Convention on Nuclear Safety

Questions Posted To Switzerland in 2017

No.	Country	Article	Ref. in National Report	Question	Answer
1	France	General	Summary, 13	Switzerland addresses the results of international peer review. Could Switzerland extend this item to the future by including a description of its policy, plans and schedules for such missions?	Article 2, paragraph 3 of the ENSI ordinance, requires ENSI to undertake periodic international review missions. Which mission is to be undertaken and when is decided case by case by the ENSI executive board.
2	France	General	Summary, 18	How the IAEA-compatible emergency classification system is harmonized with neighboring countries, and in particular with Germany and France?	In 2011, the IAEA-IRRS-Mission recommended to make the emergency classification consistent with the GS-R-2 requirements. As a consequence, a working group with representatives from the operators and under the lead of the Inspectorate was established. The result of this working group was the new emergency classification system, which was introduced in May 2016. The neighbouring countries were informed within the framework of bilateral meetings taking place on a yearly basis. The recommendation was closed by IAEA during the IRRS follow-up.
3	France	General	Summary, 20	Is Switzerland involved in international research programs or do Switzerland rely on external support for specific field of activity?	Concerning the post-Fukushima activities in research, the Paul Scherrer Institute PSI, supported by the Swiss Federal Nuclear Safety Inspectorate ENSI, participates in the OECD-NEA research project “Benchmark Study of the Accident at the Fukushima Daiichi Nuclear Power Station (BSAF)”. The aim of this project is to improve severe accident codes and to analyse the accident progression and the current status of units 1 to 3 of the Fukushima Daiichi nuclear power plant, providing useful information for the decommissioning of these units. In addition, ENSI participates in further international projects dealing with specific aspects of the Fukushima accident: • OECD-NEA Halden Reactor Project (e.g. accident-tolerant fuel), see http://www.oecd-nea.org/jointproj/halden.html • OECD-NEA CASH (International benchmarking program on the beyond design seismic capacity of reinforced concrete shear walls organised), see http://benchmark-cash.org/

					• OECD-NEA MECOS (Metallic Component Margins Under High Seismic Loads) looking at beyond seismic design capacity of safety class piping systems • MSWI project of the KTH Royal Institute of Technology, Stockholm, financed mainly by the Scandinavian countries: Melt-Structure-Water Interaction Phenomena during Severe Accidents in LWRs ENSI's annual research report provides an overview of all projects in ENSI's research programme: https://www.ensi.ch/en/documents/document-category/erfahrungs-und-forschungsberichte/ In addition, ENSI has its own Research Strategy. This strategy outlines and defines the major research topics, which are relevant for ENSI's current and future oversight activities.
4	Germany	General	p. 33	According to the draft of the new guideline ENSI-G02 in chapter 5.2.2.1, the Safety Level 3 functions need to have n+2 redundancies (single failure and maintenance) or, if a plant deviates from that, this has to be justified. Do all Swiss NPPs have n+2 implemented, and if not, what are the justifications? Are there any plans to backfit those NPPs that do not have n+2 implemented?	Not all Swiss NPPs have n+2 systems for all safety functions. Bunkered special emergency safety systems are for example (just as in Germany) usually n+1 systems. Exceptions from the n+2 rule are generally acceptable if this does not lead to a significant reduction of safety. This means for safety level 3 functions in concrete, that maintenance criteria has not to be applied if there is no planned maintenance during power operation. For example repair of a defect component is then only acceptable for a very limited time. For these cases the limiting conditions of operation (including timeframe) are specified in the technical specifications. For these cases n+1 systems are acceptable. As far as reasonably practicable there have been done backfittings to improve systems even though they are not required to be functional for certain accidents. For example the earthquake resistance has been improved for various systems even though the bunkered safety systems are sufficient to cope with earthquakes.
5	Germany	General	p. 33	Regarding the n+2 criterion, the Nuclear Energy Ordinance states: "Safety functions must also remain effective even if a single failure occurs independently of	The Nuclear Energy Ordinance (KEV) was issued, after the Swiss nuclear power plants were built. Articles 7 to 10 of the Nuclear Energy Ordinance including the cited n+2 criterion are formally valid only for new nuclear reactors. For existing NPPs, article 82 of the Nuclear Energy Ordinance refers to article 22 chapter 2 letter g of nuclear energy act, which has to be considered. This article allows deviations for example based on the current state of the backfitting technology (Stand der Nachrüstungstechnik).

				an initiating event, and also if a component is not available due to maintenance or repair. Such separate single failures include the random failure of a component that results in its incapacity to perform its intended safety function. Subsequent failures arising from such random failures are also regarded as part of the original single failure.", whereas ENSI-G02 also allows exceptions in this regard. Could you elaborate on the reason for this?	Therefore, for existing NPPs deviations from n+2 are allowed which is regulated in guideline ENSI-G02 part 1.
6	Germany	General	ch. 6 & 18 clause 2	The Swiss report mentions in Article 6 that the analogue control system of the Gösgen NPP will be replaced by a digital system. Also, in Article 18 (2), the INFIRC asks to report on "Analysis, testing and experimental methods to qualify new technologies, such as digital instrumentation and control equipment". Could Switzerland describe how the digital system was	Generic: Classification and categorisation of the functions will be done according the guideline ENSI-G01. The qualification of a digital system is done according HSK-R-46 (Computer-based I&C) and international guidelines e.g. IAEA/IEC/IEEE/KTA guidelines and standards. For handling of such projects ENSI gets from the licensee the information in five steps. First step is the concept phase. Second phase is the design phase. Third phase is the realisation phase. Forth phase is the integration and commissioning phase. Sometimes a fifth phase is the operation for a limited time with the approval for the next cycle. For all the phases the necessary documents are shown in the ENSI/HSK guidelines. For digital control systems no changes in the guideline HSK-R-46 were necessary until now. The existing HSK-R-46 was written in parallel to and with the experience of the replacement of the reactor protection and control system of Beznau NPP in the years 2000 (Beznau 1) resp. 2001 (Beznau 2). Because of the special safety and security issues of digital systems (eg. CCF) ENSI requires that one redundancy of the reactor protection system in is built using the classical analogue technology (usually the safety I&C of the bunkered special emergency systems). With respect to IT security the digital

				qualified and if changes to the regulatory framework were necessary? What is the Swiss position on a digital system as a possible safety and security issue?	reactor protection system shall not be connected to the internet and not be influenced by other standard communication platforms. Only necessary updates of the application software shall be installed and changes of the operating system software and firmware need to undergo a requalification process. The updates must be pretested and handled with equipment which is virus-checked.
7	Germany	General	p. 9	In the CNS Report, there is the statement which says that “Over the course of 2011, the Federal Council and the Swiss Parliament decided to phase out nuclear energy by prohibiting the building of new plants, while the existing plants are to continue operating for as long as they can safely do so.” What are the criteria used to evaluate safe operation and how will this be assessed by the regulatory body?	The main criteria are the maximal dose limits defined in the Radiation Protection Ordinance. The Ordinance on the Methodology and the General Conditions for Checking the Criteria for the Provisional Taking out of Service on Nuclear Power Plants (SSR.732.114.5) defines a set of minimal criteria for the existing NPPs to fulfil. If these criteria are not met, the plant has to be taken out of service and backfitted. In addition there is a dynamic requirement and precautionary principle also for existing NPPs. Article 22, clause 2, letter g, of the NEA requires that the licence holder shall: «backfit the installation to the necessary extent that it is in keeping with operational experience and the current state of backfitting technology, and beyond insofar as further upgrading is appropriate and results in a further reduction of risk to humans and the environment». A NPP can be operated as long as the abovementioned requirements are met by the licensee.
8	Ireland	General	N/A	Ireland thanks Switzerland for its comprehensive national report which is structured in accordance with the articles as given in the Convention and includes the perspectives of both the regulators and the operators.	Switzerland thanks Ireland for the acknowledgment in this regard

9	Ireland	General	N/A	Areas of Good Performance: The work done by Switzerland with neighbouring countries, in particular Germany, on agreeing plans to ensure the same level of protection for the public and the environment on both sides of the border in the event of a nuclear emergency is recognised as an Area of Good Performance. Ireland recognises the Quality Management System in Switzerland and in particular recognises the recent achievement of Accreditation to ISO 17020 of the Inspectorate for inspection activities in 2015 as an Area of Good Performance.	The identified areas of good performance are received with appreciation
10	Luxembourg	General	VDNS	Please elaborate on the following aspects related to the VDNS: • How do you define 'a new nuclear power plant'? • How does your national requirements and regulations incorporate appropriate technical	How do you define 'a new nuclear power plant'?A new nuclear power plant is a plant under construction without a valid operation licence. In 2011, the Swiss government decided to phase out nuclear power in Switzerland. The Nuclear Energy Act (NEA) which is actually under revision, will exclude the construction of new NPPs How does your national requirements and regulations incorporate appropriate technical criteria and standards to address the objective of preventing accidents in the commissioning and operation of new nuclear power plants?

				criteria and standards to address the objective of preventing accidents in the commissioning and operation of new nuclear power plants? • How do your national requirements and regulations incorporate appropriate technical criteria and standards to address the objective of mitigating against possible releases of radionuclides causing long-term offsite contamination and avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions? • How do your national requirements and regulations address the application of the principles and safety objectives of the Vienna Declaration to existing NPPs? • Do your national requirements and regulatory framework require the performance of periodic comprehensive and	Article 5, paragraph 1 of the NEA stipulates that «preventive and protective measures must be taken in accordance with internationally accepted principles» for the design, construction and operation of nuclear installations. These measures include the use of high-quality components, safety barriers, multiple and automated safety systems, the formation of a suitable organisation with qualified personnel, and the fostering of a strong safety awareness. The Swiss Nuclear Energy Ordinance (NEO) is legally binding and describes the minimal requirements of Article 5 of the NEA regarding design and construction of nuclear power plants in more detail. These requirements apply for new NPPs and, as far as reasonably achievable, for existing NPPs. Article 10 NEO paragraph 1 specifies the requirements regarding single failure and maintenance criteria the principles of redundancy, diversity, physical separation, and functional independence. In letter f paragraph 1 of Article 10 NEO, it is required that safety functions must be initiated automatically, without the need for the operators to take safety related actions within the first 30 minutes after an initiating event. Furthermore, it is stipulated that sufficient margins must be considered in the design and construction of systems and components, that a fail-safe behaviour must be aimed at, and that safety functions should be conducted preferably by passive means. In Article 8 of the NEO, the requirements regarding the protection of NPPs against internal and external hazards are given. The initiating events to be considered in the design are listed in paragraphs 2 and 3. More specific requirements regarding hazard assumptions and assessment of the degree of protection against hazards are given in the «Ordinance on Hazard Assumptions and the Evaluation of Protection against Accidents in Nuclear Power Plants» (SR 732.112.2). It is required that the safety of an NPP must be demonstrated for natural hazards of a frequency of 10-4 per year How do your national requirements and regulations incorporate appropriate technical criteria and standards to address the objective of mitigating against possible releases of radionuclides causing long-term offsite contamination and avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions? The dynamic requirements (cf. Article 4, paragraph 3, letter a NEA) are mainly based on the IAEA safety standards. More detailed guidance for special cases are given in the Inspectorate’s guidelines. Due to its dynamic character, the precautionary principle is defined only in exceptional cases in ENSI’s regulatory framework. One of these exceptions is guideline HSK-R-103 «Measures against the consequences of severe

				systematic safety assessments of existing NPPs – if so, against what risk/engineering objective or limit are these judged and can you give practical examples? • How do your national requirements and regulations take into account the relevant IAEA Safety Standards throughout the life-time of a Nuclear Power Plant? • What issues have you faced or expect to face in applying the Vienna Declaration principles and objectives to your existing fleet or new build of Nuclear Power Plants?	accidents» issued in 1989, taking into account the lessons learned from the Chernobyl accident. The requirements of that time already include the implementation of means for RPV pressure relief, hydrogen management, filtered containment venting systems, and means for ex-vessel cooling of a molten core. How do your national requirements and regulations address the application of the principles and safety objectives of the Vienna Declaration to existing NPPs? The Ordinance on the Methodology and the General Conditions for Checking the Criteria for the Provisional Taking out of Service on Nuclear Power Plants (SSR.732.114.5) defines a set of minimal criteria for the existing NPPs to fulfil. If these criteria are not met, the plant has to be taken out of service and backfitted. In addition there is a dynamic requirement and precautionary principle also for existing NPPs. Article 22, clause 2, letter g, of the NEA requires that the licence holder shall: «backfit the installation to the necessary extent that it is in keeping with operational experience and the current state of backfitting technology, and beyond insofar as further upgrading is appropriate and results in a further reduction of risk to humans and the environment» Do your national requirements and regulatory framework require the performance of periodic comprehensive and systematic safety assessments of existing NPPs – if so, against what risk/engineering objective or limit are these judged and can you give practical examples? In Switzerland, there is a safety assessment in the course of the PSR at least every 10 years. The legal requirement for PSRs is stipulated in Article 22, clause 2, letter e of the NEA and the scope of the PSR is defined in Article 34 of the NEO and specified in guideline ENSI-A03. How do your national requirements and regulations take into account the relevant IAEA Safety Standards throughout the life-time of a Nuclear Power Plant? Article 5 of the NEA stipulates «When designing, constructing and operating nuclear installations, preventive and protective measures must be taken in accordance with internationally accepted principles.» Consequently, internationally accepted principles must be taken into account even by the minimal requirements for new NPPs. The relevant IAEA safety standards are being incorporated into the Swiss national requirements and regulations through the above-

					mentioned dynamic requirement, as the IAEA safety standards essentially are being used as definition for the latest state of the art of science and technology. Other good practices are taken into account through the precautionary principle. What issues have you faced or expect to face in applying the Vienna Declaration principles and objectives to your existing fleet or new build of Nuclear Power Plants The principles of the VDNS are firmly established in the Swiss legal and regulatory framework.
11	Netherlands	General	Summary/conclusions	What is ENSI going to do about the IRRS recommendations directed to the Government?	It is up to the Swiss Government to implement the remaining IRRS recommendations. The 4 recommendations and 16 suggestions for whose implementation ENSI was mainly responsible were declared completed by the IRRS Follow-Up mission in 2015. The Government is aware of the remaining recommendations. However, no other means is available to ENSI to impact the speed in the implementation of these recommendations.
12	Netherlands	General	Muehleberg staff	What are the regulatory requirements with respect to sustaining motivation and keeping the relevant knowledge after an early shutdown decision?	The guideline ENSI-B10 requires that the licensee makes sure that the staff has the necessary knowledge throughout the whole lifetime of a NPP. Concerning the motivation of the staff there are no requirements in laws or guidelinis.
13	Netherlands	General	general	What are the main outcomes of the ENSI analysis of the IAEA Fukushima report?	The findings from ENSI's own post Fukushima analysis, the EU stresstests and the outcomes of the 2nd Extraordinary Meeting and the 6th Review Meeting of the CNS were summarised in the annually updated ENSI Fukushima Action Plan. The IAEA Fukushima report did not deliver any new information that required immediate attention from ENSI. The report of the Director-General as well as the technical annexes have required exceptional work by the Agency, as well as equally great efforts of many States and independent experts. The combination of these efforts resulted in a very detailed document covering all aspects of the accident. Switzerland sees this report not as an end in itself, but as a step towards the continued strengthening of nuclear safety, both technically and politically. On the one hand, it is a matter of drawing all the technical lessons to ensure that such an accident does not happen again. On the other hand, the Fukushima accident - and this report - should serve as a springboard for initiating and maintaining a continuous process of strengthening nuclear safety at the

					political level As far as technical aspects are concerned, the recommendations contained in IAEA Fukushima report should be incorporated, in the view of Switzerland, into international regulations, so that each country can make the best use of the knowledge gained. Switzerland therefore proposes to integrate these recommendations into the corresponding safety standards and guides of the Agency.
14	Netherlands	General	Summary/conclusions	Operating and Regulatory experience. In the section information is given on further developments on OEF, but none on developments regarding REF. It would be beneficial for other countries to learn about the REF (regulatory experience feedback) process at ENSI.	There is no internal process for REF. However, ENSI participates in international organisations and groups such as WENRA, CNRA, HERCA, ENSRA, KWU Users Group (KWURG), tripartite commission with regulators in Belgium and France, and bilateral cooperation with other regulatory bodies. Through this, a constant exchange of regulatory experience is ensured.
15	Portugal	General	21	What percentage of your NPP's already have autocatalytic hydrogen recobiners installed in the containment.	In Switzerland, there are 5 NPPs. At Leibstadt NPP, there is at present time a thermal hydrogen recombiner system and an active hydrogen igniter system installed. The additional installation of passive autocatalytic hydrogen recombiners (PARs) and passive hydrogen igniters is planned. Beznau NPP (2 units) is already equipped with PARs. Gösgen NPP is planning to install PARs in 2017 as a replacement of the existing thermal recombiners. Mühleberg NPP has an inertized containment and a filtered containment venting system, which will be activated automatically. Because of the final shut down of Mühleberg NPP in 2019, no further improvements were required.
16	Russian Federation	General	General	According to the IAEA PRIS system, the average capability factor of all Swiss nuclear units dropped from 89.82 % in 2011 to 76.90 % in 2015.	The decrease of the average capability factor was mainly due to the backfitting of a seismically robust emergency diesel generator system in both Beznau units and the assessment of the results of ultrasonic testing of the reactor pressure vessel (RPV) of unit 1. Unit 1 will not resume power operation before the structural integrity of the RPV has been demonstrated. The capability factor of unit 1 in 2015 was 20%, the lowest value since commissioning in 1969. Unit 2 reached about 60%, a value also well below

				What was the cause of this decrease?	average. From 2011 to 2014 fluctuations of the average capability factor were in the normal range.
17	Slovenia	General	p. 13	The plant (Muhleberg) will shut down on 20 December 2019 Q.; Could you please explain what is the plan and content of the preparatory work for its decommissioning?	After ceasing power operation the plant will be definitely put out of operation. This step includes transfer of the fuel from the reactor to the SFP, disconnecting and de-energizing of obsolete systems and the installation of a new independent SFP cooling system. In addition the components in the turbine hall are removed in order to have enough space for decontamination purposes. A licence is needed for the decommissioning of the plant. The licensing process has been started end of 2015.
18	Sweden	General	page 13, Summary	Has the oversight of safety culture resulted in any specific action from ENSI?	Supervisory authorities need to consider the issue of safety culture from different perspectives: On one hand safety culture is an issue for oversight, i.e. the authority supervises the licensees activities to foster a good safety culture in their organisations. The approach adopted by ENSI in oversight of safety culture is explained in the ENSI report “Oversight of Safety Culture” – which is erroneously mentioned in the Swiss National Report on the CNS on page 13, as cited in the question. This report has recently been updated to integrate the issue of security culture (available in German. An English translation of the updated report is in preparation). https://www.ensi.ch/de/wp-content/uploads/sites/2/2017/01/2016_ENSI-Bericht_SiKu_final.pdf On the other hand, supervisory authorities have to question themselves about their own safety culture, i.e. their oversight culture as it is named by ENSI. The project described in the paragraph “Supervisory culture, mission statement and code of conduct of ENSI” in the Summary on page 13 concerns this latter perspective on safety culture. It is assumed that question 18 from Sweden refers to the actions resulting from this project. The project was described in a separate ENSI report with the title “Oversight Culture” which can be found on ENSI’s website: https://www.ensi.ch/en/documents/oversight-culture-2015-ensi-report-on-oversight-practice/ The project formally ended with the formulation of a series of 15 measures which are currently being implemented. These measures are summarised in the report, along with a detailed description of the conceptual basis and the procedure and methodology of the project. The measures concern areas such as, for instance, strengthening competence and professionalism of the ENSI staff, improvement of overall cooperation

					and mutual knowledge and understanding within ENSI, as well as fostering self-reflection and improvement of oversight.
19	Sweden	General	page 16, Summary	BKW Energy Ltd. announced in late 2013 that Mühleberg will be permanently shut down at the end of 2019. Was the decision to decommission Muhleberg a safety motivated or an economic decision?	The decision to shut down Mühleberg NPP permanently at the end of 2019 was an economic decision of BKW Energy Ltd.
20	Sweden	General	page 20, Summary	Directly after the Fukushima accident, ENSI ordered measures in first three orders dated 18 March, 1 April and 5 May 2011., which called for immediate measures and additional reviews.It seems to be so that ENSI acted very fast in 2011. Did it have any unexpected situations that things went to fast? For example ENSREG stress test and the results including general conclusions came only in spring 2012, also it is known that Swiss plants are very well equiped with severe accident protection.	It is certainly true that the Swiss response to the Fukushima accident, especially the orders issued by ENSI in 2011, has been timely. Besides the implementation of a series of immediate measures, ENSI required from the operators of the NPPs the update of several safety cases together with screening analyses on specific topics. These analyses took a longer time and led, after a review by ENSI, to further specific improvement measures. Additionally the participation in the stress tests as well as targeted analyses on how to improve safety margins aimed at looking at those beyond design basis aspects which were relevant for the Swiss NPPs. In hindsight, it is our opinion that the chosen step-wise approach (immediate measures, in-depth design re-assessments, safety margin analyses) has been rather effective in identifying improvements for the plants and adopting measures for coping with open issues.

21	Sweden	General	page 32, Vienna declaration	The NEO states that safety functions should be conducted preferably by passive means. What does "preferably by passive means" stand for ? How such requirement is (will be) practically reflected in the existing nuclear facilities?	In the past this requirement was reflected only for back fitted components or systems. For example, in KKG the fuel pool cooling system in the new fuel pool storage building is completely passive. Also the back fitted fuel pool cooling systems in KKM and KKB using coolers located inside the pool, not to have active components. The FCVS`s use in addition to valves rupture discs to vent the containments. But to close the venting lines of the FCVS`s valves are foreseen.
22	Ukraine	General	page 16	The last paragraph of the subsection "Challenges from the Sixth Review Meeting", beginning with "Information on staff situation, their competence and motivation for the remaining operating time of Mühleberg NPP" (page 16), indicated that concept for prospective work of Mühleberg NPP personnel after plant decommissioning was developed with a reference that more detailed information was provided in Article 11. However, this information is absent in Article 11. Is it possible provide it?	The concept of Mühleberg NPP concerning their staff after plant shut down is confidential. So no further information on this topic can be provided.
23	Ukraine	General	General	Three NPPs in Switzerland have been in operation for more than	There are no such end dates. A popular initiative limiting the operation to 45 years was rejected in the popular vote of November 2016. Already in 2013 BKW Energy Ltd. announced that Mühleberg will be permanently shut down at the end of 2019 for

				40 years. Article 6 indicates data on the years when the power units were commissioned. Please indicate the end dates of power unit operation justified now in safety review.	economic reasons. At the end of 2016 ENSI required an update of LTO safety analysis for the Beznau NPP. Guideline ENSI-A03 requests a LTO safety analysis for all NPPs to be operated for more than 40 years. An update is required at the latest after 10 years.
24	Ukraine	General	page 29	Under the Ordinance, each NPP must use dedicated emergency operation procedures (EOPs) for operational anomalies and emergency conditions. The ultimate objective of EOPs is to bring the plant into a safe operational state. The legislation also requires an extension to EOPs in the form of severe accident management guidance (SAMG). This is designed to prevent or at least minimize any impact on the environment. In all Swiss NPPs, SAMG is implemented covering all relevant operational states. The Fukushima accident has shown that EOPs or SAMG have to be developed for both full power and reduced power	Have EOPs been developed for reduced power? Yes. The guideline ENSI-G09 requires that “the emergency operating procedures must cover the sequences of events in accidents that are relevant to the safety of the installation in all operating modes” (Art. 6.7.2 letter a.). The Swiss NPPs meet this requirement. Do EOPs and SAMG cover the spent fuel pool in addition to the reactor? Yes. The above mentioned article does not restrict the development of procedures to the reactor. Regarding SAMG, the guideline ENSI-B12 requires that “SAMG has to cover all plant operating modes and all of the phases of a severe accident”. The availability of EOPs and SAMG for the spent fuel pool is enforced in Switzerland and corresponds to the current state of the art. The Swiss NPPs meet this requirement.

				operation (for example, in case of scheduled outage), as well as for the spent fuel pool. As seen from the cited text, SAMG covers all relevant operational states, including full power and reduced power. Could you explain the situation with EOPs – have EOPs been developed for reduced power? In addition, do EOPs and SAMG cover the spent fuel pool in addition to the reactor?	
25	Ukraine	General	page 30	As a result, additional equipment has been installed or stored on the plant sites and the existing accident management procedures will be adapted accordingly. What is the time period for the operator to develop procedures associated with the use of additional equipment? Are procedures for the use of additional equipment going to be incorporated in existing EOPs/SAMG (analogues	What is the time period for the operator to develop procedures associated with the use of additional equipment? The deadlines for the creation of additional procedures can vary and depend on the workload and the safety relevance of the procedures. With regard to the Fukushima action plan the development of additional procedures was part of the backfitting process and are mostly completed. Are procedures for the use of additional equipment going to be incorporated in existing EOPs/SAMG (analogues of FLEX procedures to be developed)? The use of additional equipment is already incorporated in the existing EOPs/SAMG. With the feedback of emergency exercises and the development of the state of the art, the SAMG are regularly updated, as required by ENSI-B12 Art. 4.4.6 letter c.

				of FLEX procedures to be developed)?	
26	United Arab Emirates	General	19	In challenge 4 it is stated that " In 2012 an ENSI-wide project was initiated to assess the safety culture within ENSI, to identify" shortcomings between the current and the target state and to define necessary corrective actions" On which basis this assessment was conducted? What was the reference point for comparison?	At the time ENSI initiated the project on its own safety culture – referred to as "oversight culture" within ENSI – no established reference model on the safety culture of supervisory authorities was available in literature. Therefore ENSI adopted an explorative approach, rather than a normative one, which did not start from a predefined target state or definition of a "good oversight culture". With the help of interviews, questionnaires and workshops involving the entire ENSI staff repeatedly, ENSI developed its own target of an oversight culture to strive for. The conceptual basis, procedures and methodologies, along with a summary of the results of the project are described in the ENSI Report on "Oversight Culture" available on ENSI's website: https://www.ensi.ch/en/documents/oversight-culture-2015-ensi-report-on-oversight-practice/ Meanwhile, international initiatives are under way to develop a (normative) framework concerning the safety culture of regulatory bodies or publications already exist. ENSI is, respectively was involved in several of these initiatives and publications.
27	Bulgaria	Article 6	page 37	What is the strategy chosen for the decommissioning of NPP Muhleberg?	Mühleberg NPP has decided to start the decommissioning directly after final cease of operation. The decommissioning follows a "from hot to cold strategy" and will be carried out in 3 phases: Phase 1 contains the post-operation of the plant. The fuel is in the spent fuel pool. The reactor internals and the torus are removed in phase 1. In phase 2, the plant is fuel free. The highly activated components (RPV, dry well and biological shield) are removed at the beginning of phase 2. Then the remaining systems in the controlled areas are removed. Further on the facilities in the emergency building will be decommissioned and the clearance of the controlled area, the buildings and the area are done. Phase 3 ends with the verification for free release.
28	Spain	Article 6	page 13	In late 2013, it was announced that Mühleberg NPP will be decommissioned at the end of 2019. ENSI has developed the guideline	The guideline ENSI-G17 defines the requirements for the decommissioning in several phases including the transition phase.

				G17 “Decommissioning of nuclear facilities”. Could you please explain whether the above mentioned guide considers aspects related with transition of operating reactors plants to decommissioning? If not, are there standards or provisions for developing guidance to facilitate transition?	
29	United Arab Emirates	Article 6	37	In December 2012, the Inspectorate published its review report on the long-term operation of the Mühleberg NPP. Following the decision to shut down the plant at the end of 2019, the strategy for the long-term operation of the Mühleberg NPP has become obsolete. Could you elaborate more on how the shutdown decision was taken and what are the safety aspects that were taken in consideration to reach this decision?	In late 2013, BKW Energy Ltd announced that Mühleberg will definitely cease its operation by the end of 2019 because of economic reason and cancelled the planned backfitting programme for long term operation (LTO). The Inspectorate issued a formal order to establish binding conditions for operation until 2019, requesting alternative measures to be implemented. On this basis, the licence holder submitted in 2014 an alternative backfitting programme, which was evaluated by the Inspectorate. The following main backfitting measures are planned or have already been installed: • In 2015 the licence holder finished the installation of the new emergency system to feed cooling water from the hilltop reservoir into the emergency cooling water system. The backfitting measure also included hose connectors inside the bunkered emergency building to ensure an additional accident management cooling water supply with mobile pumps. • In 2015, Mühleberg NPP completed backfitting measures to reduce the internal flooding hazard by installing bypass lines with flow limiter, check valves and orifices into the piping of the RCIC system, the CRD system, the auxiliary condensate system, and the firewater system. The plant also performed backfitting measures to reduce fire hazards in the reactor building. • By the end of the 2016 outage, Mühleberg NPP backfitted an additional, earthquake andflood resistant single line for emergency water injection into the reactor pressure vessel. The systemis located in a new building separate from other safety systems.

					• A new emergency cooling system for the spent fuel pool was installed by the end of 2016. Water supply is ensured from the bunkered cooling water system and from the hilltop reservoir. In 2020, the emergency cooling system for the spent fuel pool will be converted into a safety system
30	United States of America	Article 6	General	The most recent PSR for Beznau NPP was submitted in 2012 and the Inspectorate's review report will be published by the end of 2016. Please share lessons learned and the major findings of your evaluations.	No major findings concerning generic issues or requiring immediate action were identified. Ageing management is a concern for older NPP such as Beznau NPP and therefore was in focus during the review process. Ageing management for Beznau NPP was well established in the period of supervision, but still needs some improvements. For detailed insights please refer to the review report (https://www.ensi.ch/de/wp-content/uploads/sites/2/2016/12/ENSI_KKW_Beznau-PSU-final.pdf).
31	Bulgaria	Article 7	page 43	At what stage and by what type of authorization the technical design for construction of a nuclear facility is approved?	The technical design for construction of a nuclear facility is approved by the construction licence.
32	Brazil	Article 7.2.2	Page 44	It is stated: The application for a construction licence must contain the Final Safety Analysis Report. In that case, the correct afirmative is "The application for a construction licence must contain the Preliminary Safety Analysis Report." Is that correct? Should it be "operation licence"? or Should it be "Preliminary Safety Analysis Report"?	The Safety Analysis Report (SAR) to be submitted with the application for a construction licence is of preliminary nature, whereas the SAR to be submitted with the operating licence is of final nature. Hence, it should read on page 44 as follows: "The application for an operating licence must contain the Final Safety, Analysis Report…"

33	Brazil	Article 7.2.2	Page 49 – Quality Management	It is stated: “Performance indicators are defined for each process” What are the processes controlled by performance indicators? Such indicators are available for consultation?	The management system of ENSI consists of 26 main processes. One or more indicators have been defined for most of them. Some of the indicators are useful for the process owner (in order to check if the process is running well), some of them are used by the management (to estimate if the goals can be achieved) and some of them indicate if the work of the ENSI has an impact on the operators. Some examples: - Number of inspections carried out; - Proportion of overhead costs; - Hours spent on further education; - Amount of tasks completed on time; - Average time to complete an inspection report; - Availability of information systems; - Rate of absence (staff).
34	Netherlands	Article 8	Article 8.2	ENSI is the independent inspectorate. However licences are issued by other regulatory bodies like DETEC (which seems to be part of SFOE) and the Federal Council. How is the independency of the licensing from energy policies guaranteed?	Parliament directly designated ENSI as the supervisory authority for nuclear safety, security and radiation protection for nuclear facilities. Regarding its independence, the IRRS mission to Switzerland in 2011 came to the conclusion that “ENSI operates as an independent regulator and does that in an open and transparent manner and its regulatory processes are well organized and integrated in a strong management system. ENSI benefits from having mature, competent staff with a wide range of specialists.” The IRRS review team identified certain issues warranting attention or in need of improvement and believes that consideration of these would enhance the overall performance of the regulatory system: ENSI should have the authority to issue regulatory requirements and to formulate binding conditions to be fully reflected in various authorizations, whenever it is necessary, to assure public health safety and security. The relevant authorities, commissions and committees involved in nuclear safety matters should provide their recommendations and advice directly to ENSI before it issues its final decisions. This should be done in an open and transparent manner. The IRRS follow-up mission 2015 came to the conclusion: “The government has not made sufficient progress to ensure that ENSI has the sole authority to make final safety decisions including legally binding regulatory requirements for the complete range of activities which includes waste management and the deep geological disposal facility. DETEC does not have the competence nor the independence to resolve different technical positions it receives from ENSI and NSC therefore there is a potential for an incorrect safety decision to be made by DETEC. The Federal Court ruling of 2013 (BGE

					139 II 185 Ruling dated 28 March 2013) does not fully resolve this issue." The legal framework has not been adapted to comply with the IRRS recommendation RF1. However, according to the ruling 139 II 185 of the Federal Court of Switzerland, the licensing authorities may and should base themselves on ENSI's assessment, unless there are valid grounds for not doing so, as they do not have the technical expertise at their disposal to assess nuclear safety issues. The public licensing process ensures that the licensing authorities consider ENSI's assessment: The law requires them to make transparent and justify any deviation from ENSI's suggested conditions. Should they not follow ENSI's assessment, the licence would be most certainly appealed by third parties, and ENSI would be entitled to submit its opinion directly to the competent court.
35	United Arab Emirates	Article 8	49	Please elaborate more on knowledge management and capacity building need to preserve capabilities of the regulatory body?	ENSI uses an instrument we call "Competence Portfolio" to evaluate the necessary capabilities. Each section head has to define the required competences in his domain to fulfil the tasks of his section. These competences represent the rows in the portfolio-matrix. The section members are entered in the columns of the matrix. The head has to evaluate the skills of his staff for each competence. This gives him a picture of the current situation and allows him to identify weak points, training needs or key persons that have to be "backed up". The portfolio represents the basis for training activities. Besides that, ENSI does not yet have a special program for capacity building as we will have to decrease our staff moderately in the years to come. What we do is we regularly offer internship positions to students.
36	United Arab Emirates	Article 8	49	GOOD PRACTICE. The Quality Management system of the regulatory body has awarded various Certificates such as, ISO 14001, ISO 9001, ISO / IEC 17020.	The good practice is received with appreciation
37	United States of America	Article 8	Section - Summary and Conclusions	The report states that the 2015 follow-up IRRS mission concluded that the four recommendations and 16 suggestions from 2011 for	Parliament directly designated ENSI as the supervisory authority for nuclear safety, security and radiation protection for nuclear facilities. Regarding its independence, the IRRS mission to Switzerland in 2011 came to the conclusion that "ENSI operates as an independent regulator and does that in an open and transparent manner and its regulatory processes are well organized and integrated in a strong management system. ENSI benefits from having mature, competent staff with a wide range of

				whose implementation ENSI was mainly responsible were fulfilled but that the Swiss government should give ENSI, as the technical nuclear safety authority, the ability to issue legally binding technical safety requirements and license conditions on nuclear safety, security and radiation safety. Please discuss what actions, if any, are being taken to address this suggestion from the IRRS.	specialists." The IRRS review team identified certain issues warranting attention or in need of improvement and believes that consideration of these would enhance the overall performance of the regulatory system: ENSI should have the authority to issue regulatory requirements and to formulate binding conditions to be fully reflected in various authorizations, whenever it is necessary, to assure public health safety and security. The relevant authorities, commissions and committees involved in nuclear safety matters should provide their recommendations and advice directly to ENSI before it issues its final decisions. This should be done in an open and transparent manner. The IRRS follow-up mission 2015 came to the conclusion: "The government has not made sufficient progress to ensure that ENSI has the sole authority to make final safety decisions including legally binding regulatory requirements for the complete range of activities which includes waste management and the deep geological disposal facility. DETEC does not have the competence nor the independence to resolve different technical positions it receives from ENSI and NSC therefore there is a potential for an incorrect safety decision to be made by DETEC. The Federal Court ruling of 2013 (BGE 139 II 185 Ruling dated 28 March 2013) does not fully resolve this issue." The legal framework has not been adapted to comply with the IRRS recommendation RF1. However, according to the ruling 139 II 185 of the Federal Court of Switzerland, the licensing authorities may and should base themselves on ENSI's assessment, unless there are valid grounds for not doing so, as they do not have the technical expertise at their disposal to assess nuclear safety issues. The public licensing process ensures that the licensing authorities consider ENSI's assessment: The law requires them to make transparent and justify any deviation from ENSI's suggested conditions. Should they not follow ENSI's assessment, the licence would be most certainly appealed by third parties, and ENSI would be entitled to submit its opinion directly to the competent court.
38	Ireland	Article 8.1	Article 8; p 46	It is noted that the Nuclear Safety Commission (NCS) is designated as an advisory committee to the Federal Council and DETEC and is involved in	The ordinance on NSC (German version: https://www.admin.ch/opc/de/classified-compilation/20081263/index.html) was amended on November 20, 2013 to increase the independence of the NSC members as follows: Article 7 Composition The Commission is composed of experts from the relevant fields of science and technology.

				the licensing process as it reviews and comments on the SER prepared by the supervisory authorities. The report states that the NSC consists of five to seven part-time members, supported by a secretariat with three employees and, if necessary, temporarily supplemented by external experts in specific disciplines. Is the NCS an independent advisory committee? If this is the case how is it ensured that the NSC provides independent and impartial advice?	Article 7a Independence 1 The Commission and its members act in a manner which is not related to directives. 2 The members of the Commission shall exercise their functions personally and not as representatives of an organization or enterprise. Substitution is excluded. 3 Members of the Commission must be independent experts. In particular, members shall not be subject to an employment or contract relationship with: a) An authority which is responsible for the implementation of the Nuclear Energy Act of 21 March 2003, b) the organizational unit of a company that operates a Swiss nuclear facility, unless the facility is a scientific teaching and research facility c) an organization or authority involved in the planning of deep geological repositories.
39	Ireland	Article 8.1	Article 8; p 48	It is noted that a human capital management concept was developed in 2012 in order to maintain the necessary amount of staff for future years and this concept was implemented by 2015. The concept deals with seven topics: recruiting, education, career planning, resource planning, succession planning, salary system and fringe benefits. Could Switzerland expand on	Succession planning was considered as very delicate by the ENSI board, therefore the subject has been postponed. In a first phase, the focus was set on deputies as potential successors. Their rights, duties and responsibilities have been defined and documented in the management system. All deputies had to pass a special training making them fit for their job. In a next phase, we are planning to set up a (confidential) succession plan for all key staff members and a training plan for potential candidates. This step has already been agreed with the ENSI board but is not yet initiated. It will be part of an “upgrade package” to the HCM concept.

				the implementation plan of the human capital management concept particularly with respect to succession planning?	
40	Ireland	Article 8.1	Article 8; p 51	It is noted that an ENSI-wide project was initiated in 2012 to assess the safety culture within ENSI, to identify shortcomings between the current and the target state and to define necessary corrective actions. The report refers to a list of proposals and recommendations to management and that the implementation of these measures is still on-going. What is the projected timeframe for completing the implementation of the corrective actions identified?	The implementation of the actions is a process. All but one of the 14 proposed measures have been either implemented or follow-up processes (such as regular reporting on the issue) have been implemented. The one remaining issue will be addressed this year and implemented.
41	Netherlands	Article 8.1	Article 8.1	The ENSI and its legal foundation have been described extensively. However many other regulatory bodies have been mentioned that have a role in licensing. More information about ENSI's role in the licensing	In the licensing procedure, ENSI reviews and assesses the application with respect to nuclear safety. The result of this regulatory review is documented in a Safety Evalution Report. ENSI may suggest licence conditions. Please refer to Article 7(2)(ii), chapter «Licensing procedure» for more details on ENSI’s role.

				procedures would be appreciated.	
42	Netherlands	Article 8.1	article 8.1	Does ENSI make use of so-called Technical Service Organisations (TSOs) to support its assessments of PSAs and other information provided by the utilities?	Yes, ENSI collaborates with external experts, for instance experts of the Paul Scherrer Institut (PSI/Switzerland) support ENSI's regulatory activities regarding PSA.
43	Netherlands	Article 8.1	Article 8.1	Many regulatory bodies in the world, face the challenge to transfer knowledge of retiring or senior staff to younger and/or new staff. If this is also the case in Sweden, do you have a dedicated program for knowledge transfer and do you provide trainings to senior staff to improve their skills in knowledge transfer?	So far, there is neither a training program for senior staff members nor a dedicated program for knowledge transfer. What we have is an instrument to manage the necessary competences (Competence Portfolio), see answer to question No. 35.
44	Peru	Article 8.1	Page 24	The DETEC grants the construction and operation licenses and ENSI is the supervisory authority which includes nuclear safety and protection and security. How is the relation of DETEC with ENSI, as it appears that DETEC is the real regulatory body? Is DETEC enough staffed	Parliament directly designated ENSI as the supervisory authority for nuclear safety, security and radiation protection for nuclear facilities. Regarding its independence, the IRRS mission to Switzerland in 2011 came to the conclusion that "ENSI operates as an independent regulator and does that in an open and transparent manner and its regulatory processes are well organized and integrated in a strong management system. ENSI benefits from having mature, competent staff with a wide range of specialists." The IRRS review team identified certain issues warranting attention or in need of improvement and believes that consideration of these would enhance the overall performance of the regulatory system: ENSI should have the authority to issue regulatory requirements and to formulate binding conditions to be fully reflected in various authorizations, whenever it is necessary, to assure public health safety and security. The relevant authorities, commissions and committees involved in nuclear

				with specialists in all of safety and protection matters? As recommendations by IRRS are on the modify the regulatory structure, how many time is appraised this will take?	safety matters should provide their recommendations and advice directly to ENSI before it issues its final decisions. This should be done in an open and transparent manner. The IRRS follow-up mission 2015 came to the conclusion: “The government has not made sufficient progress to ensure that ENSI has the sole authority to make final safety decisions including legally binding regulatory requirements for the complete range of activities which includes waste management and the deep geological disposal facility. DETEC does not have the competence nor the independence to resolve different technical positions it receives from ENSI and NSC therefore there is a potential for an incorrect safety decision to be made by DETEC. The Federal Court ruling of 2013 (BGE 139 II 185 Ruling dated 28 March 2013) does not fully resolve this issue.” The legal framework has not been adapted to comply with the IRRS recommendation RF1. However, according to the ruling 139 II 185 of the Federal Court of Switzerland, the licensing authorities may and should base themselves on ENSI’s assessment, unless there are valid grounds for not doing so, as they do not have the technical expertise at their disposal to assess nuclear safety issues. The public licensing process ensures that the licensing authorities consider ENSI’s assessment: The law requires them to make transparent and justify any deviation from ENSI’s suggested conditions. Should they not follow ENSI’s assessment, the licence would be most certainly appealed by third parties, and ENSI would be entitled to submit its opinion directly to the competent court.
45	Peru	Article 8.1	Page 51	As described in the report, a ENSI-wide project was initiated to assess the safety culture within ENSI, to identify shortcomings between the current and the target state and to define necessary corrective actions. Is there defined or proposed safety culture characteristics or	At the time ENSI initiated the project on its own safety culture – referred to as “oversight culture” within ENSI – no established reference model on the safety culture of supervisory authorities was available in literature. Therefore ENSI adopted an explorative approach, rather than a normative one, which did not start from a predefined target state or definition of a “good oversight culture”. With the help of interviews, questionnaires and workshops involving the entire ENSI staff repeatedly, ENSI developed its own target of an oversight culture to strive for. The conceptual basis, procedures and methodologies, along with a summary of the results of the project are described in the ENSI Report on “Oversight Culture” available on ENSI’s website: https://www.ensi.ch/en/documents/oversight-culture-2015-ensi-report-on-oversight-practice/ Meanwhile, international initiatives are under way to develop a (normative) framework

				elements for assessing the safety culture level in the regulatory body? If there is, what are those main elements?	concerning the safety culture of regulatory bodies or publications already exist. ENSI is, respectively was involved in several of these initiatives and publications.
46	Russian Federation	Article 8.1	Article 8, page 47	As follows from the Report, regulator funding is mainly covered by fees from licencees. Doesn't this practice compromise regulator independence?	Art. 83 in the Nuclear Energy Ac provides greater regulatory independence for the regulator body, since only 5% of its budget is provided by government. The IRRS mission to Switzerland in 2011 commented on this issue in chapter 1.3 (Establishment of a regulatory body) as follows: “The legislator (parliament) directly designated ENSI as the supervisory authority for nuclear safety, security and radiation protection for nuclear facilities. In addition, the legislation stipulates the duties and powers of the supervisory authorities (Art. 72 of the Nuclear Energy Act) and ensures that sufficient financial means are available (Art. 83 of the Nuclear Energy Act). This article provides that ENSI is mainly financed through fees charged to the applicants and licence holders. Should licensees stop their activities, ENSI would be financed by the funds that are being supplied for decommissioning and whose consistency is assessed every 10 years. As a result, sufficient funding of ENSI is ensured independently of the Confederation. This enables ENSI to make available the necessary competences and resources to fulfil its statutory activities.”
47	Netherlands	Article 9	Article 9	Strengthening of the application of Defense in Depth was an important lesson of Fukushima, also in the regulatory context of supervision. Has Switserland considered this? What, in the opinion of Switserland could or should be changed/added to the supervision programmes of regulatory authorities to increase the confidence in the application of DiD at the NPPs?	Oversight of nuclear safety at Switzerland’s nuclear facilities has developed gradually. The oversight strategy that had evolved historically was thoroughly systematised in the period around the turn of the millennium, entailing the introduction of a management system and the development of an “Integrated Oversight” strategy. Within “Integrated Oversight”, all levels of Defence in Depth, all barriers, and all safety functions are systematically considered. An important lesson learnt from the Fukushima accident, was to strengthen level 4 of Defence in Depth. Since the new regulatory guideline ENSI-G20 “Reactor Core, Fuel Assemblies and Control Rods: Design and Operation” published in February 2015 and the new guideline ENSI-G02 Part 1 “Design Principles for Existing NPPs: Safety Concepts and Design Requirements” published in September 2016, ENSI explicitly splits level 4 of Defence in Depth in level 4a (preventive accident management) and level 4b (mitigative accident management). Both levels, 4a and 4b, were substantially strengthened in Swiss NPPs since March 2011.

48	Spain	Article 9	page 53-54	Please provide some information on how Civil Liability for Nuclear Damage is applied and the position of your country in relation to the Vienna convention. Are there national regulations on this matter?	Switzerland has not signed the Vienna convention. The liability on nuclear accidents is governed by the national Nuclear Energy Third Party Liability Act and the corresponding Ordinance dated 18 March 1983 and 5 December 1983 respectively. According to these the operator is liable for any nuclear accident that occurs in the NPP without limitation (principles of strict liability, unlimited liability, channelling of the liability to the operator of a nuclear installation). The owner of a nuclear installation located in Switzerland is liable for nuclear damage abroad up to the amount that the national legislation of the state concerned provides for in relation to Switzerland (principle of reciprocity). The operator is obliged to insure nuclear accidents in the amount of CHF 1 billion. On 13 June 2008, Switzerland approved the revised Nuclear Energy Third Party Liability Act, subsequently ratifying the international Paris and Brussels Conventions. The revision of the Act increases the level of compulsory insurance coverage for nuclear accidents from CHF 1 billion to € 1.2 billion. It also greatly simplifies the claims procedure and so better protects victims' interests. On 25 March 2015, the Federal Council approved the revised Nuclear Energy Third Party Liability Ordinance. The Ordinance sets the minimum amount to be covered by private insurers at CHF 1 billion and specifies the risks which insurers are permitted to exclude. It also describes the method for calculating federal insurance premiums. Federal insurance covers claims up to the sum of € 1.2 billion which are not covered by private insurance or which exceed the private insurance coverage. The new nuclear energy third party liability legislation cannot come into force until the revision protocol to the Paris Convention has been ratified by at least two-thirds of the 16 signatory states. Thirteen of these 16 contracting parties are members of the European Union (EU). The Council of the European Union has decided that all the EU member states concerned must jointly ratify the Paris Convention. The revised Paris Convention is expected to come into force at the beginning of 2018 at the earliest. The Paris and Vienna Convention are independent on one of another. For the relation to the Vienna Convention, please refer to the Joint Protocol relating to the application of the Vienna Convention and Paris Convention dated 21 September 1988, which aims especially at preventing gaps in coverage. Switzerland will also ratify the Joint Protocol.
49	France	Article 10	§ 10, 64	Switzerland refers to its guideline “organization of nuclear power installations” which stipulates that the licensee must	Switzerland does not evaluate the safety culture level of the NPP’s staff. In its oversight the inspectorate is verifying the qualification of the staff (see Ordinance on the Qualifications of Personnel in Nuclear Installations). Besides the technical qualification of the staff the NPPs must also provide evidence for the physical as well as psychological fitness of staff relevant for safety (e.g. operators, radiation protection personnel).

				permanently incorporate measures in its management system to observe, to assess, and to strengthen its safety culture. Further, the licensee must also define the meaning of the term as well as the principles and prominent features of safety culture in a document that is considered binding for all employees. Could Switzerland explain how the safety culture level of the staff is evaluated on the NPP's?	
50	Germany	Article 11	ch. 11	Regarding Article 11, could Switzerland give a statement regarding the adequacy of the financial provisions of the license holder and how those are assessed? How is it ensured that the necessary financial provisions are available in the course of a radiological emergency?	Nuclear third party liability legislation is not part of the responsibilities of the Swiss regulatory body, but is handled by the Swiss Federal Office of Energy SFOE. The liability on nuclear accidents is governed by the national Nuclear Energy Third Party Liability Act and the corresponding Ordinance dated 18 March 1983 and 5 December 1983 respectively. According to these the operator is liable for any nuclear accident that occurs in the NPP without limitation (principles of strict liability, unlimited liability, channelling of the liability to the operator of a nuclear installation). The owner of a nuclear installation located in Switzerland is liable for nuclear damage abroad up to the amount that the national legislation of the state concerned provides for in relation to Switzerland (principle of reciprocity). The operator is obliged to insure nuclear accidents in the amount of CHF 1 billion. On 13 June 2008, Switzerland approved the revised Nuclear Energy Third Party Liability Act, subsequently ratifying the international Paris and Brussels Conventions. The revision of the Act increases the level of compulsory insurance coverage for nuclear accidents from CHF 1 billion to € 1.2 billion. It also greatly simplifies the claims procedure and so better protects victims' interests. On 25 March 2015, the Federal Council approved the revised Nuclear Energy Third Party Liability Ordinance. The Ordinance sets the minimum amount to be covered by private insurers at CHF 1 billion and specifies the risks which insurers are permitted to

					exclude. It also describes the method for calculating federal insurance premiums. Federal insurance covers claims up to the sum of € 1.2 billion which are not covered by private insurance or which exceed the private insurance coverage. The new nuclear energy third party liability legislation cannot come into force until the revision protocol to the Paris Convention has been ratified by at least two-thirds of the 16 signatory states. Thirteen of these 16 contracting parties are members of the European Union (EU). The Council of the European Union has decided that all the EU member states concerned must jointly ratify the Paris Convention. The revised Paris Convention is expected to come into force at the beginning of 2018 at the earliest. The liability of the operator of a nuclear installation is unlimited. The operator has to ensure financial security (private insurance and federal insurance) up to CHF 1 billion (€ 1.2 billion when the new liability legislation will enter into force). Beyond that the operator is liable by all its assets. In the case of major damage, the Federal Assembly may establish a compensation ordinance by way of decree so that the Federation will pay additional amounts for the uncovered damage.
51	Netherlands	Article 11	Article 11	How does the regulatory body assess the sufficiency of human and financial resources at the nuclear installations?	The sufficiency of human resources is assessed by inspections. The sufficiency of financial resources is not assessed by the regulatory body
52	Pakistan	Article 11	Article 11	Are there any laws regarding civil liability for nuclear damage? Please elaborate the mechanism for compensating the general public in the event of nuclear accident.	The liability on nuclear accidents is governed by the national Nuclear Energy Third Party Liability Act and the corresponding Ordinance dated 18 March 1983 and 5 December 1983 respectively. According to these the operator is liable for any nuclear accident that occurs in the NPP without limitation (principles of strict liability, unlimited liability, channelling of the liability to the operator of a nuclear installation). The owner of a nuclear installation located in Switzerland is liable for nuclear damage abroad up to the amount that the national legislation of the state concerned provides for in relation to Switzerland (principle of reciprocity). The operator is obliged to insure nuclear accidents in the amount of CHF 1 billion. On 13 June 2008, Switzerland approved the revised Nuclear Energy Third Party Liability Act, subsequently ratifying the international Paris and Brussels Conventions. The revision of the Act increases the level of compulsory insurance coverage for nuclear accidents from CHF 1 billion to € 1.2 billion. It also greatly simplifies the claims procedure and so better protects victims' interests. On 25 March 2015, the Federal Council approved the revised Nuclear Energy Third

					Party Liability Ordinance. The Ordinance sets the minimum amount to be covered by private insurers at CHF 1 billion and specifies the risks which insurers are permitted to exclude. It also describes the method for calculating federal insurance premiums. Federal insurance covers claims up to the sum of € 1.2 billion which are not covered by private insurance or which exceed the private insurance coverage. The new nuclear energy third party liability legislation cannot come into force until the revision protocol to the Paris Convention has been ratified by at least two-thirds of the 16 signatory states. Thirteen of these 16 contracting parties are members of the European Union (EU). The Council of the European Union has decided that all the EU member states concerned must jointly ratify the Paris Convention. The revised Paris Convention is expected to come into force at the beginning of 2018 at the earliest. The liability of the operator of a nuclear installation is unlimited. The operator has to ensure financial security (private insurance and federal insurance) up to CHF 1 billion (€ 1.2 billion when the new liability legislation will enter into force). Beyond that the operator is liable by all its assets. In the case of major damage, the Federal Assembly may establish a compensation ordinance by way of decree so that the Federation will pay additional amounts for the uncovered damage.
53	Pakistan	Article 11	Clause 2	Switzerland may like to elaborate the mechanism for evaluating the training program and feedback for its improvements.	The training program is evaluated by means of inspections and by participating in the exams for the licensed personnel of the plant.
54	United Arab Emirates	Article 11	57	It is stated that “All Swiss plants have long been implementing programs to ensure early replacement of retiring staff to guarantee that sufficient time is available for the transfer of know-how to new employees. What are these programs? How do you measure their efficiency to equip the new employees to reach	The knowledge level of new employees is not measured systematically. However it is a topic of discussion during yearly meetings between the regulatory body and the power plant. Further the level of knowledge is one of the factors that are evaluated during analysis after accidents and events.

				the required level of competency?	
55	United States of America	Article 11	Staffing	Regarding staffing, all Swiss plants have long been implementing programs to ensure early replacement of retiring staff and in addition, the NPPs have increasingly started to introduce personnel development measures, personnel retention and recruitment measures. Can you provide examples of the measures taken and the results obtained?	In case of retirement new staff is usually recruited early in order to ensure an adequate overlapping period (usually about a year). The success of knowledge transfer during this overlap is not monitored on a regular basis.
56	Czech Republic	Article 11.1	p. 56	The chapter does not provide a description of the Contracting Party's arrangements for ensuring that the necessary financial resources are available in the event of a radiological emergency. Are there any such arrangements?	The liability on nuclear accidents is governed by the national Nuclear Energy Third Party Liability Act and the corresponding Ordinance dated 18 March 1983 and 5 December 1983 respectively. According to these, the operator is liable for any nuclear accident that occurs in the NPP without limitation (principles of strict liability, unlimited liability, channelling of the liability to the operator of a nuclear installation). The owner of a nuclear installation located in Switzerland is liable for nuclear damage abroad up to the amount that the national legislation of the state concerned provides for in relation to Switzerland (principle of reciprocity). The operator is obliged to insure nuclear accidents in the amount of CHF 1 billion. On 13 June 2008, Switzerland approved the revised Nuclear Energy Third Party Liability Act, subsequently ratifying the international Paris and Brussels Conventions. The revision of the Act increases the level of compulsory insurance coverage for nuclear accidents from CHF 1 billion to € 1.2 billion. It also greatly simplifies the claims procedure and so better protects victims' interests. On 25 March 2015, the Federal Council approved the revised Nuclear Energy Third Party Liability Ordinance. The Ordinance sets the minimum amount to be covered by private insurers at CHF 1 billion and specifies the risks which insurers are permitted to exclude. It also describes the method for calculating federal insurance premiums. Federal insurance covers claims up to the sum of € 1.2 billion which are not covered by

					private insurance or which exceed the private insurance coverage. The new nuclear energy third party liability legislation cannot come into force until the revision protocol to the Paris Convention has been ratified by at least two-thirds of the 16 signatory states. Thirteen of these 16 contracting parties are members of the European Union (EU). The Council of the European Union has decided that all the EU member states concerned must jointly ratify the Paris Convention. The revised Paris Convention is expected to come into force at the beginning of 2018 at the earliest. Nuclear third party liability legislation is not part of the responsibilities of the Swiss regulatory body, but is handled by the Swiss Federal Office of Energy SFOE. The liability of the operator of a nuclear installation is unlimited. The operator has to ensure financial security (private insurance and federal insurance) up to CHF 1 billion (€ 1.2 billion when the new liability legislation will enter into force). Beyond that the operator is liable by all its assets. In the case of major damage, the Federal Assembly may establish a compensation ordinance by way of decree so that the Federation will pay additional amounts for the uncovered damage.
57	Croatia	Article 11.2	Article 11, 59	Are on-site full scope simulators capable of simulating severe accident scenarios?	The simulators are able to simulate some (but not all) severe accident scenarios.
58	India	Article 11.2	"Staffing"	The report mentions of the decision of Switzerland to shutdown the existing five Swiss nuclear power plants in a phased manner beginning 2019. In this regard has Switzerland made any assessment on the likely impact of this decision on the continued availability of competent personnel	ENSI’s Human Capital Management Concept provides the strategy for ensuring the availability of competent personnel for the regulatory body. The strategy makes sure that ENSI remains an attractive employer for nuclear staff.

				for the nuclear program, including the regulatory body? If so, kindly share the details.	
59	Peru	Article 12	Page 25	The guideline G07 «Organisation of Nuclear Power installations stipulates that the licensee must permanently incorporate measures in its management system to observe, to assess, and to strengthen its safety culture. Has the regulatory body setup the elements or conditions for developing the safety culture? Are these elements of mandatory fulfilment or voluntary?	In the publication “Oversight of Safety Culture in Nuclear Installations” ENSI lists five characteristics of a good safety culture. The characteristics are based on the definition in IAEA Safety Standards GS-G-3.1 and GS-G-3.5 and on other basic findings, in particular from safety research. The Nuclear Energy Act determines the fostering of a strong safety awareness as a preventive and protective measure for nuclear safety. To obtain a strong safety awareness each nuclear installations should consider and implement this five characteristics in its organisation. In this sense, the characteristics are elements of mandatory fulfilment.
60	Spain	Article 12	page 64	In the report it is mentioned that: “The Nuclear Energy Ordinance states that all NPPs must appoint a committee to analyse events and outcomes attributable to human and organizational factors. All NPPs have appointed such committees, who receive adequate education and training on	1) This part of the NEO came into force in 2004. Right after the new Swiss Nuclear Energy Act was put into force in 2003). 2) The guideline G07 “Organisation of Nuclear Power Installations” stipulates that a specialist in work and organisational science must be a member of this committee. Therefore one of the member of each of these committees is a person with either a degree in psychology or a degree in engineering in addition with advanced studies in human and/or organisational sciences. 3) Rationality behind this requirement: A nuclear power installation is understood as a socio-technical system consisting of the three components humans, technology and organisation. Therefore, e.g. in the case of an event human, technological and organisational aspect that contributed to the event need to be analysed. The committee’s task is to examine whether the attributable human and organisational factors are adequately analysed.

				a regular basis". Please, could you elaborate on this issue, with some additional information: 1) When this part of the Nuclear Energy Ordinance came into force? 2) Are there human and organizational factors specialist on such committees?, 3) Rationality behind the requirement to create such committees focused on events attributable to human and organizational factors, 4) Are there any database at a national level gathering, integrating and assessing such information?	4) There does not exist any database at a national level. However each nuclear power plant has its own database where the technological as well as human and organisational aspects that contributed to events are gathered.
61	Spain	Article 12	page 64	In the report it is mentioned that, related to Fukushima accident, the Inspectorate has recently published a new report, in 2015, also focused in the field of the human and organizational factors that took place in the accident (in German and to be published in English). Please, could you elaborate on this issue,	The report published in 2015 is the first in a series of reports aimed at deepening the analysis of the human and organisational factors in the Fukushima accident. This first report is descriptive in its nature. It gives an overview of the events and focuses particularly on the description of the main organisations involved in the event response: the Government's and Tepco's Emergency Response Centers based in Tokyo, the organisations located in Fukushima Prefecture, as well as the organisations at the Fukushima Daiichi site. For the latter, staffing and organisation are described. The English translation of the report is under preparation and will be published on ENSI's website. The second part of the report, which is in preparation, will be descriptive as well, with the focus on a rather detailed chronology of the decisions and actions of the staff at the site of Fukushima Daiichi and on the extremely harsh working conditions and countless difficulties they faced while the accident was unfolding during the first days. The last part of the report will be devoted to a reflection on human and organisational

				with some additional information: 1) Are there in that report organizational factors considerations (at the licenses level, at the utilities level, at the regulatory body level, at the government level and at the society level) to many of the Fukushima lessons learned? If yes, please, explain. 2) Link to the English version when publicly available.	factors of the accident in search of possible additional insights for organisations which may be involved in responding to a major event in future.
62	Ukraine	Article 12	page 62	Human and organizational factors and Safety culture concept seems to be well-developed by ENSI. Does ENSI have a special regulation or guidance on HOF (HF, ITO, etc) event analysis? Does ENSI have a special regulation or guidance on safety culture oversight and assessment?	The Nuclear Energy Ordinance states that all NPPs must appoint a committee to analyse events and outcomes attributable to human and organizational factors. Guideline ENSI-G07 “Organisation of Nuclear Power Installations” determines that, if there is any possibility that the cause of events and findings stem from human factors, integral analyses of such events and findings must be carried out by this committee. The conceptual basis of such an integral analysis is the understanding that a nuclear power installation is seen as a socio-technical system consisting of the three elements humans, technology and organisation. In the publication “Oversight of Safety Culture in Nuclear Installation” ENSI is describing its position to oversee Safety Culture.
63	Brazil	Article 13	Page 65 – Article 13 - Quality Assurance	This Article explains that all Swiss NPP have Management System and these are certified by ISO. How it is addressed in the NPP’s Management Systems (MS) the priority	ISO was mentioned to highlight the certification of the management system issued by an accredited body which is required by our guideline ENSI-G07. In addition, ENSI-G07 requests that the management system must meet all requirements stated in IAEA Safety Standard GS-R-3.

				to safety matters, as ISO does not consider this? Do the MS use graded approach?	
64	Slovenia	Article 13	p. 64	All Swiss NPPs have an integrated management system that is certified under ISO 9001. The management systems are audited periodically by the certification institute and the certificates are renewed on a regular basis. Q.: In the previous report it was stated that all Swiss NPP allocated resources to verify their management system against the requirements of the IAEA Safety Standard GS-R-3. Have the Swiss NPPs implemented the GS-R- 3 requirements? Do the Swiss NPPs intend to upgrade their management system in accordance with IAEA standard GSR Part2 which superseded GS-R-3?	As requested by ENSI-G07 the management systems of the Swiss nuclear installations must meet all requirements stated in IAEA Safety Standard GS-R-3. The implementation is checked within the oversight activities. As GSR Part 2 will become the new reference standard for ENSI, the Swiss NPPs will be requested to harmonize their management system accordingly. Basically, the Swiss NPPs have already to address many GSR Part 2 changes when aligning their management system to the new ISO9001: 2015 Edition.
65	Slovenia	Article 13	p. 64	…The Inspectorate regularly performs inspections to assess the	ENSI performs inspections on the management system as a whole, but put special focus on issues identified by his every day oversight.

				effectiveness of quality assurance measures incorporated in the management system especially for processes with an involvement of contractors. Q.: Does the Inspectorate perform only inspections on quality assurance measures or does the Inspectorate perform inspections on the management system as a whole, namely integrated management system?	
66	Spain	Article 13	page 65	It is said that as a result of the performance of management system inspections based on the topics of Procurement/Costumer Capability and Competency management has been identified best practices. Could you please send us information about these practices?	The main best practice identified was that every NPP should be aware of its key suppliers with respect to the Business Continuity Management. To guarantee the availability and high quality of products these supplier should be monitored closely. It might be reasonable to tie key supplier in a strategic development partnership. Swiss NNP's exchange about supplier issues in a dedicated working group.
67	Belgium	Article 14	None	In some parts of your National Report the use of a "graded approach" is mentioned, for instance on decision making for prioritizing requirements	ENSI evaluates all occurrences, inspection results and reports from the operators for a systematic safety evaluation of each plant. The result of this evaluation serves as the basis for planning the activities for the following year. Especially the subjects and depths of inspections are determined by these results as the focus is set to fields where the evaluation has revealed weak points.

				and in some Licensee applications. However, in the information provided concerning Article 14 on "Assessment and verification of safety", we did not find any reference towards a graded approach. Has ENSI any formalised method or practices to apply a graded appoprach in review and assessment of different projects and topics? If an approach is being used, is it supported by some decision criteria? Is it oriented towards an optimum use of manpower resources ?	
68	Germany	Article 14	p. 66	The Swiss report explains that all NPPs are basically allowed to be operated for an infinite amount of time, as long as the ten-yearly PSR demonstrates that they can be operated safely for another ten years. Could Switzerland explain how the input from the licensee and operating experience during the ten-year period will be used? Are there any	Based on Swiss legal basis an immediately review and assessment is mandatory for events of INES 2 and higher which occurred in a national or international Nuclear Power Plant. Further the licensee must initiate an assessment as soon he has to assume that the reactor core coolability or the integrity of the reactor coolant circuit or the integrity of the primary containment are endangered due to design failures. Such an assessment can be independently required by the inspectorate as well. The licensee must immediately shut down the plant if the assessment shows if the maximal dose limits defined in the Radiation Protection Ordinance may be exceeded. The operation license can be revoked by the licensing department UVEK (UVEK: Department of Environment, Transport, Energy and Comunication).

				measures or processes in place to revoke the license if during the period new information comes to light that could put the PSR results in question?	
69	Spain	Article 14	page 24/25	This section say: The following additional points help to ensure that the physical state of an NPP complies with its licence: • Modifications important for safety require a permit granted by the Inspectorate. • A plant review must be carried out after each refuelling outage. • The Inspectorate has an efficient inspection programme in place in order to verify compliance with licensing requirements. Which are the main item and characteristics of the plant review carried out after each refueling outage?	The main items of the plant review while and after each refuelling are • fuel inspection results and fuel physics report, • preliminary technical report of the outage, • component and material tests, • system functioning tests • the startup tests • documentation and • outage final inspections. This review is the basis of the inspectorate decision for the permit of the next cycle.
70	Spain	Article 14	page 64	This section says: For existing plants, a Periodic Safety Review (PSR) is required at least every ten years.	The Regulatory Guide ENSI-A03 covers the requirements of IAEA Safety Standard SSG-25 „Periodic Safety Review for Nuclear Power Plants“. All 14 safety factors of SSG-25 are covered by ENSI-A03. The main difference is an additional extension of ENSI-A03 in terms of requirements for the review of long term operation.

				Important elements of a PSR are an update of the Safety Analysis Report (SAR), an assessment of design basis accidents, an assessment of the ageing surveillance programme, an update of the Probabilistic Safety Analysis (PSA) and an evaluation of operating experience over the last 10 years. The details (scope and process) of a PSR are defined in the Inspectorate's Guideline ENSI-A03. Are the requirements (scope and criteria) of PSR comparable to those recommended in the IAEA Safety Guide SSG-25 - Periodic Safety Review for Nuclear Power Plants, issued in March 2013? If the scope or criteria of the RPS are different to SSG-25, explain the differences	
71	Croatia	Article 14.1	Article 14, 66	Has additional safety margin analysis been restricted only on the systematic evaluation of the plant`s robustness	The safety margins are being evaluated for all natural hazards including extreme weather conditions which are relevant for the site. That means e.g. wind, tornado, extreme air and river temperature, draught, ice and hail, heavy snow loads, forest fire and combinations.

				concerning earthquakes and external flooding? Have additional external events been evaluated, e.g. extreme ice or snow?	
72	Croatia	Article 14.1	Article 14, 67	On the basis of which national or IAEA guidance are periodic safety reviews performed?	PSR are performed on the basis of the national regulatory guide ENSI-A03 which reflects the requirements of IAEA Safety Guide SSG-25 - Periodic Safety Review for Nuclear Power Plants and the WENRA-RL.
73	Czech Republic	Article 14.1	p. 67	The report states that "The licensee carries out the PSR and the Inspectorate evaluates the PSR report submitted by the licensee." Is there any regulatory document that describes in detail the scope of the periodic safety review (e.g. based on IAEA NS-G-2.10)?	The Swiss regulatory guide ENSI-A03 describes the scope of the PSR.
74	Czech Republic	Article 14.1	p. 68	The report states that "The PSR includes not only a review of the plant's current safety status but also an assessment of its future safety status." What is the meaning of "assessment of future status"? Should we understand it as the declaration on	The PSR includes an outlook for the next 10 years of operating after reaching the 40-years-operation (the so called long-term operation). Within the frame of PSR, the inspectorate reviews all implemented and planned modifications and backfits, the safety assessments (e.g. of design basis and beyond design base accidents) and human resources. However, PSR is only one of many "tools" used to assess and verify the safety. The inspectorate also uses other processes, e.g. inspections, Ageing Surveillance Programme, deterministic and probabilistic review of design basis based on international findings and events etc.

				future safety resulting from PSR?	
75	Czech Republic	Article 14.1	p. 68	The report states that "The Inspectorate's assessment also considers the licensee's safety culture." What is the base for such an assessment, e.g. inspection findings?	For the evaluation of the safety culture in the context of PSRs the licensees have to describe and assess all measures to foster a strong safety awareness as well as to implement a learning organization. The base of such an assessment are organizational proceedings (e.g. safety policy, management system) and their implementation.
76	Czech Republic	Article 14.1	p. 67-68	Has the regulatory body developed an internal procedure to assess the periodic review results?	The internal procedure to assess the periodic safety reviews is described in the ENSI Management Handbook in AAU1190. Additional Management Handbooks are HPB0350 and AAU1491.
77	France	Article 14.1	§ 14, 68	What are the objectives of the PSA? Is there a spent fuel pool PSA? What are the design modifications deriving from the PSA?	What are the objectives of the PSA? The objective of PSA is to estimate the risk of beyond design basis accidents. The objective of PSA development is to draw conclusions about the existence of vulnerabilities in the installation, and provide insight into meaningful plant improvements that will reduce the risk. Is there a spent fuel pool PSA? For shutdown, consideration of the spent fuel pool is mandatory as outlined in the definition of the Fuel Damage Frequency (FDF) according to the ENSI-A05 guideline, Appendix 1. For full power, the risk of radioactive release involving the spent fuel pool for the NPP at full-power operation shall be evaluated. If it can be shown based on conservative assumptions that the risk of radioactive release involving the spent fool pool is negligible (contribution to the Total Risk of Activity Release, TRAR less than 1%), no further analysis is necessary. Otherwise, a PSA shall be performed for the spent fuel pool, which follows the same requirements as set forth for NPPs. What are the design modifications deriving from the PSA?

					Over the last 30 years, numerous plant modifications were performed to improve the risk level. All Swiss nuclear power plants have an autonomous independent and redundant bunkered division which can inject water into the reactor and achieve long term core cooling. For the newest plants, this division was planned and installed during the construction of the plant. For the older plants, it was backfitted. Many seismic improvements took place over the years as a result of the regular seismic reassessments. Walls, cable trays, anchorages were reinforced and components specifically designed to withstand high ground accelerations were installed. Optimizations of the Technical Specifications along with modifications of the signals and the control logic were also implemented based on PSA insights. To support the Severe Accident Management Guidance (SAMG), mobile equipment (pumps, diesel generators, etc.) was installed at the plant site. Several applications are described in ENSI-A06.
78	Peru	Article 14.1	Page 26	In the report is stablished that further reviews and assessments of the design basis are mandatory if events of INES 2 and higher occur in a national or international Nuclear Power Plant. Assessment is required also for events below level 2 INES based on a strong safety culture?	The Swiss legal basis demands a review and reassessment for events below INES 2 only for the plant where the event occurred. Nevertheless the Swiss plants review international events for possible relations and similarities and report the results to the inspectorate monthly.
79	Slovenia	Article 14.1	p. 66	Further reviews and assessment of the design basis are mandatory if events of INES 2… Q.: Please, could you give us some information about the last events	In the Swiss BWR plant KKL a leaking rod has been found in 2014. Based on visual inspections as well as measuring examinations an extensive cause analyse lead in 2015 to the insights that dryout was the reason. The observed dryout affect is related in general to boiling water reactors only and in particular to the core configuration and operation conditions of KKL. After the end of last cycle (2016) once again extensive visual inspections have been carried out. In this process 47 fuel bundles have been detected which have shown

				related with nuclear fuel damage in the Swiss NPPs?	increased oxidation on several fuel rods. These information have been documented by ENSI with an IRS-report. This report has been send to IAEA.
80	Ukraine	Article 14.1	Probabilistic analysis	It is mentioned that at least every five years, PSA models are updated to reflect plant modifications and the availability of additional reliability data. Guideline ENSI-A06 also defines the conditions for updating the PSA models at other times for plant modifications not yet incorporated in the PSA models but which may have a significant impact on PSA results. Is the Living PSA approach recommended by IAEA used in Switzerland? Has the PSA methodology been improved taking into account the Fukushima accident outcomes (extended mission time, approach to HRA, etc.)? Does the regulatory body have its own PSA models for regulatory applications?	Is the Living PSA approach recommended by IAEA used in Switzerland? Yes. Although the term “living PSA” does not appear in the ENSI guidelines, a living PSA approach is used in Switzerland. The Nuclear Energy Ordinance requires the PSA to be up-to-date (Art. 33 letter a). Guideline ENSI-A06 specifies this requirement further in Art. 5 letter a. Has the PSA methodology been improved taking into account the Fukushima accident outcomes (extended mission time, approach to HRA, etc.)? The PSA methodological requirements did not undergo major changes as a consequence of Fukushima, as the present requirements had already been enforced before 2011: The mission time of the PSA is, as before the accident of Fukushima, 24 hours for Level 1 and 48 hours for Level 2 (ENSI-A05 Art. 4.4.2.2 letter d and Art. 5.4 letter f respectively). The Level 1 mission time must be extended if a safe end state is not reached at the end of the 24 hours. The Level 2 mission time must be extended if containment failure is considered imminent at the end of the 48 hours. A generic and conservative seismic HRA model is, as before the Fukushima accident, in force. Seismic PSAs have been developed in Switzerland since the 90s. Does the regulatory body have its own PSA models for regulatory applications? ENSI maintains its own plant-specific PSA models to assess the plausibility of the PSA results delivered by the licensees with the PSR to ensure a consistent review.
81	Slovenia	Article 14.2	p. 68	PSA for all relevant operating modes of the	Is the PSA for spent fuel pools of Swiss NPPs required by ENSI?

				Swiss NPPs Q.: Is the PSA for spent fuel pools of Swiss NPPs required by ENSI? Is the PSA included in the NPP' Safety Analyses Report, what are the format and content of that description?	For shutdown, consideration of the spent fuel pool is mandatory as outlined in the definition of the Fuel Damage Frequency (FDF) according to the ENSI-A05 guideline, Appendix 1. For full power, the risk of radioactive release involving the spent fuel pool for the NPP at full-power operation shall be evaluated. If it can be shown based on conservative assumptions that the risk of radioactive release involving the spent fool pool is negligible (contribution to the Total Risk of Activity Release, TRAR less than 1%), no further analysis is necessary. Otherwise, a PSA shall be performed for the spent fuel pool, which follows the same requirements as set forth for NPPs. Is the PSA included in the NPP' Safety Analyses Report, what are the format and content of that description? The PSA documentation is independent of the Safety Analyses Report. Both the SAR and the PSA documentation are labelled "Technical documents" by the Nuclear Energy Ordinance and are therefore on the same hierarchy level. The requirements regarding the PSA documentation are outlined in the guideline ENSI-A05.
82	Belgium	Article 15	Figure 3, page 77 and Figure 4, page 80	The collective dose for the Leibstadt presents a growing tendancy since 2005 (i.e. from ~0.55 man.Sv/y up to ~1.7 man.Sv/y), which are not sufficiently explained in the tekst. Leibstadt NPP is also the only one showing such a trend. Can you please provide some more information/explanation	In 2008 the Leibstadt NPP started the OLNC applications. Besides the periodic applications of Pt, hydrogen is added continuously into the feed water. In some nuclear power plants the switch to OLNC had a negative effect concerning the dose rates. EPRI gives the following explanation for this behaviour: The restructuring of the oxides formed under oxidizing conditions of the normal water chemistry (NWC) into a more reducing spinel type oxide compound is responsible for the increased shutdown dose rates. Since 2008 the dose rates within the Leibstadt NPP are continuously increasing which results in an increasing annual collective dose. Besides the increase of the dose rate the average workload during an outage has increased since 2006 from 90`000 to 150`000 man-hours spent inside the radiological controlled area. The scope of maintenance, inspections, modifications and repairs has been extended considerably, also affecting collective exposure. ENSI required of Leibstadt NPP to investigate the reasons for the increase of the annual collective dose in detail and asked for suitable measures. The report is expected in April 2017.
83	Belgium	Article 15	pp. 80-82	The stopping of addition of hydrogen to the primary water system	The Swiss NPPs Mühleberg and Leibstadt are BWRs. Both plants perform OLNC application and hydrogen is added constantly to the feedwater. The stopping of adding hydrogen to the primary water system some hours before the reactor is shut down for

				some hours before the reactor is shut down for the outage is implemented in Mühleberg and Leibstadt. Why this measure isn't implemented in other NPPs ? If the measure exist to avoid antimony-122 and -124 in the primary circuit is it because the original seals of the main coolant pumps have already been replaced ?	the outage is on one hand a safety issue and on the other hand of technical reasons. The other NPPs in Switzerland, Gösgen and Beznau are PWRs. Before the shut down process starts, a changeover from hydrogen to nitrogen in the volume control tank (VCT) is performed to switch from the reducing to the oxidising environment.
84	Belgium	Article 15	p. 81	Could Switzerland develop how the "Wireless telephone set with sound suppression used for work in noisy areas to improve communication." works ? How is there an actual cancellation of the surrounding noise ?	Due to the sound suppression of the wireless telephone set the communication improved and the information is therefore more rapidly exchanged. Therefore, the time in the radiological controlled zone can be limited. The information concerning the technical background of the noise cancelling system has to be gathered elsewhere (e.g. from the manufacturer).
85	India	Article 15	"Dose Limits", Page 76	The report states "The Radiological Protection Ordinance limits the general maximum individual total dose for NPP personnel (plant personnel and contractors) as a rule to 20 mSv per year. Exceptionally, a limit of 50	The equivalent dose for eye lens and skin, hands and feet are given in Article 35 in the Radiological Protection Ordinance. The limits for occupational workers for the eye lens are 150 mSv per year and for skin, hands and feet 500 mSv. Hence, the reducing of the limit for the eye lens dose is under discussion in Switzerland.

				mSv per year, but not exceeding 100 mSv in five years, can be authorised by the Inspectorate. ” Can Switzerland clarify as to whether any dose limits are specified for eye lens and skin for occupational workers?	
86	India	Article 15	Pages 77, 78 & 84	Can Switzerland elaborate on the term used ‘direct radiation’ on pages 77, 78 & 84 of the report?	Direct radiation is an external radiation, e.g. at the fence of the nuclear power plant, due to a source in the nuclear power plant (e.g. the N-16 radiation from the fresh steam line of a boiling water reactor).
87	India	Article 15	Section 15, Page 79	The report states “The environmental surveillance programme has three main aspects: … as well as regular sampling and measurements of air, aerosol fallout, water, soil, plants and foodstuff.” May Switzerland clarify as to which agency (FOPH, NPPs or Inspectorate) is primarily responsible for environmental radiological surveillance and measurement of radioactive	The nuclear power plants monitor and balance the discharges of radioactive substances into the environment. The ENSI monitors the ionizing radiation and radioactivity in the vicinity of the nuclear power plants. The FOPH monitors ionizing radiation and radioactivity throughout Switzerland and coordinates the entire sampling and measurement program throughout Switzerland.

				releases/discharges from the NPPs?	
88	India	Article 15	Section 15, Page 79	Can Switzerland share the data on annual exposure to public due to effluent discharges from NPPs?	The data are published in ENSI's annual reports. (https://www.ensi.ch/de/dokumente/?document-category=strahlenschutzberichte&orderby=ID&order=DESC&posts_per_page=)
89	Netherlands	Article 15	page 76	It is stated that the ordinance on radiation protection is under review and will become compatible with IAEA BSS version July 2014. (a) When will it become final and when will it come come into effect? (b) With respect ot exemption and clearance levels, what are the differences with the European Directive 2013/59. What will be the impact on the decommissioning costs of the NPPs?	It is planned to finalize the regulation by the middle of 2017 and to enter into force by the government in early 2018. Exemption and clearance levels are compatible with the values of the European Directive. In addition, there is a dose-rate criterion and nuclide-specific surface-contamination criterion for clearance.
90	Netherlands	Article 15	Figure 3	The levels of annual collective (worker) dose at the Swiss NPPs generally have been relatively constant in the last 10-15 years and seem to be relatively high. What is the ENSI position on this?	The Swiss NPP fleet is one of the oldest worldwide. Hence the base level for the dose rates are higher due to the material selection at that time. It has also to be taken into account that none of the Swiss NPPs had performed full system decontamination. Swiss legislation requires continuous improvement of safety in NPPs. Whenever new findings are known, which would held to achieve a further increase in safety, the plant operators are obliged to implement appropriate backfitting measures. In the last years a great number of large components were replaced in the Swiss NPPS, which can be easily seen in an increase of the annual collective dose at the particular NPP. Due to the fact that the age of the Swiss NPPs increases, the non-destructive examination

					program has to be adapted as well, which also leads to an increase of the annual collective dose. For example in the Leibstadt NPP the average workload during an outage has increased since 2006 from 90`000 to 150`000 man-hours spent inside the radiological controlled area. The scope of maintenance, inspections, modifications and repairs has been extended considerably, also affecting collective exposure. ENSI is strongly involved in the radiation protection processes performed in the Swiss NPPS. A big effort is put on the planning of operations performed in the radiological controlled area including dose rate reduction measures and mock-up testing. The health physics in the Swiss NPPS is advanced and the ALARA principals are respected. A summary of the main dose reduction measures taken into account by the Swiss NPPs can be find in Article 15, Table 4.
91	Slovenia	Article 15	p. 83	Since 2007, the liquid discharges of Beznau NPP are less than one GBq per year. Q.: What are the main radionuclides in these releases and which were reduced the most by nanofiltration?	The main radionuclides in the releases are Cs-137, Cs-134, Co-58, Co-60, Sb-124, Sb-125. All these radionuclides are reduced by a factor up to 100 by nanofiltration.
92	Germany	Article 16	p. 90	Switzerland writes in its report that “Important protective measures are staying indoors, evacuation after the cloud passage, restricted access to certain areas, restrictions on certain foodstuffs, countermeasures for agriculture, decontamination and medical support.” What arrangements have been	In Switzerland several hospitals are specified on the treatment of contaminated people and people with injuries caused by radiation. In addition to that, the Swiss Civil Protection Organisation and partner organisations such as health care services or the fire brigade are equipped to handle such situations. Possibly contaminated or irradiated people may also go to an information centre which does also include decontamination capabilities. In case of an NPP accident with severe effects overall the Swiss territory the National Crisis Management Board is responsible for coordinating all relevant organisations.

				made for the medical care of a larger number of contaminated and simultaneously injured persons?	
93	Pakistan	Article 16	Emergency protective measures, Page 89	Switzerland may like to share information about the dose criteria used for the protection of off-site emergency services personnel and rescuers.	The Radiological Protection Ordinance limits the general maximum individual total dose for NPP personnel (plant personnel and contractors) as a rule to 20 mSv per year. This Ordinance also defines categories of people with an obligation to perform their duties in cases of increased radioactivity, e. g. members of radiation protection groups. For this personnel the maximum individual total effective dose is limited as a rule to 50 mSv per year and for saving lives to 250 mSv per year. The radiation exposure has to be monitored regularly.
94	Pakistan	Article 16	Clause 2, Page 91, Para 5	It is mentioned that "German authorities at both the local and federal level take part in exercises at the Leibstadt and Beznau NPPs." Switzerland may like to share the frequency and scope of cross border exercises.	Every two years a large-scale emergency exercise based on a severe NPP accident scenario is taking place in Switzerland with the participation of the local and federal level. On average, such a general emergency exercise is carried out with the participation of German authorities every 4 years in one of the plants mentioned. Switzerland also offers the German authorities the opportunity to take part in general emergency exercises organised in Gösgen and Mühleberg. General emergency exercises are designed to check the coordination of the emergency organization of a nuclear power plant with external bodies, and the cooperation between the various external organisational entities.
95	France	Article 16.1	§ 16, 91 and 92	Switzerland refers to several exercises conducted during the last period. Could Switzerland present the lessons learned from these recent exercises?	During the last period Switzerland participated in two international exercises, specifically a ConvEx 2b exercise in August 2015 and one in September 2014. In the exercise in 2014 Switzerland tested the implementation of its processes concerning the international Response Assistance Network RANET. The processes met the expectations, a need for optimization could not be identified. In 2015 these processes had been exercised in a more practical way by the National Emergency Operation Centre (NEOC). This exercise based on a foreign request for support. The task for the NEOC was to ensure making the requested services available. A need for optimization could not be identified.

96	India	Article 16.1	Section 15, Page 86	The report states “The scenario used for emergency planning purposes is now characterised by an unfiltered, substantially higher source term than previously assumed.” When there exists a regulatory requirement for containment filtered venting (refer Page 33 line no.6), can Switzerland explain the reasons/rationale behind the consideration of unfiltered release for emergency planning purpose?	Though being events of very low probability, safety analyses show that large, unfiltered releases cannot be ruled out. For the purpose of future emergency planning a worst-case scenario has hence been defined.
97	Ireland	Article 16.1	Section 16.1; p 88	NPPs are responsible for detecting and assessing an accident. Does this include the categorisation of the accident and if so what criteria are used to do this and does the categorisation dictate the level of the emergency response?	The classification is done on the basis of so called Emergency Action Levels (EAL). These EALs are symptom-based and follow IAEA-guidance. EALs include technical and radiological criteria. In case of an emergency the operator is required to categorize this emergency and notify the Inspectorate. The emergency class does initiate a emergency response off-site.
98	Ireland	Article 16.2	Section 16.2; p 91	People living in the vicinity of Swiss NPPs have been sent a leaflet describing the potential dangers associated with a	The leaflet has been sent in German and in French together with iodine tablets and a further leaflet concerning their usage. The cantons with people living in the vicinity of a NPP are responsible for the distribution.

				nuclear accident. Is the information on these leaflets provided in all national languages?	
99	Ireland	Article 16.2	Section 16.2; p 91	It is noted that Switzerland regularly participates in IAEA, ECURIE and OECD/NEA INEX exercises. Did Switzerland participate in the recent INEX-5?	Switzerland did not participate in the recent INEX-5 exercise.
100	Netherlands	Article 17	CDF values	The required maximum levels of CDF for new and existing reactors: are they not really outdated today, e.g. considering current design requirements and past safety improvements and on top of that the recent VDNS? A factor of at least 10 reduced values can be met easily today. The strong position of ENSI on continous improvement worldwide might be reflected in these values. (E.g. in the Netherlands we require CDF < 1x10 exp - 6/year for new reactors).	Existing plants: The IAEA recommends that “the target for existing nuclear power plants consistent with the technical safety objective is a frequency of occurrence of severe core damage that is below about 1E-4 events per plant operating year” [IAEA; “Basic Safety Principles for Nuclear Power Plants“; 75-INSAG-3 INSAG-12 Art. 27, Version 1, 1999]. The Swiss law (DETEC Ordinance on the Hazard Assumptions and the Assessment of the Protection against Accidents in Nuclear Installations (SR 732.112.2) goes further. This ordinance requires that the licence holder has to demonstrate that: • the frequency of core damage for existing nuclear power plants is less than 1E-4/a, • at a frequency of core damage between 1E-4/a and 1E-5/a for existing nuclear power plants, all reasonable precautions have been taken, It should be noted that the IAEA recommendation for the CDF target is rather vague concerning the scope of the PSA used to calculate this value. In Switzerland, the regulations require full scope PSAs considering all relevant internal as well as external events for all relevant operational modes. New plants: The Federal Council and the Swiss Parliament decided to phase out nuclear energy by prohibiting building new plants.
101	Peru	Article 17.1	Page 28	The participation of people living around site proposed as well as from areas of neighboring	The good practice remark is appreciated.

				countries is deemed a good practice, as it provide transparency to actions and assessments related to siting; and increasing the confidence of regulatory body before public or third parts. Any	
102	Spain	Article 18	page 105-106	Pages 105-106: ENSI has required an inspection of reactor vessel base material after WENRA recommendation derived from Döel 3 and Tihange 2 findings. Which was the regulation tool (instruction, mandatory letter…) to ask for such inspection? Were specific schedules required or the plants could accommodate the inspection in their normal ISI intervals?	Inspection was required with a mandatory letter based on para. 2 and 3 article 4 of the ordinance on vessels and piping VBRK (SR 732.13) for special testing. ENSI requested the special testing during the next ISI for RPV welds.
103	United States of America	Article 18	Summary	After ultrasonic inspection of the base material of the reactor pressure vessel was performed in 2015, in Beznau Unit 1, a set of indications were found which require justification and detailed assessment. Please share any updates available on this issue.	Reason of UT indications are Al2O3 inclusion clusters produced during fabrication. A full size replica shell was manufactured which is representative for RPV shell with inclusion clusters. Preliminary results of investigation: 1. Al2O3 inclusions do not impact material properties. 2. Al2O3 inclusions do not impact neutron embrittlement. 3. Conservative structural integrity assessment shows sufficient margins for LTO.

104	Austria	Article 18.1	Article 18, p101	Could you please provide further details about the status and progress of the seismic upgrade of the containment venting systems at KKG and KKL including time schedule for implementation?	The filtered containment venting system (FCVS) at KKG, which was proved to be seismically robust, will be enhanced with an additional iodine filter device in order to reduce organic iodine. Mounting and commissioning of the additional filter is scheduled to be completed in the fourth quarter of 2018. In 2012 ENSI forced the operator of the NPP Leibstadt to take appropriate measures to increase the seismic margins of the FCVS at least to the level of the seismic capacity of the containment. The anchorage of the FCVS tanks was then identified to be the limiting part of the system. The concept of the seismic upgrading was submitted by the operator of NPP Leibstadt at the end of 2015 and reviewed and approved by ENSI in 2016. The planned measures will be implemented before the annual outage in September 2017. After implementation, the seismic capacity of the whole FCVS system will be at the same level as the seismic capacity of the containment and will be able to resist seismic events about twice as strong as the SSE.
105	Austria	Article 18.1	Article 18, p98	What additional time to SFP fuel damage will be gained by new redundant SFP cooling systems in KKB and KKM? In terms of seismic resistance, please could you specify how large the safety margin will be compared to "ENSI-2015" (ENSI-AN-9657)?	The aim of the enhancement of the SFP cooling by new redundant, classified and seismically robust cooling systems is to strengthen defence in depth for safety level 3 and not to gain additional time. In case of failure of these systems, SFP cooling can be assured by redundant lines which have been provided in order to feed the SFP with cooling water without the need for entering the SFP buildings as accident management measure. Therefore, SFP fuel damage can be excluded with high confidence. Regarding seismic resistance, the reassessment of the seismic hazard based on the new specification “ENSI-2015” will take place by the end of 2018. Statements regarding safety margins “compared to ENSI-2015” are not possible yet.
106	France	Article 18.1	§ 18, 103	Following the Fukushima event, the seismic safety of the buildings was verified, what are the verifications done on equipment such as the pipes connected to the spent fuel pools that could lead to a loss of water in case of break?	After Fukushima, the seismic resistance and the integrity of the spent fuel pools (SFP) including the SFP connecting lines were reassessed. This assessment led to several improvements in case that a possible break of the connecting lines could not be ruled out. Such improvement measures did include the installation of check valves and/or siphon breakers in order to limit a possible level drop in the SFP well over the top of the stored active fuel.

107	Slovenia	Article 18.1	p. 101	Extreme weather conditions: probabilistic hazard analyses and the proof of adequacy protection of the plant against extreme… Q.: Could you please give us some examples about provisional hazard values defined by Inspectorate which are used for the proof of adequate protection of Swiss NPP?	The following values were the basis for the proof of adequate protection against extreme weather conditions: Wind/tornado: 60 m/s Max. air temperature: 40 to 42°C (site specific) Min. air temperature: -30°C Max. temperature of cooling water intake (river): 28°C Max. temperature of cooling water intake (river): 28°C Min. temperature of cooling water intake (river): occurrence of frazil ice Heavy rain: roof ponding Snow load: 2.6 to 3.3 kN/m2 (site specific) Hailstone: 15 cm diameter at 53 m/s impact velocity
108	Slovenia	Article 18.1	p. 103	Instrumentation and control Q.: Please, give us some additional information of environmental qualification requirements for essential instrumentation and control systems needed for severe conditions?	Regarding environmental qualification requirements for safety level 4, there are no special requirements. But e.g. the Reitnau equipment (see art. 16) is stored in a bunkered building which is resistant against earthquake, flooding and protect against terrorist. Also the severe accident equipment on site or in a depot close to the site is protected against earthquake and flooding.
109	Ukraine	Article 18.1	page 103	Section 18 indicates that buildings were calculated for new seismic impacts agreed with ENSI and provided in Table 6. Please inform if equipment and piping have been assessed for resistance to new seismic impacts.	After Fukushima, the proof of the seismic resistance of the Swiss NPPs was conducted on the basis of the seismic hazard “PEGASOS Refinement Project- Intermediate Hazard (PRP-IH)”. Besides the proof of the nuclear buildings, the seismic resistance of the systems and components required for the safe shutdown and for keeping the plants in a safe state during at least 72 hours was also assessed. Compared to the hazard “PRP-IH”, the new hazard “ENSI-2015” yielded somewhat higher results.

110	Netherlands	Article 19	Article 19	Operating Experience Feedback (OEF) is covered well. What is the ENSI approach and internal process to cover Regulatory Experience Feedback (REF)?	ENSI participates in international organisations and groups such as WENRA, CNRA, HERCA, ENSRA, KWU Users Group (KWURG), tripartite commission with regulators in Belgium and France, and bilateral cooperation with other regulatory bodies. Through this, a constant exchange of regulatory experience is ensured.
111	Spain	Article 19	page 30	Page 30: The safety evaluation report from ENSI on the PSR of each Swiss NPP have been made accessible to public ("publicly available"). Which is the used tool to do this? Internet (which web-site)? Announce for public demand?	Safety evaluation reports from ENSI on the PSR of Swiss NPPs have been published on the internet (www.ensi.ch) .
112	France	Article 19.1	§ 19, 109	Switzerland specified that, since 1992, 14 events have been rated at INES level 1 and just 2 events at INES level 2. Did these events be sent and registered to IRS database of IAEA? Switzerland also specified that the threshold for events reporting is low. Could Switzerland develop this concept and give further examples for the last 3 years? Does it mean events rated at INES level 0 are numerous?	Both INES 2 events and several but not all of the INES 1 events have been reported to the IRS database. The threshold for events reporting is given by guideline ENSI-B03, available in French: IFSN-B03/f B03, Notifications des installations nucléaires (www.ensi.ch). Most events reported to the ENSI by the NPPs are rated at INES level 0. A list of all events related to nuclear safety is included in ENSI's annual report. The average number of events related to nuclear safety since the introduction of the guideline ENSI-B03 in 2009 has been around 30 per year. Over 95 % were rated at INES level 0. Examples from the last three years are: • Deformed spacers of fuel elements • Single damaged fuel rod • Load reduction due to the failure of a recirculation pump • Failure of fans in an emergency diesel building • Reactor Scram due to turbine control failure

113	France	Article 19.1	§ 19, 113	Switzerland detailed requirements on the notification of events and incidents. Could Switzerland specify the time allowed to communicate to the Inspectorate and to the Authority the first declaration of events and also the deadline to send final reports with operator's analyze?	Reporting deadlines are defined in Annex 6 of the Nuclear Energy Ordinance. Since the Inspectorate is the Authority, there is only one addressee, the ENSI.
114	France	Article 19.1	§ 19, 113	Switzerland mentioned that the Inspectorate has its own internal procedures for events investigation and the results are registered on safety assessment database. Could Switzerland precise if this organization gives the opportunity to develop safety performance indicators set, as help of analyze? If so, could Switzerland give some examples of indicators used for operational experience feedback (definition, importance)?	The set of indicators used by the Inspectorate is complementary to the analysis of events. Issues covered by the indicators are below the threshold for reportable events. Currently the Inspectorate is revising the set of indicators to increase their significance. Examples are: • Deviation of the collective dose accumulated during the outage from the planned collective dose. • Annual incremental cumulative core damage probability ICumCDP. • Number of measures derived from the analysis of external events: annual values and trend over the last five years.
115	France	Article 19.1	§ 19, 114	Could Switzerland explain the different approach used between internal	Unfortunately the wording of the clause on page 114 of the National Report, referring to the Ordinance on the Methodology and Boundary Conditions for the Evaluation of the Criteria for the Provisional Taking-out-of-Service of Nuclear Power Plants, is

				events on Swiss NPPs and international events all over the world? The “cursor” is on INES level 1 and above to analyze systematically internal events but it’s on INES level 2 and above to survey international events.	misleading. The cursors set in the Ordinance refer to the immediate review of the design of the plant (Le détenteur d'une autorisation d'exploitation (détenteur de l'autorisation) est tenu d'examiner la conception de la centrale nucléaire sans délai). Art. 36 of the Nuclear Energy Ordinance obliges licence holders to monitor operating experiences and findings of similar installations and assess their significance for his own installation. This obligation is not related to the INES level.
116	Slovenia	Article 19.1	p. 109	Further reviews and assessment of the design basis are mandatory if events of INES 2… Q.: Selection of BDBA: why only ATWS and SBO are selected from WENRA Issue F list? Please, give us some information about format and content of description of DEC and BDBA in Safety Analyses Report (SAR).	The Regulatory Guide ENSI-A01 in Art. 5 lists the mandatory DEC-A events: ATWS, Loss of Main Control Room, Total Loss of Residual Heat Removal, Loss of Emergency Core Cooling, Loss of Fuel Pool Cooling and Total Station Blackout (TSBO). SBO is considered to be a DBA. Further, ENSI-A01 is being revised in terms of compliance with WENRA Reference Levels. Requirements for analysis of DEC-A events will be further detailed. DEC-B events are part of PSA. The results of the analysis of the required ENSI-A01 initiating events (DBA & DEC-A) have to be summarized in the SAR.