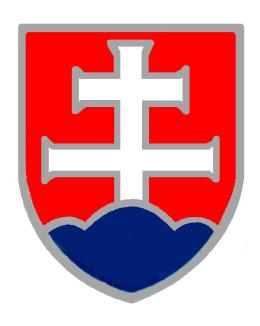
# ANSWERS TO QUESTIONS ON NATIONAL REPORT OF THE SLOVAK REPUBLIC



## COMPILED ACCORDING TO THE TERMS OF THE JOINT CONVENTION ON THE SAFETY OF SPENT FUEL MANAGEMENT AND ON THE SAFETY OF RADIOACTIVE WASTE MANAGEMENT

BRATISLAVA APRIL 2015

1.	Country Austria	Artic Gene		Ref. in National F General	Report	
Question/ Comment	As Austria cannot identify any reference to Art. 11 and 12 respectively of the Council Directive establishing the Community framework for the responsible and safe management of spent fuel and radioactive waste (Directive 2011/70/Euratom):  - Could you specify the status of the updating of the national programme?  - Could you indicate, when the Strategic Environmental Assessment (SEA) of the national programme in the meaning of the Directive 2011/70/Euratom will take place?					
Answer	Currently, there is a process of assessment of the inter-ministerial written amendment procedure to the updated national programme "Proposal of National Policy and National program for management of spent nuclear fuel and radioactive waste in Slovakia".					
	The National Policy and radioactive w Environment of the taking place.	vaste in Slovaki	a have been	submitted to the	e Ministry of	
2.	Country France	Artic Gene		Ref. in National F A: p.7-9 / K.2: p.	-	
Question/ Comment	<ul> <li>The report incorporates in Section A requirements of the new Guidelines regarding the Form and Structure of National Reports (INFCIRC/604/Rev.3 Draft 3).</li> <li>a) Nevertheless it does not exhibit any overview matrix to be used by the Rapporteur during the Country Group review.</li> <li>b) Section K has been properly written up according to INFCIRC/604/Rev.3 Draft 3. This section should nevertheless give more details on the planned measures (K.2) and associate them to tentative schedules.</li> </ul>					
	Attached is the representation.	equested matrix.	The mana	will be a part o	i the national	
	Type of Liability	Long term Management Policy	Funding of Liabilities	Current Practice / Facilities	Planned Facilities	
	Spent Fuel	Geological disposal or multilat. solution	National Nuclear Fund	Long term storage	Geological Disposal	
	Nuclear Fuel Cycle Waste	Geological / surface disposal	National Nuclear Fund	Disposal of LLW	Geological disposal for HLW	
	Application Wastes	Under approval	Reexport or financial guarantee	Storage	Disposal (with some exceptions)	
	Decommissioning Liabilities	Immediate decommissioning	National Nuclear Fund	Immediate decommissioning	Low active soil and concrete debris dispos. facility	
	Disused Sealed Sources	Disposal	Reexport or financial guarantee	Storage	Disposal (with some exceptions)	

For clarification we hereby specify the expected dates of the individual measures from the K2 point:

- To commence the construction of the facility for centralized collection, sorting and storage of institutional RAQ and captured radioactive material in Mochovce – the facility is expected to be operational in 2016
- To execute the prepared construction of IS RAW the assumed completion and commissioning of the IS RAW in Jaslovské Bohunice is 2017
- To prepare construction of dry interim storage of SNF completion of storage capacity of the ISFS in Jaslovské Bohunice is planned in 2022
- To prepare the construction of station for remelting of metal RAW in Jaslovské Bohunice – commissioning of the station for remelting of metal RAW is expected in 2017
- To prepare the III. stage of A1 NPP decommissioning it will be executed from 2017 to 2020
- To prepare the II. stage of V1 NPP decommissioning II. stage commenced in 2015 and will be completed in 2025
- Change of the system of the liquid radioactive concentrates treatment in NPPs Jaslovské Bohunice and Mochovce – project under preparation.

	<u> </u>		Ref. in National Report Section A, Introduction, p. 7
Comment	installations is valid for unlir	nited period of tim	e for operation of all nuclear ne (before it was limited to 10 e license for unlimited period of

### Answer

Main reason for such change was effort to decrease the administrative burden on the operator of a nuclear facility and remove duplicate obligation. Such attitude is also required by IAEA and later (in 2012) similar suggestion was given to NRA as a result of IAEA Mission ("UJD SR should consider revising the regulatory framework in order to reduce the number of formal regulatory authorisations for licensee activities.")

Issuance of the license for operation valid for ten years increased administrative burden, especially when trends of the nuclear facilities projected lifetime extends up to 40 to 50 years. While the actual periodic safety review, especially during the first two decades of design lifetime, generally shows no negative conclusions. Formal authorisation procedure at 10-year interval basis raised a number of procedural difficulties and particularly misinterpretation and misunderstanding in the application of international conventions and other legislation, which doesn't take this practice into account.

Even when license is valid for unlimited period of time, there still remains an obligation to carry out periodic safety review every ten years, as according to Art. 23 (2) (f) of the Atomic Act, set in detail in Regulation No. 33/2012 on the regular, comprehensive and systematic evaluation of the nuclear safety. The opening of license proceedings would run only if the periodic safety review provides with deficiencies that would actually require to reduce or withdraw the license.

Such a procedure is standard practice in comparison with other EU Member States.

4.	Country Czech Republic		Ref. in National Report G2.2,103			
Question/ Comment	What is the status of development of dry cask SF storage facility in NPP Mochovce. If relevant, provide details of the siting process according to the requirements of Article 6 of JC?					
Answer	The project of developing dry storage facility in Mochovce is currently in its presiting phase dealing with Environmental impact assessment process. Slovenske elektrarne submitted in 2013 to the Ministry of Economy an official intent to develop the dry storage facility in Mochovce site as a first step in the EIA procedure. Based on that the Ministry of Environmental decided about the scope of assessment that has been determined and delivered to Slovenske elektrarne in February 2014. Based on that Slovenske elektrarne are preparing the EIA report including all aspects defined by the scope. The final report is expected to be delivered to the Ministry of Environmental in April/May 2015.					
5.	Country Poland		Ref. in National Report p. 111			
Question/ Comment	Could You give a name of generation?	software used for o	calculation of the residual heat			
Answer	The residual heat is calcular ORIGEN-S.	ted by the compu	ting system SCALE 6, modul			
6.	Country Belgium		Ref. in National Report pg113 G.6			
Question/ Comment	and VRAW. These options, at	least for SNF, are d	ned to solve the back-end of SNF ifferent from those mentioned in is not considered as an option			
Answer	In 2014, the "Strategy for back-end of peaceful use of nuclear energy in SR" was published. The National Report states that two alternatives are under consideration 1) direct disposal of SNF a the deep geological repository in SR and 2) disposal of SNF in an international repository.  "In the case, that the reprocessing of spent fuel proves in the future to be effective and efficient, this scenario will be reviewed."  Just to clarify the differences in section B.1 and G.6 it is necessary to distinguish between content of both sections. The section B.1 is dealing with basic concept for					
	between content of both sections. The section B.1 is dealing with basic concept for overall management of spent nuclear fuel and is discussing all available possibilities, such as long term storage and disposal in Slovakia, permanent storage and disposal abroad, including reprocessing as well. At present, some of them are already reality and others are subject of further investigation and verification. While the section G.6 is focusing on disposal only, as a final step in spent fuel management process and is describing the activities of Slovakia done in this field. It means that from disposal point of view there are two realistic alternatives considered as it is introduced on page no. 113. But from point of view of overall					

	spent fuel management perspective the possible reprocessing is still considered for the future. All mentioned options are in accordance with national spent fuel management strategy and eventual changes are subject of periodic revision of this document.				
7.	Country Czech Republic	Article Article 10	Ref. in National Report G6,114		
Question/ Comment		tional agreements o	ns with Hungary and the Czech n regional disposal solution. Is		
Answer	Such a collaboration is consupported by Directive 2011/70 No concrete steps has been made	)/Euratom.	regional collaboration which is		
8.	Country United States of America		Ref. in National Report G, pg. 115		
Question/ Comment					
Answer	<ul> <li>In the framework of the project "Deep Geological Repository - Site Selection, Part 1", which is realized by the Nuclear and Decommissioning Company (JAVYS) over the years 2012 to 2016, JAVYS is preparing following documents focused on public relations: <ul> <li>"Public relations strategy for the Deep Geological Repository development in the Slovak Republic and analysis of economical and non-economical tools for the support of Deep Geological Repository realization"</li> <li>"Informational and promotional documents on Deep Geological Repository development in the Slovak Republic"</li> <li>"Legislative proposal for the stimulation of affected municipalities during exploration activities and after Deep Geological Repository placement."</li> </ul> </li> <li>Subsequently, after approval of all relevant documents it is planned to held "Organization of Meetings with Affected Municipalities" in the areas of interest, which are also part of mentioned project.</li> </ul>				
9.	Country Germany	Article Article 11	Ref. in National Report p. 16 (Section H.1.2)		
Question/ Comment		ste repository RÚ R	ting a waste package for disposal AW at Mochovce, or provide a earlier?		

Answer

The acceptance criteria of the RAW in RU RAO are included in the document: Limits and conditions of RU RAO nuclear facility. They are divided into operational and security, while the security criteria include the maximum radionuclide inventory on site, as well as maximum concentration of limited radionuclides in the fibre-concrete container with the cemented RAW. In the safety analyses 19 radionuclides were limited. For illustration we present the limits for the fibre-concrete container with RAW:

Radionuclid	Limit for the upper	Limit for the	Limit for the upper level of	Limit for the mid and
	level [Bq.m <sup>-3</sup> ]	mid and bottom level [Bq.m <sup>-3</sup> ]	the container [Bq/container]	bottom level [Bq/container]
C-14	1.35E+10	9.01E+10	4.19E+10	2.79E+11
Ca-41	1.70E+10	1.70E+10	5.27E+10	5.27E+10
Ni-59	7.35E+11	8.96E+11	2.28E+10	2.78E+12
Ni-63	1.14E+13	3.01E+14	3.53E+13	9.33E+14
Se-79	3.44E+10	3.44E+10	1.07E+11	1.07E+11
Sr-90	1.90E+13	2.75E+14	5.89E+13	8.53E+14
Mo-93	1.70E+10	8.06E+10	5.27E+10	2.50E+11
Zr-93	2.28E+11	2.28E+11	7.07E+11	7.07E+11
Nb-94	4.57E+07	4.97E+07	1.42E+08	1.54E+08
Tc-99	4.48E+09	6.69E+11	1.39E+10	2.07E+12
Pd-107	1.84E+12	1.79E+13	5.70E+12	5.55E+13
Sn-126	2.93E+07	3.19E+07	9.08E+07	9.89E+07
I-129	1.91E+07	1.91E+07	5.92E+07	5.92E+07
Cs-135	1.43E+10	2.11E+11	4.43E+10	6.54E+11
Cs-137	1.01E+13	1.10E+13	3.13E+13	3.41E+13
Sm-151	1.14E+14	1.24E+14	3.53E+14	3.84E+14
The summary mass activity of alpha radiation radionuclides: <sup>238</sup> Pu, <sup>239</sup> Pu, <sup>241</sup> Am			Average on VBK max. 400 Bq/g	Average on VBK max. 400Bq/g

10.	Country Belgium		Article Article	11.2	Ref. in National Ropg116 H.1.2	eport
Question/ Comment	How are the WAC's derived for wastes for which no final destination is available as yet (eg for wastes not acceptable for surface disposal)? Who develops and approves them?					
Answer	The RAW, not complying with the conditions of eligibility for storing in RÚ RAO is intended for long-term storage until the construction of a deep geological repository of radioactive waste. this type of waste is managed by the various technologies according to the limits and conditions set for the appropriate technologies, resulting from the safety analyzes of the technology, used in the appropriate nuclear facility.					
11.	Country Czech Republic		Article Article	12	Ref. in National Regeneral	eport
Question/ Comment	In compliance with Article 12 of the revised document "Guidelines Regarding the Form and Structure of National Reports (INFCIRC/604/Rev.1)" of July 19, 2006, provide a summary table of methods of SF and RAW management in Slovakia.					uly 19, 2006,
Answer	Attached is the requested matrix. The matrix will be a part of the national presentation.					the national
	Type of Liability	Long t Manage Poli	ement	Funding of Liabilities	Current Practice / Facilities	Planned Facilities
	Spent Fuel	Geolog dispos multilat.	gical al or	National Nuclear Fund	Long term storage	Geological Disposal
	Nuclear Fuel Cycle Waste	Geolog surface d	gical /	National Nuclear Fund	Disposal of LLW	Geological disposal for HLW
	Application Wastes	Under approval		Reexport or financial guarantee	Storage	Disposal (with some exceptions)
	Decommissioning Liabilities	Immediate decommissioning		National Nuclear Fund	Immediate decommissioning	Low active soil and concrete debris dispos. facility
	Disused Sealed Sources	Dispo	osal	Reexport or financial guarantee	Storage	Disposal (with some exceptions)
12.	Country Czech Republic		Article Article	13	Ref. in National R H3,118	eport
Question/ Comment	Provide details of the collaboration and discussions with Hungary and the Czech Republic on potential international agreements on regional disposal solution. Is Slovakia ready to host such a disposal facility?					

Answer	Such a collaboration is considered as a useful regional collaboration which is supported by Directive 2011/70/Euratom.  No concrete steps has been made until now.					
13.	Country United States of America	Article Article 13	Ref. in National Report H.3.2, pg. 118			
Question/ Comment	The report discusses the development of a new integrated RAW storage facility. Is this facility a successor or supplement to the older RU RAW disposal facility? How are members of the public involved in the siting process?					
Answer	<ul> <li>a) IS RAW which will be used for storage of RAW in case of higher volume of RAW from decommissioning, activities exceeding the projected capacities of the appropriate technologies for treatment and processing of RAW and the RAW that cannot be deposited of in the RÚ RAO Mochovce (RAW for deposition in the Deep repository of radioactive materials).</li> <li>b) Members of the public were engaged in the process of preparation of</li> </ul>					
	construction of the IS RAW through information actions and materials and, according to the requirements of the Act no. 24/2006 Coll. on Environmental Impact Assessment, in the process of environmental impact assessment of the IS RAW. In 2012, public hearing was held on the Report on the Evaluation of the Proposed Activity on the Environment, as well as a cross-border hearing with representatives of the Czech Republic, Austria and Hungary.					
14.	Country Czech Republic	Article Article 14	Ref. in National Report H4, 139			
Question/ Comment	Provide details of the construct in Jaslovské Bohunice accordin		ntegral Storage Facility for RAW ts of Article 14 of JC.			
Answer	IS RAW which will be used for storage of RAW in case of higher volume of RAW from decommissioning, activities exceeding the projected capacities of the appropriate technologies for treatment and processing of RAW and the RAW that cannot be deposited of in the RÚ RAO Mochovce (RAW for deposition in the Deep repository of radioactive materials).					
	The built-up area of the IS RAW will be approximately 4119 m <sup>2</sup> , out of which the storage capacity of the IS RAW is approximately 3224 m <sup>2</sup> (2 storage modules) and the area for the auxiliary operations annex building is 895 m <sup>2</sup> . The finished building IS RAW will be designed and erected in such a way so as to enable the adding of two more modules (III and IV) without particularly difficult modifications of storage modules I and II, should the need arises.					
	two more modules (III and IV) without particularly difficult modifications of storage modules I and II, should the need arises.  Standard operations shall be remotely controlled from a simple annex building adjacent to the storage halls. The annex building shall be fully equipped with standard services and communications as well as with I&C equipment to safely carry out the primary operational function, i.e. receiving and handling containers at specified locations using a crane. It will also be equipped with additional technical equipment to aid the safe transfer and storage of waste packages that are not externally contaminated but emit direct gamma radiation.  The IS RAW will be in operation until the final removal of all recent nuclear installations on the site. Its design life is 70 years. Not more than 7 staff should be					

needed for the operation of storage facility.

The IS RAW facility is a facility of fully technical character and shall be designed so as to meet the functional requirements for RAW storage as well as the requirements for seismic resistance of building structures and for the anticipated lifetime.

The IS RAW will be located in a seismic area to which the following conditions apply:

- an intensity of 8° of the MSK-64 scale;
- and a horizontal peak ground acceleration of 0.344 g; and vertical peak ground acceleration of 0.214 g; with a probability of a seismic event in the area 1 x 10 000 years with a duration of decisive movements of 10 s;

The Contractor shall evaluate seismic requirements applicable for a building of radioactive waste storage and accordingly classify the building structure and equipment. Such classification shall assure a safety margins consistent with the potential of structure and equipment for radiological consequences in case of seismic event. The requirements of the IAEA guideline "Seismic design and qualification for nuclear power plants", No. NS-G-1.6, IAEA 2003 and of the Eurocode 8 "Seismic design of buildings" shall be taken into account.

The Contractor shall install all structures and equipment with the proper seismic qualification.

15.	11	Article Article 16.8	Ref. in National Report pg 122 H.6.7			
Question/ Comment	Who is in charge of the review of the periodically reviewed conceptual decommissioning plan? Is it only UJD-SR? What is the role of JAVYS a.s. in it, knowing they are responsible for decommissioning? Who evaluates the financial estimations and on what basis these are evaluated (reference scenarios)?					
Answer	Existence of Conceptual decommissioning plan for each nuclear facility is required by national legislation. The responsibility to control the compliance with legislation related to operation of nuclear installations is on UJD SR. The role of JAVYS, a. s. in development of Conceptual decommissioning plan is to implement experience on decommissioning activities, scheduling and planning od resources. The financial estimations of decommissioning projects are developed by licence holder according known experience and experience of other decommissioning projects within Europe.					
16.	11	Article Article 19.1	Ref. in National Report Section E 1.2.1			
Question/ Comment	Are the mentioned "by-laws" really considered as legislation and hence binding?  How can an internal rule from a nuclear installation operator be considered as legislation?					
Answer	It is a matter of translation. In the Slovak version means "internal norms" (such as internal directives and orders) of the regulatory body.  Internal norms are documents on how the regulator operates in conducting its work. It is in no way mandatory for the licensee.					

17.	Country France	Article Article 20	Ref. in National Report A: p. 7 / D1.2: p.21			
Question/ Comment	In 2011, by amending the Act N° 541/2004, the license for operation of all nuclear installations is valid for unlimited period of time (before it was limited to 10 years). What are the practical consequences of this decision? Link (and compatibility) with periodic safety review (every 10 years) should be addressed.					
Answer	Main reason for such change was effort to decrease the administrative burden on the operator of a nuclear facility and remove duplicate obligation. Such attitude is also required by IAEA and later (in 2012) similar suggestion was given to NRA as a result of IAEA Mission ("UJD SR should consider revising the regulatory framework in order to reduce the number of formal regulatory authorisations for licensee activities.")  Issuance of the license for operation valid for ten years increased administrative burden, especially when trends of the nuclear facilities projected lifetime extends up to 40 to 50 years. While the actual periodic safety review, especially during the first two decades of design lifetime, generally shows no negative conclusions. Formal authorisation procedure at 10-year interval basis raised a number of procedural difficulties and particularly misinterpretation and misunderstanding in the application of international conventions and other legislation, which doesn't take this practice into account.  Even when license is valid for unlimited period of time, there still remains an obligation to carry out periodic safety review every ten years, as according to Art. 23 (2) (f) of the Atomic Act, set in detail in Regulation No. 33/2012 on the regular, comprehensive and systematic evaluation of the nuclear safety. The opening of license proceedings would run only if the periodic safety review provides with deficiencies that would actually require to reduce or withdraw the license.  Such a procedure is standard practice in comparison with other EU Member States.					
18.	Country France	Article Article 20	Ref. in National Report A: p.8 / E2.1.5: p. 53 / K3: p.136			
Question/ Comment	It is written in section E2.1.5 that "Conclusionswere transposed by UJD SR into an Action Plan to address the measures resulting from the IRSS mission (2012)". The main conclusions derived from this mission could be indicated in the report in order to make possible a further evaluation of the implementation of the Action Plan.					
Answer	The report including its conclusions and the report for the IRRS Follow-up mission (February 2015) is available on the web page of the regulator ( <a href="http://www.ujd.gov.sk/ujd/web.nsf/viewByKeyMenu/En-01-19">http://www.ujd.gov.sk/ujd/web.nsf/viewByKeyMenu/En-01-19</a> )					
19.	Country Germany	Article Article 20	Ref. in National Report p. 46-47 (Section E.2.1.2)			
Question/ Comment	Authorisation procedure It is mentioned that the "authorization procedure for nuclear installations consists of 5 major stages: siting, construction, commissioning, operation and decommissioning", but requirements for design are laid down in national legislation					

	as well.				
	In which step of the authorisation procedure is the design of a nuclear installation approved?				
Answer	Legislation of the Slovak republic doesn't distinguish "design" as separate licensing stage as is used to in some other countries. But design itself is important part of authorisation procedure, so legislation lay down necessary requirements for it. Atomic Act requires design proposal for physical and technical solution of nuclear installation on the level of reference design as a part of documentation necessary for the written application for approval of the siting of a nuclear installation. Furthermore design documentation necessary for the building proceedings is again necessary part of documentation for written application for building permit for construction of a nuclear installation.  NRA verify design proposal before issuing approval of the siting of a nuclear installation as a part of authorisation procedure and then, in following stage, design documentation itself as a part of construction license procedure.  Design requirements in general are contained in the Construction Code and Regulation No. 453/2000, which is implementing certain provisions of the Construction Code. Nuclear safety requirements for nuclear installation design are established in Regulation No. 430/2011 on nuclear safety requirements.				
20.	Country Belgium		Ref. in National Report page 55		
Question/ Comment	Fig. 3.1.3.5 on page 55: What in the last years? What kind of		decrease in funding for research by this decrease?		
Answer	public procurement procedure	s. A long term con were appropriately	ment in 2012 was caused by the stract was signed late 2012 and low. The amounts for 2014 and		
21.	Country Czech Republic		Ref. in National Report F1.3,64		
Question/ Comment	What is the procedure for the management of RAW, if the RAW does not comply				
	According to provisions of Atomic act all kind of RAW shall be managed towards to its safe disposal. For disposal of low level RAW the near surface disposal facility is operated. At present the construction of surface disposal facility for very low level RAW is under preparation. Based on National strategy for management of RAW and SNF the project of deep geological repository is considered for disposal of intermediate and high level RAW which is unacceptable to be dispose of in surface type of repository.  If the radioactive waste does not comply with waste acceptance criteria for surface repository, they are awaiting to be stored in long term storage facility, which will be built at Bohunice site. These RAW will be stored in the so called integral storage RAW facility, which will be built especially for solid and solidified wastes (medium				

and high activity) from decommissioning of NPP A1, decommissioning of NPP V1 and NPP V2. The operation of integral storage is expected in 2018. The facility is determined also for transition store of RAW containing short lived radionuclides before its release into environment and as a buffer store for RAW before processing and disposal.

In the frame of licensing documentation each nuclear installation in Slovakia has a document called "RAW management plan" which describes all RAW streams generated by the facility during operation, radionuclide content of RAW, its activity, volume and characteristics. System of JAVYS RAW management facilities is designed on the basis of that information and further requirements are addressed including WAC for individual processing technologies or storage/disposal facilities and necessary transport equipment. Whole system is optimized to be able to manage all RAW generated within the territory of Slovakia and is revaluated periodically each six years in accordance with interval of update of National strategy for management of RAW and SNF.

The Atomic Act was amended by No. 143/2013 Coll. to transpose Directive 2011/70/Euratom on establishing a national framework for spent fuel and radioactive waste management. This act provides for that for the purpose of assurance of nuclear safety in order to avoid unreasonable accumulation of RAW, the licence holder (SE, Plc.) during the commissioning and the operation of nuclear installation, is obliged to submit its radioactive waste to JAVYS, Plc. at least 12 months after their production.

Operational radioactive waste, which can be disposed of, are smoothly transported to JAVYS, Plc. for processing based on annual plan, respecting waste acceptance criteria for their processing at JAVYS Plc. processing facilities (Bohunice processing center for processing and conditioning of RAW, Final processing of liquid RAW at Mochovce site), agreed between waste producer, waste processor and disposal operator and approved by Nuclear regulatory authority. During period of one year SE, Plc. as a producer of RAW is competent to manage its RAW in appropriate manner, e. g. to pretreat it for volume reduction or to store it for the purpose of its release into the environment in case of transition RAW, etc.

Implementation of this legal obligation is subject of Regulatory Body inspections on both sides JAVYS, Plc. as well as SE, Plc.

22.	<u> </u>		Ref. in National Report A:p.7/9 / F2.1: p.67 / K1: p.135
-	the report in order to give clarithe other operators and on decommissioning and spent fucilis written in section F2.1 that UJD SR is no longer in JAVY	fications on the interdistribution of real and radioactive we category of employers, a.s. What is the other companies of	ould be extensively described in faces between JAVYS, a.s. with esponsibilities in the field of aste management. In addition, it ees examined in commission by exact meaning of this sentence, perating in the field of nuclear

### Answer

JAVYS, a.s. is responsible for activities connected to the back end of the peaceful use of the nuclear energy, such as:

- Decommissioning of the nuclear facilities,
- Transport and management of spent nuclear fuel,
- Transport of RAW and management of RAW from decommissioning and from the operation of the nuclear facility,
- Collection and management of IRAW and captured radioactive material.

One of the main tasks of company JAVYS, a.s. is to provide skilled, professionally competent personnel in order to maintain safe, reliable, ecological and economical operation of the nuclear facility and nuclear facility decommissioning in accordance with principles of safety culture and ALARA principles with minimal impact of the human factor on occurrence of operational incidents.

The process of education and professional training of employees, contained in the document called "System of professional training of employees", which is approved by the UJD SR. The System of professional training of employees describes, in detail, types of trainings of employees, scope, content, manner of tests and outputs from the professional training of employees in compliance with the Act No. 541/2004 Coll. and Regulation No. 52/2006 Coll. on professional competency *The System of professional training of employees* is regularly reviewed and updated depending on legislation as well as on character of professional activities.

## 23. Country United States of America

Article Article 22 Ref. in National Report F.2.1, pg. 68

### Question/ Comment

The system of training and competency in the Slovak Republic is very organized. However, it is unclear how the competency of experienced staff and management of the regulatory body and of the licensees is maintained, for the prolonged periods of time (from 40 to 70 years) for interim storage of spent fuel and HLW. How will their knowledge and experience be preserved to aid in the final stages of decommissioning and long-term management of the stored waste?

### Answer

The knowledge management (KM) represents a systematic process of integrating the management and coordination of a wide range of activities, i. e. acquiring, creating, storing, sharing, merging, development, and use of knowledge and skills of individuals and groups in order to achieve higher performance or improve the processes at UJD SR. The continual development and implementation of KM is a long-term task, which requires adequate resources and effort. It is supported by UJD SR top management. The KM is linked to management of human resources and strategies for UJD SR developments as well.

UJD SR management has taken a decision to continue in the development of structured knowledge management process at UJD SR with the involvement of an external support organization.

Maintaining and preservation of authority staff's critical knowledge is the subject of UJD SR knowledge management, the implementation to the management processes was starting based on project and suggestion of IRRS mission since 2014 and will be systematically review updated requirements for knowledge management of the licensee is subject of the amendment of the Atomic Act., which coming into force in 2016.

24.	Country Hungary	Article Article 23	Ref. in National Report F.3 p. 73
Question/ Comment	It is mentioned, that the effectiveness of the licensees Integrated Management Systems are verified by "supervisory audits of external certificate companies" and the regulator.  Question:		
	How often do these parties perform their inspection/audits? What are the roles of the different bodies during the audits?		
Answer	Inspections/audits of the Integrated Management Systems are performed by an external certified company in regular intervals 1 time per year. These audits verifying the compliance of the Management System with:  ISO 9001, ISO 14001, OHSAS 18001 and ISO/IEC 20000-1. UJD SR in regular intervals min. 1 time per 3 years verifies:  It is if the Integrated Management System is fulfilling requirements of Atomic Act No. 541/2004 Coll. and Regulation No. 431/2011 Coll.		
25.	Country Bulgaria	Article Article 24	Ref. in National Report F.4 - p.84
Question/ Comment	Is the impact of 3H and 14C in the evaluation of the exposure of the population by the gaseous and liquid effluents taken into account for the period 1998 - 2013?		
Answer	Yes, impact of 3H and 14C for exposure of the population by the gaseous and liquid effluents have been taken into account for the period 1998 - 2013.		
26.	Country Slovenia	Article Article 24	Ref. in National Report F, 77 and 78
Question/ Comment	Who performs the measurements and who takes samples of radioactive discharges? Is there an independent control of these measurements or samples if these activities are performed by the operators?		
Answer	Each nuclear facility operator is responsible for the declaration on discharges. Control of this declaration is performed by operator and by qualified independent laboratory.		
27.	Country Poland	Article Article 25	Ref. in National Report p. 90
Question/ Comment	How will HAVRAN change the National Emergency Plan?		
Answer	<ul> <li>National Emergency Plan will be revised due to several reasons:</li> <li>Outcomes of the IRRS mission in Slovakia in 2012 and its Follow-up mission in 2015;</li> <li>Outcomes of Havran exercise;</li> </ul>		

Upcoming revision of the Civil Protection Act (No. 42/1994) due to transposition of Directive 2012/18/EU on the control of major accident hazards involving dangerous substances (Seveso directive); Expected changes in Atomic Act (Act No. 541/2004) and Public Health Act 355/2007) due transposition Council (Act No. to of Directive 2013/59/EURATOM (Basic safety standards for protection against the dangers arising from exposure to ionising radiation - BSS). These inputs as well as IAEA safety standards and guides (e.g. GSR Part 7, EPR Method 2003) will be taken into account in the updated version of the National Emergency Plan. 28. Article Ref. in National Report Country Poland Article 25 p. 92 Question/ The licensee has to develop Emergency Transport Rules for road or railways shipment of fresh nuclear fuel and spent nuclear fuel by. What about transport by Comment plane? Answer Emergency Transport Plan is a key document in the process of authorization of the shipment of radioactive material as well as for the shipment of nuclear material for all modes of transport. In case of air transport of fresh fuel and spent fuel appropriate measures are applied so that the requirements for nuclear safety and security are met. However the transport of spent fuel by plane (WWER 440 fuel type) is from practical point of view not considered. 29. Country Article Ref. in National Report United States of America Article 26 F.6, pg. 96 Please elaborate on the provisions for periodically reviewing decommissioning cost Ouestion/ estimates and the adequacy of decommissioning funds. Comment The system of financial provision of the back-end of peaceful use of nuclear energy Answer in Slovakia is based on the principle "polluter pays" and respect requirements the Act on the National Nuclear Fund (NNF) for decommissioning of nuclear installations and on spent nuclear fuel and radioactive waste management (No. 238/2006 Coll. - Act on Nuclear Fund) as well as requirement of Council Directive 2011/70/Euratom establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste. These principles are: Proportional and equitable distribution of financial sources, Non-discrimination and transparency in administration and distribution of financial sources, Sufficiency of financial sources. During the operation of nuclear facility, enough financial resources should be accumulated for covering all decommissioning costs including cost for management of radioactive waste and spent fuel. It means NNF should not produce deficit or overplus of resources. To achieve of this assumption is extremely demanding. It is caused due to difficult process with several input parameters which are changing during long-term periods. Therefore the requirement of resources for the period of

	several tens of years is stated at specified conditions or via expert forecast. In addition it is necessary take into account the fact, that only from 01.01.1995 (via the Law No. 254/1994 Z. z.).  The basic task in actualisation of financial position is whether the level of contributions and taxes to NNF will create enough resources.			
30.	Country Belgium	Article Article 28	Ref. in National Report pg 133	
Question/ Comment	How is funding organized fo materials?	r management of o	captured nuclear and radioactive	
Answer	The Government allocates every year financial resources from its budget for the purposes of management of seized (captured) nuclear and radioactive materials. This sum is an income of the National Nuclear Fund. Board of Governors of the National Nuclear Fund decides on use of these funds in each case.			
31.	Country United States of America	Article Article 28	Ref. in National Report J, pg. 132	
Question/ Comment	sources that is part of the lic sources periodically? Are ther inspections by the regulatory b Are fees collected that are u	ensee's responsibili e regulatory provisi ody? sed in dealing wit	rces. Is this a national registry of ty to report on the status of the ions for monitoring the use; e.g., h the management and eventual	
Answer	Are fees collected that are used in dealing with the management and eventual disposal of the orphaned sources?  Central register of sources of ionizing radiation was established in 2001 as national register of all sources of ionizing radiation, which are imported and used in the Slovak Republic. Central register, in accordance with legal regulations, is kept at the Public Health Authority of the Slovak Republic. Currently, the activity of central register is governed by the Act No. 355/2007 Coll. of Laws, the Governmental order No. 345/2006 Coll. of Laws, the Governmental order No. 348/2006 Coll. of Laws and the Regulation of Ministry of Health (MH) SR No. 545/2007 Coll. of Laws. Register contains data on sources of radiation (radioactive emitters, X-ray devices, particle accelerators and other generators of ionizing radiation), for usage of which there is a need for permission from respective public health authority and sources of radiation which are being notified. It does not contain data on sources of radiation which are out of administrative control.  Notification duty into the central register is established as follows (Art 49 of the Regulation of MH SR No. 545/2007 Coll. of Laws):  Physical entity – entrepreneurs and legal entities who import, distribute, sell or rent sources of ionizig radiation are obliged to notify into the central register:  import, distribution, selling or renting of sources of ionizing radiation within 1 month from its realization,  handing-over of source of ionizing radiation to other person within 1 month since its hand-over,  loss of sources of ionizing radiation, their theft or destruction without delay.			

activities important from the aspect of radiation protection based on permission from Public Health Authority of the Slovak Republic or regional public health authority and use sources of ionizing radiation are obliged to notify into the central register:

- each acquirement of source of ionizing radiation and basic data on sources of ionizing radiation within 1 month since their acquirement,
- handing-over of source of ionizing radiation to other person within 1 month since their handing-over,
- loss of sources of ionizing radiation, their theft or destruction without delay.

Physical entities and legal entities which carry out activities leading to irradiation based on notification, are obliged to notify into the central register:

- each acquirement of source of ionizing radiation within 1 month since their acquirement,
- handing-over of source of ionizing radiation to other person within 1 month since their handing-over,
- termination of activity with sources of ionizing radiation within 3 days after termination of activity.

During notification into the central register of sources of radiation the operator is obliged to fill in registration card of operator of sources of radiation and respective registration cards of sources of ionizing radiation (electronically or in writing).

Operator is obliged to fill in particular record for highly active radioactive emitters and after their acquisition submit it in writing or electronically, without delay, to respective public health authority, which will carry out state health supervision at the workplace. Operator of highly active radioactive emitters is further obliged to submit, every 12 months, in writing or electronically to respective public health authority which performs state health supervision at workplace, a list of used highly active radioactive emitters.

Applicant for issuance of permission for usage of highly active radioactive emitter is obliged to pay money down in amount equivalent to expenses of modification for deposition and deposition of unused emitter as radioactive waste or of storage of highly active emitter, which is set by competent organization. If a holder of highly active emitter hands-over highly active emitter to other holder or he hands-over unused emitter to competent organization or he returns unused emitter to supplier or manufacturer, money are returned to holder.

Control of usage of radiation sources at individual workplaces and keeping of evidence on sources of radiation at workplaces is regularly checked by employees of respective public health authorities.

The Government allocates every year financial resources from its budget for the purposes of management of seized (captured) nuclear and radioactive materials. This sum is an income of the National Nuclear Fund. Board of Governors of the National Nuclear Fund decides on use of these funds in each case.

32.	Country	Article	Paf in National Dancet
32.	Country United States of America	Article 28	Ref. in National Report J, pg. 132
Question/ Comment	The report states that disused sources were gradually disposed of in the past years. In case of high activity radioactive sources the operator is obliged to secure their disposal not later than 12 months after the end of their use. Later in this chapter it states that sources are disposed of at the RÚ RAW, but that this facility is not suitable for some categories of sources. Are high activity sources considered suitable for disposal at the RÚ RAW? Please explain how the 12-month requirement for disposal is addressed.		
Answer	The RÚ RAW Mochovce accepts all RAW, including IRAW and captured RAW, complying with the acceptance criteria for this nuclear facility and treated by cementation into the fibre-concrete containers.  The Disposal facility in Mochovce (RÚ RAW) is used for storage all radwastes including disused sources compacted into form suitable for final disposal (the fibre-concrete containers), which comply with acceptance criteria.  According to Governmental decree No.348/2006 users of radioactive sources are obliged to hand over disused sources to supplier, producer or authorized organisation without delay, but 12 months at the latest after the source was declared disused. In the case when such source is handed		
33.	over to JAVYS a.s., it is placed in fibre-concrete container and disposed in RÚ RAW, if such source doesnt comly with RÚ RAW acceptance criteria JAVYS a.s. store it until the suitable disposal facility will be available. An appropriate storage facility is under construction at the adjacency of the RÚ RAW.  Country  Article  Ref. in National Report		
Question/	Austria Under e) the National Report m	Article 32	B.3 p13
Comment	Under e) the National Report mentions, that "highly-active radioactive waste, whose average specific activity of radionuclides with a long half-life, especially radionuclides emitting alpha radiation, exceeds values specified for low-activity radioactive waste requiring measures for the removal of residual heat and can be deposited only in an underground-type radioactive waste repository." In the case of direct disposal of SNF, what are the criteria for the transition of SNF to HLRAW?		
Answer	In §2 clause s) of the Act 541/2004 (Atomic Act) it is stated that: "the spent nuclear fuel can be considered a usable source that can be reprocessed, or can be determined for disposal, if it is considered a radioactive waste" and in clause k) of the same act, the RAW is defined as follows: "RAW is any unusable material in gaseous, liquid or solid form, which, due to the content of radionuclides in it or for the level its contamination by radionuclides, cannot be released to the environment." Consequently, the spent nuclear fuel becomes HLRAW when it's not considered for further use.  Until the construction and commissioning of the Deep repository it will be decided, whether the spent nuclear fuel is a HLRAW or is further considered as a usable source.		

34.	Country Austria		Ref. in National Report D.1.1, p18
Question/ Comment	The National Reports states, that: "With regard to the overall concept of modernization of units and the safety improvement programs at NPP V1 and NPP V2 and on the basis of analysis of several significant operating events, several modifications have been implemented until y. 2002 on transport technology part equipment for spent fuel handling."  Could you indicate what kind of "significant operating events" caused the modifications of the transport technology part equipment for SF handling, and which kind of modifications have been performed?		
Answer	The following transport technology parts were subject to modification and modernisation:  - Refuelling machine – mainly the electro part, camcorder system, additional I&C equipment installed,  - In-core Fuel tightness SIPPING test installed  - New system of control rods test and manipulation system  Several equipment modification to prevent fall of SNF transport containers from crane during manipulation procedures.		
35.	Country Bulgaria		Ref. in National Report Page 10 / B.1
Question/ Comment	Bulgaria congratulates the Slovak Republic for the quite detailed and well understandable report. The report explains that SF management policy does not consider reprocessing of the SF abroad. Could Slovak Republic provide some more information on the grounds of that decision?		
Answer	In 2014, the "Strategy for back-end of peaceful use of nuclear energy in SR" was published. The National Report states that two alternatives are under consideration 1) direct disposal of SNF a the deep geological repository in SR and 2) disposal of SNF in an international repository.  "In the case, that the reprocessing of spent fuel proves in the future to be effective and efficient, this scenario will be reviewed."		
36.	Country Czech Republic		Ref. in National Report D 2.6,31
Question/ Comment	Which corrective actions were identified in the process of PSR of disposal facility Mochovce?		
Answer	Corrective actions identified during PSR, as referred to the Updated Report on PSR for Mochovce Near Surface Repository, dated April/2011, were split into 3 categories according to their different time of implementation:  1. Corrective action with priority T1 (to be implemented by the end of 2012):  1.1 "To update system for implementation of R&D"  Implementation: JAVYS, Plc. updated relevant operational documents on feedback from R&D from NIs and in addition is an active member of technical project managed by the IAEA on International Low Level Waste Disposal Network (DISPONET) which was created in order to increase		

efficiency in sharing international experience in this area. JAVYS, Plc. is also member of the Club of Agencies within Engineering Studies and Demonstrations of Repository Designs group (ESDRED), which is also focused on sharing of R&D in this area.

- 2. Corrective actions with priority T2 (to be implemented by the end of 2013):
  - 2.1 "To update SAR in accordance with the recommendations of UJD SR" (coming from 2. second level of review for refining SAR) and independent safety review done by NRA contractor (ÚJV Řež, Czech Republic), which both principally confirmed safe continuation of operation of Near Surface Repository and confirmed safety presumptions in SAR.
    - 2.2 "To add human failure as an additional route cause during crane manipulation with FRC container"
  - 2.3 "To submit additional safety analysis respecting conclusions of ASAM and ISAM IAEA technical projects for safety assessment of various scenarios of safe disposal of institutional waste generally and for particular waste stream (RAW with fire extinguishers containing Am-241)". Additional analysis were submitted and independently reviewed by UJD SR contractor (UJV Rez, Czech Republic) and all assumptions for safe disposal of this particular waste were confirmed.
- 3. Corrective actions with priority T3 (to be implemented by the end of 2014):
  - 3.1 "To ensure an increase in sensitivity of the assay of selected radionuclides in various environmental compartments and inclusion of measurement of respective samples for a longer period of time in the associated monitoring plan"
  - 3.2 "To include in the monitoring plan for next coming years work aimed at refinement of background radioactivity of selected radionuclides in selected samples from the vicinity of NRR Mochovce"

All corrective actions have been completed according to the set deadlines.

37.	Country France		Ref. in National Report A: p.8 / D3.1: p.32	
Question/ Comment	In the framework of decommissioning of NPP V1, what is the status of the back-up source for power supply at Bohunice Treatment Facility, originally planned in 2013?			
Answer	changes to electric infrastructurenergy for decommissioning as Permanent operation planned for The project on "Erection of a basically designed by delivery	re to ensure stable petivities on the site. or 03/29/2015. New Source of Secury, installation and it destoration of suppacy power for RWTO (e – DG) is presently		

38.	Country Poland	Article Article 32	Ref. in National Report p. 11
Question/ Comment	For what period of time is the capacity of Interim Spent Fuel Storage (ISFS) sufficient, if Jaslovské Bohunice NPP has unlimited license for operation?		
Answer	Considering the current trend of the spent nuclear fuel production from NPPs, the maximum designed storage capacity of the ISFS will be reached in 2024. The current storage capacity will be supplemented by an additional capacity, realized by a dry storage of the spent nuclear fuel, which will be sufficient to store all SNF of VVER 440 type, produced during the projected 60 year life cycle of the currently operating nuclear units, including units 3&4 at Mochovce.		
39.	Country Slovenia	Article Article 32	Ref. in National Report D, 30
Question/ Comment	What is the dose constraint radwaste?	during operation	for the national repository for
Answer	Dose rate limit on the waste package surface is 2 mGy/h.		
40.	Country Slovenia	Article Article 32	Ref. in National Report D, 25
Question/ Comment	What is the procedure and practice for inspection and compliance of solid waste packages stored in NPPs' on site storage facilities regarding degradation and integrity of various waste packagings?		
Answer	All radioactive waste (RAW) produced during operation are temporary stored on site of the NPP.  According to the Atomic act all produced waste shall be transferred within 12 months to the authorised company responsible for RAW treatment (except for special causes). The state company JAVYS is authorised and responsible for RAW treatment. In JAVYS the RAW is treated (compaction, combustion, concentration, volume reduction, fixation to stabile matrix) and then cemented to fibre concrete containers. These containers as final packing form are transported to the National repository.  On site of NPP the produced RAW is temporary stored in following packing forms:  Combustible: in the plastic bags up to 10 kg weight, that are inserted to the barrels of volume 200 l  Metal (of size more than 40 cm): in the metallic palette of size 1,5 m x1,5 m  Air filters: in the special smaller metallic palette (4 filters / in 1 palette)  Concrete, dry sludges: in the barrels of volume 200 l  Oil, petrolic liquids: in the canisters, that are inserted in the barrels of volume 200 l  The barrels and palettes are put in concrete shafts (pits) that represent the temporary storage facilities on site NPP.		

41.	Country Germany	Article Article 32.1.2	Ref. in National Report p. 10 (Section B.1), p. 145 (Annex IV
Question/ Comment	Spent fuel of the WWER-440 type arising from Bohunice NPP and Mochovce NPP is currently in long-term wet storage (40 – 50 years) at the interim spent fuel storage facility (ISFSF) in Bohunice. As at 31 December 2013, the maximum storage capacity of ISFS has been used up to approximately 78% (Annex IV, page 145). Taking into account the current operating mode of the four NPP units, how long will the residual free capacity of ISFS be sufficient for storing additional spent fuel?		
Answer	Considering the current trend of the spent nuclear fuel production from NPPs, the maximum designed storage capacity of the ISFS will be reached in 2024. The current storage capacity will be supplemented by an additional capacity, realized by a dry storage of the spent nuclear fuel, which will be sufficient to store all SNF of VVER 440 type, produced during the projected 60 year life cycle of the currently operating nuclear units, including units 3&4 at Mochovce.		
42.	Country Belgium	Article Article 32.2.2	Ref. in National Report Section D2.6 pg 30
Question/ Comment	Is the national repository for ra	dwaste also receivin	
Answer	The RÚ RAW Mochovce accepts all RAW, including IRAW and captured RAW, complying with the acceptance criteria for this nuclear facility and treated by cementation into the fibre-concrete containers.		
43.	Country Hungary	Article Article 32.2.3	Ref. in National Report D.2.6 p. 33
Question/ Comment	In this chapter it is mentioned, RU RAW facility was "Impl PSR." Question: Could you please shortly des corrective actions?	that one of the condementation of correction cribe the most imp	ditions for license renewal for the ective actions identified during bortant issues and the requested
Answer	Periodical safety review was performed in 2010-2011, by independent contracted reviewer. The methodology included review of compliance with requirements of national legislation related to nuclear facilities. The result of review was 5 findings, all of them of "low safety significance" according to agreed classification scale. The corrective actions are basically focused to updating of existing operational documentation including safety report with regard to new legislation requirements and results of research in this field.  Basically, corrective actions identified during PSR, as referred to the Updated Report on PSR for Mochovce Near surface repository, dated April/2011, were split into 3 categories according to their different time of implementation:		

- 4. Corrective action with priority T1 (to be implemented by the end of 2012):
- "To update system for implementation of R&D"

Implementation: JAVYS, Plc. updated relevant operational documents on feedback from R&D from NIs and in addition is an active member of technical project managed by the IAEA on International Low Level Waste Disposal Network (DISPONET) which was created in order to increase efficiency in sharing international experience in this area. JAVYS, Plc. is also member of the Club of Agencies within Engineering Studies and Demonstrations of Repository Designs group (ESDRED), which is also focused on sharing of R&D in this area.

- 5. Corrective actions with priority T2 (to be implemented by the end of 2013):
- 2 "To update SAR in accordance with the recommendations of UJD SR" (coming from 2. second level of review for refining SAR) and independent safety review done by NRA contractor (ÚJV Řež, Czech Republic), which both principally confirmed safe continuation of operation of Near Surface Repository and confirmed safety presumptions in SAR.
- "To add human failure as an additional route cause during crane manipulation with FRC container"
- 4 "To submit additional safety analysis respecting conclusions of ASAM and ISAM IAEA technical projects for safety assessment of various scenarios of safe disposal of institutional waste generally and for particular waste stream (RAW with fire extinguishers containing Am-241)". Additional analysis were submitted and independently reviewed by UJD SR contractor (UJV Rez, Czech Republic) and all assumptions for safe disposal of this particular waste were confirmed.
- 6. Corrective actions with priority T3 (to be implemented by the end of 2014):
- 5 "To ensure an increase in sensitivity of the assay of selected radionuclides in various environmental compartments and inclusion of measurement of respective samples for a longer period of time in the associated monitoring plan"
- 6 "To include in the monitoring plan for next coming years work aimed at refinement of background radioactivity of selected radionuclides in selected samples from the vicinity of NRR Mochovce"

All corrective actions have been competed according to the set deadlines.

44.			Ref. in National Report D.2.6 p. 33
Comment	In this chapter it is mentioned, that "In 2014 the second double row will be completed and ready for operation, so that it is possible to continue smoothly in disposing FCC with RAW in this double row."  Question:  Has the second double row been commissioned?		
Answer	Yes, the second double row was completed and commissioned in 2014.		