6th Slovenian CNS Report, Answers to Questions of Other CP – February 2014

No.	Country	Article	Question	Answer
1.	Australia	16.1	What formal and practical arrangements are in place between Slovenia and Croatia regarding cooperation on emergency preparedness and response?	- Bilateral agreement on early notification. - On the operator level - agreement to cross border in case of medical transport from the NPP to the hospital Rebro in Zagreb.
2.	Austria	General	Is the safety significance of deviations from applicable current safety standards and internationally recognised good practice compiled for each nuclear installation? If so, in which intervals and are these compilations accessible to the general public?	SNSA inform the public about the safety significance of deviations from applicable current safety standards and internationally recognised good practices for each nuclear installation through the yearly national report. Those reports are available on our website: http://www.ursjv.gov.si/en/info/posamezne_zadeve/reports/ (English version) In case of important safety significance of deviations from applicable current safety standards and internationally recognised good practices we also publish all relevant documents on the SNSA website (www.ursjv.gov.si).
3.	Austria	General	Is there any obligation for the licence holders to inform/consult the general public or stakeholders in the vicinity of a nuclear installations on issues related to nuclear safety?	Act on Protection against Ionizing Radiation and Nuclear Safety: Art 4. (10) Information on radioactivity in the environment, on exposure of members of the public and on the procedures and activities of state authorities, performers of public services and approval holders, relating to radiation protection and nuclear safety, is public (the publicity principle). Art. 7 on information publicity: (1) Information on radiation practices, use of radiation sources, radiation of natural sources, planning, construction and operation of radiation facilities and nuclear facilities, statistically processed doses of exposed workers and members of the public, management of radioactive waste and spent fuel, shipment into and out of the Member States of the EU, import, export and transit of radioactive waste or radioactive substances, radioactive contamination of the environment, foodstuff, feeding stuff and products of general use, emergencies, and protection and rescue plans for case of emergencies shall be public, unless this Act provides otherwise due to the protection of nuclear materials and physical protection. (2) Procedures for access to information specified by the law shall be used for access to information described in the previous paragraph.
4.	Austria	General	To which extent does the Regulatory Body	The legislation does not provide that the safety relevant licenses have to be

			currently publish safety relevant licenses, decisions, assessments, etc.? Are there intentions to modify current practice? Is the general public currently involved in the decision making of the Regulatory Body relevant to nuclear safety? Are there intentions to modify current practice?	published by the regulatory body, so for time being only some of them have been published in full (as for example approval of an amendment of limitations of liquid discharges from NPP Krško). However, SNSA is maintaining the up-to-date list of all approved modifications at Krško NPP at the web page http://www.ursjv.gov.si/si/jedrski_in_sevalni_objekti/nuklearna_elektrarna/spremembe_v_nek/. Since early 2013 SNSA has also introduced a practice of publishing all relevant documents related to specific issues, for which the increased public interest is expected (http://www.ursjv.gov.si/si/info/posamezne_zadeve/). Such were the issue about the seismic situation at Krško in the Spring 2013 and the issue of failed fuel elements in the Fall 2013. The general public is and will be engaged in the decision making of the Regulatory Body only and when the legislation so provides (as for example a siting selection for the nuclear installations).
5.	Austria	General	In the Executive Summary the Sixth Slovenian National Report mentions “safety improvements … like: The installation of an alternative ultimate heat sink”. This is also noted in other chapters of the Slovenian National Report. What are the technical specifications for such an alternative heat sink? What is your prognosis on improvements of the CDF/LRF following implementation of the alternative ultimate heat sink?	The conceptual design of the alternative heat sink (AHS) will be a large water reservoir (of 10000 m^3) located in a bunkered building protected from extreme natural hazards (seismic design, flooding protection, extreme weather protection) and design to withstand an airplane crash. Detailed design has not yet been made. An estimate of CDF reduction resulting from implementation of alternative AHS was done in the conceptual design for the Safety Upgrade Program and the CDF would be reduced by 9,5%. The effect on LERF was not estimated for the AHS.
6.	Austria	General	Did you already accomplish analysis of possible threats to your NPP from extreme natural events taking into account the possible effects of climate change? Are they set as a requirement for the facilities?	In the Safety Analysis Report for the Krško NPP are included analyses of design bases seismic event and external flooding. Extreme weather was analysed in the course of probabilistic assessment for the Krško NPP. In the scope of the stress tests for Krško NPP assessment of safety margins and cliff edge effects was performed and this included evaluation of effects of beyond design basis earthquake, flooding, combination of seismic and flooding events and extreme weather conditions (The report on stress tests on available on the SNSA web page). The effects of climate changes are reviewed in the course of Periodic Safety Review every 10 years. Following the first Krško NPP Periodic Safety Review re-evaluation of precipitation (rain and snow), hydrological parameters, environmental temperature, wind data etc. was performed and Safety Analysis Report and Probabilistic Safety Analyses were both updated. Analyses of extreme, beyond design basis natural events, are currently not a

				requirement for a NPP. However, such extreme events are considered as design requirements for the Krško NPP Safety Upgrade Program, which is designed according to the Design Extension Criteria.
7.	Austria	6.5	The 6th Slovenian National Report mentions the "Multiple activation of false alarms in the seismic monitoring system". What were the consequences of these events (scrams, warning signals)? Which component caused these false alarms? What were the reactions of the plant staff to these events? What are the further steps to address this issue?	In October 2010 (during the refuelling outage) the old Strong Motion Seismic system of the Krško NPP was replaced by a system of a new generation technology. The false activations of seismic alarm in the main control room started after the start-up of the plant upon the completion of the outage, the first one on November 5th, and again on November 8th and 11th. It was determined that there were no activation of the seismic system and also no earthquakes. It was suspected that false activations of alarm were caused by electromagnetic interference. The grounding of seismic system cables was optimized, which resolved the problem and prevented the reoccurrence of false alarms. In general the seismic system only alarms the operators, which then use the Abnormal Operating Procedure AOP ENV-1 "Eartquake" for further actions. In the case when earthquake exceeds the Operating Basis Earthquake (OBE=0,15 g) the operators must manually shutdown the plant and the analysis of plant state (following US NRC guidelines) must be performed prior plant restart.
8.	Austria	7.3	The Sixth Slovenian National Report states that "the elements of risk informed inspection are already partially incorporated into the current annual inspection program". What are the lessons learned and next steps in implementing risk informed inspections? Is the utility also risk informing its activities?	The implementation of risk informed inspections as a part of the Inspection plan related to the NPP as well as to other practices have been introduced years ago. However, one of the main benefit of the approach is prioritising activites of an inspector during an outage. In addition, such approach enhance the prioritisation of inspections in other practices where practice or accidents can lead to unjustified exposure of personnel, public or contamination of the environment. The utility has several procedures implementing risk-informed approach, e.g. the NPP RI-ISI program for the period 2012-2022 was a subject of authorisation in 2012.
9.	Austria	10.3	The 6th Slovenian National Report notes that "since 2007 the SNSA has initiated a new regulatory approach in supervising the Krško NPP through safety and performance indicators." What are the experiences and lessons learned in this new approach?	The SNSA set of indicators was established to look for those potential weaknesses that might lead to any degradation of nuclear safety. Safety and performance indicators' approach became a good practice as a communication tool between the SNSA and the Krško NPP. It has enabled the SNSA to follow the situation on the site much easier. Therefore, it is possible to suggest improvements/upgrades to the particular SSC or even audits and inspections. Through this indicators system we also found some problems in NPP. We use soft approach and we warn the NPP about the alarms. In some cases this is enough, but in other cases we take more strict actions to prevent potential more serious consequences.

10.	Austria	11.1	The 6th Slovenian National Report notes that "substantial financial resources of the operator were allocated for many different actions" after the Fukushima accidents. Did the financial expenses necessary for the "Fukushima-upgrades" influence the Long-term Investment Plan e.g. replace or delay actions?	No. The plant and the regulator are taking care that priority is given to the replacements of equipment, necessary for safe normal operation. All the post-Fukushima investments are in addition to that.
11.	Austria	11.2 and 8.1	The 6th Slovenian National Report notes that "in case of Krško NPP lifetime extension or a new NPP, the technical staff of both, the SNSA and its TSOs should be increased." Are the Slovenian universities expected to provide sufficient young staff in future or are the future new hires expected to be outside Slovenia? What is the average age of the SNSA staff?	We believe that Slovenian universities are capable to provide sufficient young staff in case of Krško NPP lifetime extension or a new NPP; on the other hand the provision of necessary staff for the regulatory body should be ensured also from other sources (experienced, competent and skilled experts from industry, other governmental sectors). The average age of the SNSA staff is 46 years. Based on our legislation for civil servants in the public (state) administration, in addition to the prescribed qualifications and proficiency examination also knowledge of the official language (Slovenian) and citizenship of the Republic of Slovenia is required; so the possibility to hire experts outside Slovenia is rather limited.
12.	Austria	18.1	The 6th Slovenian National Report mentions the "Installation of containment filtered venting system" as part of the Safety Upgrade Program (SUP). What are the technical specifications of the filtered venting system? What is the effect of the system design on iodine releases? What are the considerations involved in starting containment venting, can the NPP initiate containment venting on its own or does it require permission of SNSA? Are there any emergency plan implementation stages involved (does filtered venting have to await completion of evacuation)?	The Krško NPP implemented the Passive containment filtered venting system (PCFVS) in the outage 2013. Currently, the PCFVS can only be used as a passive system and it will be upgraded later to be used also as an active system for venting the containment. PCFVS passively opens by breaking of a diaphragm at 6 bar abs containment pressure and then reduces the pressure inside containment by releasing the containment atmosphere via 5 aerosol filters (all inside containment) and 1 iodine filter (in auxiliary building) through a stack. The filtration efficiency is defined by decontamination factors that were specified as DF=10000 for aerosols, DF=100 for elemental iodine and DF=10 for organic iodine. Iodine releases will be reduced by filtering to 0,06% in comparison to non-filtered releases that would occur in case of containment rupture (prior to installation of PCFVS). Since currently the PCFVS can only be used in a passive mode there are no options considered yet for starting of containment venting by operators' actions. Therefore, there are currently no emergency plan considerations for venting via PCFVS.
13.	Austria	18.1	The 6th Slovenian National Report mentions the "Installation of containment filtered venting system and passive autocatalytic recombiners" as part of the Safety Upgrade Program (SUP). In Annex III the scheduled finish is noted as 2013.	The Krško NPP completed the implementation of the Passive containment filtered venting system (PCFVS) and passive auto-catalytic recombiners (PAR) in the outage in October and November 2013. The implementation of these modifications was on schedule. Currently, the PCFVS can only be used as a passive system and it will be upgraded later to be used also as an

			What is the status of the implementation of the containment filtered venting system and the installation of passive auto-catalytic recombiners in the containment? Are they on schedule?	active system for venting the containment. The completion of PCFVS for active use is connected to some other modifications that are part of the Safety Upgrade Program (SUP) such as Emergency Control Room and Bunkered Building 2. Final implementation is due by 2018.
14.	Austria	App.III	The 6th Slovenian National Report mentions "flooding the containment (preventing core concrete interaction in case of failed reactor pressure vessel)" as an accident mitigation measure to be implemented by 2015. Is it technically feasible to implement an "in-vessel-retention" concept for the Westinghouse 2-Loop reactor? If so, are there plans to implement such a concept at the site?	Regarding the severe accidents mitigation the NEK (Krško NPP) is mostly following the Westinghouse Owners Group (WOG) practices. NEK has performed analysis which shows that if the reactor vessel failure can not be prevented (by providing adequate cooling to the core) it is of crucial importance to flood the reactor cavity before the vessel fails, since this strategy assures quenching and cooling of the molten corium. Thus NEK has changed its design to "wet cavity" design in 2001, which provides means to flood the reactor cavity if needed. With the SUP the NEK will implement additional means for flooding the reactor cavity (additional source of water as well as a dedicated low pressure pump). But also within the SUP additional high pressure pump (capable of injecting into reactor) will be installed (also with a dedicated source of borated water) to help prevent core damage and vessel failure in the first place. So currently there are no plans to implement an "in-vessel retention" concept in the NEK.
15.	Austria	App.III	The 6th Slovenian National Report notes that "the operator has also reassessed its possibilities for alternative spent fuel strategy." Could you provide some more details on the alternative spent fuel strategy, especially new requirements arising from long term operation and the need for additional storage capacities? To what extent are such requirements reflected in the modifications related to the Krško NPP Life Extension?	We can not provide more details on this subject since it has not been further elaborated yet.
16.	Belgium	Art. 6.4 and Art.19.2	It is stated in § 19.2 that the Krsko NPP Technical Specifications are based on NUREG-0452. In § 6.4, there is mention of Periodical Safety Review and the fact that it takes into account, among others, changes in international safety standards / practices. Considering that the Westinghouse Standard Technical Specifications (STS) that were	In 1st NPP Krško PSR one of recommendation was: "It is recommended to proceed to the conversion of the current NEK Technical Specifications to the NUREG-1431 format and content which really represent the State of the Art in the field of Technical Specifications. In making the decision, it should be considered that, practically, NUREG-1431 has replaced NUREG-0452, that is no longer maintained." From this recommendation one action was derived: "Proceed to the conversion of the NEK Technical Specifications to the NUREG-1431

			embedded in NUREG0452 are outdated and replaced by newer version (e.g. NUREG 1431), can you give more information on the scope of the PSR and/or the way this update of the STS is taken into account at the Krsko NPP?	structures and format." Due to economical and technical reasons NPP Krško has applied for abandoning of execution of a request to change the Technical Specifications of the NPP Krško. SNSA has analyzed necessity of the transition from NUREG-0452 format of Technical Specifications in the new format of improved Technical Specifications. The entire project transition would be definitely laborious and time consuming. New format of improved Technical Specifications would have meant the introduction of certain nuclear safety improvements, but at the same time during the transition and later during the use would increase the likelihood of unforeseen events, which could have a negative impact. Since the initial proposal to change the format of the NPP Technical Specifications after the first periodic review of the NPP was based on a similar practice in the United States, the SNSA informally inquired, what is their practice with regard to the introduction of an improved format in similar plants in the United States. U.S. NRC has ensured that they do not require licensees to operate nuclear power plants with a particular format Technical Specifications, but leave that decision to the operator. Therefore, the individual Technical Specifications of NPPs are in both format such as the current format of the NPP Krško, as well as the improved format, some NPPs even in the old format, as it has had the NPP Krško in the first years of operation. SNSA to the response of NPP's own analysis and comparison with the situation in the U.S.A (the vendor country) NPP Krško notes that the transition of the NPP Technical Specifications to improved Technical Specifications is not necessary as this is a large project that requires a lot of resources. Also present form and content of the Technical Specifications of the NPP Krško meets the current and future legislation. In addition, the SNSA agreed that in the future it would be better to introduce the format of Technical Specifications which will be partly based on probabilistic risk assessments. Since the SNSA expected that NPP Krško would begin with the introduction of technical specifications which are partly based on probabilistic risk assessment, the SNSA considers change the Technical Specifications to the NUREG-1431 structures and format is not a priority.
17.	Belgium	p.25-26	Please provide a description of the mechanisms whereby the license holders maintain open and	In addition to classical forms of public communication (website, press releases, press conferences, ...) they are using also dedicated info centers

			transparent communication with the public.	(NPP Krško, "Jožef Stefan" Institute) and issuing periodical (dedicated) publications.
18.	Belgium	p.28-29	Please indicate and describe the programmes used by the license holders regarding safety culture monitoring and development.	The safety culture at the plant is evaluated by Safety Culture Self-Assessment. Such assessment also provides the plant management with recommendations on how to improve or retain this state. During self-assessment, all elements necessary for safe, efficient and effective plant operation are critically analyzed. Self-assessment can be achieved by internal audits, detailed observations or by using a questionnaire. The questionnaire is the best method because it includes all the plant staff and these results are of high confidence. Safety culture monitoring can also be performed indirectly during operation by monitoring different Performance Indicators. All methods of safety culture monitoring are defined in appropriate procedures. Internal procedures about Safety Culture Principles were developed based on international documents, such as Fostering a Strong Nuclear Safety Culture (NEI 09-99), Traits of a Healthy Nuclear Safety Culture (INPO 12-012), Safety Culture in Nuclear Installations (IAEA-TECDOC-1329), etc.
19.	Belgium	12.2	The report mentioned at the end of §12.2 that "an analysis of the outage activities is done, which also includes the review of organizational deficiencies and human factors found by the SNSA inspectors". What is the method used by SNSA inspectors to collect, codify and analyse observations concerning human factors.	SNSA inspectors do not have any special method to collect, codify and analyze observations concerning human factors, but their collection of information and assessment are based on the experience, previous information from different sources and consultation with other inspectors. It has to be noted that there is very little fluctuation of inspectors thus they can strongly rely on their experience.
20.	Belgium	13	The report mentions that inspection oversight of the licensee management system is performed through assessment of management documentation, assessment of its implementation in line with this documentation and enforcement actions in case of deficiencies. Please explain how, as part of this regulatory oversight, the effectiveness of the management system (in order to continuously improve safety) is assessed. Are licensee audit reports accessible to and regularly reviewed by the SNSA?	The SNSA performs so called "QA inspection" regularly on yearly basis. In the past years different topics were discussed. Through observations of QA inspections, other regular inspections and all other activities at licensee, the effectiveness and the improvement of the management system can be assessed. During the QA inspections the audits results are discussed and presented to the inspection team. After the PSR of NPP Krško (the first and the second), which assessed the efficiency, effectiveness and improvement of the management system, the action plan was developed, which includes recommendations for improvement of the management system.
21.	Belgium	14.1	PSA for shutdown conditions for a NPP is nowadays generally considered to be common	The Krško NPP (NEK) mostly follows the U.S. practice in general, as well as in the area of the PSA. Regarding the Low power and shutdown states the

			practice. What is the reason for PSA at shutdown conditions for Krsko NPP to be mentioned amongst the issues with a “lack of standardised analysis methodology”? What is the reason to have this part of the PSA only available for 2016?	NEK is waiting for the ASME standard for these modes to be adopted (which is currently in development).
22.	Belgium	14.3	At the end of § 14.3 activities on operational experience feedback are described. The second dash “The SNSA has developed …” refers to nuclear installations, nuclear facilities, Slovenian licensees, …, all in plural. Besides the Krsko NPP, what other nuclear installations in Slovenia (research facilities, hospitals, accelerators, …) are submitted to the process of operational experience feedback. Have these Licensees for these installations also their own system of operational experience feedback analysis?	This paragraph refers to foreign experience feedback system at the SNSA. The SNSA collects the information (about NPPs) from IAEA, EU, NRC, OECD etc. This is the reason why the sentence is in plural. Besides the NPP Krško, Slovenia also has TRIGA research reactor. Both of them have their own system of (foreign) operational experience feedback analysis.
23.	Belgium	16.4	It is stated in § 16.4 that 14 exercises were yearly carried out at the SNSA. Can you give more information on the scope (duration, participation level…), types and main lessons learned from these 14 exercises?	At the SNSA we conduct a number of exercises and other trainings. A lot of exercises are outside exercises in which we participate in, e.g. ConvEx exercises. In addition we organize our own internal and national exercises as well. There are 14 exercises annually on average. In 2013 we had 20 exercises. In most cases the emergency team is activated only partially. Usually there are 2 to 3 bigger exercises per year. Most notable is the Krsko NPP annual exercise. The national exercise is on every three years, usually on top of the NPP exercise (2008, 2014). In 2011 it was the INEX 4 as national. Lessons - most of them are minor technical, but a lot in quantity. And from time to time some bigger gaps are identified, such as substantial time delay of the NPP notification of authorities because of awkward procedure (the NPP Krsko exercise 2012).
24.	Belgium	16	No information could be found in the report regarding a possible revision of the emergency preparedness and response arrangements as results of the FUKUSHIMA accident. Can you confirm that the arrangements were not (needed to be) revised according to the evaluation of the FUKUSHIMA accident, such as reassessment of the EPZ?	We haven't achieved any notable improvements yet. In fact we are working on this issue as we speak. We have set up WG on the national level. Deadline for results is mid 2014. The main issue is the zone sizes and distances. Our current zones are substantially smaller than suggested by the IAEA EPR-NPP book.
25.	Belgium	App. III/C	As a result of the Fukushima accident, an action plan was prepared by the Krško NPP, and reviewed and approved by the SNSA, and shall	This is a great question! It has already turned out that these risks were not sufficiently accounted for in the scheduling. The plant started the bidding process for construction of

			be completely implemented within the Safety Upgrade Program by the end of the year 2016. A table in Appendix C provides action-plan deadlines ("scheduled finish") for the "Safety Upgrade Program". Do the deadlines rely upon analyses of planning risks (like those related to searching adequate equipment providers; to reaching the adequate equipment qualification requested by the provided specifications; to construction and delivery times; or to other processes associated to implementation or deployment, like writing and validating procedures for use and maintenance, training of the operators, …)? If no, is it foreseen to possibly adapt deadlines in the future, in case of later risk or delay identification?	BB2 building (the new bunkerized building with many of new SUP systems) in 2012, but the problems arise precisely due to the magnitude of the project, complexity of design documentation and delivery times of some of the main components. The project has by now accumulated a delay of more than 8 months. Thus in September 2013 the plant applied for the extension of the final deadline for the implementation of the SUP set in the SNSA decision from September 2011. The SNSA approved the extension of the deadline until the end of 2018.
26.	Brazil	7.2.4	It is stated that "for the majority of offenses the inspector charges fines (penalty payment) directly". How often does this occur in the power plant? What is the value of the fine calculated? Is the fine for the individual or the organization?	Quoted sentence just explains the opportunity offered by the General Act on Minor Offences; in practice it has never been used in the NPP Krško. The amount of fine is laid down in the Ionising Radiation Protection and Nuclear Safety Act, where the value of penalties (in EUR) is ranging from lowest possible to highest possible amount depending or whether it is a legal person or an individual entrepreneur or the responsible person of the legal person. The penalty range is from 1200 EUR to 360000 EUR. In most cases the organization has to pay the fine as well as the individual manager personally. There were no fines charged to the Krško NPP in the recent years.
27.	Brazil	8.2	Who are the members of the Expert Council for Radiation and Nuclear Safety? What are their responsibilities? What are their role in the licensing (or licensing renewal) process?	The Rules on the Specialist Council on Radiation and Nuclear Safety provides in its Article 6 that Council members may not be managerial personnel working in nuclear or radiation facilities and that the Council must be composed in such a way as to have a maximum of two members employed at the same nuclear or radiation facility. Based on this general rules the current composition of the Council is: one member of NPP Krško, one member of Research Reactor of »Jožef Stefan« Institute, one member of IBE (independent consulting engineering company), one member of ARAO (radwaste management agency) and one member of ZVD (Institute of Occupational Safety).

				The Expert Council has no formal role in licensing process of the SNSA since the Ionising Radiation Protection and Nuclear Safety Act provides in Article 6 its duties as follows: - giving opinions and making proposals during the drawing up regulations , - giving opinion on the annual report on radiation protection and nuclear safety, - giving opinions on the annual work plans of the SNSA and SNSA's inspectors , - giving opinions and proposals on other issues relating to the topics they are experts for requested by the SNSA. Of course, SNSA may from time to time ask the Expert Council for its opinion, especially in the case of the most difficult and complex administrative/licensing procedures.
28.	Brazil	12	Was there a requirement for Krsko to develop a Chapter 18 of the FSAR covering Human Factor Engineering, as required by the US NRC?	No, there is no such requirement for the Krško NPP.
29.	Brazil	14.1	Was there a requirement for Krsko to develop a Chapter 19 of the FSAR covering PSA and Severe Accidents, although it is required by the US NRC only for new plants?	Yes, there is a requirement in the Rules on radiation and nuclear safety factors (JV5) that the Krško NPP must add a description of PSA, EOPs and SAMGs at the latest within three years following the approval of the design life time extension of the NPP. However, after Fukushima accident the SNSA issued a decision for the implementation of additional SAM measures, but also requiring the plant to provide the abovementioned descriptions to the USAR until the end of 2016.
30.	Brazil	14.2	Following the NRC regulations, what PSA applications are currently being used for performing risk-informed regulation?	PSA is used in many applications. One of the first in NPP Krško was risk based on-line maintenance. PSA criteria (deltaCDF limit value for on-line maintenance) are set-up also in regulation. In regulation is also defined use of PSA for planning and evaluation of modification in NPP. In last year NPP Krško introduce also risk informed in-service inspection (based on EPRI TR-112657 methodology). The SNSA for its regulatory processes: safety assessment, decision making and oversight of nuclear facilities uses several risk informed applications like PSA event analysis, evaluation of possible improvement, use of PSA for selection of important SSC (system structure, component), inspection allocation etc. SNSA also review risk informed application from NPP Krško. SNSA also use PSA information system. Main benefits of this system are that PSA and PSA results are more understandable and useful to non-PSA-expert users and that PSA information system gives support for decision making, presents clear overview of plants safety and gives information about

				relative importance of events and equipment.
31.	Brazil	14.2	This article discusses the 46 safety and performance indicators collected by SNSA. Art. 10(Pag. 29 also mentions the 46 indicators monitored by SNSA). While Art, 19.7(Pag.64) mentions the 98 performance indicators monitored by Krsko NPP as defined by WANO. What are the main differences of these sets of indicators? Can they lead to different conclusions regarding the safety status of the plant?	SNSA indicators are mainly safety oriented and are very similar to the NPP indicators. In addition to these NPP Krško has also many performance indicators. Some indicators have slightly different definition, but they don't lead to the different conclusions. Rather then this they show the situation from different aspect.
32.	Finland	7.1	The new Act on Liability for Nuclear Damage was adopted in 2010. In the introduction it was said that the Krsko NPP was constructed as a joint project of the electric utilities of Slovenia and Croatia. It is also said that since Krsko NPP is located in Slovenia, it is subject of Slovenian law and Slovenian nuclear safety regulations. In case of an accident what would be the roles of Slovenian and Croatian governments in the liability issue?	In case of a "nuclear incident" (as defined in the current Paris Convention) at the NPP Krško the Croatian Government has no particular role since all the arrangements would follow the legislation in force in the Republic of Slovenia. Based on the new Act on Liability for Nuclear Damage (where some of the provisions are still not in force, since we are waiting for entering into force of the amended Paris Convention) the Slovenian Government is expected to appoint (within 6 month after the date of nuclear incident) the Commission for the Assessment of Nuclear Damage. The assessment would be prepared by the Commission, than submitted to the Ministry responsible for finance and at the end adopted by the Government. If the assessment provides that the resources of the operator liable (700 mio. EUR) shall not be sufficient to provide the full compensation to all injured parties the Government shall ensure the necessary resources to the insurer, but only up to 1200 mio. EUR.
33.	Finland	8.1	Table 1 in the report shows about 20 % decrease of the SNSA budget from 2011 to 2013 (similarly about 20 % decrease in salaries). It is said that due to very strict and restrictive governmental policy, SNSA has not employed any new staff members and not replaced workers who have retired or on a temporary leave. It is also said that SNSA has substantially improved its management system and increased the effectiveness of its work. What is SNSA's opinion about the cuts of the SNSA budget, are there any signals that there are not enough resources for some important duties? What are the plans for the next years? There seem to be also cuts in the international membership fees. What international activities	The SNSA very closely monitors the situation and potential risks associated with reducing of its available resources. With the SNSA's internal regulations we have established a system of prioritization of those tasks which are not directly related to nuclear and / or radiation safety; as a result of such prioritization we decided, as for example, not to proceed with a verification of our management system by an external auditor even though we will therefore lose the ISO certificate in 2014. The yearly plan of our activities includes also risk assessment in the event of non-realization of specific task. Furthermore we introduced in our yearly report to the Government (and the Parliament) the description of main threats and risks associated with the reduction of financial and human resources for the nuclear and radiation safety. It should be mentioned however, that although the adopted budget has been decreased for about 20% from year 2011 to 2013 during the year (2012, as well as 2013) the Ministry of Agriculture and Environment (to which SNSA is a part of) has provided to the SNSA additional funds; as much as

			have been reduced?	such measures are highly welcomed by the SNSA, such solutions from our side are understood as a non-systemic and insufficient. Unfortunately, the financial situation in the country will not change very rapidly. Unfortunately some international membership fees has not been paid fully and many SNSA's international activities have been reduced (as for example participation in some working groups of IAEA, OECD/NEA, ENSREG; training courses and seminars,….).
34.	Finland	10	What kind of safety culture assessment methods the licensee of Krsko NPP has? How the regulatory body assesses and inspects those methods? SNSA has introduced a method for monitoring the safety culture aspects at the Krsko NPP. Could you give some examples of conclusions and proposals of corrective actions based on the last assessments.	Ad1. In NEK internal documentation it is written that safety culture self-assessment shall be periodically performed. It is planned for every 3 to 4 years to perform the assessment. In PSR2 it was stated that the last but one safety culture self-assessment in NPP Krško was carried out in 2006, the other one was carried out in 2013. Both of them were performed on the basis of questionnaire of the employees on all levels, as well as of permanent subcontractors. The report of the safety culture self-assessment (2013) is planned to be finish at the beginning of 2014. Ad2. SNSA does not assess and inspect the methods of self-assessment of the Krško NPP yet. The inspection about safety culture in Krško NPP is planned after the Krško NPP will finish the self-assessment report from 2013. That report will serve as a basis document for the safety culture inspection. Ad3. The SNSA has adopted guideline designated for Safety culture assessment in nuclear facilities in December 2012. Safety culture is a permanent task to observe for SNSA personnel performing activities in nuclear facilities. Some topics of the safety culture observations in 2013 are: inspections, administrative procedures, PSR, review of foreign operational experience, safety performance indicators, analysis near misses, upgrades of the NPP safety. Observations from the SNSA personnel are recorded and analyzed on annual basis and categorized according to the IAEA GS-G-3.1. Some of the recommendations in the Safety culture report for the 2012 are: to propose Krško NPP to lay greater stress upon safety culture in the GET courses (GET – general employee training), the SNSA should be more active in planning procedures for obtaining permits - to improve coordination and communication between the NPP and the SNSA (eg. regular meetings), to explore how Krško NPP performs internal supervision over the subcontractors performing activities in the NPP, …

35.	Finland	12	Dealing of the human factor issues (e.g. human errors, human performance) at the Krsko NPP is described in the report. Could you elaborate more the legal requirements concerning human factors engineering and human machine interface.	In Rules on radiation and nuclear safety factors (JV5) there are four articles, regarding human factor issuses, which are harmonized with WENRA and IAEA GS-R-3. Article 51 (organisational structure) (1) The investor or facility operator of a radiation or nuclear facility shall establish an organisational structure to ensure safe and reliable operation of the facility, and an appropriate response in emergencies. The organisational structure shall be documented and its efficiency regularly evaluated. (2) The investor or facility operator shall clearly define and document authorities, responsibilities and lines of communication for all personnel, organisations and organisational units involved in activities important to safe operation of the radiation or nuclear facility and to emergency management. (3) Any changes of the organisational structure established to implement functions referred to in paragraph 1 of this article that influence or may indirectly influence the contents of the safety analysis report shall be controlled and managed in accordance with the requirements applying to the approval of modifications to the facility pursuant to the act governing protection against ionising radiation and nuclear safety. Upon their implementation, modifications relevant to safety shall be verified as regards their impacts on safety in accordance with Article 59 of these Rules. Article 52 (radiation or nuclear facility personnel) (1) By means of a systematic analysis, the operator of a radiation or nuclear facility shall determine the required number of the personnel and their competencies necessary to ensure radiation or nuclear safety. (2) The operator of a radiation or nuclear facility shall regularly verify and document the sufficiency of the number of the personnel involved in activities important to radiation or nuclear safety. (3) The operator of a radiation or nuclear facility shall make a ten-year

				staffing plan for activities that are important to radiation or nuclear safety. The plan shall be updated at intervals not longer than three years. (4) Any planned change in the number of the personnel which might be significant for radiation or nuclear safety shall be justified in advance and evaluated after implementation. (5) The operator of a radiation or nuclear facility shall always have in house sufficient personnel with suitable competences to understand the licencing basis of the radiation or nuclear facility as well as to understand the actual design and the operation of the facility in all its states, to develop project tasks and acceptance criteria to outsource works relevant to radiation or nuclear safety to contractors, to supervise the execution of such works and to evaluate them upon acceptance. Article 57 (resources) The investor or facility operator of a radiation or nuclear facility shall determine the extent of the necessary resources (the personnel, infrastructure, the working environment, information, knowledge, suppliers and financial resources) to carry out its activities and to establish, implement, assess ans continuously improve the management system. Article 58 (safety culture) The investor or facility operator of a radiation or nuclear facility shall promote a strong safety culture, through: 1. ensuring a common understanding of the key aspects of the safety culture within the radiation or nuclear facility; 2. providing the means by which the investor or facility operator supports individuals and teams in carrying out their tasks successfully and in compliance with safety requirements, taking into account the interactions between the requirements imposed by individuals, technology and the radiation or nuclear facility as a whole; 3. ensuring a positive attitude to learning and critical thinking, and

				4. continuous attention to developing and improving the safety culture.
36.	Finland	13	The SNSA management system seems to be clear, comprehensive and well-functioning. It is a positive finding that the management system is based on the requirements of ISO 9001:2008 and GS-R-3.	Thank you very much for the encouraging comment. The SNSA strives continuously to improve the management system taking into account the requirements of ISO 9001: 2008 standards and relevant IAEA standards relating to management systems.
37.	Finland	14.1	What safety standards are used as references in PSRs in Slovenia?	See Appendix 1 below!
38.	Finland	14.1	An alternative ultimate heat sink is mentioned in the post-Fukushima national action plan. Could you provide more information what is the primary ultimate heat sink for Krsko NPP and what are the plans for the alternative ultimate heat sink.	The primary design basis ultimate heat sink (UHS) for the Krško NPP is the Sava river and it is designed according to the requirements of US NRC Regulatory Guide 1.27 (pool of 31.3 m3). The cooling water to the plant safety systems is provided by the Essential Service System and the Component Cooling System. UHS is described more in detail in the Chapter 5.1.3.1 of the Slovenian National Report on Nuclear Stress Tests which is published on the SNSA web site. The AHS (Alternative Heat Sink) is planned to be implemented within the plant's Safety Upgrade Program by 2018 and it will be a large water reservoir located in a bunkered building protected from extreme natural hazards (seismic design, flooding protection, extreme weather protection) and design to withstand an airplane crash.
39.	Finland	14.1	It is mentioned that the program of upgrades at the Krsko NPP was envisioned in the Slovenian legislation from 2009 (revisited after the Fukushima accident). The program includes severe accident management hardware provisions. What was the reason for these new severe accident management requirements and why the new requirements were not discussed in the PSR of the Krsko NPP?	In the time of the first PSR (2001-2003) there were no requirements regarding the SAM. Yet the Krško NPP has had already at that time developed SAM strategies with SAM guidelines, which were validated with the plant-specific full-scope simulator. The new legislation from 2009 incorporated additional SAM requirements (manly for the new NPPs), which the Krško NPP would have to implement after the possible lifetime extension. Due to the Fukushima accident (and the progress in the licensing process for lifetime extension for the Krško NPP) the SNSA decided to speed up the evaluation and implementation of additional SAM measures for the Krško NPP. The SAM was reviewed during the extraordinary PSR (the stress tests) and also with the second PSR, which is currently in the completion phase.
40.	Finland	16.1	The report says that there are on average over 100 emergency trainings and exercises per year carried out at the SNSA (out of those: 14 exercises, 25 lectures and 70 individual trainings).	At the SNSA we conduct a number of exercises and other trainings. A lot of exercises are exercises, organized by external organizations, in which we, the SNSA, participate, e.g. ConvEx exercises. In addition we organize our own internal and national exercises as well. There are 14 exercises annually

			This sounds very comprehensive training and exercise program. Could you give more information what kind of exercises are included in those 14 exercises per year.	on average. In 2013 we had 20 exercises. In most cases the emergency team is activated only partially. Usually there are 2 to 3 bigger exercises per year. Most notable is the Krsko NPP annual exercise. The national exercise is organized every three years, usually as the NPP exercise (2008, 2014). In 2011 it was the INEX 4 as national radiological emergency exercise.
41.	France	14.1	Slovenia indicates that a set of design extension conditions (DEC) is set up on the basis of engineering judgment, deterministic assessment and probabilistic assessment. Could Slovenia list the probabilistic safety assessments used (level 1 PSA, level 2 PSA, external event PSA …) and the design modifications deriving from the results of these PSAs?	The Krško NPP used PSA for identification of some DEC, such as earthquake amplitude, extreme outside temperatures (low and high), extreme winds and tornadoes, aircraft crashes… Mostly the values with 10000 year periods were used. For the external flooding the Probabilistic Maximum Flood (PMF) value is used (evaluated deterministically), of which probability is around once in a million years. A set of possible improvements was identified with a gap analysis (deterministically, probabilistically (determining most probable accident sequences and most vulnerable SSCs) and engineering judgment), upon which a prioritization was performed using the Defence-in-Depth method and PSA analyses. From the standpoint of PSA prioritization, the improvements, which contribute most to the reduction of CDF and LERF were given higher priority. PSA Level 1 and Level 2 were used, which include internal initiating events, internal fire, internal flood, seismic events, steam generators blow down high energy line break, external floods, high winds and tornadoes, and aircraft accident analyses. For the Level 2 analysis, also additional MAAP calculations were performed to evaluate the potential containment integrity improvements (PARs, filtered venting systems and combination of both). The improvements, which were chosen based on these analyses were incorporated into the SUP and are described in the Appendix III, Chapter C of the national report, as well as in the Slovenian NAcP.
42.	France	16	No mention is made about the impact of the lessons learned from the Fukushima Daiichi NPP accident to the Slovenian emergency preparedness system in place. Did Slovenia made a review of its emergency preparedness arrangements in the light of this accident and found any improvement to be implemented?	In fact we are still working on this issue. We have set up WG on the national level. Deadline for results is mid 2014. The main issue is the zone sizes and distances. Our current zones are substantially smaller than suggested by the IAEA EPR-NPP book.
43.	France	17.1	The Slovenian ENSREG Peer Review Country Report, after the Fukushima Daiichi NPP accident, identified a single recommendation, i.e. “It is recommended that the regulator should consider	In the framework of the SUP new seismic spectra analysis was performed for the reactor building, auxiliary building, essential service water building and bunkerized building No.1 (BB1) taking into account the 0,6 g PGA (2x DB SSE). These spectres represent basis for the new SUP improvements

			requesting to update the seismic design basis for future design modifications…". Could Slovenia present what has been done in the review of seismic design basis? What is the new load case taken into account?	(of which PARs and filtered venting have been implemented in 2013, while the rest of SUP shall be finished by the end of 2018) and are included in the new Chapter 20 of the USAR, which covers the Design Extension Conditions (DEC) and DEC SSCs.
44.	France	App.III	Slovenia post-Fukushima action plan takes into account human and organizational issues, such as human resource capacity and competence, training, stress, safety culture, procedures. Does Slovenia include in that actions issues related to contractors, such as the role and availability of contractors in case of extreme situation, the need for support of contractors for implementing actions...?	The existing contracts with supporting organizations were not specially revised due to post-Fukushima conclusions and action plan. The Krško NPP analyzed potential deviations during support of these organizations and there was no need for changes. The contracts with some supporting organizations already consider on time availability and other contractors' support obligations in case of an emergency.
45.	Germany	Summary	The Safety Upgrade Program (SUP) improvements include several large modifications, like: […]Installation of alternative ultimate heat sink; Please provide further insight into the installation of an alternative ultimate heat sink?	The conceptual design of the alternative heat sink (AHS) will be a large water reservoir located in a bunkered building protected from extreme natural hazards (seismic design, flooding protection, extreme weather protection) and design to withstand an airplane crash. The AHS is planned to be implemented by 2018.
46.	Germany	8.1	Financial and Human Resources for the SNSA In the current economic and budgetary situation of Slovenia the SNSA as the state administration financed only by the state budget is faced with decreasing available financial funds. In addition due to economical crisis the government has restricted any new employments, even replacements of the employees who left the SNSA due to retirement or other reasons. How does SNSA plan to compensate the restriction of new employments? How does the financial restriction affect the ability of SNSA to maintain the necessary scope and profoundness of regulatory oversight?	The SNSA very closely monitors the situation and potential risks associated with reducing of its available resources. With the SNSA's internal regulations we have established a system of prioritization of those tasks which are not directly related to nuclear and / or radiation safety; as a result of such prioritization we decided, as for example, not to proceed with a verification of our management system by an external auditor even though we will therefore lose the ISO certificate in 2014. The yearly plan of our activities includes also risk assessment in the event of non-realization of specific task. Furthermore we introduced in our yearly report to the Government (and the Parliament) the description of main threats and risks associated with the reduction of financial and human resources for the nuclear and radiation safety. It should be mentioned however, that although the adopted budget has been decreased for about 20% from year 2011 to 2013 during the year (2012, as well as 2013) the Ministry of Agriculture and Environment (to which SNSA is a part of) has provided to the SNSA additional funds; as much as such measures are highly welcomed by the SNSA, such solutions from our side are understood as a non-systematic and insufficient.
47.	Germany	14.1	Current actions and upgrading measures:	According to the US NRC Station Blackout rules and requirements (10 CFR

			PSR. The first PSR action plan led to some important improvements like installation of the third emergency diesel generator and upgrade of flood protection dikes. The additional diesel generator greatly increases the Krško NPP safety in case of a seismic event and also other events with loss of offsite power. Around 35% reduction of total CDF is expected. Please elaborate more on the results of the PSR and particularly on the influence of the installation of one additional diesel generator on reducing the CFD.	50.63 and RG 1.155) the NEK conducted Station Blackout Analysis completed in 1991. Guidance document was NUMARC 87-00. Based on the results of the analysis NEK developed a Station Blackout enhancement program. The most significant feature was the Krško Class 1E 125 V with four hour coping in response to a SBO event. Another area of improvement was the enhancement of reliability of AC power from emergency diesel generator system. NUMARC 87-00 defines 4 distinct emergency AC configuration groups. NEK configuration group was C (having typical redundant and independent EAC sources to safe shutdown). That can be improved by providing alternative AC power source in the way of many other nuclear power plants that have already installed various solutions. The issue of seismic SBO risk was also identified in Krško PSR. Enhancement of Emergency Power Supply at NEK was identified as the most significantly contributing solutions for reducing CDF due to a seismically induced SBO event. Results are based on Seismic PSA sensitivity study with revised PSHA. Enhancement of the Emergency Power Supply provides a new Diesel Generator 3 and its supporting components housed in a new Seismic Category 1 Safety Emergency Diesel Building. Diesel Generator 3 will serve as either an alternate AC source to the plant in case of total loss of on site and off site power or as a substitute to either of the existing plant Emergency Diesel Generators. The PSA model already include new DG3 and new total CDF value is around 30% lover with respect to the previous value without DG3. AC power supply is one of important support systems for preventing reactor core damage. Therefore, addition of independent AC source on the site represents major improvement in availability of AC and consequently DC sources, which reflected in decrease of internal initiating events CDF for around 36%. Major decrease of CDF is observed with seismic events. For seismic events there is a great probability of loss of offsite power. In such cases, only available AC sources were 2 on-site emergency diesel generators, that were dominant contributors in seismic CDF. DG3 has improved seismic design, therefore reduction of seismic CDF for almost 50% was achieved. Also 32% CDF reduction of other external events is achieved due to wind proof design of new diesel building.
48.	Germany	16.2	An information brochure was distributed to all households in the municipalities around the Krško	The brochure is published by the Krsko NPP as their public information program. They revise and re-distribute it at the time of national exercises that

			NPP in 2008. Are there plans to update this brochure in the future?	are conducted on top of their annual exercises. The last one was in 2008 and the next is this year.
49.	Hungary	14.2/3	Are there any indirect regulatory control methods that you can use on a daily basis to have more information about the operational status of the units? (online or offline database inspections, daily reports)	Every day by 10 a.m., the facility operator of a nuclear power plant shall transmit to the SNSA the report on the operation in the last 24 hours. As an exception, the information for public holidays may be transmitted on the first subsequent business day. The report should include the following information: Nuclear power plant: Date: Report compiled by: BASIC OPERATIONAL DATA State at ... o'clock: Reactor power (%): Electric power, generator/net (MW): Boron concentration in the primary coolant (ppm): Group D control rod position (no. of steps): primary coolant activity: Average recorded primary coolant leakage rate, 72 hours: Identified primary coolant leakage rate… (m3/day) Unidentified primary coolant leakage rate… (m3/day) Total primary coolant leakage rate… (m3/day) ENVISAGED RADIOLOGICAL RELEASES Envisaged releases of the containment and gas decay tank gases, at least 8 hours in advance: Date and time of the start of the release: Duration of the release: Rate of the release (m3/h): Radionuclide: Activity (Bq): Specific factors that may in any way affect the state or operation of the nuclear power plant.
50.	Japan	8.2	The report says "Based on the 2002 Act, the Expert Council for Radiation and Nuclear Safety was appointed in mid 2003 as an advisory body to the MAE and the SNSA". How and what extent do the MAE and SANA respect the advice by the Expert Council?	There is no formal tool which would measure the responsiveness of both, the MAE and SNSA, to the advice of Expert Council. The fact is that the majority of its advices refer to responsibilities and tasks of the SNSA. The SNSA considers the advices and regulary reports on the action taken back to the Expert Council. In some cases the Expert Council addresses directly MAE, as for example the question of restricted policy of the Government in sense of human and

				financial decrease of resources. It is worth mentioning that a part of the SNSA's yearly report (to the Government and the Parliament) is also the chapter, dedicated to the work of the Expert Council.
51.	Japan	8.2	The report says "When the SNSA employs new (and usually young) members, they usually do not yet have proper competences. In the call for application, only formal requirements are written, such as education, working experience and knowledge of languages". How is the director of The SNSA selected and designated to keep the independency of SNSA?	The office of the director of the SNSA is in Slovene legal system not arranged as a political position (as it is a case with office of the Minister or the State Secretary) but rather as the highest level in the structure of employees/civil servants within the Governmental administration. Open competition for the position of director of the SNSA (or some other positions in Governmental bodies, as for example Managing Directors, Secretaries-General and the heads of the bodies within ministries, and heads of administrative units) is carried out through a special Competition Commission, which in each case shall be appointed by the Governmental "Council of Officials". The whole procedure is set in the Civil Servants Act.
52.	Japan	9	The report says "the investor/operator shall ensure that plant activities and processes are controlled through a documented management system covering all activities, including relevant activities of vendors and contractors, which may affect the safe operation of the plant". Is the documented management system established including detailed design documents of equipment in construction stage?	The Krško NPP integrated management system is used for achieving and improving safety by planned and systematic actions necessary to provide adequate confidence that all requirements are satisfied. The management system is a set of interrelated and/or interacting which establishes policies and objectives and which enables those objectives to be achieved in a safe, efficient and effective manner. It integrates the principles of quality management, quality assurance, and quality control and ensures that safety is not compromised by considering the implications of all activities, including those performed by vendors or contractors. Safety is paramount element in the management system, overriding all other demands. During plant construction the management system was defined in the Quality Assurance Plan in accordance with the requirements of 10CFR50 App. B. Later the quality assurance plan was updated to reflect the operating licence, regulatory requirements, IAEA guidelines and other applicable international codes and standards (WANO, INPO, ISO, etc.). Special portions of the management system focus on the document and record management practices, which include required records since the plant construction.
53.	Japan	14.2	The report says "The Slovenian Nuclear Safety Administration carries out its surveillance responsibilities with a combination of tasks, e.g. inspections, review of documents, approval of modifications and regular monitoring and evaluation of the NPP's performance". Does	SNSA inform the public through the yearly national report. Those reports are available on our website: http://www.ursjv.gov.si/en/info/posamezne_zadeve/reports/ (English version) In the case of very interesting theme for public (seismic safety of NPP Krško, fuel leak in NPP Krško, etc.), we also publish all relevant document on our websites on special dedicated sites (only Slovenian):

			SNSA open the information on the surveillance results and regulatory activities? If SNSA does, please clarify the methods, frequency and contents to open to citizen.	http://www.ursjv.gov.si/si/info/posamezne_zadeve/o_potresni_varnosti_nek/ http://www.ursjv.gov.si/si/info/posamezne_zadeve/o_puscanju_goriva_nek_med_remontom_2013/ In addition the public can have access to the information in line with Law on Access to Public Information.
54.	Japan	16.1	The report says “Slovenia has a bilateral agreement with Austria, Croatia, Hungary and Italy on the early exchange of information in the event of a radiological emergency”. Krško NPP locates close to Croatia and was constructed as a joint project of Slovenia and Croatia. How do you share the responsibility and organize the drill and information exchange of emergency preparedness with Croatia?	On operational level we have set direct communication channels with Croatian regulatory body. They receive important information at the same time as other Slovenian organizations. We hold annual meetings to share operational information with respect to exercises and other related topics. We are going to organize joint exercise with Croatia this year. It will be on top of our national exercise, ran by the Krško NPP.
55.	Korea (Rep. of)	12	It is described in Article 4.3.3 that "To improve the safety culture the operators develop and evaluate action plans for safety culture on a yearly basis. Safety culture indicators are defined to evaluate it." Please describe details on safety culture indicators and how safety culture is evaluated.	Internal procedure about Safety Culture Principles was developed based on several international documents, such as Fostering a Strong Nuclear Safety Culture (NEI 09-99), Traits of a Healthy Nuclear Safety Culture (INPO 12-012), Safety Culture in Nuclear Installations (IAEA-TECDOC-1329). The state of safety culture at the plant is regularly evaluated using different type of self-assessment (internal audits, observations, questionnaire). Safety culture is incorporated into regular training program for operational staff as a separate topic. The training program also emphasizes the importance of human behaviour. A special procedure regarding tools for human error prevention was developed. The Krško NPP developed indicators in line with the requirements above. Some of the Krško NPP safety culture indicators are: **- Number Of Events Significance 1 And 2:** The indicator’s purpose is to monitor occurrence of all unusual events rated level 1 and 2 significance according to definition given in ADP-1.1.200. Frequency of such events reflects plant operational safety. Significance Level 1: More significant condition/event which affects safety of the plant, personnel or general public. Significant programmatic breakdown which if left uncorrected would likely compromise nuclear safety and/or personnel safety. Significance Level 2: Less significant system, structure, equipment or human deficiencies which effect plant safety or reliability. **- Response Of Emergency Preparedness Personnel:** The indicator’s purpose is to monitor the preparedness for effective activation response of the on-site emergency intervention staff. The indicator is defined as percentage level of the on-site emergency response organization (ERO)

				availability separately for TSC, OSC, EOF and ERO on the whole. - **Number Of Technical Specification Violations:** The indicator's purpose is to monitor the effectiveness of plant surveillance program and compliance with plant policy of the highest priority - safety. Any unconsidered TS LCO or unsatisfactory completion of TS LCO action statement requirements (after entering TS LCO) or any deviation from TS surveillance requirements (unconsidered acceptance criteria or surveillance test frequency, omitted surveillance test). The indicator is defined as the sum of all violations during the observed period. **- Number Of Violations Of Licensing Requirements:** The indicator's purpose is to monitor the effectiveness of plant surveillance program and compliance with plant policy of the highest priority - safety. No. of violations of licensing requirements: USAR, TS, water management permit. Any unconsidered TS LCO or unsatisfactory completion of TS LCO action statement requirements, or any deviation from TS surveillance requirements. The indicator is defined as the sum of all violations during the observed period. **- Number Of Open Temporary Modifications:** The indicator's purpose is to give a measure of the number of problems that have been temporarily solved and indirectly assesses the effectiveness in providing a permanent or definitive solution. Number of open temporary modifications at the end of the month and the total number of implemented temporary modifications in one calendar year. **- Number Of Unplanned Personnel Contaminations:** Indicator is presented in % as ratio between the number of occurrences and the number of exits from RCA according to plant procedure PRZ-7.300. The number of occurrences in each month in which an individual was contaminated on skin, clothing or modesty garments. Frequency of personnel contamination may indicate an attitude towards safe work practice, or contamination control problems of any reason. **- Number Of Unplanned Area Contaminations:** The number of occurrences in each month when unplanned contamination occurred in an area inside radiologically controlled area above expected levels over 3 days. Frequency of floor area contamination may **- Number Of Human Factor Related Events:** The indicator monitors the number of human factor related events due to any personnel work performance deficiencies, and provides the basis for evaluation of plant safety and overall culture of operation. It indicates the degree of preparedness of personnel to handle routine tasks. The indicator considers

				events recorded in the plant Operating Experience Assessment Program. The indicator is defined as the number of events recorded in the plant Operating Experience Assessment Program due to any inadequate activity in the reporting period. **- Number Of Events Due To Training** **Deficiencies:** The indicator monitors the number of human factor related events due to training deficiencies, and provides the basis for evaluation of plant safety and overall culture of operation. The indicator considers events recorded in the plant Operating Experience Assessment Program. The indicator is defined as the number of events recorded in the plant Operating Experience Assessment Program due to training deficiencies in the reporting period. **- Number Of Events Due To Procedure** **Deficiencies:** The indicator monitors the number of human factor related events due to deficiencies in procedures, and provides the basis for evaluation of plant safety and overall culture of operation. **- Number Of Events Due To Inadequate** **Adherence To Procedures:** The indicator monitors the number of human factor related events due to deficiencies in following the procedures, and provides the basis for evaluation of plant safety and overall culture of operation. The indicator considers events recorded in the plant Operating Experience Assessment Program. The indicator is defined as the number of events recorded in the plant Operating Experience Assessment Program due to deficiencies in following the procedures for the reporting period. **- Percentage Of Overdue Corrective Actions:** The indicator monitors the effectiveness of corrective program, which provides basis for evaluation of plant safety and overall culture of operation. The indicator is defined as the percentage of open corrective actions that were not implemented in a timely manner versus all open corrective actions recorded in the plant Corrective Action Program. **- Number Of Procedures With Expired Review Date:** The indicator's purpose is to monitor the effectiveness of plant Document Control program by checking if staff performs plant work using only valid documents, and provides an overall indication of quality and safety of plant operation and maintenance. The indicator is defined as the percentage of procedures with expired review date against the total number of valid NEK

				procedures. **- Number Of Interdisciplinary Self Assessments:** Indicator gives the total number of performed interdisciplinary selfassessments during the calendar year. Internal safety reviews are performed to assess effectiveness of plant programs and procedures, to verify by examination and evaluation of objective evidence whether elements of the programs and procedures conform to specified requirements, to assess the effectiveness of controls and verification activities, to report findings and deficiencies to all levels of management who need to be informed and who take corrective action, and to verify that corrective actions have been planned, initiated and completed. **- Number Of Repeated Events – Recurrences:** This is an indication of the quality of operating experience and particularly of root cause analysis feedback. Deviations and failures considered are those which happened during operation, were noted during shutdown or discovered during inspection, and which challenged nuclear safety. The 12 months average of the total number of repeated events is used to determine the rate of occurrences.
56.	UK	p.25 and p.26	The legal duties placed on the licence holders are described in this section. Please explain how the licensees satisfy these requirements.	Means available to the SNSA for the monitoring of fulfillment of operators commitments, as cited in our report (and which are resulting from the legislation in force) are normal and comparable with other legal systems of the Contracting Parties to the Convention on Nuclear Safety: assessment of different operator's reports, inspection, enforcement, … We believe that a detailed listing of individual operators' compliance with legal requirements would be too long and it would go beyond the basic purpose of reporting under this Article of the Convention.
57.	UK	11/p. 33 and 34	Given the relatively small nuclear sector in Slovenia, please explain how SNSA ensures that it can remain adequately resourced to undertake its regulatory activities.	We are well aware that we are the smallest nuclear country in the world and we have to carefully prioritise our activities and resources. The SNSA performs the regulatory activities within the Division of Nuclear Safety, which is in charge for licensing including review and assessment and the operational experience, event analysis and monitoring plant performance. In terms of review and assessment and inspection during outages we rely also on technical support organisations. The inspection of the NPP operation, maintenance, training, emergency preparedness, radioactive waste management and management system is covered by three inspectors from the SNSA and one inspector from the Radiation Protection Administration, who inspects mainly radiation protection issues. Physical protection,

				radioactive waste storage, processing and disposal issues are dealt within Division for Radiation Safety and Materials. Emergency Preparedness Division also assists in inspecting the NPP emergency plan, as well as supports activities at the national level. Radiation monitoring around the NPP is performed by the TSOs, but independently checked by the SNSA Section for Radiation Monitoring. We maintain international relations within EU and other nuclear countries with the support of International Cooperation Office. In principle we, in the SNSA, cover all regulatory activities, but we have to admit that maybe we can not cover everything by ourselves thus we strongly use the expertise of TSOs, which are regulated by the Rule JV3 and we also widely apply international experience and practices. The fact that the state budget resources get smaller forced us to careful review and prioritise our activities. We are even more carefully implementing risk based organisation of our activities concentrating our effort to the issues that represent higher risk. So far we are managing to keep thing reasonably well under control. In the year 2013 we have for the first time clearly listed and published risks that are increasing due to the reduction of our financial resources. This was presented to the government and the parliament. We were successful to some extent. Eventually SNSA was one of the few public administrations in Slovenia whose yearly budget was not further reduced in the year 2014.
58.	UK	11/p.33	Please explain the level of nuclear safety competence expected for recruitment of SNSA inspectors.	The recruitment is based on a case by case basis in order to enable required interdisciplinary approach to inspections. The candidates for the recruitment of the inspectors of the SNSA are selected, as a rule among the engineering personnel of the SNSA with several years of experiences, e.g. civil engineers and physicists. Namely, among five inspectors only one was not employed by the SNSA before becoming an inspector of the SNSA. However, long lasting experiences in inspection practice were required in this case as well as the Ph.D. All inspectors have strong technical background, i.e. majority of them have also M.Sc. degree and one has the Ph.D. The rules related to service in the state administration as in inspector are a subject of changes. At present all five inspectors were required to pass some specific exams, e.g. a state exam related to nuclear safety and international nuclear regime as well as the exam related to administrative procedures. Upgrading of competences after the recruitment is based on a case by case basis.
59.	UK	p. 37 and	Please explain the scope of activities of SNSA	The main purpose of the SNSA internal audits is to find out if the

		38	auditors and whether these cover review of regulatory decisions.	implementation of the SNSA activities is harmonized with documented procedures and if documented procedures are effective and efficient. The internal auditors check the efficiency and the effectiveness of the management system, its processes and their interactions, and give opinions as well as recommendations and improvements. The SNSA internal audits do not cover the review of regulatory decisions and determination of their correctness and appropriateness. The review of regulatory decisions is covered through other mechanisms e.g. reviews and approvals performed by the designated staff as defined in the Slovenian legislation and in the SNSA management system procedures.
60.	UK	p. 62	The section lists the type of incidents where the "Operators must submit extraordinary reports to the SNSA". The list focuses on equipment failures or operational errors that can lead to emergencies, deviations from operating limits and conditions and other events that can significantly affect the radiation or nuclear safety. Other events of lower significance may provide information on trends and/or precursors of more significant ones. Please explain how lower significance events are reported and how these are used to inform SNSA's inspections.	SNSA has a project to improve reporting and tracking of lower significance events. In the moment SNSA have two safety indicators related to low level events (number of events due to the human factor and number of events due to the procedure). In addition we perform the inspections where we review the NPP system for collecting and analysing of events.
61.	USA	6.4	Section 6.4 indicates that the results and action plan of the second PSR for Krško will be completed by the end of 2013. Can you share the major outcomes of the second PSR?	Application of the Krško NPP for approval of PSR summary report and the corresponding action plan were just delivered to the SNSA and they are being reviewed. The major outcome is a complete overall review of actual plant safety conditions and identification of modifications which would further increase and bring safety to a higher level. A general conclusion was that there were not any issues which would prevent the plant to further operate safely or issues that have immediate impact on nuclear safety, therefore it is safe as it was designed and is capable for continuous operation for the next 10 years. However, there were some issues identified for 15 safety factors which contribute to the safety of plant. The safety factors with most important issues were Design, Procedures and Emergency Planning followed by Safety Performance, Deterministic Safety Analyses and Equipment Qualification.

				The most of PSR issues will be resolved in the course of action plan or as part of the corrective action program in the period of next 5 years.
62.	USA	10.4	Section 10.4 states that SNSA began a formal program to monitor and control safety culture at the end of 2012. (1) Please describe insights found to date on the safety culture at Krško. (2) Does SNSA have a program in place that allows individuals to anonymously report safety concerns to SNSA?	Ad. 1 Some findings from the Report of the safety culture in Krško NPP, which were collected during the outage 2012 by SNSA personnel in 2012, were: - documentation sent to SNSA is often without expert assessment, - some of the applications sent to SNSA come too late, so the regulator has a problem with very short time of licensing, - untidy site - foreign bodies in the surface of SFP, -SNSA is too late informed about important modifications proposed by the NPP, which require the approval of the SNSA. Ad2. No.
63.	USA	App. III	Many major modifications are planned under the Krško Safety Upgrade Program to all be completed by 2016. (1) How does SNSA plan to oversee quality assurance and control given the volume of significant modifications? (2) Will SNSA be challenged by limited resources?	Ad1. Krško NPP has it's own supervision over QA/QC at the implementation of modifications. Inspections are carried out at major modifications. The SNSA will oversee quality assurance in the same way as it has done in the past by: - regular monitoring and reviewing of foreseen modifications, - considering graded approach, - issuing decisions, - regular inspections including QA inspections, - open communication with the licensee. Ad2. The SNSA could be challenged by limited resources. However the SNSA will try to overcome the possible problem by efficient management and efficient use of resources.

Appendix 1

We have our own Practical Guideline for PSR. This guideline is more or less the same like IAEA PSR standard. In the last PSR the latest IAEA draft version of PSR standard was used for this Practical Guideline, because the final version was issued after the PSR review.

In addition we have a list of relevant international standards and good practice documents for the use in a PSR:

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General aspects of design

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Radiation Protection

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MANAGEMENT

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