Question Id	Posted To	Article	Ref. in National Rep	Question / Comment	Answer
32815	Czech Republic	General	CHALLENGE	CHALLENGE: Given the current geopolitical context, one of the challenges for the nuclear safety regulator will be to maintain its independence of decision-making from possible political pressure both in the context of diversification of suppliers of technologies and services and of the need to increase energy production capacity.	As is described in Chapter 8 of the National Report, the Czech regulatory system for nuclear and radiation safety is robust, SÚJB is an effective and independent regulatory body. The diversification of suppliers of technologies and services suppliers and the need to increase energy production capacity are not a direct challenge for the regulatory body, they are only a challenge in the sense of ensuring sufficient and proper human resource capacity for the regulatory body and its TSOs in order to fulfil their competence. These national policy intentions will unavoidably lead to an increase of licensing procedures as well as an increase of inspections carried out by the regulatory body. SÚJB is responding to this challenge by strengthening human resources, particularly in its TSO. Emphasis is also focused on strengthening international cooperation with other regulatory authorities.
29341	Czech Republic	Article 7.1	7.1.4, p30	Some bilateral cooperation agreements are mentioned. One is between 'Czechoslovak Socialist Republic' and Germany. Maybe 'Czechoslovak Socialist Republic' is a typing error.	The wording is really incorrect. The agreement was concluded by the Government of the “Czech and Slovak Federal Republic” in May 1990 (not the “Czechoslovak Socialist Republic” which was previous name of the country). The country was later divided into two independent states, the Czech Republic and the Slovak Republic, in 1993. However, according to the Constitution of the Czech Republic the newly created state took all existing international agreements over as a successional state, including this one. Therefore the agreement is still valid and in force, even though it was adopted by the state which no longer exists.
29317	Czech Republic	Article 11.2	Page 75	SUJB oversees the readiness of personnel for the restart of the nuclear unit after refuelling. What does this supervision entail? Which readiness criteria have to be fulfilled?	This is mainly a check of the status and sufficiency of personnel who perform activities important from the point of view of nuclear safety and activities of particular relevance to nuclear safety. It is checked that the shift personnel, especially the operators in the unit control room and their managers, have valid authorization to perform the activity, and whether their number is sufficient for the full occupation of all shifts, including replacement shifts. It is verified that staff training is underway and that the staff meet the qualification requirements for the performance of the activity.
29316	Czech Republic	General	p.14	Psychodiagnostics is mentioned related to adjustments in the organization and management of the outage during the Covid pandemic. What is meant by this?	The period of validity of non-mandatory psychological examinations (suppliers) was extended, and subsequently, after the releasing of hygiene measures, all postponed psychological examinations were subsequently carried out.
29281	Czech Republic	Article 18.1	18.1, p.166 'Temlín NPP'	It is mentioned that the second PSR is underway between 2018-2020. Does that mean it has already been finished? If so, what are the main safety improvements that have been identified?	The PSR was completed and the results submitted to the Office in accordance with the requirement of the provisions of the Decree on Safety Assessment. The Office evaluated the conclusions, stating that the detected deviations and the proposal for their resolution did not prevent the issuance of a permit for further operation. All implemented proposals for changes to the project are reported to the office annually. Measures taken to correct the most important deviations in the Temelin NPP are in the area of severe accident strategies that will rely on permanent equipment. Therefore, there started two projects to maintain the integrity of the containment and prevent containment bypass. The first important project is to install a Filtered Containment Venting System. The second project will implement additional active core cooling systems that will be controlled independently on the unit operation.
29280	Czech Republic	Article 14.1	14.1.2 p.91-96	The NR shows the track record on level-1 and level-2 PSA. Is it being considered to also perform level-3 PSA studies in the near future?	The implementation of PSA Level 3 is not required by legislation in the Czech Republic, unlike PSA Level 1 and PSA Level 2. We do not yet know the answer to whether a PSA Level 3 will be performed in the Czech Republic in the near future, but the following facts can be stated: SÚJB is interested in the PSA Level 3, although it does not currently request its implementation (this interest has lasted since about 2012) and tries to support the activities of various research and development organizations dedicated to this area. For example, work is currently underway on the project “Probabilistic Assessment of the Consequences of Radiological Accidents (the project started in 2022 and is due to be completed in 2024); this project is co-financed by the Technology Agency of the Czech Republic - ÚJV Řež, a. s. and the Technical University of Liberec are working on it, while SÚJB is its application guarantor.
29279	Czech Republic	Article 14.1	14.1.2 p.89	Does the 'Safety Monitor' tool also play a role in the communication with stakeholders (like the public) to demonstrate the safety of NPP operations?	The results (risk profiles) obtained by the Safety Monitor tool (i.e. the instantaneous and cumulative risk profiles) are used by the Czech NPP operator (ČEZ, a. s.) and also by the national regulatory body SÚJB, to which the operator makes them available for its supervision activities. The outputs of the Safety Monitor are not yet used in the communication with the public and stakeholders.

29278	Czech Republic	Article 8	several sections	In the NR, several impacts of the Covid-19 pandemic have been mentioned, including challenges in executing the tasks of the regulatory body. (1) However did the pandemic also provide some lessons that are useful post-pandemic? For instance for improving efficiency regarding online meetings, solutions for monitoring parameters online etc ? (2) On p.38 it is stated that the SUJB set "Issues of radiation accident and radiation emergency management regarding to the use of the experience gained during the COVID-19 pandemic" as a priority for 2022. Can you comment on the relevant experience with regard to this topic?	ad (1): There is a return to previously established and proven procedures, using also new improvements and possibilities introduced during the pandemic (e.g. online communication, video meetings, sharing and emailing of requested documentation between SÚJB staff and licence holders). Monitoring of selected parameters important from the nuclear safety point of view was made possible for selected SÚJB inspectors via remote access to the licence holder's software resources already before the pandemic. This monitoring was also used during the pandemic and is still used as standard after the pandemic. The “lessons learned” and positive new practices have been incorporated by the regulator into the internal management documentation of the SÚJB. ad (2): During the pandemic, the number of emergency exercises was limited and the exercises were conducted under the necessary pandemic measures (number of participants limited to the minimum necessary, use of protective measures). The use of the experience from the pandemic is that we have verified that we can set up sufficient measures and the exercises carried out confirmed that the SÚJB is fully capable of ensuring competence in the field of radiation accident and radiation emergency management even during a pandemic.
29277	Czech Republic	Article 8.1	8.1.5, p.42	It is mentioned that it is currently difficult to recruit specialists for civil servant positions and that the shortfall in inspectors is filled by the TSO (SÚRO). Is it considered to attrackt staff from other EU-countries, e.g. from countries where employment in the nuclear sector is decreasing and some experts will look for new opportunities?	Attracting experts from other EU countries is very difficult due to Act No. 234/2014 Coll., on Civil Service, which covers all SÚJB inspectors. First of all, there is the need for knowledge of the Czech language, which is an essential condition for submission of recruitment application and assignment to a post and subsequent completion of the mandatory two-phase civil servant examination, which is also entirely in the Czech language. The civil servant must pass this examination within one year after the date of employment; if he/she fails the examination by then, his/her service will be terminated.
29276	Czech Republic	General	Introduction, p.8	Comment: The NR of the Czech Republic is a well-written and comprehensive document. However in its Introduction it seems there are no remarks outlining the national policy towards nuclear activities, as recommended in infcirc572.	Nuclear energy in Czech Republic is also to be one of the pillars for ensuring a low-carbon, stable and economically affordable supply of electricity and strengthening the Czech Republic's energy self-sufficiency. The European Commission is counting on nuclear energy, which together with renewable energy sources will form the “backbone of carbon-free energy” in the long term, which was newly confirmed in the draft supplementary delegated act to the taxonomy. In addition to the new nuclear project EDUII project, the government of the Czech Republic in its program statement - in accordance with the State Energy Concept - anchored the preparation of the decision on the construction of additional NPPs in the existing locations of Temelín and Dukovany. The preparation of new nuclear units EDU II has progressed to the next phase, within which a tender for suppliers will be/was announced in 3/2022, and at the same time, the process of notification of public support was formally started in 1Q/2022, which will be provided by the Czech Republic to the investor at preparation and construction of NJZ EDU II. The provision of public support, including a state loan and a power purchase agreement, is necessary due to a number of market failures and is in accordance with international recommendations (OECD, UNECE, IAEA, etc.). The valid state energy concept (SEK) assumes the share of the core in electricity production in 2040 in the corridor of 46 - 58%. This role of nuclear energy will also be preserved in the new updated SEK, which should be ready by the end of 2023. The Czech Republic will need new units in connection with the planned gradual decommissioning of coal-fired units (up to 8 GW gradually decommissioned) and the end of the life of the existing Dukovany nuclear power plant (assumption around 2045-47). Studies by the ČEPS company have repeatedly confirmed the risk that without the construction of the NJZ EDU II in 2040, the Czech Republic could be 40% dependent on electricity imports, even so the CZ will have a negative balance and it is necessary, in accordance with the SEC, to proceed with the construction of additional large (up to 1200MW) new nuclear units. This means that electricity consumption would have to be regulated for a significant part of the year. The problem, however, is that the lack of performance threatens across the EU, most notably in Central and Eastern Europe. Import options will therefore be very limited. In its program statement, the new government of the Czech Republic presents a combination of nuclear energy and decentralized renewable sources with an emphasis on technological neutrality and scientific knowledge as the future of the Czech energy industry. Nuclear energy must be understood as a sustainable activity and a tool to fulfil climate obligations and ensure a long-term replacement for emission sources. Documents will be prepared for the decision on the construction program for additional large new nuclear units - 1 to 3 units in total, in the existing Temelín and Dukovany nuclear sites.

29453	Czech Republic	Article 16	16.1.3.2, p. 127	Are there any guidelines for the Emergency Information Centre (EIC), the Central Crisis Staff and/or the SÚJB Crisis Staff to ensure that all statements released to the public are coherent with the common understanding of the situation?	No, we have no set guidelines for consistency in informing the public, but in the event of a real event at a nuclear facility, we would proceed with caution and mutually agree on issued press releases.
29454	Czech Republic	Article 16.2	p. 139	What means of public communication does the SÚJB use directly in the emergency planning zones (i.e. in the vicinities of the NPPs)? Does the SÚJB cooperate e.g. in the education and raising of public awareness at schools or in organization of some educational activities for the public?	In accordance with Section 209, the SÚJB provides the public with advance information in the event of a radiation accident and protective measures on its website. Furthermore, the obligation to communicate with the population in emergency planning zone is delegated to the licence holder, i.e. the operator of the nuclear power plant, and this communication also includes advance information to the public. The population is, at regular intervals, provided with materials containing the principles of behaviour in the event of a radiation accident, including contacts to the information centre, a list of evacuation centres, dosage of iodine tablets, etc. In addition, education on ionising radiation and its effects on the human body and the environment is also provided in this way and SÚJB contributes to the development of these materials. In the event of a radiation emergency, the SÚJB would communicate with the public through its spokesperson. The public can also communicate with the SÚJB using the SÚJB website, where they can ask any questions on issues not only related to ionising radiation but also in the field of non-proliferation control. The SÚJB also provides educational activities in the form of internships and lectures for students, both Czech and foreign.
29795	Czech Republic	Article 19.5	Page 181, Qualification and Evaluation of NPP Suppliers	Are there any requirements to provide feedback to the supplier for process improvement in areas that may be underperforming based on the performance assessment?	Yes, the results of this evaluation are shared with suppliers in a controlled manner in order to improve their processes within the framework of the set unified system of supplier performance evaluation, especially for safety related products. Moreover, all employees including contractors are obliged to identify and record all events and nonconformities including Near Miss and proposals for improvement and the introduction of best practices (see Chapter 19.7). All findings recorded in the correction and prevention system are processed, discussed and resolved. Suppliers are also given feedback on how their findings were handled, what they are doing wrong, and what they can improve on.
30030	Czech Republic	Article 10	Page 61	It is stated in Report about Independent safety assessment of operational events. Could You shortly describe the SÚJB requirements to license holder for Independent safety assessment in other areas.	The independent safety assessment mentioned in Article 10 is solely processed by SÚJB. Independent experts are invited based on their field of expertise and they are not linked to SÚJB nor the controlled subject (in terms of employment). We usually use experts from the Faculty of Nuclear Sciences and Physical Engineering.
30218	Czech Republic	Article 6	Page 20. Section 6.3.10	The report states that an IAEA mission on External Events Safety Section (EEDD) Site and External Events Design (SEED) Review Mission on Seismic Hazard at Temelín NPP and Dukovany NPP sites is scheduled for May 2022. (1) Can you share the recommendations and suggestions from the Mission? (2) In the regulator's opinion, which findings will be most challenging to address? And Why?	IAEA Site and External Events Design (SEED) review missions on seismic hazard at NPP Dukovany and NPP Temelin took place in May 2022. The missions were very successful with positive conclusions - all issues from Mission 2013 were closed for NPP Temelin. For NPP Dukovany it is recommended to further focus on the PSHA logic tree to include other possible fault models according to the updated IAEA SSG-9 (Rev. 1) Edition No. 2, 2021. The regulator and permit holder see no problem in fulfilling the mission requirement. Detailed information is not public according to IAEA statement: "Findings, conclusions and recommendations resulting from the IAEA Programme are intended only to assist national decision makers who have the sole responsibility for the regulation and the safe operation of their nuclear power plants. Moreover, they do not replace a comprehensive safety assessment which needs to be performed in the framework of the national licensing process".

30217	Czech Republic	Article 8.1	Page 42. Section 8.1.5	The report states that ensuring competent human resources remains a long-term and important issue. For example, the Section for Nuclear Safety is currently unable to fill around 10 % of the attributed posts of inspectors in the long term. Could you share what strategies and/or programs are you implementing to retain your current staff.	SÚJB implements the following activities to tackle the above-mentioned problem. The basic principle of the staff training, education and evaluation system of the State Office for Nuclear Safety is a permanent increase in the level and efficiency of the performance of Office's activities. Staff training is organized on the basis of internal regulation VDS 039 "SÚJB Staff Training and Evaluation System". Training activities of the individual SÚJB employees are specified based on the achieved level of their education, duration and level of experience and professional specialization. At the same time, the strategy and needs of SÚJB are taken into account. The main rule used in SÚJB staff training is a systematic method of conducting training courses and an individual approach to individual employees, based on the so-called Individual Personal Development Plan (IPDP), the compilation and annual evaluation of which involves the employee, his/her line manager and the director of the relevant department. IPDPs are usually drawn up for three years and include internships abroad (e.g. Italy, Finland or the USA). The effort is to maintain the continuous character of training and the continuity of individual training activities. The fulfilment of training activities of individual employees under IPDP is evaluated on the basis of the number of credits achieved. Training of inspectors includes special courses focused on nuclear technologies at the ČEZ training centre in Brno, as well as full-scale simulator training, which significantly increases their qualifications for carrying out their own inspection activities. Inspectors also participate in SÚJB internal seminars organized for every significant event. The seminars are especially focused on event description and cause analysis. SÚJB uses training events organized by various training bodies for further training of SÚJB staff in other areas related to the performance of their duties.
30216	Czech Republic	Article 17.1	Page 156. Section 17.1.5	In response to a question on the report for the 8th Review Meeting, it was stated that for Dukovany NPP - Construction is expected to start in 2029 and Unit 1 is scheduled to be commissioned in 2036. The report for the 9th Review meeting mentions approvals and extensions on the two environmental impact assessments for the construction of the new plants. Could you provide an update on the expected schedule for construction and commissioning?	This schedule is still valid.
30322	Czech Republic	Article 14.1	93	Is there a reason why the CDF, FDF and LERF are slightly different for what are nominally 4 identical units at Dukovany NPP? This is particularly interesting in relation to the CDF, FDF and LERF as a result of external events as presumably, external events would impact all four units simultaneously to the same degree. It is also interesting to note that roughly a third of the CDF, FDF and LERF for Dukovany NPP are associated with the shutdown state.	Yes, the reason for the slight differences in CDF, FDF, LERF results across operating units is due to the differences between them, reflected in the PSA and Safety Monitor models for monitoring the risk level of each unit. The odd and even units are different and in particular the individual units shared auxiliary systems (power supply, Essential Service Water, etc.). External events (hazards) are not the cause of these differences, they will be reflected in the considered multiple units PSA model (MUPSA). The ratio of risk contribution from at power and shutdown modes of operation is considered to be reasonable and also affected by Spent Fuel Pool operation across all operational modes.
30321	Czech Republic	Article 13	83	Has consideration been given to requiring the operating organisations of their suppliers to be certified to ISO 19443?	The requirements of ISO 19443:2018 are basically contained in Atomic Act and subsequent Decree No. 408/2016 Coll., on management system requirements. The fulfilment of these requirements is documented and controlled by the operating organisation (ČEZ, a.s.) and is under the surveillance of the State Office for Nuclear Safety of the Czech Republic.

30320	Czech Republic	Article 13	81	Whilst it is stated that the management system of ČEZ, a. s. is harmonised with generally recognised standards and that it is certified to ISO 14001, to which other standards the system is actually certified to. Specifically, are the managements systems certified to ISO 9001.	The management system of ČEZ, a. s. is certified according to the standards ISO 14001, ISO 27001, ISO 37001, ISO 50001 and certified according to the national program "Safe Company" (similar to ISO 45001), which is based on the bases and principles of ISO 14001, ISO 9001, OHSAS 18001 and ILO-OSH 2001 manuals issued by the Ministry of Industry and Trade of the Czech Republic. The management systems of ČEZ, a. s., are not certified according to ISO 9001.
30319	Czech Republic	Article 8.1	45	Good to see that the RB recognises that the concept of safety culture extends to the RB itself as well as the operating organisations.	Thank you for your statement.
30318	Czech Republic	Article 8.1	43	Considering the statements in sections 8.1.5 and 8.1.6, is this statement still correct?	The national report of the Czech Republic was finalized as of April 2022. As of January 2023, the existing data in sections 8.1.5 and 8.1.6 are the same or almost the same. E.g. THE PARAGRAPH "For 2022, the SÚJB has established 218 posts attributed (in 2019 it was 210), of which 190 are service posts (in 2019 it was 182) pursuant to Act No. 234/2014 Coll., on Civil Service, as amended." HAS CHANGED SLIGHTLY TO "For January 2023, the SÚJB has established 218 posts attributed, of which 189 are service posts pursuant to Act No. 234/2014 Coll., on Civil Service, as amended." E.g. NOTHING HAS CHANGED IN THE PARAGRAPH "For example, the Section for Nuclear Safety is currently unable to fill around 10 % of the attributed posts of inspectors in the long term, and 5 % of other posts are now temporarily vacant due to parental leave." because one employee joined the Section for Nuclear Safety and one left and the number of temporarily vacant is the same (parental leave in the Czech Republic lasts until the child is 3 years old).
30317	Czech Republic	Article 8.1	42	Does the RB have any plans in place to address the resource issue, noting on the basis of other National Reports that this appears to be a fairly common problems across RBs and operating organisations world-wide?	SÚJB is aware that this problem occurs across other states and regulators. SÚJB uses standard recruitment methods, including cooperation with competent, in particular technical, universities.
30316	Czech Republic	General	General	As a reviewer, I greatly appreciate the use of sidelines in this report that identify new or changes text as it facilitates the review process and have suggested that the same approach be adopted for future Australian National Reports.	Thank you for your statement.

30315	Czech Republic	Article 14.2	102	The article lays out obligations specified in various legal safety requirements and regulatory expectations and guidance. It also states LTO Program was implemented. Could you please explain whether all the obligations have been met?	In general, all the obliged proofs for LTO were submitted to the regulator based on the legislative requirements valid at the time of LTO preparation. After the regulatory evaluation of submitted documentation the new operational licences were issued. Also, the fulfilment of previous licence conditions was the prerequisite for issuing the new licence. However, these licences contain some licence conditions. Some of the conditions were the one-off kind, while the others imposed the obligations to regularly review and update the relevant documentation. The submitted documentation also include the list of future actions needed to be performed based on the results of ageing management to ensure the future safe operation (for example to replace some equipment at certain time). These actions are included in the "LTO Action Plan", whose fulfilment is regularly submitted to the regulator based on licence condition.
30314	Czech Republic	Article 12	General	The article describes mainly the CEZ a.s. NPP operator. Could you please clarify if the same regulatory expectations associated with human and organisational factors are also applied to licensees whose facilities have potentially lower safety impacts?	Yes, we apply the same legislative requirements for instance for small research school reactors.
30313	Czech Republic	Article 10	General	The article include, among other things, licensees' activities to periodically assess safety culture. Do SUJB also self-assessed their own safety culture or take steps to have the SUJB safety culture assessed?	SC SÚJB self-assessment is planned in its introductory form in 2023. After this initial survey SÚJB SC specialist intends to attend the IAEA training program in RB SC self-assessment program.
30312	Czech Republic	Article 8	General	SUJB cooperates with other Czech agencies such as SURO and SUJCHBO. Could the functions of those agencies and responsibilities in context of nuclear safety be briefly provided please?	Both organisations – National Radiation Protection Institute v.v.i. (SURO v.v.i) and the National Institute for Nuclear, Chemical and Biological Protection v.v.i. (SUJCHBO v.v.i.) are public research institutions established by the decision of the Chairman of the State Office for Nuclear Safety (SÚJB). The mission of SURO v.v.i. is research on nuclear safety, radiation protection, technical safety, radiation monitoring, radiation emergency management and security) of the life cycle of nuclear installations. In these areas, SÚRO v.v.i applies the results of the research carried out, in particular in the field of support to the supervisory activities of SÚJB in evaluation and inspection activities in the field of nuclear safety and radiation protection, monitoring of the radiation situation, including training of inspectors. The results of the research are also applied to analytical and conceptual activities in the field of radiation protection and nuclear safety. SURO performs the function of TSO in the sense of IAEA-TECDOC-1835 Technical and Scientific Support Organizations Providing Support to Regulatory Functions and is an active member of the European Technical Safety Organization Network (ETSON) and the IAEA Technical and Scientific Support Organization Forum (TSOF). SÚJCHBO v.v.i has a similar function – it provides research in the field of chemical, biological and radioactive (CBRN) compounds aimed in technical and analytical support to inspection activities of SÚJB in radiological protection and in supervision of compliance with nuclear weapons non-proliferation and chemical and biological weapons prohibition. Upon request, the Institute also provides expert support to basic units of Integrated Rescue System to provide an efficient reaction to threats to population or the environment, potentially coming from a release of highly dangerous and/or CBRN compounds.
30311	Czech Republic	Article 7.2.3	34	It is clear that the SUJB is authorized to performed unscheduled inspections. However, it is not clear whether SUJB have developed and follow a schedule of planned inspections that would be known to licence holders. Could more information be provided please?	Yes, the SÚJB has the inspection plan. This plan is based on the internal management system documentation of the SÚJB, namely on the Guidelines VDS 008: PLANNING, EXECUTION AND EVALUATION OF CONTROL ACTIVITIES AT NUCLEAR FACILITIES. The plan of the inspection activities of the SÚJB in the nuclear installation is drawn up for a period of one year and it is based on the content of the basic inspection plan of the SÚJB for the Nuclear Facilities (Annex 2 and Annex 3 of the VDS 008), which cover all areas of systematic safety assessment of the activities of the supervised entities (Annex 1 of the VDS 008) for all currently ongoing stages of the Nuclear Facilities life cycle within the meaning of the Atomic Act requirements. This annual inspection plan is published on the external website of the SÚJB and is therefore known to all supervised entities.

30310	Czech Republic	Article 6	25	Consider describing a level of cooperation and operating experience exchange between the Czech NPPs. This cooperation is mentioned in article 19.5. The report could benefit from providing more details on such cooperation, if it exists, in other areas than described in 19.5 on learning and preventing events (e.g maintenance, management, EPR).	Exchange of knowledge and experience and cooperation between Dukovany and Temelín takes place continuously on several levels: - at the highest level – meetings of the management of the nuclear energy division, the director of Dukovany NPP and the director of Temelín NPP also participate in this meeting - at the level of process management – through the so-called central departments, which are departments common to both power plants. These are departments that set common processes and procedures, supervise the performance of power plants (departments safety, asset management, engineering, quality management, personnel training, ICT management) - power plant departments (performance improvement, operation management, maintenance, reactor physics and chemical regimes, security) meet each other through so-called expert groups, joint off-site meetings, call each other directly, i.e. they know each other and are in regular contact with each other.
30309	Czech Republic	Article 6	21	Overview of significant events: the first event described is 'violation of Limits and Conditions' of secondary seal of MCP flange. It is stated above that there had been no INES 1 and above events in the NPP Dukovany between 2016 and 2019, therefore it is concluded that the above event was an INES 0. Typically, all violations of OLC are categorised as INES 1. Please clarify	Thanks for pointing out the inaccuracy. This event was not reported by the licensee as a violation of Limits and Conditions. SÚJB inspectors identified it as a violation of limits and conditions as part of the feedback investigation control only afterwards. The INES rating (final) was reclassified to INES 1 the following year.
30556	Czech Republic	Article 14	p. 104	It is stated, that in the years 2020-2021 new AMPs were introduced. Were these new AMPs a result of the first EU Topical Peer Review?	No, introduction of the new AMPs listed in page 104 was not the result of the first EU TPR. Their development was driven by different reasons, among them are the continuous improvement based on the best practice, operational experience, peer reviews, results of IGALL programmes etc. The regular Ageing Management Review (which may result in an update of AMPs) is also obliged by the operational licence condition (to be performed every 5 years). For example, first AMPs for civil structures were developed based on the Dukovany SALTO mission (2014) findings. Newly introduced AMPs now cover also Temelín NPP with the reason to unify the ageing management approach to this two NPPs. Development of the AMPs for RPV internals follows the international good practice introduced by Verlife programme, which was adopted to the Normative technical documentation prepared by Czech Association of Mechanical Engineers.
30555	Czech Republic	Article 13	p. 81	Can your country please elaborate on the way the safety culture is evaluated in ČEZ, a. s.?	The safety culture at ČEZ, a. s. is evaluated on the basis of so-called "source data", which are: events, SÚJB assessment, assessment of the independent nuclear supervision department, questionnaire survey, observations, etc. "Findings" are recorded from each of these "sources" and assigned one of the 40 safety culture attributes (see WANO PL 2013 Traits of a Healthy Nuclear Safety Culture). Findings identified in this way are sorted according to attributes and subsequently analyzed. The output is the identification of weak points of the safety culture and a plan for developing the safety culture.
30554	Czech Republic	Article 6	p. 23	Can your country please elaborate how this new RCLS resilience software works: Does it interact with the RCLS? Is it an additional guide for operators?	The SW fix consisted of implementation of specific SW function into the RCLS subsystems. The symptoms of buffer corruption are known and therefore the SW function examines the received buffers and if corruption is identified, the subject buffer is discarded (i.e. not used within the subsystem's application logic). The affected subsystem can use the redundant buffer from redundant data highway (thus the dual-redundancy of the RCLS data-highway is utilized). This SW function has a nature of a "system library function" (i.e. function which can be "commonly" used across RCLS subsystems, i.e. not subsystem specific). This "system library function" was incorporated into the main loops of individual RCLS subsystems and is called (executed) in each calculation loop of the subsystem. If a corrupted buffer is identified, the operator is alerted by means of an (subsystem specific) alarm.

30553 (1/2)	Czech Republic	Article 6	p. 22	Regarding violation of the Limits and Conditions due to failure to perform the required actions in the event of DG failure, can your country please elaborate what measures are in place or have been taken to prevent similar failures in the future?	The following actions were taken from the event: • The oil of the 3TJ61D01 pump was changed. • A 15-minute pump run was conducted to adjust the sealing and eliminate the possibility of water entering the bearing tray through the pump seal. • Monitor any rise in the oil gauge by the following procedure: After stabilization of the oil level in the sight glass one hour after the pump test run, a line was marked on the sight glass (water leakage through the sealing had already been excluded) the operations personnel observe the oil level in the oil gauge with a frequency of 4 hours on a long-term basis. • The oil systems of all TJ system pumps at the other Reactor-Units were checked. • The cause of the leak was analysed and the leaking bearing box of 3TJ61D01 pump was repaired, the positions of the oil gauge and discharge screw were changed, and the screw was replaced with a longer one. The lesson learnt will be reflected in the maintenance procedures of the TJ pumps. • Operations related activities that are considered necessary and expected have been reassessed and specified, particularly those activities that relate to limitation systems. • All shift supervisors will conduct workshops (including safety supervisors) with a focus on conservative decision making with respect to the availability of limitation systems against the background of events violating the LCO. • The Design Safety Aspects of the LCO training revision and modification. Analyse the need for regular LCO training as a part of the periodic training. • Investigate the possibility of introducing and propose a system how to transfer information imposed by the "Corrections and Prevention Committee" to new personnel and to their periodic training. Make past OE information available for the Training Days of Operations personnel (and to other necessary personnel) on a shared drive. • Ensure improvement of training quality provided as a part of the Training Days for the MCR personnel and ensure the development of trainers skills for these training sessions. • Improve the quality of the use of operational experience. Conduct a workshop for personnel of the departments involved in the investigation of events and likewise for the plant management, focusing on the efficient use of operational experience, with information about the event and the link to the previous event (WER MOW 20-0083) violating the LCO. • Add procedures for manipulations and control activities when adding oil to the TJ pumps to the relevant operating procedures (or otherwise specify in more detail to enable accurate control while maintaining normal oil level tolerances), and how to proceed when the level rises above the upper mark of the gauge. Inform the technological system owner immediately. • Assess the accuracy of the “operability/availability” definition of the high-pressure injection system, in terms of its adequacy. In doing so, take into account requirements of the technical specifications and the existing acceptance criteria for conducting operational checks. If any modifications are proposed, apply these also to other LCO related safety systems.
30553 (2/2)					• Conduct a training workshop on this event, focusing on the correct procedure for verifying the availability of equipment in terms of the LCO, correct interpretation of the rules and requirements of the operating procedures. • Introduce an unified electronic record procedure for on-call technical personnel so that shifts get sufficient information, establish rights and duties for entering information into this application. • Assess the possibility and possibly implement on-call (24/7) contractor staffing during OLM, as well as during plant outages, with the aim to shorten the time period of activities in the LCO conditions. • Further specify the texts of the operating procedures for chemical analyses of oils for water content in oil. • Produce a JIT document based on this event and link it appropriately to activities in the relevant operating procedures. • TJ pump maintenance technological procedure: incorporate the changes in the treatment of the TJ pump bearing racks heat transfer surfaces (using Dichtol seal), and in the configuration using a longer bolt (including its bonding) into the relevant repair procedure. Refill the oil in the TJ pump to the top mark on the oil gauge. • Transfer the lesson learnt about the TJ pumps to pumps of similar designs for which the experience of the event can be used for their operation and maintenance. Evaluate the situation and propose corrective actions. • Identify risk points in terms of corrosive action of aggressive media on technological components used in the NPP. • Assess the correctness of the technical specification requirement for the oil quality for the TJ pump bearings. Verify the viability of the technical condition for maximum water content in oil during the long-term operation of the plant. • Discuss within the ČEZ, a. s. company and also with the National Nuclear Regulator the need and suitability of embedding directly in the LCO the requirement for non-crossing the maintenance of safety trains equipment in modes R5, 6, 7. Subsequently, incorporate the changes into the LCO as appropriate. • Review the performance and evaluation of the WANO document SOER 2010-1: “SHUTDOWN SAFETY” in the context of this event experience. • Ensure sufficient stock of spare parts for the TJ pumps bearing structures. • Assess the possibility of the oil level photo-documenting (in the oil gauge) after each oil change and keeping it in the operating log (for possible comparison if the level is changing). • Assess the possibility of using records and photo-documentation in other cases as well, e.g. to add this requirement to a “model work order” as a necessary task.

30506	Czech Republic	Article 19	Article 19, p.173	How is it possible to submit a final safety assessment report at the physical start-up stage? How are the results of start-up work reflected in the report? What deadlines are set by regulatory documents to bring the report in line with the start-up results?	Any permit holder for commissioning of a nuclear power plant must fulfil the requirement of Section 24 (4) "The permit holder is obliged to keep the documentation for the permitted activity for the duration of the permitted activity, unless this law provides otherwise, and to maintain it in accordance with the requirements of this act, the principles of good practice and the actual status of the permitted activity". The Final Safety Report is a document required for the issuance of a permit, and for that reason it must be maintained taking into account the state of the NPP on the date of issuance of the FSAR. This means that since the NPP commissioning, the FSAR is adjusted every year according to the current state of the NPP and includes the results of the previous stages of the life cycle. Updating of any FSAR is required with a one-year period as one of the conditions of the decision on permit.
30509	Czech Republic	Article 14	Article 14, p.89	How, in accordance with your legislation and established practice, are the cumulative effects of aging of structures, systems and components of NPP units taken into account in the Safety Monitor software?	The aging effects are not considered in the PSA model implicitly. The ageing of SSCs is reflected in the equipment reliability data change and regularly updated in the frame of Living PSA concept. The Safety Monitor as a risk monitor tool is designed to assess and monitor the instantaneous risk level given by the particular unit/units configurations.
30552	Czech Republic	Article 6	p. 21	Can your country please elaborate on the consequences of this PSHA for existing NPPS and for new NPPs?	Results of PSHA study (new values) are below DBE value, which is 0.1 g in accordance with Decree No. 329/2017 Coll., on the requirements for nuclear installation design. There is no need to improve seismic resistance of the plant, because there is enough safety margin against SL2 value which was updated in PSHA study. Design of new NPPs will be more robust against earthquake than is required by Czech atomic law. In accordance with EUR document revision E, the DBE of New NPPs will be 0.25 g.
30708	Czech Republic	Article 14	Article 14, p.90	How, in accordance with your legislation and established practice, is the compliance of the safety level of the Dukovanskaya and Temelinskaya NPPs with the current level of science and technology, as well as good practice, checked?	The licensee shall continuously assess the level of nuclear safety. One type of evaluation is the Periodic Safety Review, which systematically and comprehensively compares the state of nuclear safety, radiation protection, technical safety, radiation monitoring, radiation emergency management and security achieved at the nuclear installation under review with the requirements of the legislation and with the requirements arising from the current state of science and technology and good practice in force at the time of its implementation. The current state of the art is monitored by both the representatives of the licensee and the representatives of the regulatory authority by following international recommendations, research results (e.g. membership of the EPRI of both the licensee and the regulatory authority), membership of various thematic working groups, etc. This knowledge is then used by the licensee in a continuous and comprehensive assessment of nuclear safety in the light of the current state of science and technology and by the regulatory authority in its review and assessment.
30913	Czech Republic	Article 6	1. Page 17. "6.3.2 SALTO Peer Review Follow-up (Dukovany NPP), 2016"	In the report it is said: In November 2016, the follow-up review was held to examine how the recommendations (2) and suggestions (6) of the Safe Long Term Operation (SALTO) mission of 2014 [6.2] were addressed. The team found that five suggestions for the mission were resolved, with the solution to the last one showing sufficient progress. One recommendation of the mission was resolved and one shows sufficient progress in the solution. Question: Could you please provide information on the two recommendations and the actions taken on them?	These two recommendations (R) were given in the area E - Ageing management review, review of ageing management programmes and revalidation of time limited ageing analyses for civil structures: R1) The plant should complete the ageing management review and the ageing management programmes for civil structures before entering into LTO. Actions: NPP Dukovany finished Ageing management review (AMR) separately for each unit within 2015-2017. SSC was selected according to scoping and screening was carried out (collection of information, e.g. significant civil structures and their functions important for LTO, materials and environmental ageing effects, degradation mechanisms and Ageing management programmes (AMPs) were identified). The corrective measure from AMR was to carry out passporting of civil structure according to the AMPs. The passporting is focused on finding a and documenting all manifestations of degradation mechanisms and evaluating the degree of damage to individual civil structures. The initial passportization of safety important civil structures was carried out within 2017 to 2020, according to the recommendations of the AMR for civilian structures. The re-passportization has been taking place since 2020 according to the schedule established in the AMP. R2) The various maintenance and inspection activities carried out by different departments both on and off the plant should be communicated to, and addressed in, the ageing management programmes for LTO. Actions: Existing AMPs for civil structures were reviewed and new AMPs were issued. Now we have implemented these AMPs in Czech NPPs: - CEZ_ME_1030 AMP Monitoring the status of civil Structures - CEZ_ME_1168 AMP Pools for Spent Fuel Storage and Refuelling - CEZ_ME_1169 AMP Containments Since 2017, an Annual Evaluation Report has been processed. The report contains an evaluation of the performed maintenance activities and inspections of civil structures. NPP Dukovany operational experience and international experience are taken into account. The Annual Evaluation Report is prepared in accordance with the issued AMPs for containment and spent fuel pool and other significant civil structures. The results are evaluated as part of the Annual Assessment Report of ageing of NPP. They are presented in Health Reports, Safety Analyses Reports and within the Expert commission for the assessment of the state of containments and other safety important civil strucutres.

30912	Czech Republic	Article 15	15.3 Licensee procedures in radiation protection Page 110.-15.3.1	Individual exposure monitoring The individual doses of exposed workers at both nuclear power plants are traditionally low; in the period from 2016 to 2021, the highest annual effective dose of exposed worker at the Dukovany NPP and at the Temelín NPP was 9.65 mSv and 4.19 mSv, respectively. Question: Which works have generated the highest individual doses in Dukovany NPP and Temelín NPP?	In both NPPs the highest individual doses are connected with steam generator maintenance, e.g., heat transfer tubes cleaning.
30911	Czech Republic	Article 14	3. Page 90. "Periodic Safety Review"	In this page the reports says: At Dukovany NPP and Temelín NPP comprehensive safety level assessments are executed at regular ten-year intervals using an internationally broadly applied tool, the so-called "Periodic Safety Review" (PSR). These reviews are conducted fully in compliance with the requirements of Czech legislation and recommendations of IAEA and WENRA. .. The results of evaluation are stated in final reports of all evaluated areas and in summary report. The final report summarizes and evaluates severities of all the deviations identified in terms of their impact on defence in depth. Deviations identified are divided into four groups by safety relevance (high, medium, low, very low) and according to the recommendation arising from the assessment, matching safety findings are established and corrective measures with the time schedule for their Question: Please could you provide information on the measures taken to correct the most important deviations in	Measures taken to correct the most important deviations in the PSR for the Dukovany NPP performed in 2013 - 2015: Solution of an important PSR deviation was a seismic design improvement of important safety related equipment and addressed the safety class to installed SSC. The seismic design project was finalized on cooling systems and suspended electrical cable trays located in the machine hall. The most important project was the installation of forced draft colling towers of the essential water systems and ultimate heat sink. Measures taken to correct the most important deviations in the PSR for the Temelin NPP performed in 2017 - 2020: Important deviations were identified the safety improvement in the area of severe accident strategies that will rely on permanent equipment. Therefore the plant decision making authorities have started two safety improvement projects to maintain containment integrity and to prevent containment bypass. The first important project is to install a Filtered Containment Venting System. This will be a solution used on most VVER 1000 Plants. The second project will implement additional active core cooling systems controlled independently on the unit operation.

30910	Czech Republic	Article 6	2. On page 20. " 6.3.10 SEED IAEA mission"	In this page of the report it is said: In the period from 16 to 20 May 2022, the IAEA mission "External Events Safety Section (EEDD) Site and External Events Design (SEED) Review Mission on Seismic Hazard at Temelín NPP and Dukovany NPP sites" (hereinafter referred to as the "SEED Mission") will take place. Data related to seismic hazard assessment were updated and collected for this mission in the years 2019 – 2021. A new Probabilistic Seismic Hazard Assessment (PSHA) calculation was performed for the area for the siting of both power plants. Question: Please could you provide information on the methodology for conducting the PSHA?	Methodology for conduction the PSHA study is in accordance with requirements stipulated in Czech legal framework: - Decree On Siting of a nuclear installation No. 378/2016 Coll. - Safety guide SÚJB BN_JB_4.1 - Siting of the nuclear installation - evaluation of natural hazards. - Decree No. 329/2017 Coll., on the requirements for nuclear installation design. Detailed requirements on PSHA study are stipulated in IAEA safety standards such as: - IAEA SSR-1 Site evaluation for nuclear installation - IAEA SSG-9 (rev. 1) - Seismic Hazards in Site Evaluation for Nuclear Installations - IAEA SSG-67 - Seismic Design of Nuclear Installations
31209	Czech Republic	Article 13	13.5; page 84	Please describe more precisely where the list of 'selected equipment' can be found and what that phrase exactly means.	Selected equipment means a system, structure, component or other part of a nuclear installation affecting nuclear safety and the performance of safety functions. The list of selected equipment is a part of documentation for the activity to be licensed and it is a subject to approval by the authority. The list of selected equipment included classification of selected equipment into safety classes and it is saved by the licensee and the authority.
31208	Czech Republic	Article 13	13.5; page 84	Please describe more precisely where the list of 'selected equipment' can be found and what that phrase exactly means.	Selected equipment means a system, structure, component or other part of a nuclear installation affecting nuclear safety and the performance of safety functions. The list of selected equipment is a part of documentation for the activity to be licensed and it is a subject to approval by the authority. The list of selected equipment included classification of selected equipment into safety classes and it is saved by the licensee and the authority.
31207	Czech Republic	Article 13	13.5; page 84	Please describe more precisely where the list of 'selected equipment' can be found and what that phrase exactly means.	Selected equipment means a system, structure, component or other part of a nuclear installation affecting nuclear safety and the performance of safety functions. The list of selected equipment is a part of documentation for the activity to be licensed and it is a subject to approval by the authority. The list of selected equipment included classification of selected equipment into safety classes and it is saved by the licensee and the authority.
31206	Czech Republic	Article 13	13.5; page 84	Please describe more precisely where the list of 'selected equipment' can be found and what that phrase exactly means.	Selected equipment means a system, structure, component or other part of a nuclear installation affecting nuclear safety and the performance of safety functions. The list of selected equipment is a part of documentation for the activity to be licensed and it is a subject to approval by the authority. The list of selected equipment included classification of selected equipment into safety classes and it is saved by the licensee and the authority.
31205	Czech Republic	Article 10	10.1.5; page 62	What does an 'unclear conclusion' mean? Please, clarify using specific case.	Unclear conclusion involves the cases where root causes have not yet or could not be determined.
31204	Czech Republic	Article 10	10.1.5; page 61	Please expand on what does an 'independent expert' mean? What methods were used for confirming its independence?	Independent experts are invited based on their field of expertise and they are not linked to SÚJB nor the controlled subject (in terms of employment). We usually use experts from the Faculty of Nuclear Sciences and Physical Engineering.

31502	Czech Republic	Article 18.2	General	How is the supply chain of safety critical equipment and services assured for your VVER reactors? How is the exchange of documentation and certificates arranged with the main vendor companies and TSO?	The maintenance of the NPP's equipment is implemented through main supplier companies responsible for defined areas (primary circuit, secondary circuit, electrical, I&C, civil, balance of plant) based on long-term contracts (8-10 years). This method of ensuring maintenance was introduced in 2010. Contractual partners for the implementation of maintenance on safety critical equipment have been long established on the European market in the field of maintenance and supplies for NPP equipment. Supply of spare parts incl. critical ones are provided by qualified vendors. For unavailable spare parts, the power plant operator has established and developed an Obsolescence program through which various approaches/solutions are applied: • Pre-stocking with still available spare parts. • Refurbishment of spare parts from available sources. • Equivalent spare parts from the original manufacturer. • Looking for a qualified alternative manufacturer of spare parts. • Reverse engineering of a specific spare part. • Design change and subsequent modification of the NPP equipment. All documentation, including certificates, is handed over according to the set rules of communication with the authorities. The expert guarantor checks the submitted documents and information in terms of professional correctness and hands them over to the licensing department. Licensing department employees forward documents to the authorities, most often via a data box. If the handed documents contain business secrets, the sharing of these documents is supplemented by a contract.
31501	Czech Republic	Article 18.2	General	Please provide information on compliance to the principle of due priority to nuclear safety taking benefit from incorporation of proven technologies in regard to your nuclear fuel supply strategy. What are the safety criteria applied for nuclear fuel qualification? How are experiences and performance in normal operation and under event conditions considered, taking into account safety relevant challenges by using different fuel types already in the past at VVER type reactors?	Prior to the introduction of new fuel type, we carefully consider other users' experience with the same or similar fuel assembly type (international projects, direct contact with other NPP's etc.). Prior to full batch operation, a Lead Test Assembly program is carried out to obtain relevant experience and operation data. After LTA program, all operation data (including fuel assembly inspection results) are carefully evaluated and subsequently employed during full batch operation. All new fuel types need to meet the safety analysis criteria without significant changes of analysis methodology or safety systems modifications. New fuel type is licensed according to Czech legislation. The main requirements on the nuclear fuel design and the nuclear fuel performance are included in Decree No. 329/2017 Coll. and the detailed expectations, including the LTA program and the use of operational experience, are set in the safety guide BN-JB-3.2 (Rev. 0.1). Design of the Pressurized Water Reactor Core and the new common position document "Common position on licensing requirements for the new VVER fuel supplies". Licensing is supported by technical support organization both on the supplier side and on the license holder´s side. The entire system is assessed at the license holder's site by planned audits with reference to the Atomic Act, Decree No. 408/2016 Coll. and other requirements. An integral part of the system is quality assurance during its manufacturing and transport, both by the fuel supplier's own means, as well as by an independent, contractually secured organization and audits by the customer.
31500	Czech Republic	Article 16	16.1.3.3	Was an exercise carried out to test the National Radiation Emergency Plan or is such an exercise planned to be conducted?	Yes, the National Radiation Emergency Plan is planned to be verified as part of the regular ZÓNA exercise. The verification period is set to once every 4 years.
31499	Czech Republic	Article 16	16.1.3.3, page 134	Is the National Radiation Emergency Plan already developed? If yes, what is the state of implementation? If no, when will it be issued?	Yes, the National Radiation Emergency Plan was approved by the Resolution of the Government of the Czech Republic on 7 December 2020. From the date of its approval, a 2-year deadline for its full implementation in the crisis documentation of central and local government entities passed. Thus, implementation should be completed by the beginning of 2023 and this will be verified at regular intervals.
31498	Czech Republic	Article 14	14.1.2, p. 98	According to the Czech legislation the holder of a license for the operation of a nuclear installation shall perform the so-called "special safety assessment". Was any "special safety assessment" performed in the recent period at any nuclear installation in Czech Republic? If yes, could you shortly elaborate the results?	Each modification of the selected equipment was evaluated before implementation. There are dozens of assessments per year in terms of the effect of the modification on the safety of the facility, and this assessment must confirm that the modification will not lower the safety level of the nuclear facility. The output of the assessment contains the statement of the departments on the impacts caused by the change in individual areas (e.g. physical protection plan, limits and conditions, operational inspections program, Internal emergency plan, operational safety. report, probabilistic safety assessment, emergency operating procedures, etc.).

31497	Czech Republic	Article 14	14.1.2, p. 91	In 2022 begins the preparation of the PSR after 40 years of operation at the Dukovany NPP. PSR represents the complex review of the plant safety. However, due to the fact that Dukovany NPP has already reached its original lifetime limit of 40 years set by design, will the licensee during evaluation (and regulator in its independent review) focus on some specific areas to address the original lifetime limit?	In accordance with the new national legislation, a special safety assessment is required to justify extension of the operation of NPP beyond its design lifetime. If the date of this special safety assessment is the same as the date of the PSR, this special safety assessment must be carried out within the PSR. Operating licences for nuclear installations are issued for an indefinite period in the Czech Republic. As the licensing of the extension of the operation of NPP Dukovany beyond its design lifetime took place in 2015-2017, the current PSR of NPP Dukovany is not linked to the process of licensing the extension of operation beyond its design lifetime. The documentation of the state of ageing management and the condition of the classified equipment and civil structures important for the fulfilment of safety functions and equipment whose failure or malfunctions may adversely affect the functionality of classified equipment (i.e. AMR, HR, TLAA documents and maintenance templates) is regularly updated in 5-year cycles and constitutes an input to the PSR. Irrespective of whether the PSR is carried out in support of LTO or not, its integral part is the verification of aspects closely related to the operation of the NPP beyond its design lifetime, such as a comprehensive review of the NPP design against the latest knowledge of science and technology and good practice, assessment of the knowledge management system, assessment of the NPP site suitability also in terms of climate change trends, assessment of obsolescence, assessment of the sufficiency of qualified human resources, etc.
31496	Czech Republic	Article 8	8.1.11, p. 46	Can you explain the difference between 32 full-time employees and 24 full-time equivalents regarding the SÚJB scientific and technical support for nuclear safety, which was provided by SÚRO in the Deputy for Nuclear Safety Section?	The total number of employees (full-time and/or part-time) is 32, which corresponds to 24 full-time equivalents (FTE).
31495	Czech Republic	Article 8	8.1.5, p. 41	Sufficient staffing and its stabilization are a constant issue for many regulatory bodies. 218 posts are attributed for 2022 at SÚJB, however it is not clear how many posts are actually filled – example given on page 42 states that around 10% of the attributed posts of inspectors in the long-term are not filled. Is there a long-term strategy for the stabilization of the regulatory staff at SÚJB? If yes, can you provide a short summary and emphasize successful/unsuccessful methods?	Staffing at SÚJB as a whole is relatively stabilized. The weakest point of recruitment appears to be the Section for Nuclear Safety. This results both from arduous training of employees for these posts, and from the lack of university students who are preparing themselves for a career in this field. Another important factor in the vacancy of these posts at SÚJB is remuneration, which is at a level which cannot compete with the business environment, in particular with the conditions, such as those at the operator of the two nuclear power plants.
31494	Czech Republic	Article 7	7.2.1, p. 31	Revised safety guides are publicly available on SÚJB web site, but in Czech language only. Is there a plan to translate and publish all safety guides in other languages and if so, when?	This is a matter of cost-effective use of public resources. The safety guides are primarily addressed to permit holders and their suppliers, i.e. they are issued in the Czech language. There is only one of the current safety guides that has been translated. See here https://www.SÚJB.cz/dokumenty-a-publikace/navody-a-doporuceni section “Vydáno v roce 2017“ BN-JB-3.2 (Rev. 0.1) Design of the Pressurized Water Reactor Core [English Edition] It can be estimated that this number will increase with the preparation of the construction of new nuclear installations, but it is probably not realistic to anticipate that all of them will be translated.
31493	Czech Republic	Article 6	6.5, p. 22 and p. 23	Is the occurrence of leaking welded joint events at Dukovany NPP and Temelín NPP connected with the “welding case” which was identified as challenge in the 7th Review Meeting? If this is the case, do the “welding case” issues persist?	This event was not connected with the so called “welding case“. The analysis of the event showed that the safety valve was not sufficiently secured/arrested during the pressure test. This caused the repetitive opening of the safety valve and oscillation of the pipeline resulting in significant stress amplitudes at critical points and the leakage as a result of it. The failure of safety valve arrestment during the pressure test was determined as a root cause.

31492	Czech Republic	General	Summary, p. 13 and 14 and 8.1, p. 38	Some new methods of work put in place during the Covid-19 pandemic have proved to be effective and beneficial for the regulatory performance. Is there a plan for the systematic implementation of “lessons learned” from Covid-19 impact by the regulator and licensee?	SÚJB: After the pandemic, there was a return realised to previously established and proven practices, but also with using new improvements and capabilities introduced during the pandemic (e.g. online communication, video meetings, sharing and emailing of requested documentation between SÚJB staff and licence holders). The regulator has incorporated these “lessons learned” and positive new practices into the SÚJB's internal management documentation. Licence holder: The licensee continues with some work changes even after the end of the pandemic. The rules for home office are set, home office is not applied globally, but the conditions for its use are set. Shorter meetings, and especially in the case of participants from several sites, are transferred to a videoconference. Furthermore, the possibility of a digital signature was introduced for all employees of the licensee.
31491	Czech Republic	Article 10	Annex 4, p.207	Annex 4 of the National Report 2022 lists as one of the projects under the Plans for Safety Enhancement “measures to protect the elements of critical information infrastructure (cyber security)”. Could you provide some information by whom cyber security of the nuclear installations is tested and evaluated? Is SÚJB participating in this evaluation?	Cyber security evaluation and testing are parts of the established information and cyber security management system (certified according to ISO/IEC27001) and are carried out by the NPP operator. The functionality of the management system and compliance with all legal and industry standards is periodically checked by the NPP operator's internal independent control system. The State Office for Nuclear Safety and the National Cyber and Information Security Agency are supervisory bodies that have access to all information within the scope of their activities and supervise the fulfilment of all requirements. Both supervisory authorities also carry out separately and jointly planned control activities.
31903	Czech Republic	Article 7.2.4	35	Article 7.2.4 of the national report (page 35) states that if the license holder gravely violates the obligations under the Atomic Act or fails to correct the serious defects identified by SUJB, such license can be cancelled. (1) Are there regulations or criteria for making decision on what are the gravely violation or not, and what are the serious defects or not. (2) If so, please specify the regulations or criteria	Explicit regulation for this principle is not enacted and application of this provision is subject to administrative consideration of the regulatory body. Nevertheless, such consideration is not free and the regulatory body must respect general principles of good administration, non-discrimination, material truth and relevance to facts of the case. This means that any decision on this matter must be relevant to type of activity, type of illegal behaviour, its seriousness and risk, harm caused and even radiological impacts (if any). The Atomic Act contains an extensive list of offences, many of them very serious and punishable with high penalties. Considerations of the SÚJB on cancellation of the licence must also respect this list and grading of the offences, therefore the reasons for cancellation must be comparable to the most severe offences, regarding seriousness. Cancellation of a licence has one of the most affecting impacts on utility and should be used only in situations when other enforcement tools cannot bring desirable effects. Even though there is no prescriptive regulation for application of this power, criteria mentioned above can be found in the enforcement policy of the SÚJB and in its other internal instructions and are binding to its staff members (inspectors and other officials).

31902	Czech Republic	Article 7.2.2	31~32	Article 7.2.2 (pages 31 and 32) of the national report states that in accordance with the Atomic Act Section 9(1), permission should be obtained for siting, construction, first physical startup, first power generation startup, commissioning and operation, and under the Building Act, any construction within the area of a nuclear installation is required to get site decision, construction permit and final inspection approval. (1) Apart from the construction license under the Atomic Act, should a nuclear installation obtain a construction permit under the Building Act? (2) If a nuclear installation should obtain the permit under the two different Acts, please describe the different criteria the two Acts impose.	Ad (1) YES. Any nuclear installation is considered: a) a building, and b) a nuclear facility (i.e. two different legal perspectives at the same time). According to the Czech legal framework, each building is regulated by Act No. 183/2006 Coll., Building Code, and must comply with general (civil) technical requirements and pass through a specific zoning and building permitting procedures. From the other perspective, each nuclear facility is regulated by the Atomic Act and must comply with specific requirements on nuclear safety, radiation protection, emergency management, safeguards and nuclear security and pass through a specific permitting procedure for siting, construction, first physical startup, first power generation startup, commissioning and operation. To site, construct and operate a nuclear installation, requirements as stipulated by both Acts must be met and both types of permits must be obtained. Ad (2) Each of the Acts follows a different regulatory philosophy and imposes different legal requirements. Regarding the regulatory approach to proceedings, the building regulation recognizes 3 basic phases - zoning permit (to place the building into the landscape and environment), building permit (to perform building works) and final approval (to use the building). These decisions are adopted by specialized building offices (not nuclear regulator) under specified conditions - technical construction criteria must be met. These criteria are not related to protection from ionizing radiation or nuclear energy risks but are focused on general protection of human health and environment from risks caused by the building (e.g. fire protection, safety of users, protection from air pollution, protection of water resources, protection of endangered species, protection of historical heritage, protection of grids and networks etc.). The criteria are described mostly in technical standards (ČSN), which are legally binding, in most cases. The decisions are based on binding and other statements of other state authorities which are responsible for particular areas of protection (e.g. on binding statement of water protection offices) regulated by specific acts. Moreover, the decisions according to the Building Code must fully respect the results and statement from the Environmental Impact Assessment in case of a nuclear installation. The nuclear regulation recognizes more types of permission and phases of a lifecycle of nuclear facility which are not connected with the permits according to the Building Code. The Atomic Act (and its supplementing regulations) contains exclusively requirements on nuclear safety, radiation protection, technical safety, monitoring of radiation situation, emergency management, safeguards and nuclear security and these requirements are reflected by all permits according to it and permit holder (and a nuclear installation) must comply with them. These permits are adopted exclusively by the nuclear regulatory body, the State Office for Nuclear Safety. All requirements are stipulated by nuclear legislation and are fully legally binding. However, there are inevitable areas where both types of regulations interfere. Requirements on nuclear safety must be respected by general building conditions and by building offices in decision-making to prevent inconsistencies. To avoid such situations the nuclear regulatory body issues a special binding statement for the permits according to the Building Code which provides inputs from viewpoint of nuclear safety, radiation protection, technical safety, monitoring of radiation situation, emergency management, safeguards and nuclear security. This binding statement must be implemented into the permits according to the Building Code and fully respected by building offices and other state authorities.
31901	Czech Republic	Article 7.2.1	27	Article 7.1.1 of the national report (page 27) states that law has been enacted to establish institutions for final disposal of all types of radioactive waste. (1) Please clarify whether approval procedures are in place for operation of spent fuels and high-level radioactive waste disposal facilities. (2) Please explain the approval procedures. Is approval required for each step of siting, construction and operation, like the cases of other nuclear installations?	Add 1) Yes, it is. Add 2) The authorisation of DGR will follow the same approach as authorisation of other nuclear installations, particularly disposal facilities.

32082	Czech Republic	Article 18	Para 18.1.2, pages 164-165	1. What scenarios were considered in the extended list of design states for the Dukovany NPP and Temelín NPP? 2. What is the basis (scientific efforts, regulatory documents, etc.) for the accepted realistic assumptions and applied realistic methods of the analysis? 3. What calculation codes were used to implement the realistic approach to the analysis?	1) The Design extension conditions for NPP Dukovany and NPP Temelín include states without significant fuel degradation (DEC-A) and states with significant fuel damage (DEC-B). This list of scenarios for the DEC is based on Decree No. 329/2017 Coll., on the requirements for nuclear installation design, and international regulations (WENRA, IAEA). Details are given in the Safety Operational report, which is a trade secret of ČEZ a.s. 2) The realistic approach applied to safety analyses of design extension conditions in the Czech Republic is supported by the following regulatory and methodological documents. IAEA SSG-2 Rev.1 2019 o7.54. For design extension conditions without significant fuel degradation, in principle the combined approach or the best estimate approach with quantification of uncertainties (best estimate plus uncertainty), as applicable for design basis accidents, may be used. However, in line with the general rules for analysis of design extension conditions, best estimate analysis without a quantification of uncertainties may also be used, subject to consideration of the caveats and conditions indicated in para 7.55. o7.47. In general, only systems shown to be operable for this category of design extension conditions should be credited in the analysis. o7.48. Safety systems that are not affected by the failures assumed in the design extension conditions without significant fuel degradation sequence may be credited in the analysis. Special attention should be paid to other factors affecting safety systems (e.g. sump screen blockage) and support systems (e.g. electrical, ventilation and cooling) when assessing the independence of safety systems with regard to the postulated failures (e.g. internal flooding). o7.49. For design extension conditions without significant fuel degradation, the single failure criterion does not need to be applied. Furthermore, the unavailability of safety features for this category of design extension conditions due to maintenance may not need to be considered. o7.67. Analysis of severe accidents should be performed using a realistic approach (Option 4 in Table 1, Section 2) to the extent practicable. Since explicit quantification of uncertainties may be impractical due to the complexity of the phenomena and insufficient experimental data, sensitivity analyses should be performed to demonstrate the robustness of the results and the conclusions of the severe accident analyses. WENRA Safety Reference Levels for Existing Reactors 2020 oF3.1 The DEC analysis shall: (a) rely on methods, assumptions or arguments which are justified, and should not be unduly conservative (these methods can be more realistic up to best estimate). European Utilities Requirements (EUR), version E: oSelection of DEC should be done by plant designer and then by use of probabilistic methods. Assessment of DEC is done by best estimate methods (no need for application of single failure etc.).
32081	Czech Republic	Article 15	General	Is personnel and public exposure to radon decay products monitored, if so, how? What methods and equipment are used for this? With what frequency? Who exactly is subject to such control? Are dose limits set?	Is personnel and public exposure to radon decay products monitored, if so, how? As a member of the Europe union, the Czech Republic had to adopt legislation protecting workers due to Radon. Control in the field of natural exposure in existing buildings and especially in buildings of public interest, in the production of building materials, in the workplace and in water supplied for public use is implemented through a set of binding legal standards, technical standards and methodologies issued in the form of recommendations of the Office. Regulatory instruments are part of the Atomic Act; they are continuously applied and controlled, including evaluating their effectiveness. What methods and equipment are used for this? With what frequency? The measurements are carried out by holders of a permit to measure radon at the workplace according to the radiation protection assurance program in accordance with the law and the decree in compliance with the established methodologies. Who exactly is subject to such control? The Atomic Act defines workplaces. The operator of the workplace performs the first measurement, when the RAC concentration exceeds the RL, the owner of the building has to prepare the optimization and then provide control measurement. When RAC still exceeds 300 Bq/m3 calculation of the effective dose of workers must be done (new dose coefficient ICRP 2017). If the Effective Dose exceeds 6 mSv/year the workplace becomes “workplace with increased exposure to radon” and have obligations for workers protection set by the Atomic Act. Are dose limits set? (Existing exposure doesn't use limit) The reference level “RL“ is a) 300 Bq/m3 for the radon annual average activity volume concentration “RAC“ in the air in the workplace, b) 6 mSv per year for the effective dose.

32080	Czech Republic	Article 15	para 15.3.4, page 112	This paragraph provides information on the external exposure monitoring system around the Dukovany NPP and Temelin NPP. The environmental monitoring results for both NPPs indicate that the impact of discharges and releases of radioactive substances is insignificant. An exception is the influx of tritium with rare flows into the Jihlava and Vltava Rivers. Question: 1. What is the maximum annual tritium entry in water discharges for the period from 2016 to 2021? 2. What percentage of the allowed limit of tritium is fixed in this case? What percentage of the total release is the contribution of tritium in this case?	In the period 2016 – 2021, the maximal tritium discharge was: For the Temelín NPP 44.81 TBq (in 2016), which was 67.9 % of the limit 66 TBq set by the water management authorities. The tritium discharge contribution to the representative person effective dose of 0.65 µSv was 99.9 %. For the Dukovany NPP 25.47 TBq (in 2019), there is no activity limit. The tritium discharge contribution to the representative person effective dose of 3.71 µSv was 98.6 %.
32079	Czech Republic	Article 15	Para 15.3.2, page 111	Is the collective dose for personnel of third-party organizations (seconded to the NPP) taken into account when the indicator of the collective radiation exposure dose for NPP personnel is calculated per unit (collective radiation exposure (CRE), man-Sv/unit)?	Yes, it is.
32078	Czech Republic	Article 15	Para 15.3.1, page 110-111	It follows from the information provided that the annual effective personnel dose is at a significantly low level and did not exceed the established exposure limits. At the same time, there is no information on the limitation of exposure doses for pregnant workers. Question: 1. What exposure dose limits are set for pregnant workers? 2. What is the highest annual effective exposure dose for workers in this category recorded at the Dukovany NPP and Temelin NPP in the period from 2016 to 2021?	Pregnant workers are not allowed to enter Dukovany and Temelin NPPs radiation controlled area.
32077	Czech Republic	Article 15	Para 15.3.1, page 110	How is compliance with the individual equivalent exposure dose for the eye lens of personnel and the public monitored?	The compliance of individual exposure monitoring with the requirements of legislative framework is monitored by regular monitoring programmes review together with implementation of regulatory inspection plan.

32076	Czech Republic	Article 15	Para 15.1, page 107	What does the “Source security principle” mean and what document regulates it?	The source security principle is based on the IAEA Code of Conduct on the Safety and Security of Radioactive Sources, INFCIRC/663, 2005. The obligations on the field of radionuclide source security are defined in the Section 164 of the Atomic Act. They include: a) to secure the radionuclide source against unauthorised access, use or relocation by applying a graded approach, taking into account the security category and the method of management of the radionuclide source, b) to instruct and verify the knowledge of workers with access to the radionuclide source of the security requirements, and c) to ensure security of radionuclide sources of security categories 1 to 3. The Decree No. 422/2016 Coll. establishes requirement on ensuring security of radionuclide sources.
32075	Czech Republic	Article 14	Para 14.1.2, page 93	Does the operating organization intend to perform PSA for a multi-unit NPP (multi-unit PSA), for example, for the Dukovany NPP with 4 operating power units on site?	Yes, multi-unit PSA is one of the challenges we are currently monitoring and addressing on the PSA field. As part of the complex contract between CEZ and the contractors, monitoring of the issue and preparatory work is ongoing. The scope of the MUPSA models will depend on the final recommendations, requirements and guidance from IAEA, EPRI and other organizations on this issue. At present, all dependencies and interconnections between the units at the two sites (Temelín and Dukovany) are already modelled in the PSA models and risk monitors for all units at the sites. The final logic of the MUPSA will respect the recommendations given e.g. in EPRI Report 3002020765 - Framework for Assessing Multi-Unit Risk to Support Risk-Informed Decision-Making, Final Report, June 2021, etc.
32074	Czech Republic	Article 13	Para 13.5, page 84	1. Special supervision of suppliers or supply chains, in particular for products with regard to their importance to safety, is carried out by special units of ČEZ. Are the requirements of ISO 19443:2018, IDT “Quality management systems - specific requirements for the application of ISO 9001:2015 by organizations in the supply chain of the nuclear energy sector supplying products and services important to nuclear safety (ITNS)” applied during special supervision of suppliers of products important to safety?	Yes, these requirements are applied (as part of the supervision of suppliers or supply chains, especially for products with regard to their importance for safety) through the requirements of the Atomic Act and subsequent Decrees No. 408/2016 Coll., on management system requirements, which in principle contain the requirements of ISO 19443:2018, IDT “Quality management systems - specific requirements for the application of ISO 9001:2015 by organizations in the supply chain of the nuclear energy sector supplying products and services important for nuclear safety (ITNS)“.
32073	Czech Republic	Article 11	Para 11.2, page 71	Have guidelines for severe accident management been developed?	The entire process of SAMG implementation is based on assumption of a symptomatic approach to eliminate or mitigate the consequences of all identified plant vulnerabilities, developed within Westinghouse Owners Group (currently PWR OG) for Westinghouse units in USA and elsewhere in the world and its application to VVER design. In addition, the proved approach to verification, validation, implementation and training has been assumed. The first version of SAMG was implemented in 2004. SAMGs for shutdown operational states and for SFP were developed by expanding previously existing guidelines. As a result, there is a unified package of guidelines for management of severe accidents, which covers all operating conditions of the unit and management of severe accidents taking place in the reactor core, in SFP and accidents at both places simultaneously. Further enhancement of the SAMGs continued in order to facilitate the use of procedure and to ensure their execution under high stress conditions. PWR OG projects for SAMG update based on Fukushima accident was finished and results from these projects were published. In frame of the project “SAMG update“ the Dukovany NPP and Temelin NPP SAMG were accordingly modified.

32072	Czech Republic	Article 11	Para 11.2, page 71	Has the “Severe Accidents” module been introduced on the full scale VVER-440 and VVER-1000 simulators?	Simulator training on both NPPs (Dukovany & Temelín) currently meets the requirements of the legislation of the Czech Republic, Decree No. 21/2017 Coll., Section 30: - full-scope simulator is used for staff training in the EOPs area, - full-scope simulator is used for staff training in the transition from EOPs to SAMG, - the simulation tool is used for staff training in the SAMG area. As part of the upgrade of the full-scale simulator used on Temelín NPP in 2017, the scope of the simulation was extended (the scope of the simulation is limited by the output temperature of the core, which is approximately 900 °C) to allow training of the activities of the control room staff during the transition from EOPs (Emergency Operating Procedures) to SAMG (Severe Accident Management Guidelines). A similar upgrade of the full-scale simulator used on the Dukovany NPP was completed in 2022. The scope of the simulation is limited by the core outlet temperature of about 1200 °C. Simulation tool VINSAP (Visualization of NPP Severe Accident Progress) is currently used for training on both NPPs. VINSAP is visualizer for displaying the parameters of severe accident scenarios calculated by the MELCOR calculation code. This specialized software for staff training (especially TPS “Technical Advisory Group”) was completed in 2017.
32071	Czech Republic	Article 8	para 8.1.3, page 38	How is automatic and repeated transmission of data on significant changes implemented in case of radiation accidents?	In this case there seems to have been a misunderstanding. The question seems to be directed at paragraph (e) providing preliminary information to the general public for the event of a radiation accident, concerning protective measures and steps that need to be taken to ensure radiation protection; the preliminary information provided shall be up-to-date and constantly available and it shall be provided automatically and repeatedly, at regular intervals and whenever a significant change occurs. Automatic and recurrent information means information that is made available to the public on a provisional basis on the Authority's website. This includes information on the protective measures to be taken in the event of a radiation accident and the steps to be taken to ensure radiation protection. It is therefore not a transmission of any type of data.
32070	Czech Republic	Article 8	Para 8.1.2, page 38	What experience was gained during the COVID-19 pandemic and what is planned to be implemented based on this experience?	Home-office and the use of video conferencing for certain topics (reduced business trips - time efficiency, reduced risk of traffic accidents) have been successful. Home office workers work more than in the office, but they lack social contact and non-verbal communication, they need a visual and direct contact with the equipment (technical equipment), and it is not possible (only remotely) to check the correctness of the course of the activities performed, but only to check whether the documentation is written correctly, clearly, understandably so that according to it the activities could be always performed at the same quality level. It is planned to continue to use the home office in justified cases, but a return to previously established and proven procedures was realised, using new improvements and possibilities introduced during the pandemic (e.g. online communication, video meetings, sharing and emailing of requested documentation between the staff of the SÚJB and permit holders).

32069	Czech Republic	Article 6	Para 6.5.2, page 23	1. Why was the reactor shut down, would it be logical to decrease the power for keeping the unit in the grid or is this really the only safe state for such an event? Can the operator intervene in the process during such events caused by the action of RCLS (reactor control and limitation system)? 2. How quickly was the RCLS software updated and by whom was it updated: by Temelin NPP personnel or under support of Westinghouse experts? 3. Was safety review and confirmation of safe operation required by the state regulator (Czech nuclear regulator - SUJB)? 4. What method of calculating the weighted average core power (Ncore) is used in RCLS? 5. What energy release field recovery algorithm does RCLS use? 6. Does RCLS implement rod-by-rod calculation of energy release? 7. What is the error in determining Ncore and controlled functionals (Kq, Kv)? 8. What is the response of RCLS when	1. Very early into the event, the reactor was tripped by inadvertent LSd actuation of the Limitation System (LS). This inadvertent actuation was a result of the use of corrupted buffer received by the LS from the RCLS data-highway. See contextual information for further description. The operator could not effectively intervene into this process (due to its nature). In the subsequent course of the event, the reactor was in safe subcritical state. 2. The SW fix was implemented in the subsequent regular outages (i.e. in 2021). It consisted of implementation of specific SW function into the RCLS subsystems. This SW functions is capable to identify corrupted buffers and the use of such buffers in the subsystem's application logic is then avoided (this way, it effectively prevents the reoccurrence of the event). This SW function has a nature of a "system library function", i.e. not subsystem specific. The function was developed and validated by Westinghouse (with close involvement of ČEZ a.s. personnel). Then this SW function was incorporated into the main loops of individual RCLS subsystems. This was done by established local vendor ČEZ a.s. cooperates with (in the area of RCLS SW) for decades. 3. Yes. For the period until implementation of the SW fix (see Q2), ČEZ a.s. (as the plant operator and licence holder) performed a complex safety evaluation proving that the failure cannot influence proper performance of safety systems in any way (safety systems represent completely independent defence-in-depth layer) and does not compromise safety function and safety analysis assumptions. 4. It is important to understand the logic of determination of reactor power and its use in the Temelín design. - The reactor power is determined using the signals of the power-range excore neutron detectors. These detectors provide inputs to the Reactor Protection System (RPS), which has three-divisional architecture. Each division processes the signals from two excore detectors and selects the maximum. As a result, there are three signals of percent power – one for each division. These three signals are (a) used within the RPS logic and also (b) communicated to the RCLS. - RCLS calculates the maximum and the average of the three percent power signals described above. The maximum is then used for the reactor power control by the Reactor Control subsystem (if in power control mode). - The RPS excore detector signals are regularly checked against best estimate (BE) thermal power of the reactor. In this way it is guaranteed that the percent power (derived from excore detectors) corresponds to the BE thermal power. - The BE thermal power is calculated on-line by the specific application (residing in the Unit Information System) using weighted average of several (five) methods – the decisive method is the secondary side calorimetric (as the most precise). 5. Unfortunately, we do not understand the subject of the question (i.e. what the term "energy release field recovery" refers to). Answers to other questions may provide related information (?).

32068 (1/2)	Czech Republic	Article 6	Para 6.5.1, page 21	How the diagnostics of defects (like cracking in the valve seat) was improved?	The following actions were taken from the event: • The oil of the 3TJ61D01 pump was changed. • A 15-minute pump run was conducted to adjust the sealing and eliminate the possibility of water entering the bearing tray through the pump seal. • Monitor any rise in the oil gauge by the following procedure: After stabilization of the oil level in the sight glass one hour after the pump test run, a line was marked on the sight glass (water leakage through the sealing had already been excluded) the operations personnel observe the oil level in the oil gauge with a frequency of 4 hours on a long-term basis. • The oil systems of all TJ system pumps at the other Reactor-Units were checked. • The cause of the leak was analysed and the leaking bearing box of 3TJ61D01 pump was repaired, the positions of the oil gauge and discharge screw were changed, and the screw was replaced with a longer one. The lesson learnt will be reflected in the maintenance procedures of the TJ pumps. • Operations related activities that are considered necessary and expected have been reassessed and specified, particularly those activities that relate to limitation systems. • All shift supervisors will conduct workshops (including safety supervisors) with a focus on conservative decision making with respect to the availability of limitation systems against the background of events violating the LCO. • The Design Safety Aspects of the LCO training revision and modification. Analyse the need for regular LCO training as a part of the periodic training. • Investigate the possibility of introducing and propose a system how to transfer information imposed by the "Corrections and Prevention Committee" to new personnel and to their periodic training. Make past OE information available for the Training Days of Operations personnel (and to other necessary personnel) on a shared drive. • Ensure improvement of training quality provided as a part of the Training Days for the MCR personnel and ensure the development of trainers skills for these training sessions. • Improve the quality of the use of operational experience. Conduct a workshop for personnel of the departments involved in the investigation of events and likewise for the plant management, focusing on the efficient use of operational experience, with information about the event and the link to the previous event (WER MOW 20-0083) violating the LCO. • Add procedures for manipulations and control activities when adding oil to the TJ pumps to the relevant operating procedures (or otherwise specify in more detail to enable accurate control while maintaining normal oil level tolerances), and how to proceed when the level rises above the upper mark of the gauge. Inform the technological system owner immediately. • Assess the accuracy of the “operability/availability” definition of the high-pressure injection system, in terms of its adequacy. In doing so, take into account requirements of the technical specifications and the existing acceptance criteria for conducting operational checks. If any modifications are proposed, apply these also to other LCO related safety systems.
32068 (2/2)					• Conduct a training workshop on this event, focusing on the correct procedure for verifying the availability of equipment in terms of the LCO, correct interpretation of the rules and requirements of the operating procedures. • Introduce an unified electronic record procedure for on-call technical personnel so that shifts get sufficient information, establish rights and duties for entering information into this application. • Assess the possibility and possibly implement on-call (24/7) contractor staffing during OLM, as well as during plant outages, with the aim to shorten the time period of activities in the LCO conditions. • Further specify the texts of the operating procedures for chemical analyses of oils for water content in oil. • Produce a JIT document based on this event and link it appropriately to activities in the relevant operating procedures. • TJ pump maintenance technological procedure: incorporate the changes in the treatment of the TJ pump bearing racks heat transfer surfaces (using Dichtol seal), and in the configuration using a longer bolt (including its bonding) into the relevant repair procedure. Refill the oil in the TJ pump to the top mark on the oil gauge. • Transfer the lesson learnt about the TJ pumps to pumps of similar designs for which the experience of the event can be used for their operation and maintenance. Evaluate the situation and propose corrective actions. • Identify risk points in terms of corrosive action of aggressive media on technological components used in the NPP. • Assess the correctness of the technical specification requirement for the oil quality for the TJ pump bearings. Verify the viability of the technical condition for maximum water content in oil during the long-term operation of the plant. • Discuss within the ČEZ, a. s. company and also with the National Nuclear Regulator the need and suitability of embedding directly in the LCO the requirement for non-crossing the maintenance of safety trains equipment in modes R5, 6, 7. Subsequently, incorporate the changes into the LCO as appropriate. • Review the performance and evaluation of the WANO document SOER 2010-1: “SHUTDOWN SAFETY” in the context of this event experience. • Ensure sufficient stock of spare parts for the TJ pumps bearing structures. • Assess the possibility of the oil level photo-documenting (in the oil gauge) after each oil change and keeping it in the operating log (for possible comparison if the level is changing). • Assess the possibility of using records and photo-documentation in other cases as well, e.g. to add this requirement to a “model work order” as a necessary task.

32067	Czech Republic	Article 6	Para 6.3.10, page 20	The question concerns the IAEA SEED mission at the Dukovany NPP and the Temelin NPP to assess seismic safety of these NPPs, which was planned for 16-20 May 2022. The purpose of the mission was to verify reliability of the seismic safety assessment methods for the Dukovany and Temelin NPPs, to assess the measures implemented at the Temelin NPP based on the results of the 2013 mission, as well as to assess the updated seismic safety studies conducted for these two NPPs in the last decade. Did this IAEA mission take place and can you briefly inform about its results and conclusions?	IAEA Site and External Events Design (SEED) review missions on seismic hazard at NPP Dukovany and NPP Temelin took place in May 2022. The missions were very successful with positive conclusions - all issues from Mission 2013 were closed for NPP Temelin. For NPP Dukovany it is recommended to further focus on the PSHA logic tree to include other possible fault models according to the updated IAEA SSG-9 (Rev. 1) Edition No. 2, 2021. Detailed information is not public according to IAEA statement: “Findings, conclusions and recommendations resulting from the IAEA Programme are intended only to assist national decision makers who have the sole responsibility for the regulation and the safe operation of their nuclear power plants. Moreover, they do not replace a comprehensive safety assessment which needs to be performed in the framework of the national licensing process”.
32083	Czech Republic	Article 19	Para 19.8, page 195	Is there a place for storing unsorted radioactive waste before its processing at the Czech NPPs? What are the activity values for sorting radioactive waste into different groups?	Czech NPPs do not store unsorted waste. Waste is initially characterized by the dose rate and the material type at the place of production, detailed waste characterization is then carried out in the waste storage facility. The capacity of the storage areas is filled in the range of 20-40% (depending on the type of NPP). Waste, based on the gamma dose rate, is sorted into the following groups: < 0,5 µSv/h clearance ≥ 0,5 µSv/h and ≤10 µSv/h stored for decay > 10 µSv/h and ≤1 000 µSv/h combustion treatment, pressing, remelting >1 000 µSv/h and ≤12 000 µSv/h disposed in LLW repository If RAW cannot be disposed in a RAW disposal facility due to the high specific radionuclide activity, they are stored in the storage area for radioactive items while final treatment and disposal will be addressed in the NPP decommissioning process. All waste before clearance, treatment, disposal in the repository is characterized by gamma spectrometric and radiochemical measurements.

32393	Czech Republic	Article 17.1	Section 17.1.3, Page 149	It is stated that “The assessment of the tectonic conditions and the potential occurrence of a movement-capable fault in the Dukovany NPP site and in the area at the minimum distance of 25 km from the nuclear installation takes place continuously.” What are the criteria for a fault whether considered as capable fault?	A “capable fault” or “active” fault is defined as a fault (tectonic fault, zone) with a significant potential for movement on the fault surface. Movement on a fault can occur as a result of an earthquake (either directly, when the movements are associated with the fault, or seismic activity is transmitted indirectly through secondary faults) or by another mechanism (e.g. glacier loading, as a result of slope movements or the presence of subsidence or as a result of mining or groundwater pumping). It is also necessary to evaluate faults that do not have a geological manifestation but can be reactivated as a result of the above-mentioned phenomena. A capable fault is a discontinuous structure that has experienced measurable movement (displacement, rotation) at the level of the present-day Earth's surface or just below the surface at a time recent enough to be significant in terms of the expected lifetime of the nuclear facility. In the territory of the Czech Republic, which is seismically and tectonically quiet, it is determined whethe movement on the fault has occurred for at least 2.6 million years, i.e. from the end of the Pliocene to the present. A fault capable of movement can also be a fault with documented historical earthquakes or a group of earthquake foci with a direct link to the fault. In the event that the relationship of the considered fault with a known fault capable of movement has been demonstrated, it must be studied whether the movement on one fault can be transferred to the other. Since a fault capable of movement can also be faults covered by younger sediments or faults that do not appear on the surface of the territory, it is necessary to study all “suspicious” indications that would indicate the presence of a fault capable of movement: the occurrence of linear topographic or structural elements of the relief (fault slopes, rectilinear slopes, lineaments), the occurrence of sharp lithological interfaces, especially with the presence of Tertiary and Quaternary sedimentary units of the platform cover (and their possible tectonic failure), the occurrence of rocks indicating mechanical deformation of rocks on tectonic lines or the occurrence of clay minerals and other minerals formed in near-surface conditions, the occurrence earthquakes that are spatially related to the above manifestations. Clay minerals are a group of minerals that are formed during weathering processes and have a diverse composition and structure. Since movement on a tectonically active fault can also cause slow deformations of the surface of the territory, such as arching, swelling, subsidence of entire morphostructural relief units or manifestations of ductile tectonics (= ductile or plastic tectonics), such as folds, these deformations must also be evaluated and in the event of their occurrence, the location is excluded.
32394	Czech Republic	Article 17.1	Section 17.1.3, Page 152	It is indicated that “The assessment of the external and internal phenomena is regularly updated, and if new knowledge is identified, with an impact on nuclear safety, an adequate project measure is proposed.” What is the period of the mentioned assessment and the adopted margin if the relevant parameter(s) deviate from the design parameter(s)?	External and internal phenomena are evaluated periodically every 10 years in accordance with the Periodic safety review process. If the parameter of external event deviate from design basis event, update of site characteristic of these phenomena will be performed. Next step will be evaluation of safety margin against these updated parameters. - If there is enough safety margin to avoid cliff edge effects – no further action will be needed. Update of SAR will be made without any change in the design of NPPs. - If there is not enough safety margin in the design - increase of robustness of the design will be prepared to ensure that there will be no cliff edge effect. Update of SAR will be prepared with change in the design of NPPs.

32395	Czech Republic	Article 17.3	Section 17.3.1, Page 159	It is mentioned that "Monitoring of the site characteristics of a nuclear installation (geological structure, tectonic activity, seismicity, climatic conditions, engineering-geological and geotechnical conditions, hydrogeological conditions, etc.) takes place on a long-term basis since the preparation of the construction of a nuclear installation by the operator and its experts. In addition, competent scientific organizations independently carry out their monitoring and research in these sites so that information on the characteristics of the sites is refined, along with the development of scientific and technical research methods." Which organizations' measurements are taken as basis for the monitoring results? How the engineering-geological and geotechnical monitoring are correlated for the measurement of structural settlement?	Organizations whose data are used for the assessment of site characteristics and external hazards for all nuclear facilities in the Czech Republic are mainly national, but foreign data sources are also used. For example, seismic data are measured in 21 seismic stations by Czech regional seismic network. This network is operated by the Institute of Geophysics of the Academy of Sciences, Institute of Rock Structure and Mechanics of the Academy of Sciences, Institute of Earth Physics of Masaryk University, Institute of Geonics at the Academy of Sciences, Faculty of Mathematics and Physics, Charles University and Research Institute of Geodesy, Topography and Cartography. We use also seismic data from Pan-European network of data centers EIDA within ORFEUS, CSEM-EMSC - European catalog of instrumentally recorded earthquakes, ISC - international seismological catalogue, containing data from more than 130 agencies around the world, European fault database EDSF within SHARE project and DISS - georeferenced repository of tectonic, fault and paleoseismological information. Data and information on geological structure, tectonic conditions, occurrences of slope deformations, mined areas and other phenomena, hydrogeological conditions, remote sensing of the Earth are gathered by Czech Geological Survey in GEOFOND archive (state guarantor of geological data). Data from monitoring of surface water, ground water, flood risk, drought, water resources, and protection zones of water resources are provided by the T. G. Masaryk Water Research Institute. Czech Hydrometeorological Institute monitors climatic and meteorological data. Data on nature protection are provided by the Ministry of the Environment. Geotechnical monitoring provides data on the possible settlement of structures in the area of nuclear power plants for assessment over time from the time of construction.
32396	Czech Republic	Article 15	Section 15.2 Page 109	It is indicated in the report that "For operation of the category IV workplace, the approved documentation is the Monitoring Program, On-site Emergency Plan and the Determination of the Emergency Planning Zone (unless approved under a licence for the operation of a nuclear installation)." Could Czech Republic give information about the measures related to the radiation protection of emergency workers and guidance values for restricting exposure of emergency workers?	Radiation protection measures for radiation protection of emergency workers members are similar to those for everyone else: - Shelter, iodine prophylaxis And In case of intervention: - Use of protective equipment - Use of supplementary and special equipment According to Section. 104(4) of the Atomic Act, the exposure of the intervener in an accidental exposure situation is limited in 3 levels: 1) the limit for radiation workers (i.e. 20 mSv/year), 2) a reference level of 100 mSv/year in case an exceedance of 20 mSv/year cannot be excluded, 3) a reference level of 500 mSv/year if it is a case of saving human lives or preventing the development of an accidental exposure situation with potentially widespread societal and economic consequences. Reference level means the level of exposure or risk of exposure in an accidental exposure situation or in an existing exposure situation which it is undesirable to exceed. According to Section 66(5) of the Atomic Act, everyone who carries out activities in an accidental exposure situation is obliged to use reference levels to optimise the radiation protection of the public, radiation workers and responders and to prioritise optimisation on exposures exceeding the reference level. According to the following paragraphs of Section 66 of the Atomic Act, the exposure of the persons involved must be optimised both before and after the intervention. Prior to the start of the intervention, the optimisation shall be carried out by assessing the options for action and selecting the option that will provide the greatest net benefit. After the intervention, it is then done by analysing the benefits received in relation to the measures implemented and considering changes to the chosen measures and procedures.

32397	Czech Republic	Article 15	Section 15 Page 111-112	It was indicated that “Both nuclear power plants have a licence for the discharge of radioactive substances from the workplace into the air and surface waters issued by the SÚJB, where the SÚJB set the authorized limits of effective dose of the representative person. New approval was issued for Dukovany NPP in 2021, setting the authorized limit of 6 µSv for discharge into the air and 6 µSv for discharge into surface waters; the approval issued for Temelín NPP in 2017 set the authorized limit of 40 µSv for discharge into the air and the new approval issued in 2021 confirmed the authorized limit of 3 µSv for discharge into surface waters. The authorized limits were set based on the optimisation study and calculation of the dispersion of radioactive substances in the environment under conservative conditions by using the validated computer program. In addition, the competent water management authority issued a licence for the discharge of radioactive substances into surface water, in that the maximum	SÚJB does not set authorized limits for radioactive substance discharge in the quantity of activity limits because there are no general criteria for individual radionuclides discharge. Authorized limit in the quantity of effective dose of the representative person is universal. Each individual authorized limit is set on the base of optimization study using the ALARA principle. For water discharges, it is set on the base of conservative activity values of all radionuclides discharged in calendar year and the minimal river flow rate. For the aerial discharges, the authorized limit is based on the conservative operation conditions (abnormal operation) of the NPP units and the atmospheric conditions averaged over last years (e.g. 10 years). For the estimation process of the representative person effective dose, the SÚJB sets criteria in the discharge licence. The effective dose calculation shall be performed using a validated code. Input data shall be the real radionuclide activities discharged into atmosphere or in a river and the real atmospheric or river (average flow rates) conditions in concerned calendar year. SÚJB performs its own estimation of the representative person effective dose using the same input data but a different code. Topography and demography situation are already built in the computational codes. The representative person is defined the Section 2(3) j) of the Atomic Act as a member of the public representing a model group of natural persons most exposed to a given source and route of exposure. The representative person is generally determined in the optimization study and particularized during discharge impact calculation using the validated code.
32588	Czech Republic	Article 18	page 168	The main control room concept in the VVER-440/213 units, in its Dukovany NPP specific modification and renovated within the I&C system refurbishment project. Q: Could you provide more information about the design of the new reactor control and limitation system? Is the new reactor control and limitation system (RCLS) in the same safety class as the old one? According to which standards the safety classification for RCLS was defined? Is there aslo automatic reactor protection back up system (ARPBS) implemented? Which software based I&C platform was used in ARPBS? Is ATWS system in the same safety class as RCLS and ARPBS systems?	1. The new reactor control and limitation system is classified in the same safety class as the old one, i.e. to safety class 3 according to Decree No. 329/2017 Coll. 2. The new reactor control and limitation system is classified according to Decree No. 329/2017 Coll., and ČSN IEC 1226/2000 standards valid at the time of implementation. 3., 4. Within the I&C system refurbishment project, reactor trip system (RTS) was modified in the order to increase reliability - diverse lines of protection (LoP A, LoP B - HW and SW) were implemented to RTS. Because of this solution, there was no need to implement the automatic reactor protection back up system (ARBPS). 5. At the Dukovany NPP existing means are used for coping with ATWS (Anticipated Transients Without Scram) events . RCLS is classified to safety class 3 and RTS is classified to safety class 2 according to Decree No. 329/2017 Coll.

32769	Czech Republic	Article 13	Section 13.5 page 84	How is the supervision of manufacturing operations of nuclear equipment carried out, particularly when manufacturing is carried out abroad?	Supervision of the production of nuclear items is carried out as part of the control of suppliers, either directly by the authority (suppliers in the Czech Republic) or with the participation of the licensee (especially abroad).
32768	Czech Republic	Article 18	page 166	The possibility of direct or indirect cooling of melt fuel with water durign severe accident is being adressed under the national Action Plan for Temelin NPP. Is it possible to detail the technical solution selected and the agenda for the modification of the installations ? Is this possibility already implemented on the Dukovany NPP ?	Following the SA strategy two additional technical provisions are under preparation and construction: 1. G839 project - FCVS installation – Prevention of containment overpressure failure in BDBA scenarios, (secondary goal: minimization of containment pressure before eventual hypothetical melt-through failure). Main milestones: Finalization of tech. reqs: 02/2020 Tender (Law 134/2016): 04/2020÷03/2021 Contract: 05/2021 - all already finished Implementation: 2022 (start) / 2024 (completion) 2. G840 project - Independent make-up and containment heat removal system installation - Probability increase of successful IVR - IN (core in-vessel cooling through coolant supply into RPV) in scenarios with design-base / diverse system failure and implementation of additional diverse systems for containment heat removal. This modification contains two mobile systems. TB60 – RCS makeup with diesel-driven medium pressure pumps and VF90 – ESW supply to TQ heat exchanger with diesel-driven pumps. Main milestones: Finalization of tech. reqs: 02/2020 Tender (Law 134/2016): 03/2020÷03/2021 Contract: 04/2021 - all already finished Implementation: 2023 (start) / 2024 (completion) The measure for Dukovany NPP is different. IVR strategy for meltdown corium is possible and modifications supporting IVR strategy have been already implemented (pipelines for passive cavity flooding, paths for cavity makeup, modifications of reactor cavity insulation).
32767	Czech Republic	Article 6	Section 6.3.10	A new Probabilistic Seismic Hazard Assessment (PSHA) calculation was drawn up for the siting of the two NPPs in the context of the IAEA SEED Missions. Did this new assessment lead to modification of the installation to improve nuclear safety ? Is there any useful information to be shared resulting from the SEED missions in Czech Republic ?	No. Results of PSHA study (new values) are below DBE value, which is 0.1 g in accordance with Decree No. 329/2017 Coll., on the requirements for nuclear installation design. There is no need to improve seismic resistance of the plant, because there is enough safety margin against SL2 value which was updated in PSHA study.
32766	Czech Republic	Article 16	Section 16.2.3	Czech Republic has concluded bilateral government agreements on cooperation and assistance in disasters, and is a signatory of the early notification convention. Are the neighbouring countries of Czech Republic associated in some way to the national exercises?	Our only permanent partner in exercises is the Austrian state supervisory authority, with whom we conduct annual joint exercises using the ESTE system (decision support software), which is used by both parties and enables us to transmit emergency data if needed.

32765	Czech Republic	Article 16	Section 16.1.3.2 page 131	Iodine prophylaxis is a justified urgent protective measure if there is a risk of internal contamination. What are the technical criteria (environment measurement, calculated dose…) that would lead the responsible authority to order/recommend the ingestion of iodine ? Is there an age limit for the population concerned ? Who makes the decision and how is it communicated to the population ?	Pursuant to Section 157 of the Atomic Act the licence holders shall ensure a response to an extraordinary radiation event that has arisen in the course of the activities performed by them, in accordance with the relevant on-site emergency plan, emergency rules or, if the on-site emergency plan is not drawn up, intervention instructions, specifically: in the case of the occurrence or suspected occurrence of a radiation accident, in cooperation with the Fire Rescue Service of the Czech Republic, immediately start warning the general public in the emergency planning zone and ensure the immediate broadcast of the emergency information (the information shall include the instruction to take urgent protective action in the form of sheltering and application of iodine prophylaxis). So the ingestion of iodine is immediately communicated to public by the TV and radio broadcasting on the basis of ensuring by the cooperation of licence holder and the Fire Rescue Service. The subsequent decision on the ingestion of the next dose of iodine prophylaxis is made by the Head of the Region on the basis of proposals or specifications for the introduction of urgent protective measures. These are made on the basis on environment measurements. Pursuant to the Decree No. 359/2016 Coll. the operational intervention level is the photon dose rate or spatial dose equivalent measured at a distance of 1 m above the contaminated terrain and equal to (c) for urgent protective measures, the use of iodine prophylaxis for releases containing radioactive iodine of 0,1 mSv/h. The age limit for the population is not concerned.
32764	Czech Republic	Article 15	Section 15.3.3	A new approval was issued for Dukovany NPP setting an authorized limit of 6 µSv for discharge into surface waters. Are there any regulatory criteria to be checked before discharging liquid radioactive effluents in order to limit the impact on the natural environment (ex, minimum river flow) and if yes, what are these criteria? Are there requirements on minimal available storage capacities for liquid effluents, and how are sized the storage capacities of the effluents ? The national reports indicates that feedback is applied in the case of "non-standard conditions". Could you give exemples of these situations ? (low river flow ?)	The Ministry of Environment set in its regulation emission limits in the quantity of maximal and average tritium concentration in surface waters. Therefore, the NPP regulates the discharge rate in order not to exceed those parameters even in the condition of minimal river flow rate. There is no requirement on minimal available storage capacities for liquid effluents. In practice, the effluents are collected in tanks that are monitored for the radionuclides activity after filling up. On the base of the activity, the tank content is either discharged on the controlled manner or treated. The term “non-standard conditions” was not used properly in the National report. It was better to say “non-standard situation”. An example could be a discharge of a collection tank without previous monitoring that could cause an exceeding of emission limits. In such a case, a standard operation experience feedback would be applied.
32762	Czech Republic	Article 14	Section 14.2.1 and 14.2.3	How do the licensees manage the maintenance of parts whose production has been stopped ?	The maintenance of the NPP’s equipment is implemented through main supplier companies responsible for defined areas (primary circuit, secondary circuit, electrical, I&C, civil, balance of plant) based on long-term contracts (8-10 years). As part of the NPP’s equipment periodic status assessment, a regular review of the spare parts availability and quality is also carried out. One output of this evaluation is identification of the spare parts, with the risk of its unavailability or with probability for the end of its production. For these spare parts, the power plant operator has established and developed an Obsolescence program through which various approaches/solutions are applied: • Pre-stocking with still available spare parts. • Refurbishment of spare parts from available sources. • Equivalent spare parts from the original manufacturer. • Looking for a qualified alternative manufacturer of spare parts. • Reverse engineering of a specific spare part. • Design change and subsequent modification of the NPP equipment.

32761	Czech Republic	Article 14	Section 14.1.2 page 92	"Relatively essential change" in the current level 2 PSA was the change in definitiation of the LERF wich includes releases of radioactivité from the containement or reactor hall exceeding 1% Cs within 10 hours from core damage of from fuel exposure in the spent fuel storage pool. What safety improvements have been (or are planned to be) implemented in the spent fuel storage pools of nuclear power plants with regard to the application of the IAEA concept of practical elimination of certain accident sequences?	EDU Upgrade of monitoring •The system PAMS1 (and related systems) was complemented by the measurements associated with cooling the fuel in the SFP (level, temperature, dose rate above the pool), classified in accordance with the requirements for category 1 according to RG 1.97 Rev. 3. Cooling of SFP •The third independent spent fuel pit cooling pump was implemented in 2018 Because of design the SFP cooling systems are not seismically robust, the following measures were implemented (long term boiling of SFP inventory is acceptable): •Make-up of reactor and SFP in case of SBO - possibility of qualified passive makeup of open reactor or SFP using the water inventory from bubbler condenser trays. •Alternative makeup into depressurized primary circuit, SFP, and containment spray system TQ - fixed external connections were installed to provide the SFP makeup using the fire pump •Furthermore, direct water supply using the fire pump (hoses pulled through the reactor hall) represents the ultimate possibility. Due to the large thermal inertia of the pool, there is adequate time margin for arrangements for additional water supply. New reserve storage racks are available now for the scenarios of complete core unloading (to provide subcriticality even for feeding of SFP by unborated water). Subcriticality with unborated water was already guaranteed for spent fuel storage in the main storage racks from beginning of plant operation. SFP structure is seismically sufficiently robust, at least up to the 0.1 g, providing sufficient margin to Safe Shutdown Earthquake 0.06g. ETE New qualified diverse makeup system was implemented to provide additional option for SFP makeup using various sources of both borated and clean water (note: the subcriticality is guaranteed for unborated water due to use of racks made of borated steel). Furthermore, fixed external connections were installed enabling the SFP makeup using the fire pump. Also special tools are prepared for providing alternative connections (cutting of a part of the pipe and replacing it by another piece of a pipe equipped with a nozzle) to RCS makeup and containment spray using the fire pump and flexible hoses. SFP structure is seismically sufficiently robust, at least up to the 0.1 g, providing sufficient margin to Safe Shutdown Earthquake 0.08g.
32760	Czech Republic	Article 17	Section 17.3.1	In the Periodic Safety Reviews (PSR), each installation has been required to update the contents regarding the site-related factors. How is taken into account the effect of global warming ? Could you indicate if extreme temperature or low-water periods in rivers lead to modifications of the instalations to be granted their licence renewal ?	The site-related factors assessment is a part not only of the PSRs of each installation, but has to be carried out continuously and provided in annual actualization of safety documentation to regulatory body. The considerations of “global warming” are a part of assessment of climatic change (according to the IAEA SSG-35, where it is recommended to assess “Change of hazard with time: Change due to climatic evolution: regional climatic change with global climatic change”). Climate change - not only increasing of temperatures, but also the occurrence of other extreme phenomena such as flooding, drought, high winds and tornado etc. - is included in to climatological and meteorological conditions assessment of all nuclear installations in Czech Republic. The consideration of low water level in watercourses and small flows (used as a resource of technological water) is part of the annual actualization of safety documentation. The projects of both nuclear power plants are designed with regard to the possible occurrence of design extreme temperatures and low water levels in rivers. E.g. in the Dukovany NPP, by locating the water intake for the Dukovany NPP in the Mohelno equalization reservoir, the necessary amount of water is ensured by subsidies from the Dalešice water reservoir even at low flows in the Jihlava river. A drop in the level below the minimum operating level (permanent pressure level) can only occur in the event of damage to the body of the VN Mohelno dam. So far, the necessary modifications of the projects of any nuclear facilities in the Czech Republic because of climate change have not been identified.
32759	Czech Republic	Article 14	Section 14.1.2	The preparation of the PSR after 40 years of operations began at the Dukovany NPP in 2022. Could you specify the initial foreseen lifetimes of the Czech republic's NPPs ? Does the PSR include complementary safety requirements (Vienna declaration n1 for example) if the license renewal enables the NPPs to operate over its initial foreseen lifetime ?	The Atomic Act and its implementing regulations contain requirements that apply generally to both new NPPs and operating NPPs, whether or not they are operated within their originally foreseen lifetime. These requirements serve as the criteria basis for the PSR. In accordance with the national legislation, a special safety assessment is required to justify extension of the operation of NPP beyond its design lifetime. Integral part of PSR is the verification of aspects closely related to the operation of the NPP beyond its design lifetime, such as a comprehensive review of the NPP design against the latest knowledge of science and technology and good practice, assessment of the knowledge management system, assessment of the NPP site suitability also in terms of climate change trends, assessment of obsolescence, assessment of the sufficiency of qualified human resources, etc.

32758	Czech Republic	Article 14	Section 14.1.2	Are the power plants modifications mainly related to new requirements from the regulatory authority or to new needs from the licensees or to requests from other stakeholders?	There are a number of reasons that result in the decision to design modification. These may be modifications caused by new requirements arising from amended legislation. These modifications include, for example, those required by the legislation, following its amendment in 2012-2017, as a result of the Fukushima NPP accident, i.e. the extension of the NPP's capabilities in the area of design extension conditions. However, most of the modifications are initiated by the licensee as a result of the safety and status assessment of the SSCs. For example, as a result of the PSR, modifications may be needed to keep the NPP state of the art. In addition, the licensee continuously evaluates the level of nuclear safety and strives to improve the level of safety in accordance with the Atomic Energy Act. For this purpose, the licensee has developed safety improvement plans. Reasons for modifications include operational issues, maintenance, replacement of equipment with an equivalent (e.g. when a component is no longer available on the market). Another important reason for modifications is operational experience feedback (both national and international). All the reasons for modifications result from the requirements of legislation (nuclear, fire protection, occupational safety, etc.) and the related safety assessment, especially on the part of the licensee. Modifications are not made on the basis of any other stakeholder requirements.
32757	Czech Republic	Article 11	Section 11.2	The national authority leads and coordinate the examining boards, to verify the competence of personal conducting activities particularly important to nuclear safety. The national authority controls the readiness of personnel for the restart of nuclear unit after refueling. Could you specify the composition of the examining boards ? Do they include licensee's experts, or only SUJB staff ? How many persons are subject to those examining boards ? How do you assess the readiness of these persons : using full size simulator and/or theoretical exercices ? Is the authorization granted by the examining board limited in time ? How do you identify the activities with immediate impact on nuclear safety (could you give exemples) ? In addition to this examination lead by the national authority, is there any requirement for the licensees to guarantee themselves the qualification of their staff through the years ?	The examining board is lead by SÚJB experts (Chair and Vice-Chair) and involves also other experts from the licensee as per their expertise (four in minimum; usually, the licensee nominates 5-9 experts). The members of the examining board are experts with practice in the field of examination, and usually have undertaken both theoretical and practical (simulator) training. The mandate of the examining board is unlimited. Its members are obliged to maintain and regularly improve their knowledge in the field. The licensee has its own technically focused exams beyond the general state exam led by the SÚJB. According to the Atomic Act, activity of particular relevance to nuclear safety means an activity directly affecting nuclear safety, which is performed in the context of managing of a whole nuclear installation and its particular parts and of manipulation with nuclear fuel. SÚJB Decree No. 409/2016 Coll. further specifies the activities for “nuclear power installation” (thermal power greater than 50 MW) as follows: a) the control and supervision of commissioning and operation of a nuclear power installation and the independent nuclear reactor shutdown, including the manipulation in the main control room and the emergency control room; b) the control and supervision of commissioning and operation of one reactor unit and the independent nuclear reactor shutdown, including the manipulation in the main control room and the emergency control room; c) the manipulation in the main control room and the emergency control room relating to the primary part of reactor unit, including 1. the independent nuclear reactor shutdown; and 2. the control and supervision of commissioning and operation of the primary part of reactor unit; d) the manipulation in the main control room and the emergency control room relating to the secondary part of reactor unit, including the control and supervision of commissioning and operation; e) the control of performance of individual steps of physical and power start-up tests in the main control room of the reactor unit; or f) the control and supervision of handling of the individual fuel assemblies inside the reactor unit, off-side the fresh fuel storage.
32763	Czech Republic	Article 7	Section 7.2.2 page 33	Act No. 100/2001 on Environmental Assessment imposes obligation to assess the impact of the nuclear installations on the environment. How and by whom are hot water discharges into the environment from nuclear power plants regulated? If possible, give examples of limit values, specifying whether or not the nuclear power plant has cooling towers and the kind of the receiving environment (river, large lake or sea).	The hot water discharges are regulated by permit issued by Regional Office's Environment, Agriculture and Forestry Department. Both NPPs have cooling towers - a pair of them for each unit with river as receiving environment. For example, the Temelin wastewater temperature limit is 32.3 °C.

32756	Czech Republic	Article 7	Section 7.2.2 page 32	According to the section 9 of the atomic act, the licensee must be authorised to carry out modifications affecting nuclear safety. What proportion of the modifications are subject to an examination by the Safety Authority prior to be authorized or implemented? What criteria lead to a modification being investigated by the Safety Authority? If possible, give examples of modifications investigated by the Safety Authority	In compliance with the graded approach, the regulatory body categorises the modifications that are implemented on NPPs and treats them as such in its assessment. Modifications that represent a change to a safety classified equipment that affects the performance of its safety function or a change to a safety-significant part of a classified equipment (safety-class 1 or 2) are categorized as permitted modifications (section 43(h) of the Atomic Act). The licensee must obtain SÚJB authorization for these modifications. In accordance with the graded approach, the SÚJB thoroughly reviews the documentation containing the safety evidence. These changes are of the order of magnitude of units per year for both NPPs (Dukovany NPP and Temelin NPP) together. Another category of modifications are so-called “other modifications”. These are changes to selected equipment that do not affect nuclear safety, technical safety or physical protection. It also includes organisational changes and changes in the provision of physical protection. These changes are notified prior to the implementation of the change, when the regulatory body assesses the documentation with the security certificates. There are dozens of so-called “other changes” per year. The SÚJB may decide to change the modification category as part of its assessment. The SÚJB has issued safety guidance on modifications which contains, among other things, detailed criteria for categorising modifications. An example of an authorised modification is the measure for depressurisation of the primary circuit during a severe accident at the Dukovany NPP or the implementation of filtered venting at the Temelín NPP. Non-authorised, so-called “other modifications” are usually replacements of equipment parts in the framework of repair and maintenance, replacements of equipment with equivalents, etc.
32755	Czech Republic	Article 7	Section 7.2.3	« Counterfeit and fraudulent items (CFIs) are of increasing concern in the nuclear industry » (IAEA). Does SUJB conduct any specific action (like inspection, workshop visit, etc.) against CFIs?	SÚJB continuously focuses on the issue of CFI as part of planned technical safety inspections. SÚJB technical safety inspectors increasingly take part in important input inspections during hand-over tests at operating power plants; based on the inspection results, in selected cases, the authority takes samples of products delivered to power plant warehouses and forwards them to independent laboratories for the purpose of conducting independent property tests. Legislation is being amended to include the regulator's requirements aimed at mitigating the risks associated with CFI. Based on the results of the inspection, the authority takes samples of products delivered to the warehouses of the power plants and sends them for testing their properties in independent laboratories.
32754	Czech Republic	Article 7	Section 7.2.3 and section 6.5	In section 6.5, some events are related to discrepancy with quality of metallurgical material, and possible manufacturing defects (cracking in bearing housing). Is the national authority entitled to perform inspections at the supplier's installations ? Do you control the system of inspections of the licencees to guarantee the quality of his customers ? Are there regulatory requirements for the licensees for the control of their suppliers ?	Based on the provisions of § 200 of the Atomic Energy Act, the SÚJB is authorized to carry out (among other items) inspections of entities carrying out activities in the framework of the peaceful use of nuclear energy, while according to § 4 section 2 of the Atomic Energy Act, the scope of these activities includes the design and production of nuclear systems, equipment or its components, including materials. In the scope of the legislation of the Czech Republic, the power of the SÚJB to carry out inspections in the facilities of the supplier of these products, products or services is thus ensured; according to § 30 AtZ, it is the duty of the licensee to ensure this SÚJB power contractually with foreign suppliers as well. At the same time, there are also other regulatory requirements for licensee in relation to supplier inspections. As part of planned inspections, SÚJB also regularly inspects the licensee's supplier management system, including supplier inspections. The functionality of the licensee's control system is a part of the inspections of maintenance, repairs and modifications.
32753	Czech Republic	General	summary	The national reports summary indicates the projet to build new nuclear facilities. Is there a political commitment to build or to develop SMRs ? Does Czech Republic have ongoing projects or perspective in 2030-2040 on the SMRs ? Is there a particular type of reactors that is considered more mature or more suited to your country's needs ? Will these projetct be firs of a kind reactors or rely on abroad operating experience ?	The commitment is expected to be expressed in the State energy policy (SEP), which is under preparation. Ministry of Industry and Trade has established the SMR dedicated expert group in order to obtain relevant inputs for SEP. Yes, preparation activities (geological surveys) are in progress namely in the Temelin site (target operation commencement date 12/2032). Other SMR activities are focused on selection and conversion brownfield non-nuclear sites into nuclear localities. Pre-selected localities are Tusimice, Prunerov, Ledvice, Detmarovice and Porici. Target operation date on brownfields is 2035-2040. Suitability assessment of SMR designs regarding the needs of the Czech Republic is ongoing. Seven designs were pre-selected for the appraisals: BWRX300, UK SMR, SMART100, Westinghouse SMR, Holtec SMR160, NuScale and Nuward. In terms of SMRs, we are generally focusing on western LWR types. Our aim is not to build FOAK but rather “early follower“. Before the beginning of the construction, the selected vendor should be able to prove that his design is licensable according to western standards, smoothly constructable and safe during commissioning and operation (minimum requirements are not decided yet). We can say that the first SMR in the Czech Republic will be FOAK in terms of the Central European region.

32752	Czech Republic	General	summary	The national reports states that inspections using audiovisual transmission have proved to be effective and beneficial. Does the national safety authority use widely these new methods of work now that the pandemic pressure has weakened ?	Yes, new methods are still being used. During the COVID pandemic, there were occasional difficulties with the interconnection of different software for online communication between SÚJB inspectors and staff of supervised entities, as well as the consequences of loss of personal contacts and non-verbal communication. In the area of inspection, physical visits to nuclear installations were reduced and inspections focused on the accuracy of documentation. Following the pandemic, there has been a gradual return to the original procedures, with face-to-face meetings returning in addition to video conferencing, and on-site inspections to check that activities are carried out according to the management system documentation and the licensee's internal working documentation. This has had an impact on improving the motivation of the SÚJB inspectors – a return to previously established and proven procedures, using new improvements and possibilities introduced during the pandemic (e.g. online communication, video meetings, sharing and emailing of requested documentation between SÚJB staff and permit holders). After the pandemic, there has been a gradual return to the original procedures, with a return to face-to-face meetings in addition to videoconferencing, and in frame of the inspections the checking on-site has a place, whether the activities are carried out according to the management system documentation and also the permit holder's internal working documentation. This has had an impact on improving the motivation of the SÚJB inspectors - generally due to a return to previously established and proven procedures, using also new improvements and possibilities introduced during the pandemic (e.g. online communication, video meetings, sharing and emailing of requested documentation between SÚJB staff and permit holders).
33640	Czech Republic	Article 15	Art. 15	Highest annual effective dose of exposed worker at the Dukovany NPP and at the Temelín NPP was 9.65 mSv and 4.19 mSv, respectively. Highest annual collective dose of exposed workers at the Dukovany NPP and Temelín NPP was 834 mSv and 301 mSv, respectively. Q: Could you please further elaborate, since values for Dukovany seem to be systematically higher.	In contrary to four VVER-440/213 units currently operating in Dukovany (4*510MWe), there are only two VVER-1000/320 units (2*1086MWe) in Temelin (which means four refuelling outages in Dukovany vs two in Temelin). Due to differences in construction and technology, the radiation situation is different as well. For example, in the Dukovany NPP, the dose rate inside steam generator is approximately three times higher than in Temelin NPP.
33641	Czech Republic	Article 15	Art. 15 / 15.3.3	Release of radioactive materials from the workplace. Q: Why are authorized limits for gaseous releases from Temelin higher than for Dukovany (and vice versa for liquid?)	The NPPs are not identical, they are not at the identical site – atmospheric and river (flow rates) conditions differ, as well as the demographic situation in the NPP's vicinity. Each individual authorized limit is set on the base of an optimization study using the ALARA principle.

33708	Czech Republic	Article 18	page 190	When assessing the project, are single-point vulnerabilities (safety-related SPV) identified? If any, are mitigatory actions taken?	The SPV (Single Point Vulnerability) project deals with activities in the identification, determining the priorities of the solution and elimination of “points of vulnerability” in the design and operation of the ČEZ, a. s. NPPs in order to increase operational reliability. For this project there was chosen an approach in accordance with world practice described in the documents WANO, IERWG and EPRI, in particular: • SCRAM Vulnerability Assessment (2015 ERWG) • Single Point Vulnerability (SPV) Process Guide: EPRI report 3002005419 (08/2015) • Single Point Vulnerabilities: IERWG Guidance Note, Issue 1, April 2016 (superseded by the identical document WANO GL2019-02 Single Point Vulnerabilities) Main phases of SPV activities: • performing a self-assessment of NPPs from the point of view of resistance against SPV-type vulnerabilities • SPV identification • evaluate and resolve identified SPVs and implement follow-up corrective actions In 2020, ČEZ a. s. completed the 1st phase – self-assessment of the resistance of both NPPs against SPV-type vulnerabilities, in accordance with world practice (SCRAM Vulnerability Assessment document, 2015, ERWG). The result of the self-assessment: it is not necessary to implement the systematic SPV program. This result of the self-assessment was certainly positively influenced by other projects and measures already implemented in the past, including those that addressed simple failure (SFC) and common cause failure (CCF) tolerance. Despite the positive results of the self-assessment, ČEZ, a. s. conservatively decided to continue the SPV project from 2023. Currently, the second phase has not been started yet, and therefore the SPV components have not been identified, and thus no mitigatory action could take place either.
33760	Czech Republic	Article 16	page 141, 16.2.2 Information of the public in the emergency planning zone about occurrence and development of a radiation accident	On page 141 it is stated that “the SÚJB, in accordance with Section 209 of the Atomic Act, on the basis of the results of the radiation situation monitoring carried out, issues proposals for urgent protective actions or follow-up protective actions, or to further specify or withdraw the actions, and confirms or further specifies the proposal for the introduction of urgent protective actions issued by licence holder. Inputs for issuance, clarification or withdrawal of the proposal shall be drawn up by the SÚJB Crisis Staff.”. Would you please clarify a little bit this on: the role of the proposals “issued by license holder” – does it mean that the license holder has equal/same role as the SÚJB in the proposals for protective actions and who takes the decision actually; what is meant by “inputs … shall be drawn up”, are these inputs directed to the Central Crisis Staff?	Proposals for the implementation of protective measures are made by the licence holder and specified by the SÚJB. In the event of a radiation extraordinary event, the licensee shall follow its on-site emergency plan and the measures implemented on the premises of the nuclear installation to protect personnel and other persons shall be fully within its competence. However, it is also the duty of the licence holder to issue a proposal for the introduction of protective measures (sheltering, iodine prophylaxis, evacuation) outside the nuclear installation, i.e. in the emergency planning zone, if a release of radioactive materials is suspected. The recommendation of the SÚJB is of a clarifying nature. If sirens sound in the emergency planning zone at the call of the licence holder, the population within the emergency planning zone should automatically take shelter and ingest the iodine tablets with which they are equipped. The decision-making power to introduce or withdraw protective measures is vested in the regional governor. The SÚJB Crisis Staff has, of course, direct communication with the Central Crisis Staff. The Chairperson of the SÚJB is also a member of the Central Crisis Staff. Proposals for the implementation of protective measures outside the emergency planning zone (according to the National Radiation Emergency plan) are issued by SÚJB.

33758	Czech Republic	Article 16	page 117, 16.1.1 Overview of the arrangements and requirements of the regulatory body in the field of radiation extraordinary event management	On page 117, the second bulleted list, it is stated that “the licence holders shall ensure a response to a radiation extraordinary event that has arisen in the course of the activities performed by them […] , specifically … in the case of the occurrence or suspected occurrence of a radiation accident, in cooperation with the Fire Rescue Service of the Czech Republic, immediately start warning the general public in the emergency planning zone and ensure the immediate broadcast of the emergency information (the information shall include the instruction to take urgent protective action in the form of sheltering and application of iodine prophylaxis)”. Would you please provide some more information on: does it mean that the decision and recommendation on applying iodine prophylaxis in this early phase is an obligation and responsibility mainly of the licence holder or it is an obligation and responsibility rather of the Fire Rescue Service – how are the responsibilities for making this decision	Proposals for the implementation of protective measures are made by the licence holder and specified by the SÚJB. The Fire and Rescue Service plays a role in the task of protecting the public as in any other crisis situation, i.e. ensuring that emergency information reaches all people at risk. In the event of a radiological emergency, emergency information will be broadcast throughout the entire radius of the emergency planning zone. The license holder has the responsibility to provide iodine prophylaxis for the entire designated zone. The distribution of tablets is made to the general population directly and in advance, i.e. they have them at home and is ensured by the licence holder in cooperation with the competent regional authority or the Fire Rescue Sevices (based on agreements). The tablets are then replaced in accordance with the expiry date in the same way. A certain reserve of antidotes for the emergency planning zone is kept in the warehouses of the Fire Rescue Services.

33759	Czech Republic	Article 16	page 141, 16.2.2 Information of the public in the emergency planning zone about occurrence and development of a radiation accident	The last bullet on page 141 states that part of the activities of the SÚJB Crisis Staff in radiation extraordinary event is "cooperation with the Czech Hydrometeorological Institute to develop a forecast for the dispersion of radioactive substances from the place of a radiation extraordinary event and process information about possible threat in the vicinity of a nuclear installation depending on the meteorological situation and its expected development, including determination and specification of possible levels of radiation situation on the basis of information about the release of radioactive substances from a nuclear installation". Would you please provide some more information on: the dispersion codes/systems used by the SÚJB Crisis Staff for these purposes; how intensively these codes/systems are used/exercised during emergency exercises; to what extent the recommendations on protective actions for the population, issued (or just confirmed these issued by the licence	The Crisis Staff of SÚJB utilises the dispersion models based on the calculations made by the ESTE system. The main workplace of the Crisis Staff in Prague houses ESTE systems separated for the Dukovany and Temelín power plants, as well as ESTE EU and ESTE Analyst. In addition, it can at any time use the support of the National Radiation Protection Institute, which is able to provide the calculations performed by JRodos, which is also widely used during the exercises to compare the outputs. All systems mentioned above are used regularly, nearly in every emergency exercise. In addition, proper functionality is verified on a weekly basis during the crisis staffing shift handover It should be noted that these systems are perceived at the SÚJB as support mechanisms for the decision-making process in the implementation of urgent protective measures. The main focus is and will always be on the values from the monitoring of the radiation situation using all monitoring components.
33778	Czech Republic	General	General	1.How is the motivation of the staff maintained after the limitations imposed by the COVID pandemic? 2.How is effective knowledge transfer maintained at the change of generations?	1. During the COVID pandemic, there were occasional difficulties with the interconnection of different software for online communication between SÚJB inspectors and staff of supervised entities, as well as the consequences of loss of personal contacts and non-verbal communication. In the area of inspection, physical visits to nuclear installations were reduced and inspections focused on the accuracy of documentation. Following the pandemic, there has been a gradual return to the original procedures, with face-to-face meetings returning in addition to video conferencing, and on-site inspections to check that activities are carried out according to the management system documentation and the licensee's internal working documentation. This has had an impact on improving the motivation of the SÚJB inspectors – a return to previously established and proven procedures, using new improvements and possibilities introduced during the pandemic (e.g. online communication, video meetings, sharing and emailing of requested documentation between SÚJB staff and permit holders). 2. This issue is addressed in the internal management documentation of the SÚJB: VDK097 - Strategy for Long-term Human Resources Development. The aim of this document is to set out the strategic principles for the long-term development of the SÚJB's human resources. Replacement of departing staff is planned in relation to their competences. The position of the departing employee is filled by a selection procedure carried out in accordance with the Civil Service Act (Act No 234/2014 Coll.). Direct transfer of experience and knowledge between the outgoing and incoming staff is not possible due to the impossibility of filling one post with two staff members at the same time under the Civil Service Act. Therefore, the transfer of knowledge is carried out through the direct supervisor and by cooperation of the new employee with existing experts in the given competence.