

Convention on Nuclear Safety
Questions Posted To Czech Republic in 2011

Q.No	Article	Ref. in National Report
1	General	pg. 2

Question/ Comment Recently it was announced that construction of new reactors at the Temelin site is postponed. Has a new planning already been established?

Answer As part of the procurement procedure for the Completion of NPP Temelin, CEZ has recognized that it is necessary to conduct more Consultation meetings with Qualified Candidates as well as to give them more time to better prepare so as to minimize issues in the future steps of the Supplier selection, licensing and construction of NPP Temelin 3&4. The pre-bid negotiation period was extended as a result. Please note that the Supplier Selection is still ongoing and is being conducted very transparently in accordance with the Public Procurement Act.

The current plan is to sign an EPC Contract with the Supplier who submits the most advantageous Bid by the end of 2013 (Submission of the Bid Invitation Specification to the Qualified Candidates in autumn 2011). The Commercial Operation Date will be negotiated on the basis of CEZ requirements and proposals contained in the submitted Bids.

Q.No	Article	Ref. in National Report
2	General	General

Question/ Comment The UK congratulates the Czech Republic on producing a clear and informative report.

Answer Thank you for your comment.

Q.No	Article	Ref. in National Report
3	Article 6	1.1.2 - page 12

Question/ Comment With respect to the SALTO mission of 2008. How were the recommendations of the mission treated. Is a follow-up foreseen ?

Answer Upon the invitation of the State Office for Nuclear Safety in the Czech Republic, the IAEA SALTO Follow-up Peer Review Mission is planned for September 2011. The SALTO Mission in 2008 formulated 11 suggestions and 12 recommendations. Their implementation has been divided into 36 corrective measures, some of which are finished now while the rest are still ongoing.

In January 2009, STRATEGY of LTO DUKOVANY, Program for Assurance of NPP Dukovany LTO and LTO Dukovany Preparation Project were approved by the CEZ, a.s. Board of Directors. Consequently, a safety part of this program was submitted to SUJB in February 2009. SUJB has required the annual submission of a current version of this program.

LTO Dukovany Preparation Project (full title: Securing the licensing and readiness of EDU for operation in the 2015-2025 period) contains approximately 64 main particular actions and modifications which must be implemented from 2009 to 2015. Some 28 items from this list address modernization, while several items concern environmental and seismic qualifications, a physical protection system

refurbishment, fire protection system refurbishment, radiation control system refurbishment, exchange of high pressure heaters, modernization of a safety feed-water supply system, a technological penetration refurbishment, modernization of electric switching stations, etc.

The main characteristic of LTO Dukovany Preparation Project:

- The safety aspects of Dukovany NPP were assessed (inc. measures of SALTO mission), resulting in a schedule of measures for the assurance of safety LTO.
- These measures were mainly in the areas of the aging management process and safety analyses.
- A plant life management program will be fully implemented by 2013.
- The acceptability of Dukovany NPP LTO will be documented in the following PSR, updated FSAR and Documentation of Dukovany NPP LTO assurance programme.

SUJB is periodically informed about the approach and current state of LTO preparation.

Q.No	Article	Ref. in National Report
4	Article 6	1.1.2.2, p.14

Question/ Comment "SÚJB and IAEA requirements were selected from the MORAVA ("I&C Renovation" – replacement of safety-important parts for digital systems, which is performed in parts during unit outages) program. At Units 1 - 4, the renovation of I&C Systems of the parts important to safety is fully implemented. The implementation of renovation of unit equipment of I&C Systems with the utilization of up-to-date control facilities was commenced at Unit 3 in 2009 with the deadline of completion in 2013. The implementation at the other units is executed in the following time intervals: Unit 1 – 2011 - 2015, Unit 2 – 2012"

Q: Was the renovation of I&C system of up-to-date control facilities a regulatory requirement? Is there a connection between the renovation of I&C system and the renewal of operational licensees of the units of Dukovany NPP after 2015?

Answer I&C systems on NPP Dukovany were evaluated according to the following criteria: impact on nuclear safety, impact on availability, operation and maintenance cost, lifetime maintainability, and compliance with regulatory requirements.

Renovation of I&C system of up-to-date control facilities is part of the activities of NPP Dukovany (most of the equipment is approaching or has exceeded its life expectancy, additional increase of maintenance efforts to sustain system performance, unavailability of spare parts).

Q.No	Article	Ref. in National Report
5	Article 6	Section 1.1.1, p. 11

Question/ Comment In the Report's description of current status of the existing nuclear installations the main emphasis is made on the examinations performed by several international organizations against various international rules and standards. This is undoubtedly very important and valuable. In the meantime, principal responsibility for safety rests with national organizations: the operating organization and the regulatory body. Consequently, the governing evaluation should be the one performed first of all against national regulations, of course with international practices, standards and

missions taken into account. For Dukovany NPP such evaluations, though given at the background, are provided, whereas these are virtually not available in case of Temelin NPP, regretfully.

Please provide information on this subject.

Answer Technical audit:

Technical audits, internal and external, were held at Temelin NPP from 1987-2006.

The objective of the internal technical audits was to map the original design status of the systems, structures and components of nuclear power plant units. This was evaluated using two approaches: the completion of a first level PSA study and by using a deterministic approach documented by Pre-operational (Final) Safety Report and Topical Safety Reports, specific studies and analyses. The internal audit was performed by designers and the plants specialists; the resulting output was an overall evaluation of the individual units including the proposal of modernization efforts relating to nuclear safety, reliability and operation economics. The main needs to design improvements led to the implementation of the nuclear fuel system and I&C systems from another supplier (Westinghouse Electric Company).

The objective of the external technical audits was to independently evaluate the level of nuclear safety assurance at the nuclear power plant units in agreement with international standards and generally recognized nuclear safety principles. The assessment was performed by IAEA missions (PRE OSART, IPSART, IPPAS), Peer Review WANO mission, Follow up WANO mission and missions and audits made by Colenco Baden, Haliburton NUS, and by other international and bilateral groups of specialists, principally using the methodology for the periodic safety review of nuclear power plants, developed in accordance to the guidance issued by IAEA as Safety Series (SG-012) in cooperation with SUJB. The final reports contained sets of recommendations focused on the enhancement of the "defense in-depth" principle and to methodical procedures.

PSR:

SUJB conditioned the obtainment of approval for the further operation of Temelin NPP units after 6 years by performing a Periodic Safety Review (PSR) in the range specified by IAEA NS-G.2.10 instructions. This evaluation was performed in 2010 and resulted in a final report containing important findings, the evaluation of the findings, and to the plan to correct or improve activities and specific measures in order to enhance the level of nuclear safety.

The nuclear power plant operator also continuously utilizes other instruments (probabilistic and deterministic analyses, and operational feedback) to continuously monitor and to periodically evaluate the nuclear safety of nuclear installations. The results of the PSR 2010 were an important part of the sources for the SUJB decision to issue an operational permit of the first Temelin NPP unit for the next 10 years.

Q.No	Article	Ref. in National Report
6	Article 6	Section 1.1.2.2, pp. 14-15

Question/ Comment Please describe the regulatory requirements for transition to NPP unit operation at an uprated power level.

Answer According to the Atomic Act (Act No. 18/1997 Coll.), the applicant is obliged to submit to the Regulator, together with formal documents of the application, the documentation for the issue of a licence for reconstruction or other changes impacting nuclear safety, radiation protection, physical protection or emergency preparedness of a nuclear installation or category III or IV workplace:

1. Description and justification of prepared reconstruction or other changes (addendum of the SAR);
2. Update of documentation approved for the commissioning and operation of a nuclear installation;
3. Anticipated time schedule for reconstruction or changes;
4. Evidence that the consequences of the reconstruction or other changes will not adversely influence nuclear safety, radiation protection, physical protection or emergency preparedness.

Documentation specified under point 2 shall be subject to approval by the Office. Documentation specified under point 4 (called also as Safety Case) shall document the results of technical and safety assessments justifying that all SSCs and all technical and administrative measures of the operating plant are not adversely influenced from the point of view of nuclear safety, radiation protection, physical protection, or emergency preparedness.

Q.No	Article	Ref. in National Report
7	Article 7.2.2	p.22-23

Question/ Comment At the end of page 22 it is described that “The Ministry of Industry and Trade is now entrusted with the issuance of other resolutions (construction permit, operation license and decommissioning permit)”. Paragraph 2 at page 23 states that “The Atomic Act establishes activities for which a license issued by the SÚJB is required. Apart from the main activities - siting, construction and operation, there are a number of other activities, e.g. SÚJB licenses for individual stages of nuclear installation commissioning, for reconstruction or other changes affecting nuclear safety, for discharge of radionuclides into the environment, etc.”

It would help the reader to get a better understanding if explanation is provided on the difference between the licenses and permits issued by the Ministry of Industry and Trade and SUJB. Please, provide some more information on the sequence of those acts (e.g. new build).

Answer Regulatory (licensing) activities of independent administrative bodies, as set down in pertinent laws, correspond with the independence of the proceedings of individual administrative bodies within their field of competence during the licensing process. The relevant administrative bodies issue "partial" licenses with different subject matters in the mentioned partial proceedings. Possession of all prescribed licenses is a prerequisite for performing all concerned activities of an NPP operator. These licenses are interdependent and provide a necessary basis for each other (system of a chain or pyramidal system).

Licenses issued according to the Atomic Act (namely the license for NPP operation, for the commissioning of an NPP etc.) are related specifically to the aspect of nuclear safety and do not substitute licenses issued by other administrative bodies according to other laws (see Section 9 paragraph 4 of the Atomic Act).

Those Atomic Act licenses, at the same time, carry out the role of an approval as required by specific Acts (see Section 14 paragraph 4 of the Atomic Act). Act No. 183/2006 Coll., the Building Act, represents such a specific Act which regulates, inter alia, the issuance of construction permits for NPP construction.

The text in the National Report may lead to a misunderstanding; the following may clarify the situation. Under the Building Act, structures for trade and industry may be utilized only upon the final inspection approval (and similarly the permit for removal of a structure issued at the end of its lifetime) by the respective building office, i.e. the Ministry of Trade and Industry, in the case of an NPP. However, these take into account only the structural point of view (mainly the conditions for the design activity and the structural realizations, general conditions for construction, entry to the grounds and into the structures etc.) but not the nuclear safety one, which is primarily (or we may say solely) considered by the SUJB.

The said terms were mistaken for the operation licence and decommissioning licence, which are issued separately and independently by the regulatory authority, i.e. SUJB.

Q.No	Article	Ref. in National Report
8	Article 7.2.2	Section 2, pp. 20-25
Question/	Article 7 of the Convention refers to “terms of license” twice. However, there is no information on this subject in the Report. Please provide necessary explanations.	
Answer	Chapter 2 of the National Report of the Czech Republic, in which the fulfilment of Article 7 of the Convention is described, is conceived, in concord with this article, as a legislative overview of the national legal modification with eventual references to other chapters that address the partial issues in a more detailed manner. The area referred to by Article 7 paragraph 2 also addresses the response to the question placed by the Russian Federation to Article 9, Section 4, page 36 (question No. 19) which addresses the prohibition of the operation of nuclear installation without a licence and the response to the question of the Russian Federation to Article 7.2.2, Section 2.1.2, pages 22-23 (question No. 9), which explicits the method by which the individual administrative authorities share in the issuance of individual permits associated with the operation of a nuclear installations.	

Q.No	Article	Ref. in National Report
9	Article 7.2.2	Section 2.1.2, pp. 22-23
Question/	The Report states that:	
Comment	“According to new Civil Construction Act, the issuance of key resolution for all facilities containing nuclear installations, i.e. planning and site decision are entrusted to local department of planning and building control. The Ministry of Industry and Trade is now entrusted with the issuance of other resolutions (construction permit, operation license and decommissioning permit). Provided the related procedure involves interests protected by special regulations, such as nuclear safety or radiation protection, the department of planning and building control shall decide in cooperation with or based on an approval from the respective state administration bodies protecting such interests. A respective state administration body shall condition its approval upon fulfillment of conditions	

specified in its resolution issued in agreement with the special act entitling the body to do so. The bodies include in particular:

- technical inspection bodies dealing with conventional safety, including safety of pressure components and electric systems,
- regional and municipal authorities in respect to fire safety, waste management, water consumption and effluents discharge,
- Czech Environmental Inspection – in respect to air pollution,
- Local body in charge of public health protection in respect to industrial safety.

The Civil Construction Act directly imposes liability upon the operator to present binding approaches to respective departments of planning and building control according to special regulations, in this case of the Atomic Act.”

In the same time, “the Atomic Act establishes activities for which a license issued by the SÚJB is required. Apart from the main activities – siting, construction and operation, there are a number of other activities, e.g. SÚJB licenses for individual stages of nuclear installation commissioning, for reconstruction or other changes affecting nuclear safety, for discharge of radionuclides into the environment, etc.”

How can one combine these types of licenses granted by different State and local bodies for the same type of activity? Such a complexity of legislative system could weaken the role of an independent regulatory body that is required according to the Nuclear Safety Convention. Please provide your considerations to this issue.

Answer Regulatory (licensing) activities of independent administrative bodies, as set down in pertinent laws, correspond with the independence of the proceedings of individual administrative bodies within their field of competence during the licensing process. The relevant administrative bodies issue "partial" licenses with different subject matters in the mentioned partial proceedings. Possession of all prescribed licenses is a prerequisite for performing all concerned activities of an NPP operator.

These licenses are interdependent and provide a necessary basis for each other (system of a chain or pyramidal system). Licenses issued according to the Atomic Act (namely the license for NPP operation, for the commissioning of an NPP etc.) are related specifically to the aspect of nuclear safety and do not substitute licenses issued by other administrative bodies according to other laws (see Section 9 paragraph 4 of the Atomic Act).

Those Atomic Act licenses, at the same time, carry out the role of an approval as required by specific Acts (see Section 14 paragraph 4 of the Atomic Act). Act No. 183/2006 Coll., the Building Act, represents such a specific Act which regulates, inter alia, the issuance of the construction permits for NPP construction.

The text in the National Report may lead to a misunderstanding; the following may clarify the situation. Under the Building Act, structures for trade and industry may be utilized only upon the "final inspection approval" (and similarly the "permit for removal of a structure" issued at the end of its lifetime) by the respective building office, i.e. the Ministry of Trade and Industry, in the case of an NPP. However, these take into account only the structural point of view (mainly the conditions for the design activity and the structural realizations, general conditions for construction, entry to the grounds and into the structures etc.), but not the nuclear safety one, which is primarily (or we may say solely) considered by the SÚJB. The

said terms were mistaken for the "operation licence" and "decommissioning licence", which are issued separately and independently by the regulatory authority, i.e. SUJB.

Q.No	Article	Ref. in National Report
10	Article 8.1	3.1.2, Page 30

Question/ Comment How many regulatory actions involving penalty were taken by SUJB inspectors for the past three years?

The report also mentions that 'A SUJB inspector shall be authorized, depending on the nature of the identified shortcoming, to:

- require the inspected person to remedy the situation within a set period of time,
- charge the inspected person to perform technical inspections, reviews or testing of function condition of the installation, its parts, system or its assemblies, if necessary for verification of nuclear safety
- propose a penalty.

Can SUJB inspector take the above actions on their own or in consultation with authorities at headquarters?

Answer To the first question:

Imposing penalties is in SUJB practice an exceptional step. From 2008 to now, 2 penalties were imposed to the holders of permits of the CEZ a.s. company who operates both NPPs.

To provide a little bit comprehensive overview of SUJB inspection activities results, short summary:

In 2010 SUJB inspectors performed total of 149 inspections at Dukovany NPP and 94 inspections at Temelin NPP; total of 29 non-conformances were found at Dukovany NPP and total of 32 non-conformances were found at Temelin NPP.

In 2009 SUJB inspectors performed total of 136 inspections at Dukovany NPP and 78 inspections at Temelin NPP; total of 40 non-conformances were found at Dukovany NPP and total of 35 non-conformances were found at Temelin NPP. Inspectors required to correct all non-conformances found during inspections, these requirements were

In 2008, SUJB imposed to the permit holders a penalty of 2,500,000 CZK (approximately 102,000 EUR) for unauthorized discharge of tritium into the environment (See IAEA/NEA IRS report No. 8001). The administrative proceedings led to the event of 2007.

In May of 2010, SUJB launched administrative proceedings to impose a penalty on the basis of violations in securing the processes of welding and supervision over a subcontractor found during an inspection. The penalty imposed to the permit holder was in the amount of 2,200,000 CZK (approximately 90,000 EUR).

To the second question:

SUJB inspectors can take the above actions on their own.

Q.No	Article	Ref. in National Report
11	Article 8.1	3.1.2, Page 30

Question/ Comment It is stated in the report that SÚJB is entitled to cancel the licence if its holder applies for the cancellation in writing and he proves that he has assured nuclear safety and radiation protection.

What are the anticipated situations in which the utility might apply for cancellation of License? Are there any regulatory guidelines for utilities to apply for cancellation of License?

Answer The option of requesting the cancellation of a license is given by Section 16 of the Atomic Act, which does not however establish reasons for such a request. This regulation is specially presented, towards the general legal format, by Act No. 500/2004 Coll., the legislative order.

A license holder is obliged to secure, for any subsequent activity, nuclear safety and radiation protection in concord with the requirements of the Atomic Act and with documentation that served as the basis for the issuance of the original licence; Section 16, paragraph 7 of the Atomic Act then lays the obligation to provide a contract, with the consent of SUJB, for a legal successor or the execution of the safe termination of activities. Furthermore for the termination of operation, the licence holder must satisfy the requirements laid out by SUJB Decree No. 185/2003 Coll.

Q.No	Article	Ref. in National Report
12	Article 8.1	Page 28 Section 3.1.1

Question/ Comment The list of responsibilities of SUJB includes the establishment of “technical requirements to ensure technical safety of selected systems structures and components” (item (w) on page 28). How is technical safety defined? In this context (item (x)) what is “the administration office” and the “authorized persons?”

Answer Technical safety is understood as the ability of the selected facility during activities associated with the utilization of nuclear energy under the established conditions of its operation not to endanger human health and property throughout the entire period of its life span, and to secure the permanent correlation with technical requirements that are contained in the operational legal regulation or other binding technical specification for the selected facility.

An authorized person is understood as a legal entity authorized in accordance with Section 4b, paragraph 1 of the Atomic Act for the execution in assessing correlations during the manufacture of selected facilities with technical requirements by procedures established by its operational regulation SUJB Decree No. 309/2005 Coll.

The authorized person is authorized for the execution of these steps in accordance with Section 11 of Act No. 22/1997 Coll., on the technical requirements of products by the legal office in accordance with this act, this being the Czech Office for Standards, Metrology, and Testing.

Q.No	Article	Ref. in National Report
13	Article 8.1	Page 30

Question/ In section 3.1.3 it is noted that SUJB is funded from the State budget. Does the

Comment State have arrangements to recover any of the regulatory costs from licensees?

Answer The state is entitled to an administrative fee paid upon the submission of an application according to Act No. 634/2004 Coll. on administrative fees. The extent to which these fees cover the costs related to the regulatory activities, however, is very limited.

SUJB is currently working on a draft of an amendment to the Atomic Act which would deal with this issue by introducing special fees to be paid by license holders that would realistically shift the main part of the burden of regulation costs from the state budget to the licensees.

Q.No	Article	Ref. in National Report
14	Article 8.1	Page 31

Question/ Comment In section 3.1.4 it is stated that SUJB has sufficient staff to fulfil its legal functions. Could the Czech Republic provide details on how many of its inspectors are involved with nuclear safety and how many are involved with radiation protection at non-NPP sites?

Answer There are 55 inspectors and 10 inspector assistants in SUJB dealing with nuclear safety and an additional 6 inspectors for radiation protection at the NPPs. In addition to that, there are 48 inspectors and 7 inspector assistants in SUJB dealing with radiation protection at non-NPP sites. The inspector assistant is a person in training who will become an inspector when he/she passes the training and state exams.

Q.No	Article	Ref. in National Report
15	Article 8.2	3.1.2, Pg 29, 30 (2nd bullet Pg 30)

Question/ Comment It is observed that the SUJB inspectors participate in the investigations of events with an impact on nuclear safety. Can you please clarify whether these investigations are conducted independently by SUJB or do they participate in investigations conducted by utility?

Answer This part of the Report describes the authorities of SUJB inspectors and is to be understood as an implementation of the IAEA GS-G-1.3, part 2.7 (authorities of regulatory body) in the Czech legislation (see title of chapter 3.1.2 of The National Report).

SUJB inspectors do not participate in the investigations conducted by utility. The results of the utility investigation are independently reviewed by SUJB inspectors.

Q.No	Article	Ref. in National Report
16	Article 8.2	Section 3.1.2, pp. 28-30

Question/ Comment The Report specifies the authority of SUJB to participate in investigations of events with an impact on nuclear safety, radiation protection, physical protection and emergency preparedness, including unauthorized handling of nuclear items or ionizing radiation sources.

It seems that such an involvement might have a negative impact on the independence of the regulatory body. What does the Czech party think in this regard? (In our opinion, the regulatory body shall supervise the investigations performed by the operating organization and assess them, and shall perform its own investigations, if necessary).

Answer This part of the Report describes the authorities of SUJB inspectors and is to be understood as implementation of the IAEA GS-G-1.3, part 2.7 (authorities of regulatory body) in the Czech legislation (see title of chapter 3.1.2 of The Report). SUJB is fully aware of the fact that the primary responsibility for the investigation of events is on the licensee.

SUJB inspectors do not participate in the investigations conducted by utility. The results of the utility investigation are independently reviewed by SUJB inspectors. The authority given to SUJB inspectors in the part of the Report in question is used only exceptionally. SUJB inspectors are present at the licensee meeting where investigations results are discussed and the analysis is finalised, but only at meetings where violations of Operating Limits and Conditions are discussed. SUJB inspectors play the role of observer at these meetings.

Q.No	Article	Ref. in National Report
17	Article 9	pg.36, par.4.1

Question/ Comment Para 4.1 states that one of the basic obligations of the licensee is to provide for physical protection. Is the licensee able to fulfill this obligation on its own, or does he have to co-operate with the State?

Answer According to the Atomic Act (Act. No. 18/1997 Coll.), every licensee must provide for the physical protection of nuclear material and nuclear facilities on his own. On the state level, however, a high potential risk was assessed in the case of malevolent acts against the Dukovany and Temelin Nuclear Power Plants.

By Decree of the Government No. 937/2000 Coll. the state police of the Czech Republic are obligated to secure emergency protection of both Nuclear Power Plants.

Emergency protection is to mean the concentration of forces and means of the state police of the Czech Republic for intervention to prevent any sabotage directed against a nuclear facility.

The above mentioned provisions are in compliance with the State Design Basis Threat for Nuclear Facilities and Nuclear Materials.

Q.No	Article	Ref. in National Report
18	Article 9	pg.39

Question/ Comment What criteria or competences of the potential licensee will you assess more in general before granting a licence to a new operator of an NPP, and why?

Answer Before granting an "operation license" to a new operator, the nuclear safety regulatory authority (SUJB) carries out a comprehensive assessment of:

- the site and its suitability for the construction and operation of a nuclear facility,
- the design and its conformity with the requirements for nuclear safety and radiation protection, and
- the readiness of the entire facility for operation, i.e. the readiness of its systems, structures and components, its organization and personnel and its procedures.

Only when all of the above elements comply with the requirements and are adequately justified and documented can the operation license be granted.

When assessing the competencies of the potential licensee, the regulator focuses on, but does not limit its assessment activities to, the adequacy of the organizational structure of the licensee, the safety and quality management systems and their implementation by the licensee and its suppliers, the number and qualification of personnel, qualification and training programmes and procedures, operation, testing and maintenance procedures, the safety culture in the licensee's organization and how the safety and safety culture are reflected in licensee strategy and management documents. Newly, the adequacy of the licensee's financial resources for assuring safety will also be evaluated.

Q.No	Article	Ref. in National Report
19	Article 9	Section 4, p. 36

Question/ Comment The Report states that in accordance with “the Atomic Act, the principle of responsibility of a licensee for nuclear safety of a nuclear installation has been broken down into a number of partial responsibilities, which together represent the overall responsibility of a licensee for nuclear safety”. It seems that this approach is not equivalent to the requirement of Article 9 of the Convention, i.e. declaration of the prime responsibility of an operating organization for safety. Such a declaration of operating organization’s prime responsibility is a reflection of the most important principle of nuclear facility safety assurance which is Principle 1 from the highest level IAEA safety standard – Fundamental Safety Principles (SF-1), and therefore shall be declared directly in the legislation.

Are there any steps planned towards making relevant amendments to the legislation?

Answer The prime and unconditional responsibility of the licensee for nuclear safety is set down in Section 4 of the Atomic Act ("Whoever performs practices related to nuclear energy utilisation or radiation practices shall proceed in such a manner that nuclear safety and radiation protection are ensured as a matter of priority"). This responsibility is explicitly emphasized by further provisions of the Atomic Act (e.g. Section 17 paragraph 1, according to which the licensee shall, besides other obligations established by law, ensure nuclear safety, radiation protection, physical protection and emergency preparedness, including its verification, in the scope appropriate to the particular licenses).

The responsibility of the licensee is further expressed in a more detailed way in particular duties and obligations to ensure nuclear safety. Due to the technical complexity of the task there are many of them and they are set down notably in Section 17 and Section 18 of the Atomic Act. They are not divided into separated "smaller " and "bigger" responsibilities. The licensee is obliged to comply with all of them (with no exceptions) and his overall responsibility is thus cohesive and indivisible. In the case of a breach of any of the license obligations, the licensee is punishable for an administrative offence.

The diversification of responsibility is only fictitious - the responsibility is united but its material aspects consist of many obligations which must be met by the licensee. A breach of any obligation results in responsibility realization in the form of punishment for the administrative offence. Thus the principle of prime

responsibility of a license holder for the nuclear safety is in place even if not expressly stated due to Czech administrative law drafting traditions.

SUJB is also currently working on a draft of an amendment to the Atomic Act incorporating provisions necessary to expressly comply with the Directive 2009/71/EURATOM, which in 6.1 provides that the responsibility for nuclear safety cannot be delegated.

Q.No	Article	Ref. in National Report
20	Article 9	Section 4, p. 37
Question/ Comment	The Report states, “the licensee continuously verifies and updates all documents, which represent the basis and condition for issuance of the license, in particular the Safety Report and safety analyses. These updates are submitted to the SÚJB for appraisal on a regular basis.” From our point of view, updates to the documents representing the basis and condition for issuance of the license shall be introduced through the procedure for modification of license terms and conditions, with their effect on safety taken into account and upon their reviewing and appraisal by the regulatory body, and not in the reverse order as it follows from the Report.	
Answer	Please provide additional explanation on this subject. This statement of the National Report only describes the process of the annular Safety Analysis Report (SAR) actualisation. All safety relevant modifications of the plant and safety relevant changes in the Licensee organisation, permitted by the regulatory authority during the calendar year, shall be based on licencing documentation (also including also partial updates of the SAR, if necessary) implemented to an actualised version of the SAR (living SAR) until March of the next year. This version shall be handed over to the Regulatory Authority for review.	

Q.No	Article	Ref. in National Report
21	Article 9	page 36
Question/ Comment	Is the principle that prime responsibility for the safety of nuclear installations rests with the holder of the relevant license, laid down explicitly in any national legislation or is this principle met by a sum of regulatory requirements?	
Answer	The primary and unconditional major responsibility of the licensee for nuclear safety is set down in Section 4 of the Atomic Act (see the Report). This responsibility is explicitly emphasized by some further provisions of the Atomic Act (e.g. Section 17 paragraph 1 "A licensee under Section 9 paragraph 1 shall, besides other obligations established by law, ensure nuclear safety, radiation protection, physical protection and emergency preparedness, including its verification, in the scope appropriate to the particular licenses"). The major responsibility of the licensee is further expressed in a more detailed way by particular duties and obligations to ensure nuclear safety.	

Due to the technical complexity of the task there are many of them and they are set down notably in Section 17 and Section 18 of the Atomic Act. They are not divided into separated "smaller" and "bigger" responsibilities. The licensee is obliged to comply with all of them (with no exceptions) and his overall responsibility is thus

cohesive and indivisible. In the case of a breach of any of the license obligations, the licensee is punishable for an administrative offence.

Q.No	Article	Ref. in National Report
22	Article 10	5.1.2 - page 39

Question/ Comment The report mentions "continuous improvement of safety culture". How is the safety cultured monitored (both by utility as well as regulator) ?

Answer SUJB gathers safety culture information from various sources:

1. A periodic review of event investigations (every month). Moreover, safety culture aspects serve as input for the INES evaluation.
2. Some safety culture deficiencies are mentioned in inspection records. A team inspection dedicated to safety management system is the most productive in this aspect.
3. Periodic Safety Reviews contain a special chapter on safety culture.
4. The licensee performs his own safety culture surveys. The results and corrective actions are communicated to SUJB. SUJB monitors the implementation of the action plan. Furthermore, a more structured inspection module on safety culture is to be introduced in 2011.

By utility: IAEA and WANO (standards) were implemented as a base in both NPP international programmes for example STAR principals. There is a complex periodical checking programme for human behaviour and equipment status performed by CEZ managers and specialists.

CEZ periodically performs a company culture survey. The last two surveys of 2005 and 2008 were especially focused on company safety culture. The action plan for improvement was developed and periodically checked. A new survey is to be organised in 2011 as part of the general company culture evaluation.

Q.No	Article	Ref. in National Report
23	Article 10	pg.39, par. 5

Question/ Comment “Company ÈEZ, a. s., implements its adopted strategic tasks focused on the formation of company culture, an increase in efficiency, innovations, renovation of units and construction of new units gradually in order to improve the level of management and to make economy of power plant operation more efficient with simultaneous fulfilment of the requirement for maintenance of at least the same safety level. This process, affecting significantly the organizational and personnel areas, proceeds in a controlled way further to an exhaustive analysis and assessment of possible impact of the prepared change upon the operation safety.” How will the level of management be improved?

Answer The improvement of management on all levels is based on the following pillars:

UNIFORM SAFETY POLICY OF THE CEZ GROUP

A new safety, environmental and quality policy has been issued, and an understanding of these documents is supported by a massive campaign. These missions are the basis for the improvement of the safety culture throughout the entire company. These key documents influence the system of responsibilities and competencies. New company principles were defined two years ago, and their

continual assumption is required by managers on all levels. The level of understanding is the subject of periodical assessment for every employee.

QUALIFICATION AND MOTIVATION

The system of regulating personal qualification requirements was upgraded; this is focused on graded safety requirements covering all areas of safety. The effort of managers is supported by educational activities. The periodical training program is focused on particular management levels and covers all safety areas.

The key Personal Indicators of managers cover safety criteria.

FLEXIBLE APPLICATION OF THE REVIEW TOOLS

Of course, CEZ uses obligatory procedures for the assessment and approval of every significant change. These special procedures are implemented for technical and organizational changes as well as for changes of documentation that influence safety. These procedures contain categorization and assessment of all risks and impacts to the nuclear safety, radiation protection and emergency readiness.

The performance of significant organizational changes is reviewed by independent assessments ordered by responsible managers.

The area of nuclear safety is periodically assessed, and results are reported to the top levels of the company management.

We are implementing the Self-assessment Activities throughout our operational units and in some departments of headquarters. A significant resource for the application of this tool is use of the WANO performance objectives and Criteria (January 2005, revision 3), and also serves as a good basis for the next improvements of the management.

Q.No	Article	Ref. in National Report
24	Article 10	pg.40, par.2

Question/ Comment It reads that “ all organizations which participate in design, manufacturing, construction and operation of nuclear power plants are subject to SUJB inspections, which assess especially the management approach to safety related issues”. What are the standards/requirements used for these assessment?

Answer THE CEZ COMPANY IS INSPECTED BY SUJB ON THE BASIS OF THE NEXT LEGISLATION IN PARTICULAR:

-Act No. 18/1997 Coll., on the Peaceful Utilization of Nuclear Energy and Ionising Radiation (the Atomic Act) and on Amendments and Additions to Related Acts.

-SUJB Decree No. 132/2008 Coll. on the Quality Assurance System in carrying out activities connected with the utilization of nuclear energy and radiation protection and on the Quality assurance of selected equipment in regard to their assignment to classes of nuclear safety

-Next regulations accessible at http://www.sujb.cz/?c_id=99

THE ABOVE MENTIONED LEGISLATION CONFORMS TO THE FOLLOWING INTERNATIONAL RESOURCES:

1. Regulations and guidelines IAEA in particular:

-GS-R-3 The Management System for Facilities and Activities Safety Management

-GS-G-3.1 Application of the Management System for Facilities and Activities

Safety Guide

-Next guidelines focused on particular areas of the construction and operation of nuclear power plants.

2. Regulations WENRA

-Reactor Safety Reference levels (January 2008)

-Waste and Spent Fuel Storage Safety Reference Levels report (version 2.0, 2010-March)

3. Council Directive 2009/71 EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations

Q.No	Article	Ref. in National Report
25	Article 10	section 5.1.2, page 39

Question/ Comment On page 39 of the report it is mentioned that “A separate comprehensive assessment has been developed for each planned change (according to requirements of the "Categorization and safety assessment of organizational changes within ÈEZ, a. s" The proposed changes (their safety related assessment) are submitted to the state regulatory body for appraisal before their implementation.”

What are the regulatory requirements or guidance used by SÚJB when assessing the proposed organisational changes? Is the referenced internal procedure of the licensee subject to regulatory approval?

Answer The organisational changes are assessed by a licensee using the same method as for technical changes, both by licensee and regulatory body. The same categorisation is carried out according to its importance and effects on nuclear safety.

The licensee procedure itself is not subject to regulatory approval. SUJB, however, can check the assessment system using the documents listed in QA programs of a licensee. Special attention is given to reduction or transfers of licensee personnel, especially the shift and responsible personnel or managers, and their qualification.

The licensee is to ensure the accurate performance of all activities related to nuclear safety and radiation protection. The important activities are to be performed by adequately qualified persons and appropriate working conditions are to be established. SUJB issues the regulatory guide on modifications management that states requirements related to all types of changes including organizational.

Q.No	Article	Ref. in National Report
26	Article 11.1	pg.43, par.4

Question/ Comment The amount and method of payments to the nuclear account are decided and specified by the Czech government. Are these amounts established every year? What are they based on? Do they cover all costs?

Answer The Government of the Czech Republic, through Regulation No. 416/2002 Coll., establishes the amount and method of the removal of radioactive waste.

The charge for radioactive waste from nuclear reactors paid to the nuclear account is set according to the amount of power production; for the research reactors the payment is deducted from the amount of the thermal energy production.

Agents of small quantities of radioactive waste must pay the nuclear bill at once when transferring the barrel(s), themselves having to meet the conditions for storage set by the Administration of Radioactive Waste (Radioactive Waste Repository Authority). The charge is fixed for a 200 litre barrel while the Regulation of the Government of the Czech Republic annually sets a specific index increasing this amount.

The amount of contributions to the nuclear account is established so as to cover the total estimated cost of building a deep repository of radioactive waste where spent nuclear fuel and high-level radioactive waste will be primarily stored.

The defined amount of contributions ensures that the final costs will be fully covered. If it is discovered over time that the estimated total cost of construction of underground storage was inaccurate, than the appropriate Regulation of the Government of the Czech Republic will be changed accordingly.

Q.No	Article	Ref. in National Report
27	Article 11.1	pg.43, 6th paragraph

Question/ Comment It is written that the amount of the reserve for preparation and the actual decommissioning is verified by the Radioactive Waste Repository Authority. How is this verification done?

Answer According to the Atomic Act (Act No. 18/1997 Coll.), the estimate of the total costs for decommissioning is verified through RAWRA by an authorized officer. To verify the cost estimate, the applicant is to submit the proposed decommissioning method, including the costs estimate within the range depending on the properties of ionising radiation sources on the appropriate workplace. In the information is incomplete, the applicant is requested to complete it.

The cost estimate for decommissioning in general consists of the predicted costs of:

- radiation control of the workplace (opening and final)
- dismantling of radioactive equipment and potential demolition of radioactive construction parts
- conditioning, transport and disposal of produced radioactive waste
- design of decommissioning and other administrative activity

The cost estimate is ordinarily supported by an expert report of a company specializing in the treatment of radiation sources and radioactive waste.

The cost estimates for disposal of radioactive waste are controlled according to the tariff rates yearly stated by RAWRA. The costs estimated for other radiation activity could be verified (if needed) in cooperation with internal or external specialists.

During the verification of cost estimates, the following must also be taken into account:

- yearly inflationary increase of material, energy and work costs implemented in the concept
- comparison of the same item prices for different workplaces

Q.No 28	Article Article 11.1	Ref. in National Report pg.43., 6th paragraph
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Question/ Comment It is written that proposals for the decommissioning method have already been approved. What criteria were used with this approval?

Answer The proposal for the decommissioning method must comply with the requirements of SUJB Decree No. 185/2003 Coll. on the Decommissioning of Nuclear Installation or Category III. or IV. Workplace.

The regulatory body approves the proposal for decommissioning every five years, meaning that the operator must update the proposal every five years. At the time of this National Report there were no nuclear installations in the stage of decommissioning.

For both operational NPPs there are three main options for their decommissioning - immediate dismantling, protective closure of reactors within reactor buildings (deferred dismantling), and protective closure of a nuclear island (deferred dismantling).

Q.No 29	Article Article 11.1	Ref. in National Report pg.45, 3rd paragraph
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Question/ Comment It is written that the SUJB decree No. 146/1997 Coll., as amended by SUJB decree No 315/2002 Coll., specifies requirements for qualification and professional training. Could you elaborate a bit more about these requirements?

Answer QUALIFICATION REQUIREMENTS OF NPP PERSONNEL

The required qualifications are defined for activities (job positions) as follows: SHIFT SUPERVISOR and SAFETY SUPERVISOR - university degree in physical or technical sciences, absolved initial training and performance of activities as UNIT SUPERVISOR for a period of at least 2 years and passing training for the change of activity.

UNIT SUPERVISOR and CR (CONTROL ROOM) SUPERVISOR - university degree in physical or technical sciences, absolved initial training and performance of activities as REACTOR OPERATOR for a period of at least 1 year and performance of activities as TURBINE OPERATOR for a period of at least 1 year and passed training for the change of activity.

REACTOR OPERATOR and PHYSICISTS - university degree in physical or technical sciences, passed basic training.

TURBINE OPERATOR - university degree in physical or technical sciences, absolved basic training or graduation from a secondary school specialised in physics or technology, performance of activities in subordinated (related) positions for a period of at least 4 years, and passed basic training.

FREQUENCY OF THE PERIODIC RE-AUTHORIZATION

Should the authorization be awarded for the first time, its term is 2 years.

Should the authorization be awarded on a repeated basis, each time covering the same activities, the State Examination Board may recommend that the authorizations for the positions of REACTOR OPERATOR and TURBINE OPERATOR be awarded for the duration of up to 4 years. This award is conditioned by the evaluation results from the oral part of the examination at hand, on the basis of faultless performance (work results) in this field of activities, and on the recommendations of the license holder.

Should the authorization be awarded on a repeated basis, each time covering the same activities, the State Examination Board may recommend that the authorizations for the positions of SHIFT SUPERVISOR, SAFETY SUPERVISOR, UNIT SUPERVISOR, CR (CONTROL ROOM) SUPERVISOR and PHYSICISTS be awarded for the duration of up to eight years in the following sequence:

authorization to be awarded repeatedly for the first time - 4 years,
 authorization to be awarded repeatedly for the second time - 6 years,
 authorization to be awarded repeatedly for the third and more time - 8 years.

The Regulatory Board (SUJB) shall issue the decision to award the authorization in compliance with the Atomic Act and with the Administrative Code.

Q.No	Article	Ref. in National Report
30	Article 11.1	Page 44-50

Question/ Comment Section 6.1.3 gives a comprehensive account of staff training programmes at NPPs. Bearing in mind that the reactors in Czech Republic may operate for several more decades, has any consideration been given to the evaluation of future requirements of qualified and skilled staff for all the nuclear sector?

Answer The company is constantly preparing an analysis of the need for human resources in the key positions of the nuclear sector. We are currently aiming towards the horizon of 2011 - 2025 including the needs of the current sources, changes of the production portfolio, and an emphasis on the planned investment needs in particular. A number of tools we are working with have been created to ensure future human potential needs:

- the establishment of a network of the cooperating secondary schools and universities
- analyses of reciprocal needs and reciprocal support, including the foundation of new fields of studies, modification of the current fields, and the implementation of further projects
- programs for students at our production units - controlled short-term interships - summer university, lectures for schools including the foundation and the further implementation of the scholarship system, among others, and influencing public opinion towards the technical field's benefit of study at secondary schools and universities.

Q.No	Article	Ref. in National Report
31	Article 11.2	Section 6.1.3, p. 46

Question/ Comment The Report states that the process of personnel training starts with hiring. New workers are always selected according to the criteria established in the instruction

"Personnel Selection and Adaptation". The selection process includes verification of health and psychic fitness of the employees for their future positions. Please specify what goes first – the hiring or the verification of fitness for relevant position.

Answer Regulations state that the recruitment process involves first the verification of the state of health, psychic and other fitness aspects of the employees for the future position. The decision to engage the specific working positions and to begin the employment is based on the satisfaction of the requirements set.

Q.No	Article	Ref. in National Report
32	Article 11.2	p.45

Question/ Comment Could you please provide some additional information about State Examining Board:

- composition of the Board
- members experience?

Answer STATE EXAMINATION BOARD

The Chairman of the SUJB State Examination Board, set out to verify the special professional skills of the members nuclear installations' selected personnel (hereinafter as "State Examination Board" only) is hereby issuing its statute.

The mission of the State Examination Board is to verify the professional skills of the nuclear installations' selected personnel members in compliance with special legal regulation (SUJB Decree No. 146/1997 Coll., as amended by SUJB decree No 315/2002 Coll.), by examination in the presence of this Board.

The State Examination Board is composed of its chairman, deputy chairmen, secretary and members.

The Chairman of the State Examination Board, who also must be an SUJB inspector, can be appointed or recalled by the Chairman of SUJB.

The State Examination Board's deputy chairmen, secretary, and members can be appointed or recalled by the Chairman of SUJB, as proposed by the Chairman of SUJB.

The State Examination Board's chairman, deputy chairmen, secretary, and members are specialists of nuclear safety of SUJB, NPPs Dukovany and Temelin, Nuclear Research Institute Rez, the Faculty of Nuclear Sciences and Physical Engineering, and independent members.

Q.No	Article	Ref. in National Report
33	Article 12	7.1.1 , Page 52

Question/ Comment Assessment of human factor impact at Temelín NPP and Dukovany NPP : The causes of human failures are assessed and confirmed by the Failure Commission. Could you please provide more information on the working of ‘ Failure Commission’, including information with regard to the following:
i) Its composition
ii) Its mandate, and

iii) Disposition of its recommendations

Kindly also provide information on typical number of events in a year necessitating assessment by Failure Commission.

Answer The head of the Failure Commission is the NPP director; the administrator is an expert in operating experience from the Nuclear safety department. The members of the commission are managers of all technical departments, altogether 12 people (operation, primary and secondary sites, I&C, electro, maintenance coordination, radiological protection, training centre etc.).

If necessary, it is possible to invite other experts or members of departments involved in the event and also to invite a representative of the contractor, if the course of the event is the human failure of a contractor worker.

The Failure Commission (FC) is established as the advisory team from top NPP management for the identification of causes, corrective measures and conclusions for event investigations of the power plant. Minutes are signed by the head of the Failure Commission and are mandatory for all departments performing activity for Dukovany or Temelin as well for contractors at the site.

The Commission confirms, at its regular meetings, the completeness of the investigations of safety-related event causes, and it adopts corrective measures for the elimination of their causes to prevent them from repeating.

Over the last couple of years, the Failure Commission Temelin has investigated approximately 80 safety relevant events, the Dukovany Commission 50 events.

Q.No	Article	Ref. in National Report
34	Article 12	section 7.1.2, pages 52 - 53

Question/ Comment Could you please provide more information on the state examining board established for the authorization of NPP personnel? (e.g. what categories of personnel have to pass such examinations, what is the composition of the board, what topics are addressed by the written and oral examinations and what justifications are accepted for exemptions from the practical exam on simulator)

Answer STATE EXAMINATION BOARD

The Chairman of the SUJB State Examination Board, set out to verify the special professional skills of the members nuclear installations' selected personnel (hereinafter as "State Examination Board" only) is hereby issuing its statute.

The mission of the State Examination Board is to verify the professional skills of the nuclear installations' selected personnel members in compliance with special legal regulation (SUJB decree No. 146/1997 Coll., as amended by SUJB decree No 315/2002 Coll.), by examination in the presence of this Board.

The State Examination Board is composed of its chairman, deputy chairmen, secretary and members.

The Chairman of the State Examination Board, who also must be an SUJB inspector, can be appointed or recalled by the Chairman of SUJB.

The State Examination Board's deputy chairmen, secretary, and members can be appointed or recalled by the Chairman of SUJB, as proposed by the Chairman of SUJB.

The State Examination Board's chairman, deputy chairmen, secretary, and members are specialists of nuclear safety of SUJB, NPPs Dukovany and Temelin, Nuclear Research Institute Rez, the Faculty of Nuclear Sciences and Physical Engineering and the independent members.

JOB POSITIONS OF THE CR (CONTROL ROOM) PERSONNEL THAT MUST BE AUTHORIZED

Activities performed in a control room or emergency control room, including self-reliant reactor shutdown, control and supervision during the commissioning and operation of the entire nuclear power installation (SHIFT SUPERVISOR, SAFETY SUPERVISOR).

Activities performed in a control room and emergency control room, including self-reliant reactor shutdown, control and supervision during the commissioning and operation of a single reactor unit (UNIT SUPERVISOR, CR SUPERVISOR).

Activities performed in a control room and emergency control room, including self-reliant reactor shutdown, control and supervision during the commissioning and operation of a reactor unit's primary part, (REACTOR OPERATOR).

Activities performed in a control room and emergency control room, including self-reliant reactor shutdown, control and supervision during the commissioning and operation of a reactor unit's secondary part (TURBINE OPERATOR).

Any direct control of the implementation of individual steps as part of tests of physical and power startup in a reactor unit's control rooms (CONTROL ROOM PHYSICIST).

Any control and supervision of handling individual fuel assemblies inside the reactor unit out of the fresh fuel storage equipment (FUEL PHYSICIST).

THE EXAMINATION SHALL CONSIST OF THE FOLLOWING PARTS:

**SIMULATOR-AIDED EXAMINATION (excluding PHYSICISTS),
WRITTEN PART OF THE EXAMINATION (for ALL),
ORAL PART OF THE EXAMINATION (for ALL),
PRACTICAL PART OF THE EXAMINATION (for ALL).**

THE SIMULATOR-AIDED EXAMINATION

NO justifications are accepted for exemptions from the practical exam on the simulator !

The exam on the simulator verifies the ability of the candidate to practically resolve

tasks in the liquidation of abnormal and extraordinary/emergency conditions and, for this purpose, to exercise particularly symptomatically oriented operating procedures with regard to the activity (function) the candidate performs, or for which the candidate is being trained.

The tasks in the simulator-aided examination are thematically identical with the scenarios for normal simulator training.

THE WRITTEN PART OF THE EXAMINATION

The contents of the theoretical part of the examination are as a set of the test exercises for the written and oral parts, elaborated for the individual activities.

The theoretical written part of the examination for nuclear installation consists of 80 test questions on a PC.

The questions for NI are directed towards the verification of the applicant's competence in the principles of nuclear reactor theory, reactor physics, hydraulic and thermo mechanics, I&C, electrical equipment, chemical procedures, normal operation of primary and second circuit, the limits and conditions, nuclear safety, abnormal and emergency conditions, resolution of accidents, radiation protection, and emergency plans.

Applicants take the theoretical written part of the examination in the presence of the State Examination Board member - the holder of the SUJB inspector license. Prior the examination, the applicants are informed of the time allowed for the session which, as a rule, is 60 minutes and are informed of the evaluation method to be applied.

The theoretical written part of the examination for NI is classified in compliance with the total number of points as follows:
from 72 to 80 points - satisfactory, less than 72 points - unsatisfactory.

THE STANDARD ORAL PART OF THE EXAMINATION

The theoretical oral part of the examination, in the case of NI, is comprised of the main topics: the resolution of standard operations, abnormal and emergency conditions, the resolution of accidents, nuclear and operation safety, limits and conditions, emergency plans and reactor physics.

Professional questions are complemented with a sub-question about legislative obligations of the candidate relating to the given activity (position).

For the theoretical oral part of the examination, the applicant chooses questions by lot. He answers them, one by one, without any delay specially allowed for the preparation.

The time provided to each candidate to answer questions in the standard oral part of the exam during the session of the State Examining Board is 60 minutes. (The time is only approximate and shall not limit the duration of the exam).

Members of the State Examination Board have the right to ask applicants additional questions.

Individual questions in the standard oral part of examination as well as the over-all evaluation of the theoretical part of the examination are classified separately in the following scale:

1 - excellent, 2 - very good, 3 - good, 4 - unsatisfactory.

If any one of the questions in the theoretical part of the examination is classified by a mark 4, the overall result of the theoretical part of the examination is classified as unsatisfactory.

The State Examination Board decides on the overall evaluation of the theoretical part of the examination on the same day during its closed session. Disputable issues are resolved by the SEB Chairman.

The standard oral part of the exam may be terminated prematurely, if proposed by the chairperson or by any of the present members of the State Examining Board with the chairperson's approval, if the candidate demonstrates fundamental shortcomings in his/her knowledge during the course of the exam.

THE PRACTICAL PART OF THE EXAMINATION (on the JOB POSITION of the CONTROL ROOM)

The candidate takes the practical part of the examination at the nuclear installation in compliance with the training programme elaborated by the licensee and approved by the SUJB.

Within the practical part of the examination, the applicant performs, under supervision, the work activity he expects to be licensed for.

The minimum duration of the practical part of the exam shall be determined by the State Examining Body based on the overall evaluation of the test on the simulator and the overall evaluation of the standard oral part of the exam.

If the authorization is being awarded on a repeated basis, and the candidate has performed the activity for which he was granted the authorization for a minimum of 2 years, the State Examination Body will not require the practical part of the examination if the oral part of the examination was passed with a rating from 1 to 3.

Q.No	Article	Ref. in National Report
35	Article 12	Section 7.1.2, pp. 52-53

Question/ The Report states that:

Comment “verification of special professional capability for selected personnel of nuclear installations” can be “carried out in form of an exam before the state examining board... A failed exam may be repeated by the applicant within a 1 - 6 months period”.

Perhaps it would be dangerous to entrust NPP operation to an applicant who has

not demonstrated his/her understanding of a particular issue as long as over 6 (in the worst case) months – what is your opinion?

Answer The verification of special professional capability for selected personnel of nuclear installations "MUST BE" done by exam before the State Examining Board.

AUTHORIZATION

SUJB shall issue authorizations and establish the State Examination Board for the verification of special professional competences and shall issue a statute for this commission and specify activities directly affecting nuclear safety.

Special professional competence means the skills and expertise of natural persons as verified by a State Examination Board. The State Examination Board shall be established, and its Chairman and members are to be appointed by the Chairman of SUJB.

Activities directly affecting nuclear safety may only be performed by natural persons who are physically and mentally competent, with professional competence, and to whom SUJB has granted an authorization for the activities in question, subject to an application by the licensee.

EXAM

The purpose of the examination at the State Examination Board is to verify the professional capabilities of the nuclear installation's selected personnel members.

The examination shall consist of the following parts:

simulator-aided examination,
written part,
oral part,
practical part.

The candidate may only accede to the next part of the examination when he has successfully completed the preceding one.

The oral part of the examination shall be taken as a session of the State Examination Board.

REPETITION OF THE EXAMINATION (OR PART THEREOF)

If the examination as a whole is classified as unsatisfactory (failed), the candidate may repeat it within 1 to 6 months.

If one of the parts of the examination is classified as unsatisfactory, the candidate may repeat it within 1 to 6 months and need not repeat the preceding successfully completed parts of the examination.

During this time the candidate prepares for the repetition of the examination without operation.

Q.No	Article	Ref. in National Report
36	Article 12	section 7, pp. 51-53

Question/ Comment The Report states that general provisions of laws and SÚJB regulatory documents necessitate consideration of human factor influence on safety of a nuclear facility. The Report describes relevant measures taken both by the operating organization and by the regulatory body. However, there is nothing said in the Report about activities aimed at introducing and maintaining a high level of safety culture which is the key tool of human performance management and ensuring the highest priority of safety.

Please provide additional information on this subject.

Answer SUJB views its role in nuclear regulation, oversight, and promotion in terms of introducing and maintaining a high level of safety culture.

The safety culture is not mentioned explicitly in high level regulatory documents, but the necessity of a strong safety culture can be derived. A new Atomic Law with a specific part on safety culture is under preparation.

Promotion of the safety culture concept is being executed through dialogue with the key persons of the licensee. Translation activities are also in progress. An IAEA TECDOC 1329 translation has been published recently, for example. The point is to establish a common theoretical and term basis.

As per safety culture oversight, SUJB gathers safety culture information from various sources:

1. A periodic review of event investigation (every month). Moreover, safety culture aspects are input for the INES evaluation.
2. Some safety culture deficiencies are mentioned in inspection records. A team inspection dedicated to the safety management system is most productive in this aspect.
3. The Periodic Safety Reviews contain a special chapter on safety culture.

Q.No	Article	Ref. in National Report
37	Article 12	page 51

Question/ Comment In your report, the subject of ergonomics and working conditions such as lighting, ventilation and panels has not been mentioned. Could you give us the current situation on these subjects in Temelin and Dukovany Nuclear Power Plants and how their situation affects the personnel?

Answer The present main (unit) control rooms of NPPs Temelin and Dukovany have been realized on the basis of the results of functional analyses and projects that were directed in an attempt to integrate human, technical, and other criteria in the most optimal manner in such a way so as to satisfy the conditions for achieving the safety and operational goals of the NPP. These are mainly based on the accessibility of precise and timely information and reducing the workload of the operators. Part of this system approach also includes the work environment of the control rooms and its physical factors (i.e. lighting, microclimate, noise). The projects included the requirements of actual standards and regulations that reflect the globally growing attention devoted to ergonomics and engineering psychology for the purpose of preventing human factor mistakes. The personnel of

the main control rooms participated in the preparation of the project.

The new designs fulfill the specific ergonomic and engineering-psychological requirements as laid out in the following Czech Standards:

CSN IEC 1227 (35 6624) NPPs - Control rooms - Operator control environment

CSN IEC 1771 (35 6626) NPPs - Unit control room - project verification and validation

CSN IEC 1772 (35 6625) NPPs - Block control room - use of VDUs

CSN IEC 964 (35 6618) Designing control rooms for NPPs

CSN IEC 965 (35 6613) Additional control areas enabling reactor shutdown without access to the main control room, and others.

At the Temelin NPP, the design for the main control room was projected by the Westinghouse company, and its concordance with the NUREG 0700 standard as per valid revisions was subsequently verified at the time of validation of the control room design.

The control rooms and their elements were designed in such a way that the working area of individual operators is well-arranged and enables the personnel its respective activity without excessive stress, while at the same time providing service personnel with an environment that corresponds to hygienic requirements as well as the requirements of health safety during work. The requirements of legislation and the personnel of the control rooms were taken into consideration during the project preparation and realization.

The environmental conditions in the main control room are in concord with the hygienic regulations in such a way as to allow the operators activities in the control room as well as their respective monitoring and directing the NPP during the course of an eventual state of emergency.

The air conditioning technology was designed and realized in such a way that this system would be manageable during an eventual state of emergency. The project design of the air conditioning was approved by the hygienic authorities. The thermal conditions in the main control room are in concord with the hygienic regulation: The air conditioning is controlled remotely.

The project design of the lighting contains information by which the purpose and operational characteristic of the lighting scheme is delineated. The lighting conditions correspond to the standards, including CSN IEC 964. The level of lighting can be regulated. The level of the surrounding noise in the control room is appropriate and allows for undisturbed communication and the monitoring of acoustic signalization and its clear identification.

NPP Dukovany and the design of the main control room corresponded to its respective time of formation and the components used. For this reason, it was not possible to apply the requirements and principles of engineering psychological-ergonomics and the requirements/recommendations contained namely in IEC 964 to their full extent in this project. Nonetheless, a majority of the requirements of this standard were covered by the valid CSN 18 43 02 and associated standards.

The realization of the renovation of the I&C, structure T544 meant a large intervention to the panels and consoles of NPP Dukovany, fully realized on the units as part of the renovation of I&C of the important safety parts. Another realization of the renovation of the I&C block facility using modern operational means was launched on unit 3 in 2009 with the completion deadline on all units at 2015. The renovation project included the requirements of the actual standards and regulations that fulfill the specific ergonomic and engineering/psychological requirements. The changes carried out in the control rooms are a positive step for the personnel.

A long-term monitoring of the mistakes and operational dropouts of the NPP showed that the contribution of the main control room (service personnel mistakes) on the safety and economy of the operation is negligible. This is caused partly by the good equipment level of the control room for dealing with all planned states, and partly by the proper training of the service personnel with a very high level of knowledge of the NPP operation and equipment.

Q.No	Article	Ref. in National Report
38	Article 13	8.1.2, p.55

Question/ Comment After the issue 132/2008 SUJB Decree, was it necessary to modify the licensee QA programs (for example Systems, Structures and Components, a document listing items important from the viewpoint of nuclear safety classes)?

Answer According to the final statement in SUJB Decree No. 132/2008 Coll. there was a two-year period after the Decree came into force, within which all subjects required to have the QA system had to upgrade QA documents to fulfill the new criteria and requirements of the Decree.

The new revisions of the originally approved documents shall be submitted to, and approved by, SUJB according to Section 17 of the Atomic Act. The other implemented documentation shall be upgraded in relation to higher level documents.

The main difference between the old and new QA Decree is the separation of the requirements for the QA system in workplaces performing radioactive activities which do not operate reactors. The requirements concerning nuclear installations are basically the same as before.

Q.No	Article	Ref. in National Report
39	Article 13	8.1.2, p. 54

Question/ Comment What is SUJB approach to quality assurance programs implemented by licensee contractors and subcontractors? Do those programs need SUJB approval? Are there any inspections performed by SUJB focused on contractors/subcontractors QA programs?

Answer The QA program of the license holder must include the identification of all contractors, and the description and scope of requirements for their QA system. Also included shall be the method of the assessment and checking procedure of the contractor's QA and its compliance with legislative requirements. SUJB Decree No. 132/2008 Coll. states that the QA system shall be implemented

in all organizations which perform any activities related to nuclear safety and radiation protection. That means general suppliers, contractors and subcontractors. The QA documents are, in principle, QA plans. All processes listed in QA plans shall be documented.

The fulfillment of QA plans is checked by the utility /licensee. The quality assurance programs/plans of licensee contractors and subcontractors are not subject to SUJB approval. The supervision of suppliers referred to in license documentation may be included into the inspection scope if necessary.

Q.No	Article	Ref. in National Report
40	Article 13	Section 8, pp. 54-60

Question/ Comment It is not clear from the text of the Report, does the operating organization perform any supervision of subcontractor work and by what means? There are only mentioned briefly external audits of suppliers; however it is not clear who performs these audits. It is not described how to perform supervision over other subcontractors. As regards the supervision of subcontractors, there exists only a brief reference in the subsection dedicated to quality assurance practices applied by the regulatory body.

Please provide additional explanation on this subject.

Answer The CEZ company has setup certain procedures which provide basic information on the responsibilities and accountabilities of management. Procedures describe requirements for the evaluation of suppliers as well as the supervision of supplier and sub-supplier performance in accordance with quality requirements. These procedures are related to the processing of the external audits and supplier evaluation system.

The annual plan for audits includes MAIN contractors/suppliers and their subcontractors. The plan is approved by the executive managers, and it is the basic document for managing those activities.

The supplier evaluation system provides high standards of outputs, these being then implemented into the safety related items and services.

Relevant outputs from the auditing processes, and supplier and sub-supplier evaluation system is available in electronic form using software application. All evaluation data is supported by the software application. The system uses predetermined measurable criteria.

Data in this application is kept in electronic form in the Qualified Suppliers List (QSL). The QSL shall indicate that the supplier and sub-supplier quality management system has been evaluated and found to comply with CEZ requirements. A supplier who fails to implement an acceptable quality assurance, or demonstrate the incapability to meet the administrative, technical, and quality requirements specified for procurement and services, shall be removed from the QSL.

As per the supervision of contractors and subcontractors, this is executed by CEZ staff directly on site or independently by MAIN contractors who have signed contracts directly with the CEZ company. Each MAIN contractor has predefined

requirements for the selection and evaluation of their suppliers (subcontractors) that are conformable with CEZ requirements. The MAIN contractor selects and evaluates their suppliers (subcontractors) on the basis of these requirements. The results of these supervisions are used as inputs to the supplier evaluation system as mentioned above.

Q.No	Article	Ref. in National Report
41	Article 14.1	9.1.3, p.70

Question/ Comment "In-service inspections are carried out in accordance with an inspection plan approved by the SÚJB. Important components for nuclear and technical safety are included into in-service inspection program; selection of these components is given by design. In accordance with the ENIQ methodology NDT methods are qualified on the safety-important components. "

Q: Have you fulfilled all the primary system equipment qualifications in accordance with ENIQ methodology (RPV, MCP, Pressurizer and there bolting connections,)?

Is there a connection between the qualification of ISI and the change of the in-service inspection interval for the major primary components (e.g. RPV, MCP..)?

Answer A significant part of the NDT methods for primary circuit components is qualified. Due to the continuous development of NDT methods and computer systems, the process of qualification can not be stopped and finished. All qualifications are performed in accordance with the ENIQ methodology / recommendation. At present we plan to qualify bolts M140 (RPV VVER 440) and cladding VVER 1000.

Qualified NDT methods are one of the supporting arguments to justify the possible extension of inspection intervals. At the same time, it is usually a regulatory body condition for approval to extend the in-service inspection interval.

Q.No	Article	Ref. in National Report
42	Article 14.1	9.1.2, p.66

Question/ Comment "The PSA study is also utilized in some other applications (in addition to those mentioned above) such as adjustment of testing intervals for safety-important equipment, IAEA Safety Issues probabilistic assessment, adequacy assessment of existing Limits and Conditions (AOT), assessment of selected operational events, risk-informed in-service inspections (RI-ISI) are on the level of pilot project."

Q: What were your pilot project results in the PSA application of the RI-ISI (risk informed in-service inspection), and RI-ITI (risk informed in-service testing)?

Answer Three pilot projects in the PSA application the RI-ISI were elaborated by NRI Rez in close cooperation with EPRI for both our NPPs in the years 2004 - 2006. As part of pilot studies, the contractor follows EPRI RI-ISI methodologies (see below) as an engineering conservative approach.

The first pilot project was the application of the EPRI methodology to the LP ECCS of Temelin NPP, the second was Primary Loops Piping on Dukovany NPP, and the third was high energy pipe lines (Main Feed Water Pipe Lines and Steam Lines outside containment) on Temelin NPP.

Neither used methodology, nor results, included in pilot studies was approved at this time, because the utility did not formally submit results of the pilot studies and new inspection program to Regulatory authority for the review yet.

EPRI documents used:

EPRI TR-112657 "Revised Risk-Informed Inservice Inspection Evaluation Procedure" Final Report, Rev. B, July 1999

EPRI TR-1006937 Extension of the EPRI Risk-Informed Inservice Inspection (RI-ISI) Methodology to Break Exclusion Region (BER) Programmes. Final Report, Rev. 0-A, August 2002

No pilot project was elaborated for RI ITI, but for example a Technical Specification change "STI extension for comprehensive ESFAS test with actuation devices" was recently performed, where the risk-informed approach for justification of change (relaxation) was used. This change was approved by the Czech Regulatory authority.

Q.No	Article	Ref. in National Report
43	Article 14.1	14.1.3, p.124

Question/ Comment "Approximately two days prior the reactor start-up an expert commission meets (Technical Committee) to judge, based on a report on the performed operational checks, whether the reactor and the pertinent equipment is ready for the restart."

Q:What is the status of this Technical Committee? Does the SUJB take part in the meetings? Who do they report to?

Answer The Committee is an advisory body of the Director of Safety, and its mission is to demonstrate a readiness to start the reactor unit in terms of required in-service inspections. The Chairman and the Deputy are appointed and recalled by the Director of Safety, the other members (representatives of the other departments) are appointed by the Chairman. The SUJB (regulatory body) is to be informed at least 7 days before the hearing of the Committee; an SUJB representative is always in attendance as an observer.

The Committee issues a protocol after the hearing that includes the Chairperson's standpoint on the inspection program fulfillment and preparedness of the unit restart, including comments and conditions. The protocol is passed to the Outage management department and Licensing department, and is one of the sources for the plant operation permit.

Q.No	Article	Ref. in National Report
44	Article 14.1	9.1, Page 64 (2nd para)

Question/ Comment Whether EOPs and SAMGs prepared by utility/consultant (Westinghouse) are reviewed by the regulatory body?

Answer Neither EOPs nor SAMGs were reviewed by the regulatory body. EOPs and

SAMGs are items of operating documentation that is not subject to regulatory body approval. Within its scope, the regulatory body inspects the verification and validation of EOPs and SAMGs performed by Nuclear Power Plants. Inspectors of the regulatory body annually attend training of the Technical Support Centre's staff conducted by Westinghouse. This training is aimed at the use of SAMGs.

Q.No	Article	Ref. in National Report
45	Article 14.1	Section 9.1.2, Page 65

Question/ Comment What are the criteria for selecting internal initiating events for PSA?

Answer The derivation of the initiating events is fully described in the corresponding Analysis File for the PSA Initiating Events selection. The approach used for plant-specific initiating event selection is described shortly in the following text. In order to ensure all potential initiating events as identified for the plant-specific PSA, this task was performed using four different approaches to derive a list of potential PSA initiators. The lists were then combined to arrive at the bounding set of internal initiators. The approaches were:

- Review the generic databases of IE, especially the corresponding IAEA experience on VVER reactors
- Review plant specific lists of IE (especially SAR, EOPs, alarm response procedures /i.e. procedures for anticipated operational occurrences/, list of manipulations potentially jeopardizing nuclear safety)
- Perform systematic functional failure analysis (event analysis) in order to determine the potential for plant specific initiators
- Perform a review of the Temelin and Dukovany (Czech Republic) and Bohunice (Slovak Republic) NPPs specific commissioning and operational events history.

Q.No	Article	Ref. in National Report
46	Article 14.1	section 9.1.2, page 67, 3rd paragraph

Question/ Comment In the third paragraph on page 67 of the report it is mentioned that “In 2008, SÚJB check was executed concerning project “Living PSA“ of Dukovany NPP, verification of continuous evaluation of operational safety of the units of Dukovany NPP by means of risk monitoring Safety Monitor of Dukovany NPP and safety culture evaluation in the field of PSA analyses.”

Could you please provide more information on this evaluation performed by SÚJB, in particular on the safety culture aspects?

Answer These evaluations were performed during the 1st SUJB inspection on PSA which was carried out on Dukovany NPP in 2008 (similar inspection on Temelin NPP was done in 2009).

Regarding safety culture evaluation in the field of PSA, the SUJB inspector used IAEA document Developing Safety Culture In Nuclear Activities - Practical Suggestions to Assist Progress, Safety Reports Series No. 11, 1998, especially evaluated were symptoms of a weakened safety culture.

Q.No	Article	Ref. in National Report
47	Article 14.1	Page 63

Question/ Comment The Safety Monitor is used to monitor the operational risk level of all units of Czech NPPs depending on current equipment configuration. Is SUJB, on-site inspector particularly, uses the Safety Monitor in regulatory activity? Has SUJB performed review of the Safety Monitor and approved its use?

Answer The utility is obliged to continually evaluate the operation risk profile by means of the Safety Monitor, especially during outage, the Safety Monitor is utilised for monitoring the risk profile (instantaneous risk) according to the actual configuration of the systems / equipment. The planning of outages also includes optimising maintenance activities by the Safety Monitor.

On-site inspectors of the SUJB frequently use the Safety Monitor for the verification of submitted utilities' semi-annual reports evaluating the operation risk profile of the NPP units. In case of equipment failure, the availability of the Safety Monitor enables on-site inspectors to perform a prompt probabilistic risk analysis of actual equipment configuration of the units. The development process of the Safety Monitors was finished by verification and validation against the original PSAs. Documentation of those verification and validation of the Safety Monitors was submitted to SUJB during independent review of the PSAs without consequent regulatory approval.

Q.No	Article	Ref. in National Report
48	Article 14.1	Page 65

Question/ Comment It is noted on page 65 that the first PSRs for Dukovany were carried out in 2005 and 2006. Were the corrective measures arising from the PSR identified by the licensee or the regulator (or both)? Is the completion of the corrective measures to a specific schedule mandatory? It also states on page 65 that the results of the PSR will be used (amongst other things) to help justify operation beyond 2015. Does this refer to the 2005-6 PSR or the one to be carried out 10 years later?

Answer In 2006, corrective actions based on PSR findings were developed by the licensee and validated (accepted) by the regulatory body. The licensee elaborated the Corrective action programme and its fulfilment was also checked by the licensee. The licensee also periodically (yearly) has informed the regulatory body about CA programme fulfilment, and the regulator has checked some details.

The completion of the corrective measures is a precondition for the renewal of operational licenses of the Dukovany NPP units in 2015.

PSR 2005-2006 results were also one of the supported materials for the preliminary evaluation of Dukovany continuing operation (beyond year 2015) - extending the design lifetime and the Long Term Operation project (LTO).

In 2013, the next PSR will be performed - 30 years after its launch into operation. Its result will be one of the supporting materials for making the decision to continue operation in Dukovany beyond the year 2025.

Q.No	Article	Ref. in National Report
49	Article 14.2	pg. 72, para 9.1.4

Question/ Comment It is written that inspectors can require remedial measures to be adopted within established deadlines, impose corrective measures, inspections, tests and reviews.

To what extent do cost-considerations play a role here?

Answer This part of the Report describes the authorities of SUJB inspectors. There is no discussion on cost-consideration in the Atomic Act, however, SUJB inspectors are required to inform SUJB management upon inspection findings of higher safety relevance immediately, i.e before they impose potentially "problematic" (e.g., costly) remedial measures. This inspector's duty is specified in the SUJB internal inspection directive. Such cases are extremely rare.

Q.No	Article	Ref. in National Report
50	Article 14.2	page 63

Question/ Comment What is the inspection philosophy, policy and targets of the Regulatory Authority for the safety class 1, 2 and 3 SCC in the design, construction and operation phases of the NPP's?

Answer The SUJB inspection philosophy, policy and targets to safety-classified SSCs is based on the principles of quality assurance and reliability assurance applied with a graded approach. It includes an assessment of the adequacy of technical means implemented during the design stage (declared reliability, backed up by redundancy or diversity, separation and segregation and the proposed system of maintenance, testing, surveillance and inspections) and an assessment of quality assurance during production, assembly, construction and operation. The SUJB approves the programs of operational inspections and maintenance including its actualisation.

During plant operation, SUJB applies the same approach to the assessment of the licensee proposals for the actualisation or optimisation of the maintenance, testing, surveillance and inspection systems for classified SSCs. The risk evaluation of the plant operation in actual configuration is also a part of the assessment. These results of SUJB analyses of the status of classified SSCs, including its system of maintenance, testing, surveillance and inspections are the basis for operational permits.

Q.No	Article	Ref. in National Report
51	Article 14.2	page 71

Question/ Comment Are the softwares and systems (like DIALIFE etc.) used for components life monitoring program totally applicable for both Dukovany and Temelin NPP units or some parts of these softwares are still experimental? Could you please give some details for each software? According to which standards and when these softwares have been developed?

Answer Yes, they are. Most of the software applications for component life monitoring are implemented for all units of Dukovany and Temelin NPPs and are fully used for real components.

DIALIFE (for low cyclic fatigue) contains some program units for experimental and testing of fatigue cumulative damage results, but the main activity is aimed at monitoring real cumulative damage factors on real NPP components.

Checworks (for flow accelerated corrosion) is a product of EPRI using US ASME Codes, developed in the 1990's.

VVK (evaluation for cable aging) is a simple SW application developed in 2004 by NRI Rez following IEEE Codes.

SSS (I&C reliability monitoring system) was developed by the Technical

University of Liberec in 2005.

We are currently developing an SW application for a RPV (reactor pressure vessel) surveillance program (following VERLIFE Codes) and for the AM (aging management) of MOVs (Manual Operating Valves) and SOVs (Solenoid Operating Valves).

Q.No	Article	Ref. in National Report
52	Article 15	p. 77, section 10.1.2

Question/ Is a dose limit defined for pregnant women?

Comment

Answer According to SUJB Decree No. 307/2002 Coll., on Radiation Protection, as amended, the exposure of the foetus in a pregnant woman, upon becoming aware that she is pregnant and notifying this to her employer, and who works at category I to category IV workplaces shall be immediately reduced by a modification of her working conditions so that the sum of effective doses from external exposure and committed effective doses from internal exposure of the foetus shall not exceed 1 mSv at least over the remaining period of pregnancy.

Q.No	Article	Ref. in National Report
53	Article 15	1st para 3rd bullet, Page.76

Question/ The disposal of radioactive wastes is entrusted by law to the Radioactive Waste Repositories Agency (SÚRAO). Does SUJB keep regulatory surveillance over the waste repository?

Answer Yes, SURAO is a licensee and therefore its facilities are subject to regulatory control. Every repository is usually controlled by the SUJB once in 6 - 12 months.

Q.No	Article	Ref. in National Report
54	Article 15	pg.75, 2nd paragraph

Question/ It is written that values, parameters and facts shall be recorded. For how long shall these be preserved?

Answer Documents on the conclusions of preventive medical examinations to verify health fitness of category A workers and personal doses for all category A workers and other data to characterise the exposures of such workers as set out by the Office in the licence conditions, or approved by the Office as a part of the monitoring programme, shall be retained throughout the time of performing the work activity involving ionising radiation exposure, and subsequently until the time when the person reaches or would have reached 75 years of age, however no shorter than 30 years after the termination of the work activity during which the worker was subject to the ionising radiation.

Other quantities, parameters and facts relevant from the point of view of radiation protection, including records on radionuclide discharge into the environment, monitoring programme, methods for monitoring, and monitoring results other than personal doses, shall be kept for a minimum of 10 years. (SUJB Decree No. 307/2002 Coll.)

Q.No	Article	Ref. in National Report
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55	Article 15	pg.75, 10th bullet
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Question/ Comment It is written that values, parameters and facts shall be recorded. For how long shall these be preserved?

Answer According to SUJB Decree No. 307/2002 Coll. all data important from the viewpoint of radioactive waste management are preserved for at least 10 years. Data related to disposed RW are saved permanently.

Q.No	Article	Ref. in National Report
56	Article 15	pg. 76, 2nd para, first bullet

Question/ Comment It is written that wastes which satisfy the generic clearance levels, may be discharged into the environment. Which clearance levels are applied here?

Answer According to Decree No. 307/2002 Coll., on Radiation Protection, as amended, materials, substances and objects containing radionuclides or having been contaminated by radionuclides can be discharged into the environment without a foregoing approval issued by the Office under Section 9 paragraph 1h) of the Atomic Act under the conditions that:

- during the discharge of solids and other objects to be used out of category I to IV workplaces, the sum of the quotients of average mass activities of particular radionuclides in each kilogram of the material being discharged and the clearance levels of mass activities of the appropriate radionuclides mentioned in Annex 2, Table 1 shall not be higher than 1, and the sum of the quotients of average surface activities of particular radionuclides on each 100 cm² of the surface of the material being discharged and the clearance levels of surface activities of the appropriate radionuclides mentioned in Annex 2, Table 1 shall not be higher than 1;
- during the discharge of waste water into surface water, the sum of the products of average volume activities of particular radionuclides being discharged and the maximum conversion factors hing according to tables in Annex 3 for intake of the radionuclides ingested by adult individuals in each cubic metre of water being discharged shall not be higher than 10⁻⁴ Sv.m⁻³;
- during the discharge of waste water into public sewerage the sum of the products of average volume activities of particular radionuclides being discharged and the maximum conversion factors hing according to tables in Annex 3 for intake of the radionuclides ingested by adult individuals in each cubic metre of water being discharged shall not be higher than 10⁻² Sv.m⁻³;
- during the discharge into the atmosphere, the sum of the products of average volume activities of the particular radionuclides being discharged and the conversion factors hinh according to tables in Annex 3 for intake of the radionuclides inhaled by adult individuals in each cubic metre of gaseous substance being discharged shall not be higher than 10⁻⁷ Sv.m⁻³;
- during the disposal at waste dumps, disposed material shall comply with the requirement under a), and the disposal shall be implemented in such a way that the dose equivalent rate shall not increase by more than 0.1 microSv/hr at a distance of 1 m from the waste dump surface compared with the original natural background in the given point, and the total dose equivalent rate shall not exceed a value of 0.4 microSv/hr; and
- during combustion in incineration plants, combustion gases discharged into the atmosphere shall comply with the requirement under d), and ash generated by incineration shall comply with the requirement under a), or if the ash is disposed at municipal waste dumps it shall comply with the requirement under e).

Materials, substances and objects containing radionuclides or contaminated by radionuclides can be also discharged into the environment without a licence issued by the Office when such activity is reasonable by the benefits and a collective effective dose related to the discharge shall not exceed 1 Sv per each calendar year, an effective dose to individuals shall not exceed 10 microSv, and the Office shall be informed at least 60 day beforehand about the kind of radionuclides, activities, location, date and method of the discharge into the environment as well as about an estimate of the related exposure.

Clearance levels according to class of radiotoxicity

Class of radiotoxicity 1; 2; 3; 4

Clearance levels [kBq/kg] 0,3; 3; 30; 300

Clearance levels [kBq/m²] 3; 30; 300; 3000

Q.No	Article	Ref. in National Report
57	Article 15	page 78, 2nd para

Question/ Comment Are there any restrictions in terms of decay times of the discharged radionuclides?

Answer The authorized limit for the discharged radionuclides for a workplace where radiation activities are performed is determined in the effective dose for the appropriate critical group of the public.

Q.No	Article	Ref. in National Report
58	Article 15	pg. 79, third para

Question/ Comment It is written that a dose constraint for a nuclear installation operation shall be a collective effective dose of 4 manSv per year for each gigawatt being installed in the nuclear installation related to the exposure of all exposed workers who undergo personal monitoring in compliance with the monitoring program. What is the reasoning behind this 4 manSv per year per gigawatt?

Answer The dose constraint was derived from the dose constraint for one radiation worker and taking into account the total number of workers in the NPP. In the upcoming update of the decree on radiation protection, the dose constraint will not be included.

Q.No	Article	Ref. in National Report
59	Article 15	pg. 75, 2nd para, eight bullet

Question/ Comment It is written that the produced quantity of radioactive waste shall be minimized to the necessary level. Does this e.g. mean that the licensee is obliged to decontaminate all?

Answer The licensee is obliged to minimise the amount and activity of both initial waste streams and the secondary waste. Decontamination of the surface of contaminated material is only one of several technologies used for the waste minimisation and is not applicable to all waste streams. Other waste minimisation technologies cover e. g. incineration, compaction, evaporation, etc.

Q.No	Article	Ref. in National Report
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60	Article 16.1	page 96
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Question/ Comment The emergency planning zone and the internal zone are stated to be different for Dukovany NPP (emergency planning zone 20 km, internal zone 10 km) and Temelin NPP (emergency planning zone 13 km, internal zone 5 km). What is the technical basis for determining the extent of the planning zones?

Answer The reason are the different types of nuclear reactors and different types of hermetic zones/containments; i.e. different results of the safety analyses.

Q.No	Article	Ref. in National Report
61	Article 16.1	page 85, SUJB decree No. 307/2002 Coll.]

Question/ Comment It is written that this decree establishes guidance levels for the early and recovery countermeasures. Does this mean that there are remediation levels in place for on-site and off-site? If so, what are these?

Answer The proper translation was unfortunately not used in this sentence; instead of "recovery countermeasures", the term "long-term countermeasures" should have been used because the guidance levels meant are related to the regulation of radionuclides contaminated water, food- and feedstuff and to the resettlement of the inhabitants.

Q.No	Article	Ref. in National Report
62	Article 16.1	page 98

Question/ Comment Which atmospheric dispersion codes are used for assessing the consequences of an accident? How were the codes verified?

Answer An ESTE (emergency source term evaluation) code has been used by SUJB. The ESTE code was developed, for SUJB purposes, by ABMerit Co. and was verified by SUJB and by comparison calculations made by code PC Cosyma, code RASCAL ver. 3.0.5 and code InterRAS.

Q.No	Article	Ref. in National Report
63	Article 17.1	12.1.2.1, Pg 105 & 12.1.2.2, Pg 108

Question/ Comment Protection against effects caused by aircraft crash: Please explain, why two different guide lines were used for the assessment of the protection against the effects caused by an air craft crash for Dukovany and Tamelin NPPs?

Answer Thanks for the good question. The current evaluation of the Dukovany and Temelin sites is performed according IAEA standard NS-G-3.1 (External Human Induced Events in Site Evaluation for Nuclear Power Plants). There are no different methodologies on these two sites.

Corrected text (12.1.2.2, Pg 108):

Protection against effects caused by aircraft crash

The airspace above a nuclear power plant with a radius of 2 km and height 1500 m has been proclaimed prohibited for all flights by the "Flight Information Manual". The nearest flight corridor is situated 18 km from the power plant. Air traffic, then, has no effect on the nuclear power plant. The military airfield at Bechyne, located 25 km from the plant, was liquidated. Calculations have shown that the power plant is protected against the effects caused

by a military and civil aircraft crash. Assessment of the protection against the effects caused by an aircraft crash was performed in accordance with the IAEA instructions. The results of the calculations have shown that an aircraft crash would not cause inadmissible destruction of the primary system because its civil constructions, important for nuclear safety, are sufficiently resistant against the possible impacts of such a crash. The analyses have also shown that the spatially isolated back-up core cooling systems, together with civil construction, ensure that even an aircraft crash would not affect the function of the reactor emergency shutdown and cooling.

Q.No 64	Article Article 17.1	Ref. in National Report Section 12.1.2.2, p. 108
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Question/ Comment The Report indicates that nuclear power plant design takes also into account the protection against the influence of third parties.

It is desirable to give definition to the term "influence of third parties", what kind of influence is meant? What are the technical, organizational and security measures envisaged in the design for precluding inadmissible influence of third parties?

Answer There is no definition of the term "influence of third parties". This term might be interpreted to mean provisions of engineered safety (redundancy) supplemented with a technical, organizational and regime system, or provisions of physical protection. Provisions of physical protection are defined in the State Design Basis Threat for the Nuclear Facilities and Nuclear Materials. This document is annually revised and is not public.

Q.No 65	Article Article 17.1	Ref. in National Report Page 101-110
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Question/ Comment Chapter 12 of the National Report gives a clear and comprehensive overview of siting matters covering initial assessment and ongoing assessment of a site's suitability. Does the Czech Republic have in place any planning Authority to control the population growth and industrial development in the vicinity of NPPs? Such developments would not normally be in the direct control of the nuclear site licensee or the nuclear regulatory authority. How does a planning Authority obtain its information regarding nuclear risk?

Answer The population growth and industrial development in the vicinity of NPPs are indirectly controlled by planning (building) authorities by the town and country planning instruments, and through an assessment of the impacts on the area's sustainable development.

They are supposed to consult SUJB in matters that are related to nuclear safety - see Building Act (Act. No. 183/2006 Coll.), Section 4.2 ("The town and country planning authorities and the building offices proceed in mutual cooperation with the respective authorities protecting the public priorities pursuant to special regulations") as a general rule; more details concerning concrete rules for proceedings of such cooperation are set forth in the following provisions of the Building Act.

Q.No 66	Article Article 19.1	Ref. in National Report Page 120
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Question/ Comment In section 14.1.2 it is not completely clear how the limits and conditions for safe operation are derived. Part of this section says that they are derived from safety analysis while other parts state that it is from operational experience including that at other plants. One of the main objectives of a Safety Analysis Report is to identify the boundary (i.e. limits and conditions) of safe operation. Any changes to this should be justified by amending or updating the Safety Analysis Report. Could the Czech Republic confirm that this is the case?

Answer The requirements of the Limits and Conditions are based on the prerequisites of safety analyses, documenting the power plant safety at abnormal and emergency conditions (deterministic approach), and when the limited technological system operation ability recovery time is fixed, they take the PSA results into account (probabilistic approach).

The Limits and Conditions also reflect the calculation and experimental analyses and data, and are based on operational experience not only from the Dukovany units with the VVER 440/213 reactors, but also from similar units in other countries (Slovakia, Hungary, Russia).

Q.No	Article	Ref. in National Report
67	Article 19.2	14.1.2 Page 121 (Last para)

Question/ Comment Limits and Conditions of the Temelin NPP:

It is mentioned that the revision of the whole document is executed periodically including justification of the Limits and Conditions. How frequently are the L&C documents revised and what is the basis for these revisions?

Answer The L&C document is reviewed annually. Revision of the L&C document shall be carried out based on the findings of NPP operation, the results of investigate of events and the specification of intent of the words and process of the textual matter of the L&C document.

Q.No	Article	Ref. in National Report
68	Article 19.4	14.1.4, (para 3), Page 126

Question/ Comment What is the minimum time credited for operator intervention in the symptom based EOPs?

Answer Operator actions included in EOPs are performed in the optimal way, i.e. as soon as possible with regards to actual plant status and generally no time for the operator's actions is credited. Safety analyses have proven that no operator actions are necessary until 30 min (15 min for PRISE leaks at Temelin) after an initial event (with conservative assumptions) that ensures sufficient time for an operator's actions.

The symptoms for the identification of multiple or independent events are monitored continuously thus ensuring that even if any action is not performed properly, or some equipment fails, a contingency action is performed. Such an approach ensures that most of EOPs operator's actions are not time critical and EOPs network provides multiple tools for operators to identify problems and take corrective actions.

Q.No	Article	Ref. in National Report
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69	Article 19.4	14.1.4, Page 127 (Last para),128
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Question/ Comment Could Czech Republic clarify the extent of accidents covered in simulator training, specifically whether severe accident management is part of simulation?

Answer The training and drills for the Emergency Operating Procedures (EOP) are done on a full-scope replica simulator and include the prevention of severe accidents, e.g. LOCA, SGRT (Steam Generator Rupture Tube), loss of residual heat removal from the core, loss of AC power, the interruption of Critical Safety Functions (CSF) and combination of these events. EOP covers design basis accidents and beyond design basis accidents without core degradation. Information from the full-scope replica simulator are transmitted to the Technical Support Centre (TSC) so that the members of TSC can be trained in the support of the control room personnel while preventing severe accidents. The events where the core is overheated and core degradation starts (beyond design basis accidents with core degradation - severe accidents) are beyond the scope of the simulation in the full-scope replica simulator. The full-scope replica simulator is used only for training the transfer from EOP to SAMG.

Training in connection with severe accidents is carried out as classroom training developed by NPP's experts in the subject matter severe accident and exercises developed by professional trainers from Westinghouse company (EOP and SAMG vendor) in co-operation with NPP's experts in the subject matter. This kind of training, in which the pre-prepared severe accident scenario is acted out by TSC members, is aimed at use of SAMG.

A simulator for the visualization of the precalculated data from MELCOR calculation code is available. Apart from classroom training, this simulator is used for educating and training the SAMGs.

Q.No	Article	Ref. in National Report
70	Article 19.7	section 14.1.6, page 130

Question/ Comment On page 130 of the report there are 3 categories of events taken into account in the operational experience feedback, which include minor events and near misses.

Could you please provide more information on the processes and resources dedicated to the collection and analysis of such low level events in order to enable the identification of any adverse trends in safety performance?

Answer The scope and criteria for event categorization are described in the OEF procedure. For each occurrence (significant event, less significant / low level event or near miss) a record is elaborated and registered by the operational experience feedback group (part of nuclear safety). Records are categorized according to their significance concerning the safety and availability of the plant.

Analyses (results of investigations) of events important to nuclear safety are submitted to the Failure Commission of the relevant NPP, which approves the root and direct causes altogether with proposed corrective measures. These activities are regularly checked by the Regulatory body.

Low level events (INES classification always less than 0, classified as out of scale) are investigated within technical departments without the necessity to identify the

root causes of events. These events are not discussed by the Failure Commission but only their collection and corrective measures are checked by the feedback department to meet their intention.

Near misses could be resolved either as significant or low level, based on an evaluation of their significance.

An evaluation of the operating experience feedback indicators and their trends is performed once a year, for particular indicator even more often (for example - NPP outage period, etc.). Trending covers past 5 or more years or another given period.

In case an adverse trend is detected by a regulatory body, the situation is communicated during the periodic review of an event investigation. Furthermore, all trends are evaluated in a yearly period.