Passport" upon request of the assessed person or of contractor. Skills Passport is a document issued by SE, a. s. for contractor's personnel, containing information on professional competence, time worked for SE, a. s. and its assessment. If the contractor's personnel has the Skills Passport, it may not prove professional competence unless there has been a change in validity date of any document on professional competence and education, or there has been added a qualification. The contractor is obliged to carry out checks of their personnel, aimed at compliance with applicable laws and internal regulations of SE, a. s., with which he was familiarised. For this purpose, the contractor is required to prepare a schedule of inspections and submit it to the SE's, a. s. Contract Manager before starting the performance. The contractor is obliged to record the results of the checks in the Logbook. Ad2) Is there a shared responsibility between the different employeers, and if, how is this arranged? SE is responsible for the entry clearance course or for the course for entry into the controlled area, respectively. The supplier is responsible for professional competence of its employees. The contact person between the NPP and a supplier is an employee of the NPP, most often from line units, like maintenance, engineering or operation, who manages the contract as a contract

		manager. He/she is in daily contact with a supplier and fulfils tasks which are addressed to the NPP and follow from the contract. Ad3) On page 68, in Fig. 4.2.3, what does Representative Full-scope simulator (RFS) stand for (is probably Plant Full-scope Simulator not in abbreviations)? Yes, RFS stands for a Representative Full-Scope Simulator.	
46.	Country **France**	Article **12**	Ref. in National Report **§ 4.3.3, 77**
Question		Slovakia mentions that "to improve the safety culture and for self-assessment the operators develop action plans for safety culture". Could Slovakia provide details on the building and content of these action plans, and also how they are promoted by the licensee?	
Answer		Measures to improve the safety culture (culture for safety) and action plans formed by them are developed in three basic areas. The first area is implementation of new or enhancement of existing tools to support the safety culture. Projects, initiatives and self-assessments are performed in this area. They have led to implementation or enhancement of tools such as confidential reporting of problems, just culture culpability mode, recognizing employees demonstrating exceptional safe behaviour, nuclear internal communication and safety culture committee communication campaign. The second area is the reaction to safety culture weakening symptoms identified within the periodical nuclear safety assessment. The third area is systematic activity of the safety culture committee in the power plant adopting measures mainly proactively to improve or at least maintain the nuclear safety level. In this way measures were implemented for instance for systematic cascade communication to support behavioural attributes in individual safety culture pillars, to provide trainings in engineering tools to prevent human errors, to prepare and implement a thematic set of activities and "safety week" communication, or measures to reduce unscheduled non-readiness of safety systems. The licence holder supports fulfilment of these action plans mainly by the level of responsibility for their fulfilment. Usually a manager at the headquarters or plant level is responsible. The action plan from the periodical safety culture survey is monitored from the level of an independent nuclear safety surveillance. Action plans from projects and initiatives are monitored by corporate director of the responsible section. Action plans of the safety culture committee are monitored from the power plant director's level.	

47.	Country **India**	Article **12**	Ref. in National Report **Section 4.3, Page 71 to 77**
Question		The report mentions of the measures put in place by Slovenské elektrárne, a.s (SE, a. s.) to improve human performance. Could Slovakia share information on the mechanisms followed to evaluate the effectiveness of those measures and the trend of human performance since the introduction of those measures?	
Answer		Human performance in SE, a. s., is mainly measured by number and seriousness of incidents and events where Human Factor (HF) contributed. Since the implementation of the Human Performance Reliability Program the trend of serious incidents with contribution of HF is decreasing. However the trend of not so serious incidents, incidents without consequences and near misses with HF contribution is increasing. It means that total number of these middle and low significant events remains approximately the same, but the share of HF is increasing. The interpretation of these trends is that HF has become part of almost every incident analyses.	
48.	Country **Sweden**	Article **12**	Ref. in National Report **page 75, 4.3 Human Factors**
Question		Could the expression: "human factor clock reset of the plant" be explained in layman terms?	
Answer		Human factor clock reset is one of the basic performance indicators of the Human Factor Reliability Program. Human Factor clock reset is used to measure the number of days between two events caused by human factor. Human factor clock reset is also a tracking mechanism for Plant Event Rate Data. Plant and Department Human Factor Clock resets are used as internal Operating Experience (OE) to promote organizational awareness and learning from human performance events in order to reduce the probability of further similar events. For visualization and communication of Human Factor Clock Reset there are traffic lights and LCD monitors which are located in both NPPs. In case of event caused by Human Factor (or HF is contributing) and the criteria for reseting Human Factor Clock are met – the red light on traffic lights in plants are switched on plus there is a short information for all employees on LCD monitor about the event. This information contains basic facts – short description of event; criteria which caused the HF clock reset; mistakes and errors of personal and contributing risk factors; error prevention tools which could help to avoid this event; lessons learned from the event and first corrective actions.	

		There are 2 levels of Human Factor Clock Reset – plant level and department level. For both of them we defined criteria to reset the clock. HF clock reset criteria on the department level are on lower threshold level than criteria for plant HF clock reset.	
49.	Country **Sweden**	Article **12**	Ref. in National Report **page 77-78, 4.3.4 Role of the RA**
Question		It seems that this section is better fitted to the end of Article 11 since it refers to follow-up of the professional competence - Human resources? What is done by ÚSD SR to follow up on the operators activities in the Human Factors area? Furthermore the terms specialized facility and RFS is used in the text before they are explained (2nd half of page 78: "a licensee for training of staff of the licensee") - consider moving this further up in next report!	
Answer		a) Regarding the position of the respective parts of the NR, the authors will take into account the reader`s opinion in the phase of the preparing the next NR. b) UJD SR performs regular inspections in the area of human factor (HF) focusing for example on human errors and ommissions of non-compliance with operational documentation, culture for safety, etc. In 2015 inspections identified 3 (three) deficiencies in HF performance (out of 25 identified deficiencies). The licensee was requested to adopt corrective actions. c) Explanaion on the term “specialised facility” is given on page 70 of the NR. The abbreviation RFS means prepresentative full scope simulator (page 78) used for staff training.	
50.	Country **Czech Republic**	Article **13**	Ref. in National Report **p. 84/Art. 4.4.1.1**
Question		Which communication means are used to inform UJD SR about the provisions implemented on the base of contractor system quality audits performed by the licensee? How does UJD SR systematically utilize this information by way of its regulatory control activities?	
Answer		UJD SR executes the supervision of licensees´ management system with a focus on nuclear safety as described in chapter 3.1.3.3 and chapter 4.4.5 of the National report. UJD SR carries out regulatory and inspection activities, makes decisions and approves some types of licensees´ documentation (these are main ways to acquisition of information) in the area of Quality Assurance. Main utilization of acquired information for UJD SR: ✓ Compliance with requirements specified in Licensee´s Quality manual (or Integrated Management System Manual),	

		✓ Compliance with process requirements specified in Quality Assurance programmes for the specific nuclear facility, and ✓ Compliance with UJD SR requirements for quality management system of licensees (including quality assurance audits performed by the licensee at its suppliers). The licensee is responsible for contractors´ activities and services. UJD ´s activities in relation to licensees´ contractors: ✓ Audits on Contractors' quality assurance programmes performed by the licensee with participation of UJD SR. ✓ UJD SR participation in FAT - factory acceptance tests with the licensee at its suppliers (is applied mainly on the Mochovce 3,4 completion project). Elaboration of quality plans for classified equipments (i.e. equipments related to nuclear safety) and for changes and modifications of original design of nuclear installation. The quality plans are approved by UJD SR.	
51.	Country **India**	Article **13**	Ref. in National Report **Section 4.4.1**
Question		From the report it is understood that external audit of Integrated Management System of Slovenské elektrárne, a.s. (SE, a. s.) is being done by both regulatory body & external accredited certification companies. Could Slovak Republic share differences in scope of their audits?	
Answer		UJD SR performs regular inspections at the licensee with focus on different areas among others on quality assurance. These inspections are obligatory for licensee. See chapter 3.1.3.3. Audit performed by accredited organisations are voluntary for the licensee and serving for its internal purposes e.g. in area of assessment or improvement. The scope both of these audits might be similar. It is focused on management system processes based on EN ISO 9001 standard.	
52.	Country **Sweden**	Article **13**	Ref. in National Report **page 83, 4.4.1.1. NuSaCo**
Question		Is there any difference in the duties or objectives of the nuclear safety committees of EBO and EMO or are the descriptions in the text applicable to both?	
Answer		Nuclear safety culture is described at corporate level. Documentation is valid for all nuclear sites of the company. The statute of nuclear safety culture commitee is also defined at this level. It is an advisory commitee of site manager. The statute defines purpose, rules and members of the commitee. Each NPPs issued their own rules of the commitee work, but in compliance	

		with corporate documents. In details there are some differences, mainly originating from plant particularities.	
53.	Country **Sweden**	Article **13**	Ref. in National Report **page 84, 4.4 Licensee's Quality System**
Question		The licence holders carry out audits of quality management systems of selected suppliers affecting the nuclear safety of nuclear installations. How does UJD SR follow up on the licensees activities regarding the quality control of suppliers and their impact on nuclear safety?	
Answer		UJD SR executes the supervision of licensees´ management system with a focus on nuclear safety as described in chapter 3.1.3.3 and chapter 4.4.5 of the National report. UJD SR carries out regulatory and inspection activities, makes decisions and approves some types of licensees´ documentation (these are main ways to acquisition of information) in the area of Quality Assurance. Main utilization of acquired information for UJD SR: ✓ Compliance with requirements specified in Licensee´s Quality manual (or Integrated Management System Manual), ✓ Compliance with process requirements specified in Quality Assurance programmes for the specific nuclear facility, and ✓ Compliance with UJD SR requirements for quality management system of licensees (including quality assurance audits performed by the licensee at its suppliers). The licensee is responsible for contractors´ activities and services. UJD ´s activities in relation to licensees´ contractors: ✓ Audits on Contractors' quality assurance programmes performed by the licensee with participation of UJD SR. ✓ UJD SR participation in FAT - factory acceptance tests with the licensee at its suppliers (is applied mainly on the Mochovce 3,4 completion project). Elaboration of quality plans for classified equipments (i.e. equipments related to nuclear safety) and for changes and modifications of original design of nuclear installation. The quality plans are approved by UJD SR.	
54.	Country **Austria**	Article **14**	Ref. in National Report **Section 4.5.3, p92 + Section 6.5, p164**
Question		1) What is the basis of the "Generic Implementation Procedure" (GIP method)? 2) What are the main differences between the GIP method and the SMA and SPSA methods?	

Answer		1. The GIP method is the so called indirect method for SSC seismic capacity assessment. The assessment is based on comparison of properties of assessed SSC with the SSC seismic properties cataloque (e.g. SQUG, EPRI,…). 2. The SMA is the process to provide for seismic margins of SSCs that can be obtained by direct (calculation) or indirect methods. The GIP method can be used as part of SMA process. The SPSA is a seismic PSA method that can used to calculate an overall seismic risk of any nuclear installation. To complete the SPSA, a SMA process completion is needed in order to develop SSC seismic capacity assessment (HCLPF values) so that these values can be used to calculated probabilities of SSC failures based on site seismic risk.	
55.	Country **Austria**	Article **14**	Ref. in National Report **Section 4.5.3, p92 + Section 6.5, p165**
Question		1) What is the current status of the seismic upgrading of EMO 1+2? 2) Will the new target value of PGA=0.15 g be exceeded after the completion of the upgrade, i.e., will there be some significant margin beyond the hazard level which was established by the latest seismic hazard assessment (PGA=0.143 g)?	
Answer		All SSCs implemented within the SAM project and the measures resulting from Stress Tests Fukushima at EBO and EMO have been designed and constructed with seismic qualifications with 20% ÷ 30% margin against SMA of the site. Following the Fukushima event, seismic risks of SSCs at EBO and EMO have been reassessed and margins to failure have been developed. To determine the boundary seismic resistance of structures and technological equipment, the method SMA (Seismic Margin Assessment) was used, especially its version, known by the acronym CDFM (Conservative Deterministic Failure Margin) was used to determine the so called HCLPF (High Confidence Low Probability of Failure) values of the SSC. 1. The EMO 1,2 NPP seismic upgrading project is ongoing and its major part having the highest seismic safety enhancement impact will be completed until 2018 as agreed with the UJD SR. 2. The target value of PGA=0.15g will not be exceeded after the completion of the EMO1,2 seismic upgrade.	

56.	Country **Austria**	Article **14**	Ref. in National Report **Section 4.5.3, p92 + Sec. 6.5, p177-193**
Question		1) Where would the mobile diesel generators connect? 2) What consumers would they supply prior to core damage and in case of a severe accident? 3) How soon after the SBO is their start possible and what is their autonomy?	
Answer		1) The mobile dieselgenerators (1 per mit) supply power to pumps and fans for residual heat removal from the reactor core, charge accumulator batteries and for control systems to check the power plant status in emergency conditions. There is a possibility to supply power from mobile diesel generator through the emergency switchgear to consumers, or directly to consumers connection cabinet. 2) Mobile diesel generators (1 per unit) have different design than the main emergency SAM DG 6kV. In the event of a severe accident all SSCs for management of severe accidents are supplied primarily from separate, independend and SAM dedicated DG6kV. Prior to the core damage in the preventive AM (accident management) phase, mobile feed water pumps, high pressure piston boron pumps, mobile measurement units, mobile diesel generators may be used to supply as well as containment heat removal systems. 3) After the onset of SBO all mobile DGs (one per unit) can be put into operation and electric supply of the first consumer can start not later than in 2 hours. This time is approximately one tenth of the plant accumulator autonomy. Several projects are currently under implementation to allow for further shortening of the mobile DGs deployment time. The mobile diesel generators have sufficient oil and fuel supply for 24-hour operation at full power with an option toextent this period.	
57.	Country **Austria**	Article **14**	Ref. in National Report **Section 4.5.3, p92 + Sec. 6.5, p174-193**
Question		Which are the mobile water sources available on site for feed water make-up and how much is the time to core damage extended by each of them?	
Answer		High and low pressure mobile water sources (one per unit) are available on site for feed water make-up to steam generators. The prevention of core damage once the mobile feedwater pumps are deployed is unlimited in time.	

58.	Country **United States of America**	Article **14**	Ref. in National Report **1.3 / 4.5**
Question		Based on the report, the operating plants and the units under construction have not made updates to their safety analysis reports since the Fukushima accident. (1) How often are licensees and applicants required to update their safety analysis reports? (2) What is the means for officially documenting changes implemented between the 10-year periodic safety reviews?	
Answer		(1) According to the legislation all plant modifications (whenever they proposed) with influence on nuclear safety have to be assessed or (pending on the type of the document) approved by the regulatory authority. Part of the application for such approval is the set of updated documents that have been assessed or approved by the regulatory authority in the past. The SAR belongs to this group of documents, so when a modification with influence on nuclear safety is going to be made the effected part of SAR and all related documentation needs to be updated and approved by the regulatory body before the modification is implemented. (2) In case that the outcomes of the PSR necessitates changes of the SAR the same procedure applies.	
59.	Country **France**	Article **14.1**	Ref. in National Report **§ 4.5.2, 86**
Question		What are the design modifications deriving from the latest PSA?	
Answer		There are various tools supporting decisions for modifications of design and/or operation of NPPs. PSA represents only one of these tools and usually a combination of tools is used. There are various design modifications, like severe accident management measures which were not directly derived from the PSA, but PSA supported and demonstrated a positive impact of their implementation on the decrease of the risk. The main design modification deriving directly from the latest PSA is the automatic start-up of the low-pressure emergency core cooling system pumps during the operating modes 4 to 6 (shut-down operating modes with subcritical reactor and/or open reactor for refuelling) in situations of low levels in pressurizer and/or reactor vessel and loss of sub-cooling in the core.	

60.	Country **Sweden**	Article **14.1**	Ref. in National Report **p 86-88, 4.5.2 SA of NPPs**
Question		The PSA studies for NPP Bohunice V2 was updated in 2013 (level 1) and 2014 (level 2). In Mochovce 1&2 this was performed in 2011. Could you share any of the results on core damage frequency and containment release frequencies? How do these compare with the earlier calculated values? Is the Risk Monitor EOOS (used at Mochovce?) described at page 87 the same as the one described at page 88 (the analytical software tool Safety Monitor). The text is unclear on what is used where.If they are not the same, what is the difference?	
Answer		Since the probabilistic results are describing the safety/risk picture more qualitatively than quantitatively, it might be not fully correct to compare the absolute values of CDF and/or LERF. Such comparison might not provide necessarily a clear picture. Wherefore we prefer just to express the global trends. The update of PSA studies related to consideration of SAM and SAMG lead to a decrease of CDF and LERF by a factor of about 1.5 - 1.6 for NPP Bohunice V2, and by a factor of about 3.7 - 21.6 for NPP Mochovce 1,2. The analytical software tool Risk Monitor EOOS (a product of EPRI) mentioned on page 87 has been used in NPP Bohunice, The analytical software tool Safety Monitor mentioned on page 88 (a product of Jacobsen Engineering, Ltd., which changed its name in 2011 to Jacobsen Analytics, Ltd.) has been used in NPP Mochovce. However, during 2017 both NPPs are going to change their real time risk monitoring system to the same tool, which is going to be the RiskSpectrum RiskWatcher (Lloyd's Register Consulting).	
61.	Country **Ukraine**	Article **14.1**	Ref. in National Report **Pages 16 and 85**
Question		In our opinion, it would be good to increase comprehension and complete the tables on page 16 and page 85 with another line indicating the time periods for the next safety review for Bohunice V2 and Mochovce-1, 2 (National Report states that safety review for Bohunice V2 has been already started in 2016).	
Answer		As it is mentioned in chapter 2.2.1 and 2.3.1 PSRs were completed in 2008 for Bohunice V-2 and in 2011 for Mochovce 1&2 (see also figure on page 35). At the time of the preparation of the NR only preparatory works for the PSR Bohunice V-2 were initiated by the licensee. The documentation will be submitted to the regulator (UJD SR) in the first half of 2017. The relevant	

		tables and chapters of the National Report will be thereafter updated.	
62.	Country **Ukraine**	Article **14.1**	Ref. in National Report **Section 4.5**
Question		What requirements have been established by the Slovak regulatory body for the periodicity of PSA updating?	
Answer		According to Decree on Nuclear Safety Requirements (No. 430/2011 Coll.): During lifetime of nuclear installation both PSA L1 and L2 are regularly reviewed as part of the periodic safety reviews of nuclear installations and whenever a) there has been a significant change in the design of nuclear installations, b) there has been a significant change in the operating procedures, c) significant new risk has been found. Decree on Periodic safety review (No.33/2012 Coll.): (1) based on the results of periodic safety review the licensee shall update accordingly the documentation referred to in Annex 1 Section C of the Atomic Act (this includes also PSA). 5-year interval for updating of PSA is recommended in the regulatory guide on Requirements for the Preparation of PSA. This guide is under review (revision) at present. Regulatory guides are accessible through the official regulatory website (www.ujd.gov.sk) in Slovak language.	
63.	Country **Ukraine**	Article **14.1**	Ref. in National Report **Section 4.5.3, page 89**
Question		Please add references to IAEA SSG-25 "Periodic Safety Review for Nuclear Power Plants" (2013).	
Answer		The comment will be taken into account during the preparation of the next National Report.	
64.	Country **Ukraine**	Article **14.13,5**	Ref. in National Report **Section 4.5.2 (PSA), page 86**
Question		What requirements are established for the quality and updating periodicity of the probabilistic model in order to use it for risk-informed decision-making?	
Answer		For updating the probabilistic model used for risk-informed decision making the same requirements are applied as stated in	

		the previous answer. The changes in the design and for operation should be first included in the PSA so that it is possible to assess the impact of the proposed changes on the risk (living PSA). A specific regulatory guide of almost 130 pages (BNS I.12.3/2014 Quality of PSA for PSA application) is dedicated to the quality of the probabilistic model used for risk-informed decision making. The safety guide specifies regulatory requirements on the quality of PSA for PSA application, explains in detail the term "quality of PSA", provides procedure for determining the quality of PSA, suggests the categorization of PSA study according the quality of PSA, provides a comprehensive list of PSA applications for NI, states the technical features of a PSA which should be satisfied for supporting the PSA applications of interest. By the term quality of PSA the guide means the suitability of the PSA for a given application, i.e., the PSA is to have the required characteristics/attributes in terms of the level and depth of detail, the suitability of models describing the analysed process, the ability to provide the desired results, the possibility of interpretation results, quality of input data, assumptions adopted in its creation, and others. Regulatory guides are accessible through the official regulatory website (www.ujd.gov.sk).
65.	Country **France**	Article **14.2**	Ref. in National Report **§ 5.3.5.2, 135 and 136**
Question		Following the Fukushima event, have the seismic risks been reassessed? If yes, which approach has been chosen and what are the verifications done on NPP existing equipment and buildings? If not, what are the justifications?	
Answer		All SSCs implemented within the SAM project and the measures resulting from Stress Tests Fukushima at EBO and EMO have been designed and constructed with seismic qualifications with 20% ÷ 30% margin against SMA of the site. Following the Fukushima event, seismic risks of SSCs at EBO and EMO have been reassessed and margins to failure have been developed. To determine the boundary seismic resistance of structures and technological equipment, the method SMA (Seismic Margin Assessment) was used, especially its version, known by the acronym CDFM (Conservative Deterministic Failure Margin) was used to determine the so called HCLPF (High Confidence Low Probability of Failure) values of the SSC. The EMO 1,2 NPP seismic upgrading project is ongoing and its major part having the highest seismic safety enhancement impact will be completed until 2018 as agreed with the UJD SR.	

66.	Country **France**	Article **14.2**	Ref. in National Report **§ 5.3.5.2, 136 and 137**
Question		Slovakia mentioned two indicators sets: one for the correction and prevention system named SNaP, the other characterizing operational safety indicators system named SPUB. Could Slovakia give further examples of these indicators used for operational experience feedback (definition, importance) and the way Slovakia get them back?	
Answer		SE, a. s., have two basic indicators sets: 1st. set is the set of safety indicators (SPUB) - a quarterly report is created and distributed to the Regulatory Authority (UJD SR). This report is based on UJD SR decree and also on IAEA TEC-DOC 1141. Report structure (number of indicators): 1. SMOOTH OPERATION (24) a. Condition of equipment and civil structures (11) b. Events at nuclear installation (8) c. Power generation (5) 2. POSITIVE APPROACH TO SAFETY (26) a. Approach to safety (15) b. Continues improvement (11) 3. OPERATION WITH LOW RISK (19) a. Safety systems activation (5) b. Power plant risk (3) c. Nuclear installation capability to respond a challenge (11) 2nd. set is set of 12 process areas: 1. Work management (WM) 2. Equipment reliability (EQR) 3. Operation (OP) 4. Radiation protection (RP) 5. Emergency planning and preparedness (EPP) 6. Licensing (LIC) 7. Corrective action program (CAP) 8. Operating experience (OE) 9. Self-assessment and benchmarking (SAB) 10. Human performance (HP) 11. Safety culture (SC) 12.Training (TRN) The process SNAP (means CAP – corrective action program) is the process number 7. Some examples of indicators: 1. Occurrence of significant issues (SL1, SL2) - the number of notifications with the severity levels SL-1 and SL-2 with the date of notification in the monitored period. 2. Occurrence of issues (SL3) - the number of NA notifications with the severity level SL-3 with the date of notification in the monitored period.	

		3. Repeated occurrence of significant issues (SL1, SL2) - the number of events classified as "repeated" issues with the severity levels SL1 and SL2 with the date of notification in the monitored period. 4. Open notifications longer than 18 months - the number of open NG notifications of the issues older than 18 months (immediate data as at the date of data collection). 5. Timeliness of CAPR implementation - the indicator is defined as the percentage of corrective actions to prevent recurrence (CAPR) fulfilled (notified back) within a regular period of the total number of CAPR to be fulfilled in the monitored period.	
67.	Country **Russian Federation**	Article **14.2**	Ref. in National Report **Section 5.3.3.2**
Question		According to the Report, "surveillance program" is a written code for testing a particular system or equipment. Could you please describe in more detail Slovak approach to selection of system / equipment to be tested. In particular, please tell whether all safety-significant systems / equipment undergo direct full testing for compliance with design characteristics after maintenance and periodically during the plant lifetime. How justification is made to support testing method and scope for systems / equipment that cannot be subjected to direct full testing?	
Answer		UJD SR supervises obligatory inspections, revisions, in-service inspections and in-service testing of classified equipment important to nuclear safety. Documents approved by UJD SR for the operation of nuclear facility: ✓ list of classified equipment as classified into safety classes, ✓ testing programmes of classified equipment, ✓ operational control programmes of classified equipment. That means, safety-significant systems and equipments are tested for compliance with requirements. This compliance is supervised by UJD SR. Safety relevant systems and components are moreover tested on a regular basis in accordance with above-mentioned “testing programmes” and “operational control programmes” with the aim to verify their functionality and operability. Operational control programmes (otherwise the in-service inspections or in-service testing) describes and specifies various controls and measurements for equipments in operation (for example pressure test, measuring of wall thickness, visual inspection of defects, electrical measuring, measuring of vibration, etc.). Testing programmes verifies operating and functions of specific equipment or system in working conditions (before	

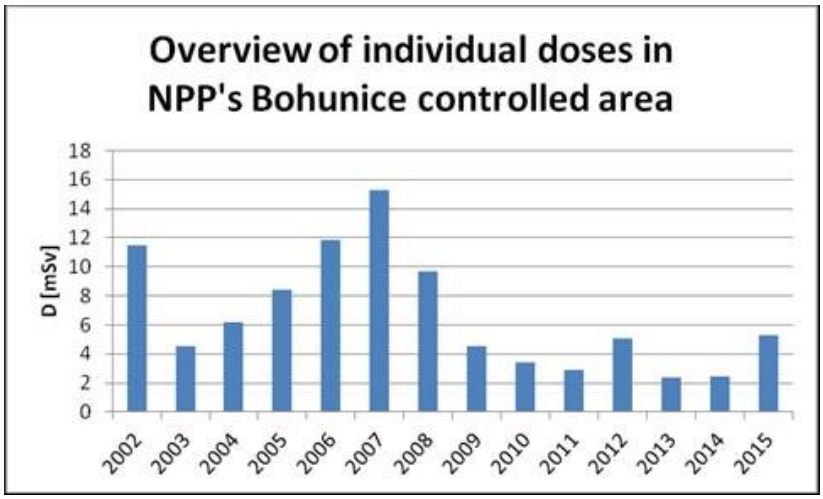
		commissioning). Among testing programmes belongs "surveillance programmes" too. For example based on WANO recommendations non-standard tests and inspections of equipment important for coping with extreme conditions exceeding the basic design were successfully performed at the operating units. The tests included verification of the long-term run of diesel generators, the possibility for delivery of cooling water from the bubbler-condenser to the spent fuel pool, feedwater supply to steam generators from a mobile source, supplying of water from cooling towers to essential service water system, connection of a back-up power supply from the hydro power plant, and others. In-service inspections for equipment functionality of which cannot be directly verified following methods, documents and records are used : ✓ record major measures, tolerances and settings in repairs relevant to assessment and further maintenance planning, ✓ verify and assess the required quality of repair works and used materials to assess the fitness for operation, ✓ attest slips of material used, ✓ list of welds and X-ray images with evaluation, ✓ measurement record, ✓ setup protocol, ✓ record on conducted non-destructive test, ✓ record on visual inspection.	
68.	Country **Hungary**	Article **15**	Ref. in National Report **4.6.1 Legislation**
Question		When will be the legislation harmonised with the new EU BSS?	
Answer		The deadline for the transposition of the Council Directive 2013/59/Euratom is February 2018. Some of the provisions (e. g. emergency preparedness) are transposed by the recent revision / update of the Atomic Act together with the transposition of Directive 2014/87/Euratom (transposition deadline is August 2017). Responsible authority for this is UJD SR. Other provisions of Directive 2013/59/Euratom will be transposed by the revision / update of Act No. 355/2007 on protection promotion and development of public health during 2017 by the Ministry of Health.	
69.	Country **Hungary**	Article **15**	Ref. in National Report **4.6.2 Monitoring**
Question		How and how often is the internal effective dose measured? Are there any nuclide specific measurements used in order to measure the possible radionuclide without measurable gamma-lines?	

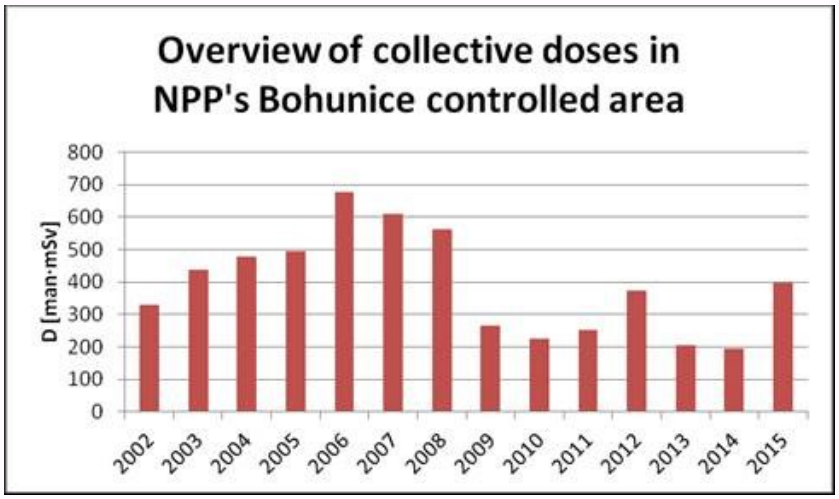
Answer		At workplaces with the open radioactive sources, where a significant internal exposure of workers may occur, the intake of radionuclides and the committed of the effective doses from their internal exposure are determined by measuring the activity of radionuclides in the body of a worker or his excretion, by measuring the concentration of radionuclides in the air, measuring the contamination of the work place and by a calculation of the radionuclides intake using the appropriate coefficients and models of the respiratory and digestive tracts. Internal contamination control of every person is carried out before each entry and at each exit from the controlled area. Monitoring via devices GEM-5 type, devices within a barrier system (hygienic checking loop). Monitors of internal contamination are set to the alarms corresponding to the value of 0.1 mSv of the committed dose in relation to the real spectrum of radionuclides in normal operation. Each elevation of the alarm settings must be investigated and in suspected internal contamination, the person must be sent for specialized medical examination. It consists of a combination of the following measurements according to the approved methods: FASTSCAN; whole-body scanner based on HPGe; urine radioactivity analysis (Tritium, gamma spectrometry analysis, Strontium); iodine in the thyroid, and the following calculation of the committed doses.	
70.	Country **Hungary**	Article **15**	Ref. in National Report **4.6.2, p.98**
Question		"Concentration activity of tritium, Cs-137, Sr-90, Co-60 a Pu-239 are monitored, thus fulfilling the legal requirements." How do the measured values relate to the limit of discharges?	
Answer		The set values for release of liquid radioactive substances from the National Repository for Radioactive Waste (NRRAW) ensures that the impact of operations, (storage fibre-concrete containers) under normal operating conditions, on a representative person of the population (representative person) will not exceed the annual limit of radiation exposure due to the radioactive releases into the hydrosphere and are based on the data contained in the pre-operational safety report. The annual radiation limit, for radioactive releases from NRRAW Mochovce, of 20 µSv / year per representative person, was determined by the decision of the state regulatory body – Public Health Authority. Nuclear facilities may release radioactive substances into the atmosphere and surface waters, only if it is ensured that the effective doses from the releases, in the relevant critical group of the population, will not exceed 250 µSv per calendar year. This value is considered to be a dose constraint for designing and building the nuclear facilities. If there are more	

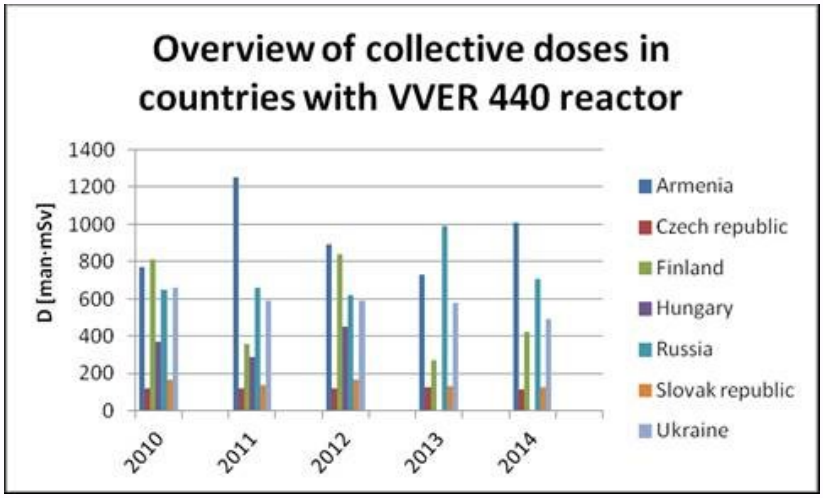
		nuclear facilities in one area affecting residents' doses, within the same critical group of the population, this value refers to the total radiation from all nuclear facilities in the area or region. The basis for the monitoring of drainage waters is the knowledge of the monitored system; setting of the basic monitored characteristics; optimal monitoring sites characteristics, and monitoring frequency. From the radiological point of view, the likely contaminants for the NRRAW in the drainage water are: 3H, 60Co, 90Sr, 137Cs and 239,240Pu. The monitoring plan must provide for the compliance with radiation exposure limits and early detection of deviations from normal operation, and demonstrate that the radiation protection is optimized. The results of monitoring must be recorded by the operator, to be used, if necessary, to estimate personal doses.	
71.	Country **Russian Federation**	Article **15**	Ref. in National Report **Article 2, para 2.5.3**
Question		As follows from the Report, currently the interim spent fuel storage facility provides wet storage of SNF. Could you please tell whether this storage facility is equipped with tools designed for management of beyond-design-basis accidents, in particular, with hydrogen recombiners.	
Answer		Calculations in safety analysis shows, that the highest theoretical production of hydrogen is reached in 25th year after changing original baskets to compact baskets and is 0,022 kg/hour. During normal operation if the air-ventilation is in operation, maximal theoretical volume concentration of hydrogen is 10^{-3} %, that is well below explosive concentration 4 %. In emergency condition (blackout, air-ventilation is not in operation) 4 % of hydrogen concentration could be reached in the storage hall after 4058 hours and in the space under pool covering (space between water level and covering) after 70 hours. The safety analysis considered, that the hydrogen would be mixed with dry air but in real conditions, there is some concentration of steam therefore the time needed to reach 4 % hydrogen concentration is still longer and after 3 days the volume concentration of steam is more than 58%. Hydrogen burning is under this conditions impossible.	
72.	Country **Sweden**	Article **15**	Ref. in National Report **96, 4.6.2 Monitoring**
Question		According to the report the monitoring results shall be recorded by the operator. Is there a centralized dose register in Slovakia? If not, how is it ensured that all itinerant workers doses are kept up-to-date, e.g. when working abroad? Please explain the national regulations regarding "radiation passbooks"/"dose passports".	

Answer	Personal radiation passports are issued for the outside (external) workers, other than the employees of the operator (ionizing sources), exposed to the risk of radiation during their work activities in the controlled area established by the operator of the ionizing sources. Issuance of the personal radiation passport is governed by the EU directive: EU 1990/641 / Euratom, and the current: Act No. 355/2007 Coll. and the Order of the Government No. 346/2006 Coll. Upon completing the outside (external) worker's tasks in the controlled zone, the operator shall record into his documentation, as well as the outside (external) worker's radiation passport, the following: a) business entity name, legal form, registered office address, and the identification number, if assigned, if the operator is a legal entity; or in case the operator is a person - entrepreneur: full name, business name, place of business - address, and identification number, if assigned; b) date of commencement and completion of the activity carried out; c) results of the outside (external) worker's personal monitoring, i.e.: - effective dose values and in case of a non-uniform exposure, also the values of the equivalent doses for monitoring periods during the operations conducted, - estimation of the radionuclides intake, or the committed effective dose, in case of the internal contamination during the operations conducted. If an outside worker residing outside the Slovak Republic does not have a personal radiation passport, the operator is obliged to issue an individual certificate containing the name and surname of the outside worker, academic title, date and place of birth, place of residence, gender, identity card number and the information mentioned above. Outside (external) worker/employee is obliged to contribute to his protection that is provided by the radiological monitoring system, specifically by submitting his personal radiation passport to the operator before starting his work activities in the controlled area. In case the outside (external) worker is not a permanent resident of the Slovak Republic he / she is obliged to submit a personal radiation passport issued in his / her country of residence, or present another similar document analogous to the personal radiation passport.		
73.	Country **Sweden**	Article **15**	Ref. in National Report **95-98, 4.6.2 Monitoring**
Question	Please, can you provide dose statistics for Slovakian NPPs?		

Answer	Example shows maximum doses (individual, collective) received in the controlled area NPP´s Jaslovske Bohunice







74.	Country **Sweden**	Article **15**	Ref. in National Report **General 4.6 Radiation Protection**
Question		Is there a national system for establishing education, training and retraining of qualified experts in radiation protection? Does exist a national system for recognition of such qualified experts? Please describe.	
Answer		The role of Qualified Expert is legally covered by the Radiation Protection Officer who has to be employed by the company and certified by the Public Health Authority (Act No. 355/2007 Coll. on protection, promotion and development of public health). Education: a) completed university education of second degree with a medical specialization, pharmaceutical specialization, a specialization in natural sciences or a technical specialization b) completed university education of first degree with a specialization in natural sciences or a technical specialization c) completed secondary vocational education with a technical specialization or health-care specialization d) the required education and professional practice for the performance of an activity leading to irradiation in nuclear facilities is a completed university education of second degree with a specialization in natural sciences or a technical specialization e) the required education and professional practice for the performance medical irradiation is a completed university education of second degree with a medical specialization, specialization in natural sciences or a technical specialization and at least one year of professional practice. Training: The professional preparation / education consists of a general part and a specific part. The general part of the preparation is aimed at the acquisition of knowledge of legal regulations, information on the properties and harmful effects of ionizing radiation, the methods of health protection against ionizing radiation, on the basic principles, rules and procedures for radiation protection, on the organization of work and the requirements to maintain documentation. The special part of the education is aimed at specific issues depending on the type of activity performed. Professional education is performed within the extent from 8 to 32 hours, according to the character of the activity. Professional training may be provided only by natural persons or legal persons who have the authorization in accordance with Article 45 par. 4, letter	

		g) of Decree No. 545/2007 on requirements for radiation protection.	
75.	Country **United States of America**	Article **16**	Ref. in National Report **4.7.6**
Question		The National Report discusses multiple emergency planning exercises that took place in 2015, including participation in the INEX 5 international exercise. (1) Please describe some of the significant findings/lessons identified during these exercises. (2) Please describe actions underway to address the findings.	
Answer		INEX 5 exercise took place in Slovakia in December 2015. The exercise was oriented to respond to an accident initiated by natural disaster, connected with a nuclear emergency that leads to a significant off-site release of radioactive substances. A specific emphasis was on alerting, internal and external crisis communication and interfaces inside Slovakia as well as in relation to international organizations on all levels. 22 findings were observed. Some of the most important are: - need to arrange for adequate number of electricity generators, primary for crisis management authorities, - prepare a National Plan of Public Information in case of emergencies, - arrange for system of priority calling for crisis management authorities, - permanent staffing of ÚVZ SR and County offices (24/7 duty). The Government by its resolution No. 536/2016 decided to arrange for implementation of findings together with a schedule for their implementation by the end of 2017.	
76.	Country **Czech Republic**	Article **16.1**	Ref. in National Report **p. 103-104**
Question		What is the preparation of the operation of the various components of RMS like and how often it is done? How often are practical training components of RMS carried out?	
Answer		In accordance with § 9 of the Act No. 355/2007 Coll. the Public Health Authority is responsible for the radiation monitoring network, in cooperation with the Ministry of Interior of the Slovak Republic, Ministry of Transport, Construction and Regional Development, Ministry of Defence, Ministry of Environment, Ministry of Education, Science, Research and	

		Sport, Ministry of Agriculture and Rural Development, and the Ministry of Economy. The network is to provide the necessary data to decide on the execution and completion of interventions and protective measures in case of a nuclear or radiological emergency. The headquarters of the Radiation Monitoring Network set up by the Public Health Authority of the Slovak Republic provides and manages the activities of the network. The headquarters of the network, in the normal radiation situation, in cooperation with the permanent entities of the network, shall produce guidelines and instructions to monitor and ensure regular comparative measurements; organize and manage training of the permanent entities of the network; draft plans for emergency exercises; and, at least twice a year, shall organize emergency exercises and evaluate them.	
77.	Country **Montenegro**	Article **16.1**	Ref. in National Report **Subchapters 4 and 5, p100 and p 131**
Question		It is stated in subchapter: 4.7.2.1 National Organization on Emergency Preparedness that part of the National Emergency Preparedness Organization is also the National Strategy for Security Risks Management of the Slovak Republic adopted by the Government Resolution No. 3/2016 dated 13 January 2016. The Strategy addresses creation of a National Register of Security Threats (ranging from terrorist attacks to natural disasters through accidents of various type including nuclear and radiation accidents) including their monitoring, system for addressing them and restoration to the state before the occurrence of a potential threat. In Subchapter 5.3.3.5 Severe Accident Management Guidelines it is noted that „another task in the field of Severe Accident Management was to analyze the SAM project in terms of manageability of severe accident occurring at all nuclear Units on site at the same time (fuel placed in reactor core and in the storage pool and the spent fuel). It was necessary to prepare a plan to implement additional measures to extend the SAM project to improve the ability of managing severe accidents on all Units of the site at the same time. Implementation of additional measures to be coordinated with possible new increased requirements for strengthening physical security of NPPs in case of violent attacks.“ In the light of, unfortunately, increasingly frequent terrorist acts lately, could you please explain whether Slovakia has taken any additional measures or activities regarding this new threat which potentially can be related with the safety and security of nuclear facilities and activities?	

Answer		UJD SR continuously monitors the threats and the security situation in relation to nuclear installations. Based on this information UJD SR prepares and updates the Design Basis Threats which is the main input for physical protection plans.	
78.	Country **Sweden**	Article **16.1**	Ref. in National Report **100, 4.7.2.1**
Question		At page 100 there is a description of the National Emergency Preparedness Organization. At the second level of the organization the zones around the Nuclear power plants are described. How many citizens do live within these zones?	
Answer		Approx. 270 000 in the Bohunice Emergency Planning Zone and approx 140 000 in the Mochovce Emergency Planning Zone.	
79.	Country **Sweden**	Article **16.1**	Ref. in National Report **100, 4.7.2.1**
Question		In National Emergency Preparedness Organization description there are three levels. At which level a decision on evacuation would be taken? Who will be responsible for the evacuation? How are the capabilities build up for such evacuation to be properly organized?	
Answer		a) The principle of subsidiarity is generaly valid in the area of civil protection. It means, an emergency is supposed to be solved at the lowest level. In case the government structure at that level cannot deal with the situation or in case, the emergency spreads over bigger area, a higher level of government organization takes over the coordination of response. In practice, the higher levels are generaly ready to take over from lower levels on their own accord. A typical situation would be when there is an international aspect to the emergency. b) The provisions on evacuation is in Decree No. 328/2002 Coll. on Details of Evacuation. According to this decree evacuation facilities encompass: evacuation meeting point, evacuation centre, evacuation bus stop, control point and place of emergency accomodation for evacuees. Decree defines times of alerting and start of operation of these facilities. Process of evacuation is defined in evacuation plan in line with principle of subsidiarity prepared at levels of - natural or physical person - municipality - district office - regional office - National Emergency Plan	

		DECISION: In case of NPP accident, the lowest level that will decide on evacuation will be regional crisis administration at regional office – since any estimated release would have impact on more than one municipality. It is also possible that the extent of accident will require a decision on the central State level from beginning. RESPONSIBILITY: Regional offices, District offices and municipalities. Each of these structures are obliged to have evacuation plans implemented and regularly exercised. c) CAPABILITIES are generally described in Regional Civil protection plans. These plans include coordination arrangements, tools and available forces to execute the evacuation.	
80.	Country **Sweden**	Article **16.1**	Ref. in National Report **103, 4.7.2.2; 109, 4.7.6.**
Question		At page 103 and 109 there are references to the Armed Forces. Have the Armed Forces a predefined role in the emergency preparedness plans?	
Answer		They do not have predefined roles. However, Minister of Defence is part of the Central Crisis Headquarters and armed forces can be tasked with some ad-hoc roles during emergency. Occassionally they also take part in emergency exercises.	
81.	Country **Sweden**	Article **16.1**	Ref. in National Report **page 100, 4.7 Emergency Preparedness**
Question		The description on page 100 about the three levels of the National Emergency Preparedness Organization is seen as bottom up (first level emergency committe of nuclear facilities, second level regional level and third level Central Crisis Staff of the Government of the Slovak Republic with its supporting units. "Their task is to address an emergency, if the scope of an extraordinary event exceeds the territory of the region". How would this "exceeding of the territory of the region" be described in a more operational way? The Figure 4.7.2.1 displaying the National Emergency Response Organization seems more traditionally built, e.g. "top-down".	
Answer		The principle of subsidiarity is generaly valid in the area of civil protection. In practice, the higher levels are generaly ready to take over from lower levels on their own accord. A typical situation would be when there is an international aspect to the emergency. The Head of regional crisis staff can ask the Government to provide assistance based on the seriousness of the situation (see previous answer).	

82.	Country **Hungary**	Article **17**	Ref. in National Report **p.121**
Question		"In spite of the fact that robustness of the plant against earthquakes has been significantly increased recently and it is considered adequate in accordance with the current requirements, there are additional safety upgrading measures envisaged including in particular quantification of margins of key SSCs for earthquakes beyond the design basis earthquake and development of a seismic PSA." What kind of upgrades have been made to increase the robustness against earthquakes?	
Answer		All SSCs implemented within the SAM project and the measures resulting from Stress Tests Fukushima at EBO and EMO have been designed and constructed with seismic qualifications with 20% ÷ 30% margin against SMA of the site. Following the Fukushima event, seismic risks of SSCs at EBO and EMO have been reassessed and margins to failure have been developed. To determine the boundary seismic resistance of structures and technological equipment, the method SMA (Seismic Margin Assessment) was used, especially its version, known by the acronym CDFM (Conservative Deterministic Failure Margin) was used to determine the so called HCLPF (High Confidence Low Probability of Failure) values of the SSC.	
83.	Country **United States of America**	Article **19**	Ref. in National Report **5.3**
Question		(1) Please describe the Nuclear Regulatory Authority's role in the licensing and certification of individual plant operators? (2) What actions are being taken to prepare for the operation of the two new units pending a future Commissioning decision?	
Answer		(1) Nuclear Regulatory Authority`s role is, based on the Atomic Act to assess whether the applicant meets all requirements and whether the operation of the nuclear installation will be safe. The process of the assessment is performed in cooperation with others authorities. Particular references are made to § 6 and 7 of the Atomic Act (www.ujd.gov.sk). (2) Regarding the commissioning process UJD´s human and financial resources have been increased (page 56 of the NR). Within this budget UJD SR has contracted a technical support organisation to support UJD SR in its commissioning activities. Also there are five resident inspectors on the site. These resident inspectors will be on the site also after commissioning during operation of the units.	

84.	Country **France**	Article **19.1**	Ref. in National Report **§ 4.5.3, 89**
Question		The information on an incident or accident is sent to Regulatory Authority within 45 minutes. After this first information, could Slovakia specify when the final report describing exactly the incident or accident must be sent to Regulatory Authority?	
Answer		After an initial written information about an accident, the license holder is obligated to submit further written informations on the accident – at least every two hours and whenever the state of the event changes significantly. Based on provision of §27 of the Atomic Act and Decree on reporting of events at nuclear installations, the final report is due 30 days after the accident. In some cases a more thorough investigation of causes and development of accident may need more time.	
85.	Country **Russian Federation**	Article **19.3**	Ref. in National Report **Section 5.3.3.3**
Question		As follows from the Report, "graded approach" is applied in preparation of maintenance operations. This approach ensures that all works on the components relevant for nuclear safety will be prepared, implemented and evaluated with the required level of confidence, attention and detail. Would you please give additional information about the nature (content) of the "graded approach" applied for maintenance. What methods and techniques are applied within this approach?	
Answer		The level of graded approach (GA) to preparation, scheduling and implementation of maintenance activities is defined on the basis of significance from the viewpoint of safety, reliability risks, impacts on production and complicatedness of planned task. “The level of graded approach” to maintenance activities defines qualitative requirements for: • details in the maintenance preparation file, • level of schedule rigidity, • depth of the risk analysis process, • survey of works to be performed in the site, • fulfilment of time schedule during implementation, • level of inspections after performance of works. In line with process regulations, one of four levels of the graded approach (A, B, C, and D) is assigned to the activities. The most sensitive or the most risky activities have the graded approach level A assigned, while simple and non-risky activities have the graded approach level D assigned.	

	Preparation of job: Various activities of development of the maintenance preparation file detail within the preparation of job are defined for various graded approach levels. **Scheduling of activities:** The scope of works has to reflect the graded approach, i.e. jobs of the levels A, B and C are included in the scheduling. Jobs with the graded approach level D are not scheduled. **Work management:** During the job preparation for its implementation, the GA level is either confirmed or reassessed in individual time steps of preparation of the weekly work plan on the basis of risk assessment and definition of operations. **Performance of activities:** **Confirmation of readiness for performance of job in W-1 (1 week before the week of performance)** The head of work centre confirms the readiness for performance of job by assigning the job status in SAP. By this step he confirms the date of performance mentioned in the job order for jobs of the graded approach levels A and B. Jobs of the level C may be performed during the given week, jobs of the level D are not scheduled. **Briefing** The head of the work centre holds a briefing in line with the "Human Error Prevention Tools" guideline. The more risky and complicated is the job, the higher GA level is assigned and the more detail briefing is needed. Organisation of the briefing and use of the check list for briefings is defined by the graded approach level. Based on the level, a documented briefing with fulfilment of all check points, a briefing with fulfilment of relevant steps only or without fulfilment of check steps, or a briefing without any documentation can be required. **Use of technological procedure** The level of use of technological procedure is defined by the graded approach level when either permanent use of the procedure in the place of work performance with identification of fulfilment of steps gradually step by step, or reference use of the procedure with identification of fulfilment of steps at once for more steps or provable notification with the procedure is required, or the work can be performed without the use of the procedure. **Check during performance of jobs** According to the level of graded approach to works within the job, the heads of work centres responsible for the job will inform

	a work coordinator, a week or outage management engineer and persons defined according to the so called "graded approach to ownership" (their line superiors) about the progress of work activities if the progress of works is so that activities will be extended in comparison with the time schedule (e.g. extension by one hour for the level A). Persons defined according to the "graded approach to ownership" supervise the given activities in line with the defined GA level.