IAEA-NS-IRRS-2023-01
ORIGINAL: English

INTEGRATED REGULATORY REVIEW SERVICE (IRRS)

MISSION

TO

THE CZECH REPUBLIC

Prague, the Czech Republic

15 – 26 May 2023

DEPARTMENT OF NUCLEAR SAFETY AND SECURITY

Integrated
Regulatory
Review Service

IAEA | IRRS

REPORT OF THE
INTEGRATED REGULATORY REVIEW SERVICE (IRRS) MISSION
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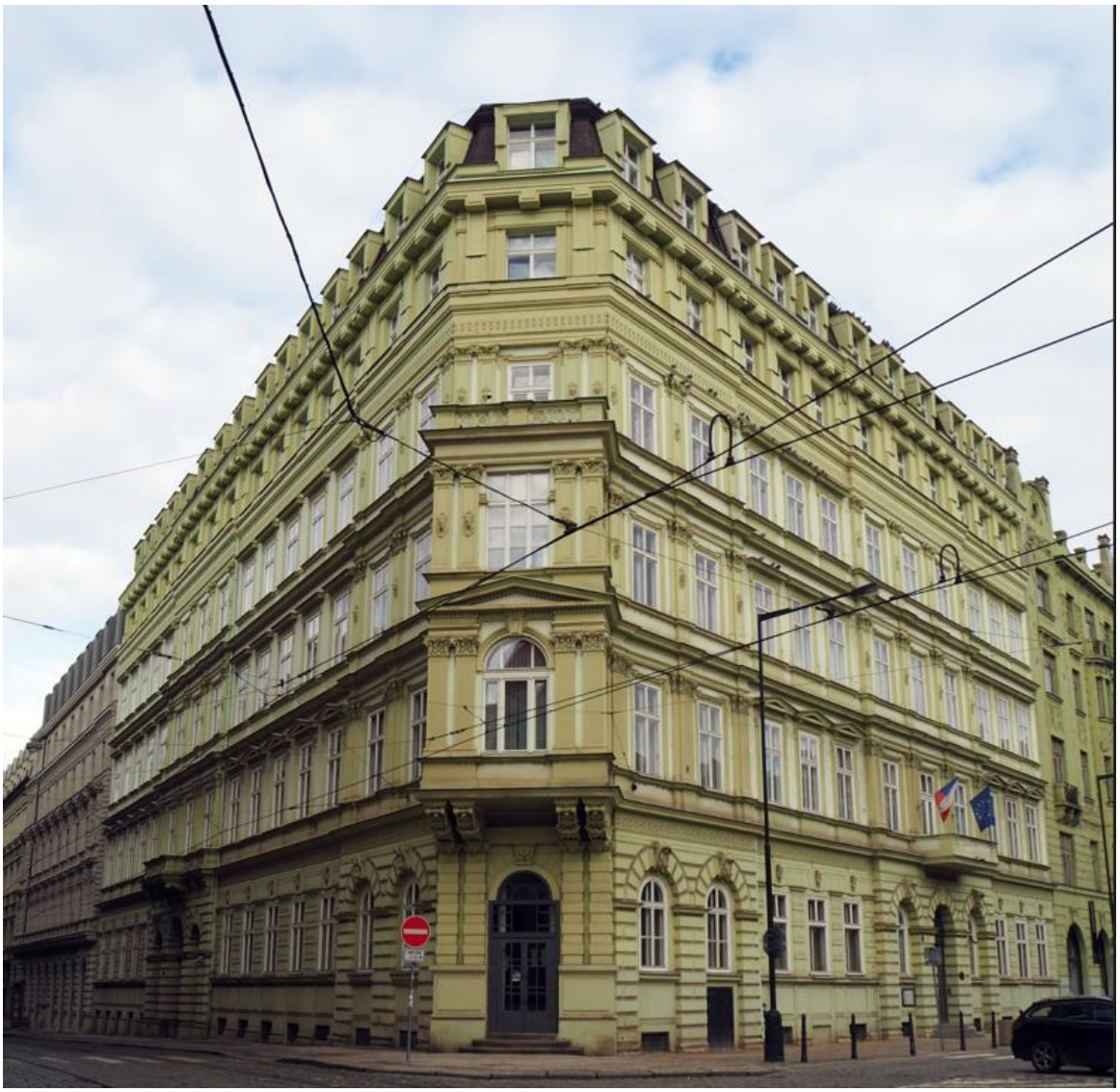

Integrated Regulatory Review Service

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REPORT OF THE

INTEGRATED REGULATORY REVIEW SERVICE (IRRS) MISSION

TO

THE CZECH REPUBLIC

Mission dates:	*14 to 26 May 2023*
Regulatory body visited:	*SÚJB - State Office for Nuclear Safety*
Location:	*Senovážné náměstí 9, 110 00 Prague 1, Czech Republic*
Regulated facilities, activities, and exposure situations in the mission scope:	*Nuclear Power Plants*, Research Reactors, F*uel Cycle Facilities*, R*adioactive waste management facilities, radiation sources in industrial and medical facilities, emergency preparedness and response, transport, decommissioning, Medical Exposure, Occupational Exposure, Public and Existing Exposure.*
Organized by:	*International Atomic Energy Agency (IAEA)*

IRRS TEAM

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FRANZEN Anna	Reviewer (Sweden)
GUANNEL Yves	Reviewer (France)
HUSARCEK Jan	Reviewer (Slovakia)
JAERVINEN Marja-Leena	Reviewer (Finland)
JONES Christopher	Reviewer (UK)
KAMOON Ashraf Sedky Ahmed	Reviewer (Egypt)
KANWAL Samina	Reviewer (Pakistan)
POPOVIC Stela	Reviewer (Croatia)
PREDA Stefania-Iuliana	Reviewer (Romania)
REVILLA GONZALES Jose Luis	Reviewer (Spain)
SALATA Camila	Reviewer (Brazil)
SHIN DaeSoo	Reviewer (South Korea)
SIRC Igor	Reviewer (Slovenia)
SPEELMAN Wilcot John	Reviewer (South Africa)
CLOITRE Vincent	Observer (France)

MANSOUX Hilaire	Team Coordinator (IAEA)
SOARE Gabriel	Deputy Team Coordinator (IAEA)
REBIKOVA Olga	IRRS Administrative Assistant (IAEA)

IAEA-2023

The number of recommendations, suggestions and good practices is in no way a measure of the status of the national infrastructure for nuclear and radiation safety. Comparisons of such numbers between IRRS reports from different countries should not be attempted.

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EXECUTIVE SUMMARY

At the request of the Government of the Czech Republic, an international team of senior safety experts met representatives of the State Office for Nuclear Safety (SÚJB) at its headquarters, from 15 to 26 May 2023, to conduct an Integrated Regulatory Review Service (IRRS) mission. This was the second full scope IRRS mission that the Czech Republic has hosted since IRRS programme began in 2006.

The purpose of this IRRS mission was to review the Czech's national regulatory framework for nuclear, radiation, radioactive waste, and transport safety. This IRRS mission is organized back-to-back to an ARTEMIS mission, scheduled for October 2023.The review assessed Czech´s regulatory framework for nuclear and radiation safety against IAEA safety standards. The mission was also used to exchange information and experience between the IRRS team members and the Czech counterparts in the areas covered by the IRRS.

The IRRS team consisted of 19 senior regulatory experts from 18 IAEA Member States, three IAEA staff members, and one observer. The Czech counterparts for the mission were from the regulatory body SÚJB.

The review covered the IRRS core modules 1 to 10: the responsibilities and functions of the government, the global safety regime, the responsibilities and functions of the regulatory body, the management system of the regulatory body, the activities of the regulatory body including authorization, review and assessment, inspection and enforcement, development of regulations and guides. The review also included the optional module 11 on safety and security interface. Facilities reviewed included nuclear power plants, research reactors, radiation sources, fuel cycle facilities, waste management facilities. Activities and exposure situations reviewed included transport, emergency preparedness and response, occupational exposure, medical exposure, and public and existing exposure.

At the request of SÚJB, the IRRS mission included discussions during which members of the team and senior staff of SÚJB shared views and regulatory experiences regarding two policy issues: new build challenges for the regulatory body and challenges for the regulatory body arising from the shortage of experts in the nuclear field.

In preparation for the IRRS mission, SÚJB conducted a self-assessment and prepared a preliminary action plan to address areas that were identified for improvement. The results of the self-assessment and supporting documentation were provided to the IRRS team as advance reference material for the mission. The IRRS team was impressed by the extensive preparation, thorough assessment, and dedication of SÚJB.

The review mission included a series of interviews and discussions with SÚJB, and the Technical Support Organization SURO. Members of the IRRS team met representatives of the Ministry of Industry and Trade.

The IRRS team was extended full cooperation in the regulatory, technical, and policy discussions with the management and staff of SÚJB, in a very open and transparent manner. This enabled the IRRS team to develop a broad understanding of the regulatory framework resulting in recommendations and suggestions that should benefit nuclear and radiation safety for the Czech Republic.

The IRRS team also observed on-site inspections conducted by SÚJB at various facilities: ISOTREND Sealed Source manufacturer, DIAMO facility which was established to eliminate the consequences of historical underground mining and in situ leaching of uranium, VFN Praha Hospital, Czech Technical University (CTU) visiting two research reactors, and Temelin Nuclear Power Plant. The IRRS team members reported very favourably on the professionalism of SÚJB staff in the preparation and conduct of the inspections. During the site visits, open discussions took place with the management of the authorized parties, who indicated that SÚJB provides valuable feedback on the safety of facilities. SÚJB expertise was also commended.

The IRRS team concluded that the Czech Republic has a comprehensive and robust regulatory framework for nuclear and radiation safety covering all facilities and activities. SÚJB has a culture of continuous improvement and is a very mature and competent regulator which fulfils its statutory obligations without undue influence.

The IRRS team identified 6 good performances including:

- the integrated approach from the Government regarding the further use of nuclear energy by involving all relevant stakeholders;
- the well-structured national radon programme and its adequate implementation; and

- the professional inspection programme that allows daily communication of NPP inspectors and continuous assessment of inspection performance and results.

In the spirit of continuous improvement, the IRRS report includes several recommendations and suggestions, which, if addressed by the Government of the Czech Republic and SÚJB, should further enhance the overall performance of the regulatory system.

The government should:

- review the framework for safety to include provisions for new types of facilities and activities foreseen in national strategic energy plans; and
- establish legal provisions to ensure that nuclear security measures, including cyber security, do not compromise safety and vice versa, in all licensing phases.

The regulatory body, SÚJB, should:

- identify current and future staffing needs and develop a plan to ensure sufficient staff are available and qualified to fulfil its statutory and regulatory functions;
- measure, assess and improve leadership for safety and safety culture, including conducting regular safety culture self-assessments;
- further develop its integrated management system to strengthen its ability to perform effective regulatory oversight; this includes the establishment of the authorization process, the optimization of procedures and the periodic conduct of internal audits;
- develop a process for assessing the need for, drafting, establishing or adopting, promoting and amending regulations and guides, using a graded approach;
- revise its programme for emergency preparedness and response, to include periodic and independent appraisals and guidance on preparation, conduct and evaluation of emergency exercises, and
- consider establishing mechanisms to systematically describe its practice of informing or consulting the public.

To conclude, in inviting the IAEA to conduct this IRRS mission and providing a transparent and comprehensive self-assessment, the Government of the Czech Republic and the regulatory body SÚJB have demonstrated their commitment to continuous improvement, a basic principle for excellence in nuclear and radiation safety. This report, in particular its recommendations and suggestions, should be viewed in that context.

The IRRS team findings are summarized in Appendix V.

An IAEA press release was issued at the end of the IRRS mission.

I. INTRODUCTION

At the request of the Government of Czech Republic, an international team of senior safety experts met representatives of State Office for Nuclear Safety (SÚJB) from 15 to 26 May 2023 to conduct an Integrated Regulatory Review Service (IRRS) mission. The purpose of this peer review was to review the Czech Republic governmental, legal and regulatory framework for nuclear and radiation safety. The review mission was formally requested by the Government of Czech Republic on 22 February 2019. A preparatory mission was conducted on 1 – 2 December 2022 at SÚJB Headquarters in Prague to discuss the purpose, objectives, and detailed preparations of the review in connection with regulated facilities and activities in Czech Republic and their related safety aspects and to agree the scope of the IRRS mission.

This mission is organized back-to-back to an Integrated Review Service for Radioactive Waste and Spent Fuel, Decommissioning and Remediation (ARTEMIS) mission, scheduled on 14 - 24 October 2023. To avoid unnecessary duplications between the IRRS and the ARTEMIS missions, the preparation and conduct of the IRRS mission were carried out in a coordinated manner with the ARTEMIS mission. Thus, the provisions for the decommissioning of facilities and the management of radioactive waste and of spent fuel, subject of Section 1.7 of this report, are to be reviewed by the upcoming ARTEMIS mission.

The IRRS team consisted of 19 senior regulatory experts from 18 IAEA Member States, 3 IAEA staff members and 1 observer. The IRRS team carried out the review in the following areas: responsibilities and functions of the government; the global nuclear safety regime; responsibilities and functions of the regulatory body; the management system of the regulatory body; the activities of the regulatory body including authorization, review and assessment, inspection and enforcement processes; development and content of regulations and guides; emergency preparedness and response; occupational radiation protection, control of medical exposure, public and environmental exposure control, transport of radioactive material, waste management and decommissioning and fuel cycle facilities. In addition, policy issues were discussed, including Challenges of the Regulatory Body in the context of possible new builds (and new technologies)

The IRRS review addressed all facilities and activities regulated by SÚJB.

SÚJB conducted a self-assessment in preparation for the mission and prepared a preliminary action plan. The results of SÚJB self-assessment and supporting documentation were provided to the IRRS team as advance reference material for the mission. During the mission, the IRRS team performed a systematic review of all topics within the agreed scope through review of the SÚJB advance reference material, conduct of interviews with management and staff from SÚJB and direct observation of Czech Republic regulatory activities at regulated facilities. A meeting with the Ministry of Industry and Trade was also organized.

All through the mission, the IRRS team received excellent support and cooperation from Czech Republic and SÚJB.

II. OBJECTIVE AND SCOPE

The purpose of this IRRS mission was to review Czech Republic radiation and nuclear safety governmental, legal and regulatory framework and activities against the relevant IAEA safety standards, to report on effectiveness of the regulatory system and to exchange information and experience in the areas covered by the IRRS. The agreed scope of this IRRS review included all facilities and activities regulated in Czech Republic. It is expected this IRRS mission will facilitate regulatory improvements in Czech Republic and other Member States, utilising the knowledge gained and experiences shared between SÚJB and IRRS reviewers and the evaluation of the Czech Republic regulatory framework for nuclear safety, including its good practices.

The key objectives of this mission were to enhance the national legal, governmental and regulatory framework for nuclear and radiation safety, and national arrangements for emergency preparedness and response through:

a) providing an opportunity for continuous improvement of the national regulatory body through an integrated process of self-assessment and review;

b) providing the host country (regulatory body and governmental authorities) with a review of its regulatory technical and policy issues;

c) providing the host country (regulatory body and governmental authorities) with an objective evaluation of its regulatory infrastructure with respect to IAEA safety standards;

d) promoting the sharing of experience and exchange of lessons learned among senior regulators;

e) providing key staff in the host country with an opportunity to discuss regulatory practices with IRRS Team members who have experience of other regulatory practices in the same field;

f) providing the host country with recommendations and suggestions for improvement;

g) providing other states with information regarding good practices identified in the course of the review;

h) providing reviewers from Member States and IAEA staff with opportunities to observe different approaches to regulatory oversight and to broaden knowledge in their own field (mutual learning process);

i) contributing to the harmonization of regulatory approaches among states;

j) promoting the application of IAEA Safety Requirements;

k) providing feedback on the use and application IAEA safety standards;

III. BASIS FOR THE REVIEW

A) PREPARATORY WORK AND IRRS TEAM

At the request of the Government of Czech Republic, a preparatory meeting for the Integrated Regulatory Review Service (IRRS) was conducted from 1 to 2 December 2022. The preparatory meeting was carried out by the appointed Team Leader Mr Thomas Wildermann, Deputy Team Leader Ms Eleftheria Carinou and the IRRS IAEA Team representatives, Mr Jean-Rene Jubin Team Coordinator and Mr Jovica Bosnjak Deputy Team coordinator.

The IRRS mission preparatory team had discussions regarding regulatory programmes and policy issues with the senior management of SÚJB represented by Mr Jan Chára, SÚJB Liaison Officer for the IRRS, other senior management and staff. It was agreed that the regulatory framework with respect to the following facilities and activities would be reviewed during the IRRS mission in terms of compliance with the applicable IAEA safety requirements and compatibility with the respective safety guides:

- Nuclear power plants;
- Research reactors;
- Fuel cycle facilities;
- Waste management facilities;
- Radiation sources facilities and activities;
- Decommissioning;
- Transport of radioactive materials;
- Control of medical exposure;
- Occupational radiation protection;
- Public and environmental exposure control; and
- Selected policy issues.

Mr Michal Merxbauer, SÚJB Deputy Chair, made presentations on the national context, the current status of SÚJB and the self-assessment results to date.

IAEA staff presented the IRRS principles, process and methodology. This was followed by a discussion on the tentative work plan for the implementation of the IRRS in Czech Republic in May 2023.

The proposed composition of the IRRS team was discussed and tentatively confirmed. Logistics including meeting and workplaces, counterparts and Liaison Officer identification, proposed site visits, lodging and transportation arrangements were also addressed.

The SÚJB Liaison Officer for the IRRS mission was confirmed as Mr Jan Chára.

SÚJB provided IAEA with the advance reference material (ARM) for the review in March 2023, in preparation for the mission, the IAEA team members reviewed the Czech Republic advance reference material and provided their initial impressions to the IAEA Team Coordinator prior to the commencement of the IRRS mission.

B) REFERENCES FOR THE REVIEW

The relevant IAEA safety standards and the Code of Conduct on the Safety and Security of Radioactive Sources were used as review criteria. The complete list of IAEA publications used as the references for this mission is provided in Appendix VII.

C) CONDUCT OF THE REVIEW

The initial IRRS team meeting took place on Sunday, 14 May 2023 in Prague, directed by the IRRS Team Leader and the IRRS IAEA Team Coordinator. Discussions encompassed the general overview, the scope and specific issues of the mission, clarified the bases for the review and the background, context and objectives of the IRRS programme. The understanding of the methodology for review was reinforced. The agenda for the mission was presented to the team. As required by the IRRS Guidelines, the reviewers presented their initial impressions of the ARM and highlighted significant issues to be addressed during the mission.

The host Liaison Officer was present at the initial IRRS Team meeting, in accordance with the IRRS Guidelines, and presented logistical arrangements planned for the mission.

The IRRS entrance meeting was held on Monday, 15 May 2023, with the participation of SÚJB senior management and staff. Opening remarks were made by Ms Dana Drábová, SÚJB Chairperson, Mr Thomas Wildermann, IRRS Team Leader and Mr Hilaire Mansoux, IRRS Team Coordinator. Mr Michal Merxbauer, SÚJB Deputy Chair, gave an overview of the Czech Republic context, SÚJB activities and the draft action plan prepared as a result of the pre-mission self-assessment.

During the IRRS mission, a review was conducted for all review areas within the agreed scope with the objective of providing Czech Republic and SÚJB with recommendations and suggestions for improvement and where appropriate, identifying good practice. The review was conducted through meetings, interviews and discussions, visits to facilities and direct observations regarding the national legal, governmental and regulatory framework for safety.

The IRRS team performed its review according to the mission programme given in Appendix II.

The IRRS exit meeting was held on Friday, 26 May 2023. The opening remarks at the exit meeting were presented by Ms Dana Drábová and were followed by the presentation of the results of the mission by the IRRS Team Leader Mr Thomas Wildermann. Closing remarks were made by Mr Hilaire Mansoux.

An IAEA press release was issued at the end of the mission.

1. RESPONSIBILITIES AND FUNCTIONS OF THE GOVERNMENT

1.1. NATIONAL POLICY AND STRATEGY FOR SAFETY

The policy and strategy for safety in the Czech Republic are codified mainly by the Atomic Act. Its scope and basic principles demonstrate the attention of the Government to safety.

Furthermore, the governmental commitment for nuclear safety is also stated in the National Action Plan for Development of Nuclear Power for period 2015-2025. The plan, which is adopted by the Government, is renewed every ten years and the Ministry of Industry and Trade has a leading role in its preparation, while the State Office for Nuclear Safety (SÚJB), Ministry of Finance, Ministry of the Interior, Ministry of Foreign Affairs and representatives of all parliamentary political parties and of nuclear industry (ČEZ Group) are also taking part in it. The plan provides for measures in different areas, including nuclear safety, as well as responsible organizations and time limits for their implementation. The Ministry of Industry and Trade has to evaluate the implementation of the plan at least once per five years (or more often on the need basis) and reports to the Government.

The Atomic Act aligns with IAEA fundamental safety principles. The governmental, legal and regulatory framework for nuclear safety, security and safeguards as well as for radiation protection is established and applied.

The National Action Plan for Development of Nuclear Power for period 2015-2025 sets, inter alia, measures for strengthening nuclear safety, measures for sustaining human and financial resources of all stakeholders, measures for the research and development and provisions for consideration of social and economic development. Obligations of licence holders are further elaborated in the Atomic Act and its subsidiary Decrees.

Provisions for management for safety and safety culture are included in the Atomic Act.

Graded approach is one of the fundamental principles of the Atomic Act taking into account the type of facility, the type of material and radioactive waste present in the facility and the activities carried out.

An interview with senior representatives from the Ministry of Industry and Trade was conducted by the IRRS team.

During this interview, the Ministry of Industry and Trade illustrated the main contents of and the general procedure to revise the existing high level strategy documents (State Energy Policy and National Energy and Climate Plan). Both documents are currently under review and planned to be adopted in 2024. Among other objectives, the revised documents will address new builds, including up to four additional large units on existing sites, as well as the addition of small and medium-sized reactors. The IRRS team was informed that afterwards, revision of the National Action Plan for Development of Nuclear Power for period 2015-2025 is also envisaged. Representatives of SÚJB are participating in different working groups for preparation of strategic documents in the field of nuclear energy and ensure that all their comments are taken into consideration.

The Government established a Standing Committee for Nuclear Energy (later transformed to Standing Committee for the Construction of New Nuclear Resources in the Czech Republic) for coordination of different stakeholders in different areas related to the state's strategic energy plans. The Standing Committee has five working groups for different areas (Funding Strategy working group, Legislative-legal working group, Technical – investment working group, working group for the applicability of small and medium-sized modular reactors and Working group for securing human resources for the development of nuclear energy).

The representatives of the Ministry illustrated very clearly that all safety related comments of SÚJB need to be taken into consideration and in case of dispute it should be resolved on different levels. SÚJB is recognized as an independent state authority.

The Ministry acknowledges the robust status of the nuclear energy sector and emphasizes the presence of highly competent professionals within the industry. However, they also recognize the importance of anticipating future needs and their role in facilitating the preservation and development of knowledge and human resources for all stakeholders.

The IRRS team considers that the Government of the Czech Republic has demonstrated an integrated approach regarding the further use of nuclear energy by involving all relevant stakeholders on all levels (all relevant ministries and authorities, industry, research institutions, universities, regional representatives) in the preparatory activities. The IRRS team considers such approach as a good performance.

1.2. ESTABLISHMENT OF A FRAMEWORK FOR SAFETY

The regulatory framework for safety of peaceful use of nuclear energy and ionizing radiation in the Czech Republic is established mainly with the Atomic Act and its supplementing secondary regulations. Some parts are also covered by some other laws, for example some general laws applying to all state bodies (Environmental Impact Assessment Act, Building Act, Criminal Code, Code of Administrative Justice etc.).

The Atomic Act defines conditions for the peaceful utilization of nuclear energy and ionizing radiation. The Atomic Act regulates all activities involving the utilisation of nuclear energy and ionizing radiation and all relevant exposure situations with the aim to protect the public and the environment against the harmful effects of ionising radiation.

The legal framework in the broader sense is complemented by the series of SÚJB safety guides and recommendations, which play the role of the good practice to meet the legal requirements.

The legal framework for safety sets provisions for key elements, such as:

a) safety principles,
b) obligations for all current types of facilities and activities,
c) types of authorisations,
d) justification for the authorization of new activities,
e) participation of interested parties in decision making process,
f) assigning legal responsibility for safety to persons responsible for the facilities and activities,
g) establishment of a regulatory body and its regulatory responsibilities,
h) emergency preparedness and response,
i) interface with nuclear security and with the system of accounting for, and control of, nuclear material,
j) acquiring and maintaining the necessary competence,
k) obligations in respect of financial provision for the management of radioactive waste and of spent fuel,
l) decommissioning,
m) the criteria for release from regulatory control,
n) specification of offences and the corresponding penalties and
o) control of the import and export of nuclear material and radioactive material.

The legal framework clearly defines responsibilities of different state bodies. SÚJB is the regulatory body responsible for the regulation and supervision of the peaceful utilization of nuclear energy and ionizing radiation, including security and safeguards. Its responsibilities are defined in the Atomic Act.

Some additional responsibilities and powers are held by other central administrative bodies due to their specific nature requiring application of another perspective and interests. However, the leading and coordinating role remains with SÚJB. Among such authorities are, for instance, the Ministry of Health (medical exposure issues), the Ministry of the Interior (emergency management), the Ministry of Defence, the Ministry of Finance, the National Security Authority (classified information). All obligations and responsibilities of these authorities are clearly defined by the law.

One of SÚJB's legal obligations is to ensure the promulgation of suitable regulation of the area under its responsibility. Before any regulation is formalized into particular draft, regulatory impact assessment has to be performed, following and respecting abovementioned strategies, plans and available information.

The national framework for safety is in general tailored to existing types of reactors in the country and does not cover all requirements regarding new types of nuclear facilities foreseen in national strategic energy plans. The IRRS team was informed that SÚJB cooperates with different domestic and international stakeholders to get all available technical inputs regarding possible new types of nuclear facilities. Representatives of SÚJB actively participate in the process of preparation of strategic documents in the field of nuclear energy and has representatives in all relevant working groups of the Standing Committee for the Construction of New Nuclear Resources in the Czech Republic (see Chapter 1.1). Internal taskforce with representatives of all sections and areas of expertise was appointed by SÚJB President's order from 15 August 2022 to address all topics of small modular reactors.

The IRRS team was informed that work for amending the Atomic Act and supplementary regulation has already started and is envisaged to be completed by the end of 2024. There are 10 decrees in different areas, where the major changes are envisaged in the area of design, radiation protection and graded approach.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: The national framework for safety does not set sufficient provisions for new types of nuclear facilities foreseen in national strategic energy plans.	
(1)	**BASIS: GSR Part 1 (Rev.1) Requirement 2, para. 2.5 states that** *"The government shall promulgate laws and statutes to make provision for an effective governmental, legal and regulatory framework for safety. This framework for safety shall set out the following:* *…* *(2) The types of facilities and activities that are included within the scope of the framework for safety; …".*
R1	**Recommendation: The Government should review the framework for safety to include provisions for new types of facilities and activities foreseen in national strategic energy plans.**

SÚJB requested a policy issue discussion on the New Build Challenges for the Regulatory Body, which relates to the national framework for safety. This discussion is documented in Annex I.

1.3. ESTABLISHMENT OF A REGULATORY BODY AND ITS INDEPENDENCE

The regulatory body of the Czech Republic is centralized and unified in SÚJB. SÚJB is responsible for the regulation of all the peaceful utilization of nuclear energy and ionizing radiation and protection from any harmful effect of them, including security and safeguards.

The establishment of SÚJB is provided by the Act on Establishing Ministries and Other Central State Administration Bodies of the Czech Republic. This act provides the central state administration bodies, including ministries, with general powers and responsibilities in state administration and governance. These general provisions form a base for strategic work, planning and assessment in the performed agendas, informing the general public and cooperation with other state administrative bodies. SÚJB is a central administrative body, independent from any other administrative body or ministry. Detailed scope of activities and responsibilities of SÚJB is defined by the Atomic Act and include licensing, inspection, enforcement, review and assessment etc.

For long term strategy of sustaining adequate staff, its qualification and training, to fulfil its tasks, SÚJB has evolved "competence maps" within its management system. They are elaborated on a basis of analyses of available resources and possible risks. Competence maps are regularly reviewed and updated. Practical implementation of staffing is realized through process of systemization. SÚJB creates its own system of internal structure, working places, positions and functions.

The SÚJB's budget is a separate chapter within the state budget. The structure of SÚJB's budget is formed on a yearly basis using analyses of factual needs, plans of activities, competency maps and plans for staffing.

Independence of SÚJB from any influence, either from regulated entities or from other authorities, is ensured by the central administrative position of the office, extent and level of its powers, its own budget and financial resources independent of the state budget, its own and independent management and staffing policy and by strict rules for public administration and civil service. SÚJB is headed by a chairperson appointed by the Government. Selection, designation and recalling of the chairperson is regulated by the Act on Civil Service. Regulatory decisions of SÚJB can be revoked only by the independent administrative court and cannot be changed by any other authority.

The IRRS team considers that SÚJB is provided with a high level of independence in performing its functions.

1.4. RESPONSIBILITY FOR SAFETY AND COMPLIANCE WITH REGULATIONS

The prime responsibility for safety in the use of nuclear energy or performance of the activities in the exposure situations is covered by the Atomic Act. Anyone who uses nuclear energy or performs activities in exposure situations shall, as a matter of priority, ensure nuclear safety, radiation protection and safety of nuclear materials and other items in the nuclear field, which is important for ensuring the non-proliferation of nuclear weapons. This obligation cannot be transferred to another person.

The Atomic Act regulates the use of nuclear energy and activities in exposure situations and covers all stages in the lifetime/duration of facility/activity.

The Atomic Act sets general responsibility of authorized persons for safety. Several provisions of the Atomic Act implicitly stipulate that even full compliance with regulatory requirements does not relieve a person of its prime responsibility for safety. As for example, the Atomic Act sets an obligation for license holders to evaluate the level of nuclear safety, radiation protection, technical safety, emergency preparedness and security whenever new relevant information is acquired about the risks and consequences of these activities. It also provides for taking correspondent measures and to continuously and comprehensively evaluate compliance with the principles of the peaceful uses of nuclear energy and ionizing radiation. The Atomic Act stipulates that licence holders shall file the documentation for the licensed activity during performing of licensed activity and keep it in compliance with the requirements under the Atomic Act, the principles of good practice and the actual status of the licensed activity. The Atomic Act stipulates that licence holders shall notify SÚJB without delay of any changes or events relevant to nuclear safety, radiation protection, technical safety, radiation situation monitoring, radiation extraordinary event management, security and management of nuclear materials, investigate without delay any breaches of the Atomic Act, take corrective action and prevent the recurrence of such situations, comply with the technical and organisational conditions for the safe operation of nuclear installations and workplaces with a ionising radiation source, and technical and organisational conditions for the safe management of sources of ionising radiation, assess nuclear safety, radiation protection, technical safety, radiation situation monitoring, radiation extraordinary event management and security etc.

SÚJB is empowered to perform inspection and to act in case of violation of the legislation and regulations. The Atomic Act provides for a set of tools for SÚJB and its inspectors to demand remedial measures or to impose penalties in case of non-compliance or breaching of the legislation and regulations.

The IRRS team considers that the Czech legal system adequately stipulates requirements for the prime responsibility for safety and compliance with regulations.

1.5. COORDINATION OF AUTHORITIES WITH RESPONSIBILITIES FOR SAFETY WITHIN THE REGULATORY FRAMEWORK

Even though SÚJB is established as a central administrative body in the areas of nuclear safety, radiation protection, security, and safeguards and has a broad list of responsibilities and powers in these fields, there are also some other public authorities, which are responsible for conducting some activities in accordance with the Atomic Act (see Chapter 1.2 of the Report). Setting clear legal provision on tasks of different authorities prevents omissions or duplications of their responsibilities.

According to the general legislation (Act on Establishing Ministries and Other Central State Administration Bodies of the Czech Republic, Administrative Code) all state authorities are obliged to exchange information and to cooperate.

SÚJB, as a centralised regulatory body in the areas of nuclear safety, radiation protection, security, and safeguards, has a key coordinating role. As such, it:

- has concluded numerous memoranda of understandings with other relevant authorities (Ministry of Defence, Ministry for Industry and Trade, Fire Rescue Service, Police, National Cyber and Information Security Agency, etc.),

- has issued plans which contains provisions regarding the cooperation of public authorities (Emergency plans, National Monitoring Programme, National Radiation Emergency Plan, Radiation accident type plan, National Action Plan for Control of Public Exposure to Radon),
- leads or participates in relevant inter-ministerial activities (regular or ad hoc working groups).

SÚJB has concluded a Memorandum with the Ministry of Defence on cooperation in performing state authority over the use of ionizing radiation by the armed forces of the Czech Republic, as stipulated in Section 216 of the Atomic Act. The IRRS team was informed that the Ministry of Defence is responsible for army facilities and sources, including several military hospitals which also provide services to the public. The IRRS team was also informed that the Memorandum from 2003 does not clearly defines responsibilities of the Ministry of Defence and SÚJB in licensing and inspection of these facilities and could be reviewed with the aim to clarify the respective responsibilities, to achieve consistency in regulatory oversight and to enable both authorities to benefit from each other's experience.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB and the Ministry of Defence have concluded a memorandum on cooperation in performing state authority over the use of ionizing radiation by the armed forces of the Czech Republic, including several military hospitals which also serve the public. The memorandum from 2003 does not clearly define responsibilities of the Ministry of Defence and SÚJB in licensing and inspection of these facilities.	
(1)	**BASIS: GSR Part 1 (Rev.1) Requirement 7, para. 2.18 states that** *"Where several authorities have responsibilities for safety within the regulatory framework for safety, the responsibilities and functions of each authority shall be clearly specified in the relevant legislation. The government shall ensure that there is appropriate coordination of and liaison between the various authorities concerned in areas such as:* *…(3) Applications of radiation in medicine, industry and research; …* *… This coordination and liaison can be achieved by means of memoranda of understanding, appropriate communication and regular meetings. Such coordination assists in achieving consistency and in enabling authorities to benefit from each other's experience".*
S1	**Suggestion: SÚJB and the Ministry of Defence should consider reviewing the 2003 memorandum on cooperation in performing state authority over the use of ionizing radiation by the armed forces of the Czech Republic, clarifying the respective responsibilities and ensuring consistency in regulatory oversight.**

1.6. SYSTEM FOR PROTECTIVE ACTIONS TO REDUCE EXISTING OR UNREGULATED RADIATION RISKS

For reducing undue radiation risks associated with natural or artificial unregulated sources or with contamination from past activities or events, the Atomic Act has established and regulates a system to identify such situations and protective actions, including regulatory actions.

The Atomic Act defines existing exposure situations. The Atomic Act and its supplementing regulations set responsibility for their management by operators of facilities or activities, requirements for protective actions, margins for their commencement, requirements for their implementation, their evaluation and in some cases also financial support from the state. Requirements for justification and optimization apply for all exposure situations defined by the Atomic Act.

SÚJB has a supervising and coordinating role and may regulate the protective actions. Typical responsibility of SÚJB is assessment of information about the situation and protective actions and preparation of plans and strategies, subsequently coordinated with other authorities and submitted also to the government.

The Atomic Act also contains provisions regulating the management of orphan sources, including obligations and responsibilities of different stakeholders and costs associated with the detection and safe management.

SÚJB has issued guidelines to the operators on detecting and collecting of orphan sources in the installations for melting, collecting, and processing of scrap metal.
The Czech Republic has established a National Action Plan for the Regulation of Radon Exposure, which was implemented on 1 January 2020. The SÚJB, has been identified as the responsible organization for the preparation and updating of the action plan and for the regulation of the population exposure to radon in the Czech Republic. The plan also identifies a number of key implementing organizations.

The Czech Republic had defined radon prone areas where the likelihood of exceeding the reference level of 300 $Bq.m^{-3}$ is greater than 30% and the current analysis of the identified radon prone areas was based on the results captured in the database. A total of about 210 000 measurements had been taken in family homes, schools, kindergartens, and public buildings throughout the Czech Republic from 1991 till 2015. Every year around 700 houses, schools, and kindergartens are measured. Radon results in workplaces amount to about 775.

The national programme is continuing, and a new database is being finalised, to be more modern and for easier upload of information by responsible organizations. The IRRS team considers that the national radon programme is well structured and implemented, which is considered as a good performance.

1.7. PROVISIONS FOR THE DECOMMISSIONING OF FACILITIES AND THE MANAGEMENT OF RADIOACTIVE WASTE AND OF SPENT FUEL

The provisions for the decommissioning of facilities and the management of radioactive waste and of spent fuel are to be reviewed by the upcoming ARTEMIS mission, which is organized back-to-back to this IRRS mission.

1.8. COMPETENCE FOR SAFETY

The National Action Plan for Development of Nuclear Power for period 2015-2025 sets some safety goals regarding the competence for safety, namely to create conditions for the preservation and further development of the necessary domestic personnel and knowledge infrastructure for ensuring nuclear safety, for all subjects participating in ensuring nuclear safety, to support for the improvement and adjustment of the educational system at all levels with the aim of ensuring the requirements for human resources and provide measures for sustaining human and financial resources of all stakeholders and measures for the research and development.

The Government established the Working group for securing human resources for the development of nuclear energy within the Standing Committee for the Construction of New Nuclear Resources in the Czech Republic (see Chapter 1.1.) to prepare roadmaps for securing human resources in nuclear energy, to coordinate all stakeholders (ministries and authorities, industry, universities, regional representatives), to assess capacities needed for the construction and operation of new nuclear facilities, to provide measures for motivation or incentives for technical fields of study, etc.

Legal provisions for qualification requirements of regulatory body and other state authorities' personnel are set under Civil Service Act and its regime (qualification requirements for posts in systemization). All staff must be adequately qualified, in order to be able to perform official activities, and must undergo regular training and evaluations. SÚJB has an established system of competency maps for all positions, describing relevant qualification requirements.

A similar system of planning of staffing, which is based on the needed competencies is also implemented for Technical Support Organizations (TSOs) of SÚJB. TSOs' personnel are not set under Civil Service Act which allows TSOs more flexibility in staffing procedures.

As for regulated persons, the Atomic Act prescribes several layers of qualification requirements. For staff with requested lower expertise the system is established in a goal-oriented manner, however, regular training is requested. For activities of particular relevance to nuclear safety and radiation protection, the Act stipulates special qualification requirements and exams that must be passed through, with regular re-training and also repeated examinations for some cases. The Atomic Act also sets conditions for recognition of foreign exams.

The training for the staff, who perform activities of particular relevance to nuclear safety and radiation protection, is an activity that requires a licence granted by SÚJB.

Both state institutes (universities, academies of science, research institutions, etc.) and nuclear industry such as CEZ (Training Centre in Brno, Nuclear Research Institute in Rež, etc.) have their training and research capacities. In the field of radiation protection, SÚJB also provides training, especially with the help of its TSOs.

All stakeholders also use different international training options within the IAEA or EU.

The Czech Republic has a wide and robust research and development programme for nuclear and radiation safety that lean mainly on the state's system of grants. Funds for research and development are ensured by the Grants Agency and especially by the Ministry of the Interior within security research.

1.9. PROVISION OF TECHNICAL SERVICES

Technical services essential for nuclear and radiation protection are available in the Czech Republic.

Personal dosimetry is provided commercially. Technical services for personal dosimetry are licensed by SÚJB under the Atomic Act. Applicants for the licence must demonstrate their ability to perform a service of high quality, in accordance with legal safety requirements and with recognized methodologies. All licensed persons are inspected by SÚJB.

Environmental monitoring is a responsibility of the Government, performed though the National Radiation Monitoring Network and financed through the State Budget. Environmental monitoring is undertaken by National Research Institutes and universities in cooperation with various State Authorities. Section 149 of the Atomic Act sets provisions for performing environmental monitoring and obligations of engaged organisations and authorities.

The calibration of equipment is provided by the Czech Metrology Institute or by organizations authorised by this Institute.

1.10. SUMMARY

The Government of the Czech Republic has demonstrated an integrated approach regarding the further use of nuclear energy by involving all relevant stakeholders on all levels in the preparatory activities. The IRRS team considers such approach as a good performance.

The Czech Republic has established a legislative and regulatory framework for nuclear safety and the protection against ionizing radiation for all types of facilities and activities existing in the country. However, this framework should be reviewed to also include provisions for new types of nuclear facilities foreseen in national strategic energy plans.

SÚJB is established as a central regulatory authority for nuclear safety, security and safeguards and is provided with a high level of independence in performing its functions. It has a key coordinating role with other authorities within the regulatory framework.

SÚJB and the Ministry of Defence should consider reviewing the 2003 memorandum on cooperation in performing state authority over the use of ionizing radiation by the armed forces of the Czech Republic clarifying the respective responsibilities and ensuring consistency in regulatory oversight.

The IRRS team considers that the national radon programme is well structured and implemented, which is considered as a good performance.

2. THE GLOBAL SAFETY REGIME

2.1. INTERNATIONAL OBLIGATIONS AND ARRANGEMENTS FOR INTERNATIONAL COOPERATION

The Czech Republic is a contracting party to relevant international conventions that establish common obligations and mechanisms for ensuring protection and safety, Including the following conventions and treaties:

- The Treaty on the Non-Proliferation of Nuclear Weapons (NPT),
- The Convention on the Physical Protection of Nuclear Materials, including its 2005 amendment,
- The Convention on Early Notification of a Nuclear Accident,
- The Convention on Assistance in the Case of a Nuclear or Radiation Emergency,
- The Convention on Nuclear Safety,
- The Comprehensive Nuclear Test Ban Treaty,
- The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radiological Waste Management,
- The Vienna Convention on Civil Liability for Nuclear Damage,
- The Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention,
- The Convention on Environmental Impact Assessment in a Transboundary Context,
- The Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention)

The Czech Republic made all the necessary actions and arrangements regarding to the IAEA Code of conduct on the safety and security of radioactive sources, and supplementary guidance on import and export of radioactive sources, including:

- Made a political commitment with regard to the Code of Conduct on the Safety and Security of Radioactive Sources;
- notified IAEA of its intention to act in accordance with the Guidance on the Import and Export of Radioactive Sources;
- nominated a Point of Contact for the purpose of facilitating the export and/or import of radioactive sources;
- made available its responses to the Importing and Exporting states Questionnaire;
- notified IAEA of its commitment to implement the Guidance on the Management of Disused Radioactive Sources.

SÚJB regularly provides experts to participate in the development and revision of the IAEA safety standards. The mechanism of evaluating the relevant national legislation against the IAEA Safety Standards is in place.

The Czech Republic is a member of European Nuclear Regulators Group (ENSREG), Western European Nuclear Regulators Association (WENRA) and the Heads of European Radiological protection Competent Authorities (HERCA)

SÚJB has requested several international peer reviews through IAEA such as OSART, INSARR, IPPAS and IRRS.

2.2. SHARING OF OPERATING EXPERIENCE AND REGULATORY EXPERIENCE

SÚJB is receiving information and feedback experience from the authorized parties, regulatory bodies of other countries, and international organizations, as well as making the lessons learned from operating and regulatory experience available to others.

SÚJB receives regular reports and abnormal event reports from licensees as per legislation and licensing conditions. These reports, as well as the operational feedback experience and implementation of lessons learned are considered in inspection activities.

The IRRS team concluded that sharing of operating experience and regulatory experience has been achieved, on international level, through IAEA IRS and INES reports, WGOE (OECD/NEA), EU clearinghouse on NPP operating experience, working groups and networks established by IAEA and EU, IAEA publications, convention reports, bilateral agreements on exchange of information, seminars, conferences and workshops. The SÚJB process to systematically obtain, identify and disseminate the feedback experience and lessons learned is not formalized. The IRRS team believes that further developing the formal process for comprehensively collecting, analysing, and sharing experience and lessons learned will enhance SÚJB practices. This issue is addressed in Suggestion S5 in Chapter 4.7.

2.3. SUMMARY

The Czech Republic government fulfils its international obligations, participates in the relevant international arrangements, including international peer reviews, and promotes the international cooperation to enhance the global safety regime. Further developing the formal process within SÚJB to obtain, identify and disseminate lessons learned from national and international operating and regulatory experiences may enhance SÚJB practices.

3. RESPONSIBILITIES AND FUNCTIONS OF THE REGULATORY BODY

3.1. ORGANIZATIONAL STRUCTURE OF THE REGULATORY BODY AND ALLOCATION OF RESOURCES

SÚJB is the central administrative body responsible for all regulatory activities in the field of the peaceful use of nuclear energy and ionizing radiation. SÚJB is also responsible for the non-proliferation of weapons of mass destruction. The head office is in Prague and there are seven regional offices: in Prague, České Budějovice, Plzeň and Ústí nad Labem, Hradec Králové, Brno, Kamenná and Ostrava. There are also 2 site inspector divisions at the respective NPP sites.

In accordance with its competencies and activities performed, SÚJB is divided into 3 sections: Nuclear Safety Section, Radiation Protection Section and Management & Technical Support Section. The 3 sections consist of departments and divisions. The distribution of resources is described in Chapter 3.3.

In the document "Organisational Rules" the organisational structure of SÚJB is described. The objective of the document is to allocate responsibilities of organisational units in order to ensure the effective performance of the organisation. The IRRS team found that although responsibilities of a regulatory body are given to SÚJB, internally they are not clearly defined at all levels of the organisational structure. Responsibilities are defined on the overall level. However, for department and divisions, responsibilities are not distributed per organisational unit.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: While all responsibilities of a regulatory body are given to SÚJB, they are not always clearly defined at all levels of the organisational structure as per the organisational rules of SÚJB.	
(1)	**BASIS: GSR Part 1 (Rev. 1) Requirement 16, para. 4.5 states that** *"The regulatory body has the responsibility for structuring its organization and managing its available resources so as to fulfil its statutory obligations effectively". …*
S2	**Suggestion: SÚJB should consider defining the respective responsibilities for all departments and divisions as per the organisational rules.**

SÚJB Chairperson, based on the systemization process, approves the organizational structure of SÚJB. Directors of sections, directors of departments and heads of divisions, as well as inspectors, are appointed by the Chairperson. According to the document "Appointment of Authorized officials for administrative procedures" specific responsibilities are assigned to authorised personnel to perform decisions. The responsibilities for each staff member are assigned by the Unit Head. The decision-making process starts with an employee who has been assigned with a specific task. When the inspection or the review and assessment has been concluded the authorised official to sign the document issues the administrative decision.

Regarding graded approach of human resources, all staff allocations and determination of posts and numbers of staff members are done on a basis of complexity and level of expertise of performed regulatory activities and risks associated with regulated activities.

The IRRS team concludes that SÚJB is the central administrative body responsible for nuclear and radiation safety and carries out state supervision in the whole area of nuclear and radiation safety. Resources are distributed in relation to regulatory responsibilities.

3.2. EFFECTIVE INDEPENDENCE IN THE PERFORMANCE OF REGULATORY FUNCTIONS

SÚJB was established in 1993 as the central body of the Czech Republic's state administration for the supervision of nuclear safety and nuclear materials. In July 1995 the Czech Republic's Parliament extended SÚJB's competences to include matter regarding radiation protection.

SÚJB is one of seventeen non-political central administrative bodies of the government and has its own budget. SÚJB is not supervised by any ministry; it is financially independent and receives its financial resources from the State budget approved annually by the Parliament. SÚJB budget is covered by the State. The IRRS team was informed that this way of financing ensures that any State Budget decreases in resources allocated for state administration have a lower effect on regulatory oversight.

The chairperson of SÚJB is appointed on a professional basis and is fully independent from any ministry and responsible only to the Cabinet. The chairperson can, on request, be present at a meeting of the Cabinet.

SÚJB can plan and allocate its resources and undertake recruitment according to internally determined needs. Regulatory decisions of SÚJB cannot be changed by any other Government body. The Cabinet does not directly manage SÙJB's agendas, budget, internal structure or personnel affairs.

SÚJB is not involved in the promotion of the nuclear technology. However, as mentioned in Chapter 1.1, representatives of SÚJB participate in working groups for preparation of strategic documents in the field of nuclear safety.

The Civil Service Act is applied to the chairperson SÚJB and its employees which serves as the bases for ensuring their independence and integrity. Additionally, all employees are obliged to behave in accordance with the Code of Conduct according to which every employee shall respect all basic ethical values when performing work. This is an important base for all procedures, the quality and efficiency of work, and also work ethics, in particular impartiality and equal access to all natural and legal persons, inviolability, incorruptibility and honesty. In addition, there is a Code of Conduct which sets out 13 principles for areas of behaviour; which all SÚJB staff has to adhere to.

Regarding recruiting staff from licensees, although there were a few such cases, and the provisions of the code of conduct, the work ethics and the training period and programme of inspectors ensure the preservation of the staff integrity.

The IRRS team concluded that SÚJB is effectively independent in performing its regulatory functions. Although there are a few cases of staff being recruited from authorized parties, these cases are exceptional and the provisions of the Code of Conduct and work ethics prevents potential conflict of interests.

3.3. STAFFING AND COMPETENCE OF THE REGULATORY BODY

The organisation of SÚJB provides for 218 posts, of which 190 are civil service posts. 149 employees are inspectors, 177 employees have university degrees. The staffing of SÚJB is relatively stable and in compliance with the requirement laid down in Act No. 234/2014 Coll. The number of job positions is approved annually by the Government of the Czech Republic. The IRRS team was told that if there is a need for change a proposal by the SÙJB chairperson is submitted to the Government for approval.

SÚJB's staff general turnover rate for 2022 was 7,8%. However, there are some gaps in staffing, for example due to retirement. For instance, in the area of transport safety, there are currently no specialist inspectors within the division responsible for inspection and assessment.

For ensuring adequate staffing, qualification and training, SÚJB has established a method for development of competence maps. The competence map is based on analyses of available resources (salaries, people, and education) and possible risks (lack of available experts, retiring, events, and planned demanding activities – new NPPs etc.). The competence map is regularly reviewed and updated and a 3-year competence plan is established. Long-term Human Resources Development Strategy serves as the strategic direction of development of human resources with the focus on assurance and development of necessary competencies in SÚJB, in line with the statutory requirements.

Through a common governmental process, the systemization of SÚJB staffing is realized. SÚJB creates its own system of internal structure, working places, positions and functions. Positions have strictly prescribed qualification prerequisites and plans for further development. These requirements are in full compliance with the competence map. Staff members of SÚJB are regularly evaluated (system of service evaluation) including their qualification and development, leading to "individual plans for personal development".

The Czech Republic is revising its existing high level energy strategic plans which will, among others, address new builds in nuclear area (see Chapter 1.1.).

SÚJB has its own chapter in state budget, financed partially from general resources (mandatory incomes), partially (ca. 55 %) from fees.

SÚJB's budget is formed on yearly basis using analyses of factual needs, plans of activities, competence maps and plans for staffing etc. Rules for preparation of budget and for use of financial means, approving all money spending, tendering and purchasing of equipment are included in internal procedures of SÚJB.

On the basis of the approved systematization of SÚJB's budget, the wage and salary conditions are set out for systematized posts.

The IRRS team concluded that SÚJB has a method for analyses of competence and resources which ensures adequate staffing, qualification and training. Currently there are some gaps in staffing due to retirement and in the area of transport safety. Due to new nuclear installations foreseen in the national energy plan there is a risk of lack of qualified staff.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: Overall, SÚJB has currently sufficient human resources to fulfil its functions and responsibilities. However, SÚJB is lacking specialist knowledge and experience in some areas such as transport. Additionally, with the new nuclear installations foreseen in the national energy plan and taking into consideration current situation of the labour market especially in the nuclear sector, there is a risk of lack of resources and qualifications in the organisation. This has been recognized in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 1 (Rev. 1) Requirement 18 states that** *"The regulatory body shall employ a sufficient number of qualified and competent staff, commensurate with the nature and the number of facilities and activities to be regulated, to perform its functions and to discharge its responsibilities."*
(2)	**BASIS: GSR Part 1 (Rev. 1) Requirement 18, para. 4.11 states that** "*The regulatory body has to have appropriately qualified and competent staff. A human resources plan shall be developed that states the number of staff necessary and the essential knowledge, skills and abilities for them to perform all the necessary regulatory functions".*
R2	**Recommendation: SÚJB should identify current and future staffing needs and develop a plan to ensure sufficient staff are available and qualified to fulfil its statutory and regulatory functions.**

SÚJB requested a policy issue discussion on the Challenges for the Regulatory Body arising from the shortage of experts in the nuclear field, which relates to Staffing and Competence of the Regulatory Body. This discussion is documented in Annex I.

3.4. LIAISON WITH ADVISORY BODIES AND SUPPORT ORGANIZATIONS

Expertise and technical support are provided mostly by the external technical support organisation SÚRO.

SÚRO is a public research institution established by the decision of the Chairperson of SÚJB in 2010. The decision establishing the research institution came into force January 1, 2011. SÚRO's main activities are in the research field of protection against harmful effects of ionizing radiation, including the areas of radiation monitoring, exposure to artificial radiation sources (especially from nuclear installations), medical exposure and research regarding natural radioactive sources.

In 2017 this Institute expanded its scope of activities as a TSO in nuclear safety and today SÚRO serves as technical support organisation of SÚJB in the field of radiation protection and nuclear safety. The organization continues to expand and can also support SÚJB in the areas of computer simulations, support to inspector activities where its employees are often invited to SÚJB inspections and participates in the review activities.

SÚJB also maintains long-term cooperation with independent experts (external assessors), especially in the field of investigation of operational events/feedback. SÚJB further concludes contracts for independent assessment of documentation, materials testing, assessment of the results of controls of the licence holder and many other areas.

Since 2020, SÚRO is a stable TSO, which is able to cover the assessment of both nuclear safety and radiation protection and provide research, expertise and knowledge for SÚJB needs in all key areas in accordance with international practice and state-of-the-art expertise.

In addition, the National Institute for Nuclear, Chemical and Biological Protection (SÚJCHBO) serves as a TSO which provides primarily professional and technical expertise in the field of chemical and biological and radioactive safety (CBRN).

In 2023, the planned volume of financial contributions to these two institutes from SÚJB budget amounts approximately to CZK 150 million (EUR 6 million).

Other potential partners for SÚJB are educational and research institutions in fields closely related to their professional focus.

To avoid conflicts of interest, technical support of SÚJB is regulated by the internal document Instruction to avoid conflicts of interest in the provision of technical support which sets some requirement for contracts in case of technical support of SÚJB activities.

SÚJB has its engineering support ensured through: TSO, long-term cooperation with external independent experts and short-term or ad hoc cooperation with specialized companies, scientific or research institutes or universities.

An interview with the management of SÚRO was conducted by the IRRS team. During this interview the management of SÚRO described its mission, responsibilities, areas of activities of SÚRO, its organization, human and financial resources, cooperation with SÚJB, its program of work, its strategy on building capacities and measures for prevention of conflict of interests.

SÚJB does not have any external advisory bodies, except the external committee of independent experts addressing appeals against the decisions of the SÚJB. The IRRS team was told that the top management meeting serves as an advisory body to the chairperson.

The IRRS team concludes that SÚJB has technical support ensured through, TSO, long-term cooperation with external independent experts and short-term or ad hoc cooperation with specialized companies and scientific or research institutes or universities. The relationships with the support organisations are clearly described and do not compromise SÚJB’s ability to evaluate safety relevant matters independently.

3.5. LIAISON BETWEEN THE REGULATORY BODY AND AUTHORIZED PARTIES

SÚJB communicates with NPP on a regular basis on different levels which includes regular strategic meetings between top managements several times per year (with ČEZ and SÚRAO and others). At lower levels of management, the staff members are regularly meeting and discussing particular issues of mutual relations and of regulated activities. At the lowest level, i.e., level of inspectors, the meetings are held frequently to solve various topics regarding inspection findings and their reflection.

For the broader groups of authorized persons, e.g., service providers, healthcare providers, manufacturers and suppliers of ionizing radiation sources, representatives of SÚJB have regular meetings at general gatherings and workshops. The purpose is to provide current information on regulatory activities and get feedback. In addition, specific interactions with individual authorized parties can be organized on an ad hoc basis.

Authorized persons and their groups are directly involved also in regulation making. They are consulted by SÚJB and asked to provide inputs and feedback in draft preparation of regulations. For this purpose, SÚJB establishes specialised working groups, discussing the regulation in general and preparing drafts of changes of regulations. These consultations are done besides regular regulation-making procedures and provide with the opportunity to adjust the regulations to practical specific needs and experience.

Decision issued by SÚJB of a licence should contain a rationale. The rationale shall specify the reasons for the decision, grounds for its issuance, considerations taken into account the interpretation of legal regulations, and information on how the administrative authority handled the proposals and objections of parties and their responses on the grounds of the decision. Each decision shall be executed in writing. Moreover, § 36 of Act No. 500/2004 Coll., stipulates that parties shall have the right to express their opinion in the procedure.

Unless the law provides otherwise, SÙJB shall provide information about the procedure upon request of the parties and prior to the issuance of the decision, parties shall have the opportunity to express their view of source materials for the decision. This does not apply to the applicant if its application is fully granted, and to a party who waived its right to express its view on source materials.

The IRRS team concludes that SÙJB's relationship with authorized parties is open and transparent.

3.6. STABILITY AND CONSISTENCY OF REGULATORY CONTROL

SÚJB performs its regulatory functions on the bases of the applicable legal framework. Decrees for the implementation of the Atomic Act setting obligatory requirements are proper bases to provide stable and predictable regulatory expectations. Guidelines recommending ways to meet the binding legal requirements are issued by SÚJB in the form of SÚJB Guides and Recommendations.

In order to maintain the necessary consistency in the performance of regulatory activities, a set of internal management system documents has been established. The established Code of Conduct of employees supports impartial and objective performance of inspections. Objectivity in decision making of SÚJB employees is primarily required by the relevant Act which provides rules for civil servants not to act in favour of any party participating on performed administrative activity.

The rules of conduct of SÚJB´s civil servants are stipulated in more details in SÚJB Code of Conduct. SÚJB has also obligatory Anti-Corruption Strategy (order of the Chairperson) which prevents and helps to solve all relevant forms of corrupt behaviour of the staff members, including conflict of interests, nepotism etc. The strategy is regularly evaluated and updated and information on that is provided to the Ministry of Justice and the Government.

Strategies and plans are reflected by regulations, either internal (directives, decisions of the Chairperson) or generally legally binding (acts, decrees). SÚJB ensures suitable regulation of matters that are part of its competencies, including the 3S requirements – Safety, Security and Safeguards; it elaborates bills of laws and other legal acts regarding matters that are part of its competencies and prepares drafts, the preparation of which was imposed on it by the Government.

SÚJB ensures preserving legality within the scope of its competencies and takes necessary remedial measures in accordance with laws. Before any regulation is formalized into a particular draft, a regulatory impact assessment has to be performed, following and respecting the abovementioned strategies, plans and available information (resulting from inspections, review and assessment and enforcing activities, etc.). After entry into force, each regulation is regularly assessed regarding its up-to-date relevance and efficiency, at least once a year. Findings from this assessment are used for preparation of internal and government legislation-making plan. In case of need an ad hoc assessment (and regulatory impact assessment) is carried out and change in the legal framework is initiated even outside the scope of the plan.

The IMS of SÚJB is the bases for performing activities and are binding for all employees. The IMS SÚJB is based on the principles and requirements set by legislation of the Czech Republic and by European legislation, international conventions and agreements. SÚJB prioritize safety activities on the bases of the Strategy of SÚJB. The main values, described in the IMS policy, are Independence, Professionalism, Openness and Credibility.

3.7. SAFETY RELATED RECORDS

SÚJB keeps records of nuclear installations and ionising radiation sources facilities, medical exposure data, personal radiation passports, approved types of containers for transport and storage of fissile or radioactive substances, ionising

radiation sources and other products. SÚJB also keeps registers of licence holders, registered persons, applicants, holders of a licence to perform activities specifically important to nuclear safety and radiation protection.

SÚJB issues, on request of any person who shows a legal interest, a full or partial extract from the records. SÚRAO publishes a register of radioactive waste producers. SÚJB also publishes information remotely accessible, including:

a) licences issued;
b) authorisations granted for the performance of activities of particular relevance to nuclear safety and radiation protection;
c) registrations made;
d) notifications received; and
e) data from the radiation situation monitoring in the territory of the Czech Republic.

SÚJB provides the public with information pursuant to Act No. 106/1999 Coll., on Free Access to Information and Act No. 123/1998 Coll., on the Right to Environmental Information. This information is summarized in the annual Report on SÚJB results achieved in the supervision of nuclear installations and radiation Protection.

The Act designates information that cannot be disclosed, e.g. personal information, classified information or information that is a trade secret in nature. Therefore, the website includes the section on public communication. This page gives also instructions for obtaining more information, answers to questions asked through a web-based application and the so-called "FAQ".

SÚJB provides not only information on the current state of performance of the nuclear power plants in the Czech Republic but also on the events occurred at NPPs. SÚJB has also its Facebook and Twitter page to publish brief information and curiosities, for example, from the field of nuclear industry, ionising radiation utilization, nuclear safety and radiation protection for the general public.

The IRRS team concludes that SÚJB has provisions in the regulatory framework to ensure that adequate records and inventories related to the safety of facilities and activities are established and maintained.

3.8. COMMUNICATION AND CONSULTATION WITH INTERESTED PARTIES

SÚJB uses both formal and informal ways of communication and consultation with interest parties. Communication rules are established in the legislation.

Consultation meetings with applicants and authorized parties are very frequent during the implementation of a specific licensing procedure. It may comprise correspondence, meetings, seminars and personal contacts. The results of inspection are announced to the inspected entity in the form of a record often personally hand delivered by the lead inspector (Act No. 255/2012 Coll., On Inspections – section 12). SÚJB issues a detailed annual report on its activities which is published on its website. A public consultation was also conducted during the preparation phase of the new act. Additionally, public consultation in decision making procedures regarding new nuclear installations is assured through an environmental impact assessment (EIA) conducted by the Ministry of Environment, where SÚJB is one of the concerned bodies of state administration.

Information meetings with local community administrations of the nuclear installation sites are held on a periodic basis. The IRRS team was told that these meetings are organized by the municipality. In the vicinity of the nuclear power plant, there are meetings organised by SÚJB where emergency preparedness is discussed. In addition, SÙJB takes part in meetings and seminars organised by private associations related to the nuclear field.

According to its transparency and communication policy, SÚJB is open to receiving submissions, commentary, and opinions from interested parties which may result in a review and reconsideration of its regulatory activity. An electronic system for answering questions from the public is available on SÚJB website and answers are promptly provided.

Decrees implementing the Atomic Act are officially published in the Collection of Laws of the Czech Republic and they are also available on SÚJB website. Also, regulation and guidelines as well as information on procedures and important decisions of SÚJB are available on the website. Moreover, information regarding risks associated with

ionising radiation are available on SÚJB website and on the websites of cooperating institutions (e.g., SÚRO). Information about the operation of nuclear installations including any events occurring at the nuclear installations is published in the Annual SÚJB Report and regularly on the website of SÚJB.

In the case of serious incidents or events in emergency situations, SÚJB provides information directly through the public media.

The IRRS team concluded that SÙJB formal and informal ways of communication and consultation with interested parties are established. There are some internal procedures to inform the public. However, the approach for informing the public is not systematically defined.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB provides information to the public about its activities and decisions. However, there is not a systematic approach for informing and consulting the public including in the development of the regulations and guides. This has been recognized in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 1 (Rev. 1) Requirement 36, para. 4.66 (a) states that** "*The regulatory body shall establish, either directly or through authorized parties, provision for effective mechanisms of communication, and it shall hold meetings to inform interested parties and the public and for informing the decision-making process. This communication shall include constructive liaison such as:* *(a) Communication with interested parties and the public on regulatory judgements and decisions;".*
(2)	**BASIS: GSR Part 1 (Rev. 1) Requirement 34, para. 4.61 states that** "*The government or the regulatory body shall establish, ……. These processes shall involve consultation with interested parties in the development of the regulations and guides, …".*
S3	**Suggestion: SÚJB should consider establishing mechanisms to systematically describe its practice of informing or consulting the public.**

3.9. SUMMARY

SÚJB is the central administrative body responsible for nuclear and radiation safety and carries out state supervision in the whole area of nuclear and radiation safety. The organisational structure reflects its activities, and a graded approach is used when allocating resources. However, distribution in relation to regulatory responsibilities needs to be clarified on the department and division level in the internal documentation. The system for regulatory control provides for high level of consistency in decision making and ensure the stability and consistency.

The legal framework provides for the independence in the performance of its regulatory functions and due to regulations financially and politically independent. Although there are a few cases that staff is recruited from authorized parties, these are exceptional, and the provisions of the Code of Conduct and work ethics ensures potential conflict of interests.

The methodical mapping analyses of competence and resources ensure adequate staffing, qualification, and training. However, there are some gaps in staffing due to retirement and in the area of transport safety. Due to new nuclear installations foreseen in the national energy plan, there is a potential risk of lack of resources and qualified staff.

Technical support is ensured through TSOs, access to expertise, research institutes and universities. The relationship with the support organisations is clearly described and does not compromise SÚJB's ability to evaluate safety relevant matters independently.

The relationship with authorized parties was observed to be open and transparent. SÚJB has formal and informal ways of communication and consultation with interested parties established. Annual reports on its activities are published on their website. However, the approach for informing the public is not well defined.

4. MANAGEMENT OF THE REGULATORY BODY

4.1. RESPONSIBILITY AND LEADERSHIP FOR SAFETY

The senior management of SÚJB demonstrates commitment to safety through the established mission, vision and values. Safety is the overriding priority in SÚJB vision.

SÚJB Integrated Management Policy (VDK 099) is a top-level internal document. The Policy establishes SÚJB fundamental values and states that safety culture is a key principle of the Integrated Management Policy.

The mission, vision and values are further defined in the Strategy of the Office for Nuclear Safety (VDK 101).

SÚJB values are also stated in the Integrated Management System Manual (VDK 100) which builds on the Policy (VDK 099 Integrated Management System Policy). The Manual describes in more detail the coherence and consistency of different components of the management systems: safety, objectives, processes and documentation. The integrity of the management system is based on the coherence of these components.

SÚJB commits to the rules of ethical conduct and the ethical rules as outlined in the Code of Conduct of SÚJB.

The Code of Conduct of SÚJB identify expected supporting behaviours and principles that staff should apply in all day-to-day decisions and actions.

The IRRS team concludes that the Integrated Management System (IMS) is designed to be in accordance with relevant legislation and other requirements binding on SÚJB. However, the IRRS team observed some areas for improvement.

4.2. RESPONSIBILITY FOR INTEGRATION OF SAFETY INTO THE MANAGEMENT SYSTEM

Senior management of SÚJB is responsible for the performance of the regulatory body as well as for the IMS. This includes issues of nuclear safety, nuclear security, and radiation protection as well as issues of nuclear non-proliferation.

Annually, the senior management assess the achievement of the planned objectives and plans new objectives for the following year this in accordance with the Top Management Meeting Plan. These documents are available to all SÚJB employee in the Records Management System (SSL) and on the intranet. The Authority´s daily operations are governed by SÚJB's IMS.

The IRRS team concluded that SÚJB considers safety as a priority in the management system.

4.3. THE MANAGEMENT SYSTEM

SÚJB's IMS is documented and available to all staff on the intranet.

The Organizational Rules of SÚJB – Staff Regulations (VDK 001) establish responsibilities of the different sections and departments; senior management; managers and employees.

The IMS manual is a top-level document. The integration of the management system is determined by two principles of integration: "Top-down approach" and "Interdependence of the management of safety, objectives, processes and structure of documentation".

The basis for the graded approach in SÚJB IMS stems from the Atomic Act. The Act imposes an obligation to apply a graded approach when ensuring nuclear safety, radiation protection, technical safety, radiation situation monitoring, emergency preparedness and response and security depending on the magnitude of potential exposure and its possible consequences.

The documentation of the IMS is graded in relation to the importance of the process, depending on the level of safety significance of the process.

Regarding the inspection process, the extent and depth of the inspections are graded on the basis of risk analysis and assessment.

Changes, including organizational changes are managed through the VDS 107 (Change Management). Prior to implementation of changes, the proposed changes are evaluated to ensure, among other aspects, that that safety is not compromised.

According to the Long-Term Strategy for Development of Human Resources (VDK097) direct transfer of experience and knowledge between the leaving and newly hired employees is not possible as the Act on civil services does not make it possible to fill one servant position with two employees. The transfer of knowledge is ensured by the direct line manager and by cooperation between a new employee and other professionals with competencies related to their respective areas of work.

The statutory requirements for retention of records are stated in the national legislation. In accordance with the national legislation, internal standards are developed. The most relevant internal document in the area of retention of records is Documents Management and Shredding Rules (VDS 005).

4.4. MANAGEMENT OF RESOURCES

Senior management is responsible for ensuring that the competencies and resources needed for SÚJB to undertake its functions are available.

The Long-Term Strategy for Development of Human Resources (VDK 097) lays down the strategic principles of long-term development of human resources of SÚJB.

A primary competence profile and performance expectations for all staff of SÚJB, including managers, are provided in the Systemization of Positions.

On the basis of SÚJB Systemization, which is approved by the Government, annual financial resources to cover human resources are approved by the Government.

The Chairperson's Order builds on the approved Systemization of Positions and specifies special requirements on all civil service positions and posts in SÚJB, including managers (educational background, competence, required civil service examinations, personnel security clearance).

The competency management system is thus integrated into SÚJB overall management system and responsibility for the management and development of competencies is the responsibility of line management.

On the basis of the Long-Term Strategy for Development of Human Resources (VDK 097) and the Organizational Rules of SÚJB – Staff Regulations (VDK 001), SÚJB core competencies are established in the Competency Map (VDI 098).

The Competency Map is submitted for approval at a Top Management Meeting and published to be available to all employees of SÚJB on the intranet.

SÚJB uses Competency Map to shape and structure the workforce in order to ensure there is sufficient and sustainable capability and capacity to achieve their organizational objectives now and in the future.

SÚJB employees' training activities are guided by an Individual Personal Development Plans (IPOR), which is prepared on the basis of internal management system document SÚJB Staff Training and Education System (VDS 039) and linked to the service appraisal under the Civil Service Act.

Additional information on the competences and resources necessary to carry out activities safely are captured in Chapter 3.3.

The IRRS team concludes that the senior management of the SÚJB has suitable oversight of competencies and resources by which SÚJB needs to discharge its responsibilities.

4.5. MANAGEMENT OF PROCESSES AND ACTIVITIES

SÚJB has management, core and support processes which are documented and illustrated in a digital process tool. To visualize all the processes an interactive process map is available to all staff on the Intranet.

The document Development of Internal Standards of SÚJB (VDS 028) describes the development of management system documents. It defines a binding procedure for the process of developing, evaluating, and revising internal management system documents.

Interactions between processes within SÚJB are addressed according to Development of Internal Standards of SÚJB (VDS 028) by monitoring related internal standards, such as monitoring the interdependence of individual processes. Each process has a designated process-owner, who also defines all related standards when elaborates or revise the internal standard.

All IMS documents are reviewed whenever there is a change in input or requirements in the area addressed by the internal management system document. The process-owner is also required to monitor the documentation for relevance and accuracy at regular intervals. The performance of this review shall be recorded in the revision history with a description of whether the internal management system documentation require to be revised.

Each document has its own registration number in the Records Management System (SSL).

4.6. CULTURE FOR SAFETY

SÚJB recognizes the importance of safety culture and has taken actions to foster and support a culture for safety.

In 2023, SÚJB established the internal standard Safety Culture Concept (VDK 155), to support the development of a strong safety culture in organization. The principle is further developed in a specific programme for conducting safety culture self-assessment, Programme of Safety Culture (VDS 156), which describe the monitoring and assessment of the level of safety culture in the Office. Monitoring and assessment of the level of safety culture in the Office is done on the basis of indicators that can be repeatedly assessed.

These indicators are derived from the principles of safety culture and dimensions of safety culture of the Office established in Safety Culture Concept (VDK 155) and are reflected in the safety culture assessment questionnaire.

The internal document Safety Culture Survey Conducting (VDI 157) with a clearly survey methodology, and content of the safety culture assessment questionnaire is in preparation.

SÚJB senior management established the Safety Culture Working Group to create a structured approach to cultivating a healthy safety culture throughout the organization.

The Safety Culture Working Group is in direct relation to the senior management by regularly active presence of the Top Management at the group meetings.

All the above-mentioned activities demonstrate that SÚJB has established provisions under the management system for fostering a culture for safety. This demonstrates SÚJB’s management commitment to foster and sustain a strong safety culture in the organization.

The IRRS team concludes that SÚJB’s management is committed to foster a strong safety culture in the organization.

4.7. MEASUREMENT, ASSESSMENT AND IMPROVEMENT

For the purpose of continuous improvement and optimization of the management system, the IRRS team was informed that regular self-assessments are based on Quarterly Activity Report of the relevant sections and this review is planned and communicated as part of the Top Management Meetings Plan.

Under the national regulations SÚJB is responsible for the implementation of the Quality Management System on the basis of the Methodological Guideline for Quality Management in the Public Service Authorities.

The audit process is reflected in the IMS Policy (VDK 099) and in the IMS Manual (VDK 100).

SÚJB also conducts independent assessment (internal audits) in accordance with the internal document Principles of internal audit (VDK 013). The responsibility for coordination of internal audits is assigned to the Internal Auditor. The IRRS team noted that the internal audit process does not fully reflect the provisions of relevant IAEA safety standards for auditing the management system.

The senior management conducts the review of the integrated management system in accordance with the internal document Review and assessment of internal activities (VDS036). One issue identified by SÚJB staff was related to the resolution of non-conformances and corrective actions applied to improve the IMS. This was not clearly documented in the internal document 'Review and assessment of internal activities' (VDS036).

Although SÚJB has issued a comprehensive policy, including safety culture, the programme for assessment of leadership for safety and safety culture is not yet fully implemented.

The IRRS team concluded that SÚJB should continue fostering a strong safety culture and finalize implementation of relevant provisions to measure, assess and improve leadership for safety and safety culture.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB has not established a fully documented process for conducting internal audits to assess the functioning of its integrated management system processes and to investigate performance problems.	
(1)	**BASIS: GSR Part 2 Requirement 13, para. 6.4 states that** *"Independent assessments and self-assessments of the management system shall be regularly conducted to evaluate its effectiveness and to identify opportunities for its improvement. Lessons and any resulting significant changes shall be analysed for their implications for safety".*
(2)	**BASIS: GSG-12 para. 5.52 states that** *"…Internal audits are the basic instrument available for the regulatory body to assess the functioning of its integrated management system processes to investigate performance problems".*
(3)	**BASIS: GS-G-3.1 para. 6.23 states that** *"A schedule of internal audits should be established by the assessment unit and endorsed by the senior management of the organization".*
R3	**Recommendation: SÚJB should further develop the documented process for conducting internal audits to assess the functioning of its integrated management system processes and to investigate performance problems.**

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB has not established a fully documented process for conducting periodic reviews of the management system. This has been recognized in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 2 Requirement 13 para. 6.6 states that** *"Senior management shall conduct a review of the management system at planned intervals to confirm its suitability and effectiveness, and its ability to enable the objectives of the organization to be accomplished, with account taken of new requirements and changes in the organization".*
(2)	**BASIS: GS-G 3.1 para. 6.46 states that** *"The frequency of review should be determined by the needs of the organization. Inputs to the review process should result in outputs that provide data for use in planning for improvements in the performance of the organization".*
(3)	**BASIS: GSG 12 para. 5.48 states that** *"The integrated management system review should cover all significant sources of information on performance, including the following:* *— Outputs from different forms of assessment, including self-assessments of senior management itself;* *— Results delivered and objectives achieved by the regulatory body and its processes and activities;* *— Non-conformances and the progress and effectiveness of corrective and preventive actions;* *— Feedback from operating experience, including lessons learned and good practices from other organizations;*

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
	— Opportunities for improvement".
S4	**Suggestion: SÚJB should consider further developing the documented process "Review and evaluation of the Office's own activities" for conducting periodic reviews of the management system to include all significant sources of information on performance.**

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB is developing a procedure for safety culture assessment. However, the procedure does not include provisions to measure and assess leadership for safety and safety culture. This has been recognized in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 2 Requirement 14 states that** *"Senior management shall regularly commission assessments of leadership for safety and of safety culture in its own organization".*
(2)	**BASIS: GSR Part 2 Requirement 14, para. 6.9 states that** *"Senior management shall ensure that self-assessment of leadership for safety and of safety culture includes assessment at all organizational levels and for all functions in the organization. Senior management shall ensure that such self-assessment makes use of recognized experts in the assessment of leadership and of safety culture".*
R4	**Recommendation: SÚJB should implement provisions to measure, assess and improve leadership for safety and safety culture, including conducting regular safety culture self-assessments.**

The SÚJB process for systematically obtain, identify and dissemination the feedback experience and lesson learned is not fully formalized. The IRRS team believes that further developing the formal process for comprehensively collecting, analysing, and sharing experience and lessons learned will enhance SÚJB practices.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB has implemented practices for receiving and sharing experience in some areas. However, SÚJB does not have a comprehensive process to systematically obtain, identify and disseminate operating and regulatory experience.	
(1)	**BASIS: GSR Part 2 Requirement 13 para. 6.7 states that** *"The management system shall include evaluation and timely use of the following:* *a) Lessons from experience gained and from events that have occurred, both within the organization and outside the organization, and lessons from identifying the causes of events;* *Lessons from identifying good practices.*
(2)	**BASIS: SSG-50 para. 3.20 states that** *"The regulatory body should establish procedures for its own independent investigation of events at an installation, and for the analysis of international operating experience. Investigation and analysis should be carried out using a graded approach in accordance with the findings of the screening process. Such investigations may include reactive inspections."*
(3)	**BASIS: SSG-50 para. 3.28 states that** *"The regulatory body should put procedures in place to share domestic operating experience with other states and the international community, for example through international reporting systems (e.g., those described in the annex) as well as through working groups and regular contact with other regulatory bodies. These activities can also be enhanced through bilateral and multilateral agreements between states."*
S5	**Suggestion: SÚJB should consider further developing the process to collect, identify, analyse and disseminate national and international operating and regulatory experiences and lessons learned.**

4.8. SUMMARY

The IRRS team noted that SÚJB remains committed to continuously improving its management system. Senior management recognizes the importance of implementing an effective management system to ensure fulfilment of duties assigned to each level within the organization.

Senior management at SÚJB has established a vision and mission to prevent and eliminate the risks arising from the peaceful utilization of nuclear energy and ionizing radiation. SÚJB management system considers safety as an overriding priority.

The IRRS team identified some areas for improvement including the review and independent assessments (internal audits) of SÚJB management system.

To foster and sustain a strong safety culture, SÚJB should finalize implementation of relevant provisions to measure, assess and improve leadership for safety and safety culture.

5. AUTHORIZATION

5.1. GENERIC ISSUES

The Czech Republic has several nuclear facilities, including nuclear power reactors, research reactors, spent fuel storages and waste repositories, as well as activities involving sources of ionizing radiation in medical, industry, research, agriculture, and transport. There is a new research reactor being built, and a site licence was granted for a large nuclear power plant in 2021.

The IAEA safety standards require that the regulatory body shall conduct authorization of facilities and activities which must include a demonstration of safety from the licensee. The Atomic Act contains provisions for the current nuclear facilities and activities which adequately addresses the requirements from IAEA standards. It establishes SÚJB as the competent authority for performing State administration and oversight of the utilization of nuclear energy and ionizing radiation as well as in the field of radiation protection. As such SÚJB is authorised to issue approvals for prescribed activities. The IRRS team was informed that SÚJB has identified that changes in the Atomic Act and associated regulations are needed if new small modular reactors are to be licensed in the Czech Republic in the future.

According to the Atomic Act the licensee is responsible for nuclear and radiation safety, security within the scope of applicable requirements, and emergency preparedness, including safety verification, demonstration of the compliance and independent verification of the safety assessments. SÚJB is required to review and assess the applicant's safety demonstration before issuing the licence or approval. The Atomic Act defines the conditions which shall be fulfilled and documentation that shall be submitted to SÚJB. The review and assessment results are documented according to SÚJB´s management system. SÚJB decisions and related documents are publicly available on request, according to the legislation. The decisions are published on the SÚJB webpage. The Act No. 500/2004 Coll., Code of Administrative Procedure sets requirements for licensing facilities and activities. An order for authorizing activities is issued by the director of the section of radioactive sources. However, SÚJB management system does not have a process for authorizing facilities and activities. A project for licensing a nuclear facility is established by a chairperson's order, on a case-by-case basis for mainly allocating resources and timelines for SÚJB work.

The IRRS team was informed that a new comprehensive overarching VDS (VDS029) on authorisation is under preparation, and it is to be incorporated in the integrated management system this year.

The provision of §63 (3) of Act No. 263/2016 Coll. (atomic act) allow the regulatory body to establish, based on a radiation protection optimisation report issued by a license applicant, an authorized limit that is lower than the dose constraint. If authorised limits are not exceeded, this demonstrates that exposure limits have not been exceeded. This is recognized as a good performance by the IRRS team.

According to the Atomic Act the licensee and SÚJB are the only stakeholders in the licensing process of nuclear facilities. The public hearings and communication related to the nuclear facilities are done in the EIA managed by the Ministry of Environment and the licensing process in the Building Act managed by the Ministry of Industry and Trade. The Ministries ask for SÚJB binding opinions on matter related to nuclear and radiation safety. SÚJB also participated in the public communication, as necessary.

The Atomic Act includes provisions for licensing modifications and changes in the licenced activities. Any change affecting nuclear safety, radiation protection, physical protection and emergency preparedness of nuclear facilities or Category III or IV workplaces must be reported to SÚJB. Changes of this nature include equipment or activities that were part of the original authorization, and relevant documentation. SÚJB's approval is required for changes with significant implications for safety prior to making the change.

In addition to authorizing facilities and activities the SÚJB authorizes specific licensee staff members such as nuclear power plant operators and persons training at the facilities, different types of services relevant to radiation protection or services in controlled area, marketing of building material and mixing of radioactive substances for reuse or recycle purposes.

An appeal against SÚJB decisions can be made by the licensees or the public - the provisions are presented in the Administrative Act.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: The Act 500/2004Coll., Code of Administrative Procedure set requirements for licensing facilities and activities. An order for authorizing activities is issued by the director of section of the radiation protection. However, the process for authorizing facilities and activities in the management system is not well defined.	
(1)	**BASIS: GSR Part 1 (Rev. 1), Requirement 22, para. 4.26 states that** "*The regulatory process shall be a formal process that is based on specified policies, principles and associated criteria, and that follows specified procedures as established in the management system*".
(2)	**BASIS: GSG-12, para. 4.1 states that** "*To meet its regulatory responsibilities, there are several core functions that a regulatory body should fulfil. These core functions are described in detail in GSG-13 [4] and only a brief description is provided in this section*".
S6	**Suggestion: SÚJB should consider developing a process in the management system for licensing of facilities and activities.**

5.2. AUTHORIZATION OF NUCLEAR POWER PLANTS

The main stages of the licensing process of NPPs are following EIA, licensing of the site, construction, the first physical start-up of a nuclear installation with a reactor, the first power-generation start-up of the nuclear installation with a reactor, operation, individual phases of decommissioning. The EIA process must be completed by the Ministry of the Environment prior to SÙJB providing approval for siting.

Public hearing and participation in the licensing of nuclear power plants are covered by EIA Act and the Building Act. The EIA is the major phase for public participation. Interested members of the public (persons impacted or established NGOs defined in the Building Act) may participate in the procedures of the Building Act. The licensing process according to the Building Act occurs in parallel with the licensing according to the Atomic Act. SÚJB's binding opinions on EIA and Building Act licensing phases are requested by the relevant competent authority.

SÚJB is fully independent in making licensing decisions based on the Atomic Act. Similarly other authorities responsible for conventional safety at nuclear facilities are independently granting their licences. General provisions for the coordination between different state authorities are provided by the State Administrative Procedure Act.

Siting requirements are identified in Decree 378/2016, and it is made for a design envelope of nuclear power plants considered relevant for this site. In the siting phase the focus is on the site characteristics, suitability of the site in respect to physical protection arrangements and emergency preparedness. Also, the managements system for siting phase and quality assurance measures for subsequent phases are reviewed and assessed by SÚJB. The environmental monitoring, assurance for monitoring of the discharges, and concept for decommissioning are covered by this phase. SÚJB assesses the management system to ensure the adequacy of the applicant's staffing. The safety assessment is presented in the form of Initial Safety Report. The Decree 361/2016 defines the content of the physical protection licensing documentation in all life cycle phases. Cyber security is part of the physical protection plan in the above-mentioned decree. There are no requirements concerning cyber security in the siting phase nor in the documentation to be reviewed and assessed by the SÚJB. This issue is addressed in Recommendation R11 in Chapter 11.1.

The construction license phase focuses on assuring that the design presented is robust and fulfils nuclear safety, radiation safety, environmental monitoring, emergency preparedness and security requirements identified in the Atomic Act and relevant Decrees. All the testing without nuclear fuel is covered within the construction phase. The design is evaluated against the requirements of Decree 329/2017. The safety demonstration is presented in the Preliminary Safety Report, which is reviewed and assessed by SÚJB. Other licensing documents that need to be approved by SÚJB are Operational Limits and Conditions, inspection plan for construction phase, safety classification of components, training and qualification of personnel, preliminary physical protection arrangements plan, on-site emergency plan and the established emergency planning zones. Preliminary probabilistic safety assessment (PSA) is also included and assessed by SÚJB. The radioactive waste management is covered including the assurance of funding for waste management. Management of the project, assurance of quality and preparation for the next phase of the project are ensured during licensing. SÚJB also ensures the readiness of vendors and essential subcontractors

for delivering products in line with the requirements. As was the case with the siting, cyber security is not covered in the construction license phase. This issue is addressed in Recommendation R11 in Chapter 11.1.

During the first physical start-up of a nuclear installation with a nuclear reactor the focus is on demonstration that the nuclear power plant's systems and components have been constructed, manufactured, and installed correctly and in accordance with the design documentation, as well as on the readiness of the licensee's organization for the first phase of commissioning. The testing of the nuclear power plant is made at 0-level of power. The specific requirements for this phase are presented Decree 21/2017. The safety demonstration is presented in the Operational Safety Report for the First Physical Start Up of a Nuclear Installation with a nuclear reactor. Before this phase the construction needs to be completed. The readiness of the nuclear power plant, personnel and internal procedures are ensured by SÚJB. The management system and provisions for quality assurance, radioactive waste management, including funding provisions, as well as training of personnel are ensured by SÚJB. The PSA, emergency operation procedures, severe accident management guidance, pre-operational ageing management programme and physical start-up programme are reviewed and assessed by SÚJB. The limits and conditions, in-service-inspection programme, classification of the equipment and physical protection arrangements are subjects to SÚJB´s approval. The emergency preparedness planning zones are verified at this stage. A license for the first physical start-up of a nuclear installation with a nuclear reactor is granted for two years. Operators and personnel that give training related to safety require an SÚJB's licence. Also, those providing services in the control area need to be licensed by SÚJB.

In the first power-generation start-up of the nuclear installation with a nuclear reactor phase, the focus on the as-build nuclear power plant, in accordance with the design documentation, and on the readiness of the licensee´s organization. The licensee shall demonstrate that the nuclear power plant is capable of stable and safe operation. The specific requirements for this phase are presented in Decree 21/2017. SÚJB's oversight covers as-built design of the facility or activity systems as a whole; the commissioning programme and its progress; the organizational structure; the qualifications of operating personnel; emergency preparedness; the preliminary operational limits and conditions; and the operating procedures. The limits and conditions, in-service-inspection programme, classification of the equipment and physical protection arrangements are subject to SÚJB´s approval. The license for first power-generation start-up of the nuclear installation with a nuclear reactor is granted for two years.

In the operating license phase, all the aforementioned documentation must have been finalized and licensees' organization demonstrated to be capable to operate the nuclear power plant and there are provisions for radioactive waste management and decommissioning of the nuclear power plant. The Atomic Act requires that the modifications significant to safety or impacting the licensing documentation needs to be licensed and safety demonstration needs to be reviewed and assessed by SÚJB. The Atomic Act requires that the licensing documentation is maintained and updated. The updated Safety Analysis Report is annually submitted for SÚJB's review and assessment. The operating license also covers the shutdown stage after the power operation that is expected to last 10 years before the decommissioning lifecycle phases start. Thus, the same requirements for operating NPPs are applied during the shutdown stage.

The operating license is granted for an undefined period. However, periodic safety review is required by the Atomic Act. According to Decree 162/2017 it shall be done 6 years after the first operation licence and subsequent periodic safety review are done every 10 years. The Dukovany PSRs for unit 1 to unit 4 and Temelin unit 1 and unit 2 were granted between 2016 – 2022. A project for PSR of a nuclear power plant is established by a chairperson's order SÚJB process for review, assessment and decision making on PSR is described in VDS018. The related inspections are managed by inspection processes.

The SÚJB's management system has no well-defined process for authorization for nuclear facilities but according to SÚJB the topic is covered by review and assessment process described in VDS104 and inspection processes. A project for licensing a nuclear facility is established by a chairperson's order, on a case-by-case basis for licensing each life cycle phase. The chairperson's order for the evaluation of the site license for Dukovany units 5 and unit 6 was given in March 2020 and the licence was issued in March 2021. A preparation project for the review and assessment of the construction license started at the end of 2022 and it will go to the end of 2024. The planning covers resources, timetables for work and establishing Construction licence phase into the software tool LBAT which is used for recording the SÚJB's review and assessment. The criteria for all the 21 licensing documents are to be managed in the software tool LBAT. The procedure VDS104 does not include provisions for the first physical start-up of a nuclear installation with a reactor, the power-generation start-up of a nuclear installation with a reactor and

commissioning a nuclear installation without a nuclear reactor. They are to be completed ahead of actualization of these phases. Other lifecycle phases of the lifecycle of a nuclear facility and modifications are covered by VDS104.

The new nuclear build is expected after the Government Action Plan is issued. The Action Plan covers large reactors and the strategy for small modular reactors in the Czech Republic.

5.3. AUTHORIZATION OF RESEARCH REACTORS

There are three research reactors (RR) in operation in the Czech Republic and one subcritical assembly is in the commissioning phase. The LR-0 RR and LVR-15 RR are operated by the licence holder Nuclear Research Institute (Centrum výzkumu Řež) in Řež near Prague. The VR-1 RR and VR-2 RR (a subcritical assembly) are operated by the Czech Technical University in Prague, and both are situated in a building in Prague where the Department of Nuclear Reactors, Faculty of Nuclear Sciences and Physical Engineering of the Czech Technical University is based.

The above four types of nuclear installations are classified as nuclear installations according to the Atomic Act. The licensing procedures required for the operation of research reactors include license stages such as site, construction, commissioning, and operation, and the stages are identical to those of nuclear power plants. The Atomic Act (section 5, article 8) states that the submitted documents may be changed under the graded approach. As of May 2023, in the case of VR-2 in the commissioning stage, the types of documents being submitted for approval at each stage are the same as those of nuclear power plants. However, it has been confirmed that the contents of each document have been reduced to suit the characteristics of the research reactor. The graded approach is not applied at the level of research reactor licensing procedures and documents to be submitted. There is a need to provide operators of research reactors with guidance from regulators on which a graded approach can be effectively applied depending on the type, use and output of the research reactor. This issue is addressed in Recommendation R7 in Chapter 9.1.

5.4. AUTHORIZATION OF FUEL CYCLE FACILITIES

A storage facility for spent fuel is defined as a nuclear facility in the Atomic Act, §3, para. 2(e), item (2). The authorisation process for this type of Fuel Cycle Facilities (FCF) is slightly different from the processes for other nuclear facilities, since for facilities without a nuclear reactor the Atomic Act recognizes only one phase of commissioning (instead of two phases for facilities with a reactor – physical start-up and energy start-up). However, SÚJB implements a similar stepwise approach for authorisation as for other nuclear installations (siting, construction, commissioning, operation, and modification phases). Annex 1 of the Atomic Act lists the documentation required from the licensee for each authorization step of a nuclear facility. Additionally, some special provisions apply to nuclear facilities without a nuclear reactor, such as § 53 - Obligations of holders of a licence for the commissioning of a nuclear installation without a nuclear reactor. Similar differences can be found in SÚJB decrees (Decrees 329/2017 which covers specific requirements for the design of spent fuel storage facilities, while Decree 21/2017 covers commissioning and operation requirements of fuel cycle facilities. Licences for spent fuel storage facilities are issued for an unlimited time and periodic safety reviews are conducted every 5 years.

Regulatory guide specific for the authorization of spent fuel storage facilities is the Safety Guide BN 02-2 “Storage of Spent Fuel in Purpose Build Nuclear Facilities”. This guide covers each stage of the spent fuel storage facility’s lifecycle and defines the format and content of the submissions that the licensee has to provide in its application to SÚJB when seeking authorisation to undertake spent fuel storage activity. However, this guide is outdated (issued in 2010) and needs to be updated to follow the term of the Atomic Act. This issue is addressed in Recommendation R7 in Chapter 9.1.

5.5. AUTHORIZATION OF RADIOACTIVE WASTE MANAGEMENT FACILITIES

According with the Atomic Act, radioactive waste (RAW) management is a prescribed licensed activity and RAW facilities are subject to authorization by SÚJB. Current atomic law (Atomic Act 263/2016 Coll) establishes the regulatory framework for the authorization regimes for the full life of nuclear facilities, including radioactive waste

(RAW) and spent nuclear fuel management. It sets out the fundamental principles of the organizational system, which can provide for all aspects concerning the safe management of radioactive waste and spent nuclear fuel. The production of radioactive waste including that produced at nuclear power plants is regulated by the Title IV of the Atomic Act which clearly states that the responsibility of producers is to bear all the costs associated with radioactive waste management.

Standalone RAW management facilities must be licensed as Cat. III (RAW management facilities at ÚJV Řež, a. s., UJP Praha a. s., Zam-servis s. r. o., ISOTREND s. r.o. and VF a. s.) or Cat. IV workplaces (Disposal Facility Bratrství) and nuclear installations (HAW Storage Facility, Disposal Facilities Richard and Dukovany and planned DGR). RAW management facilities at Nuclear Power Plants are authorised as a part of these nuclear installations. Standalone radioactive waste management facilities, which are not a part of complex nuclear installations, must be licensed as Category III or Category IV workplaces. In general, it can be stated, that the authorization process for RAW management facilities is no different from other Cat. III or Cat. IV workplaces and nuclear installations. For disposal facilities the Atomic Act and Decree No. 377/2016 Coll. further specify authorization requirements and procedures for their closure after the end of operation.

Radioactive waste management includes collection, sorting, processing, treatment, storage and disposal of radioactive waste. Radioactive waste management facilities and spent nuclear fuel facilities are subject to authorisation by SÚJB. The Decree No. 377/2016 Coll., "On the Requirements for the Safe Management of Radioactive Waste and on the Decommissioning of Nuclear Facilities or Category III or IV Workplaces" establishes details and conditions for the safe management of radioactive waste and spent nuclear fuel and the necessary documentation for these authorized activities.

The operation of a disposal facility shall be terminated by its closure. The Atomic Act requires an additional separate licence for its closure after the finalization of the operations period.

5.6. AUTHORIZATION OF RADIATION SOURCES FACILITIES AND ACTIVITIES

Radiation sources facilities are licensed in accordance with the Atomic Act. Authorization of radiation sources facilities and activities is carried out by the Radiation Protection Section in accordance with the Decree 422/2016.

The regulations establish a comprehensive framework based on relative risk and consists of five categories for radiation sources and four workplaces. For radiation sources, the categories range from non-significant (exemption sources) to highly significant (nuclear sources). As for workplaces, the non-categorized workplaces encompass educational school sources, XRF spectrometers, and luggage scanners. In this category, standard licensing is not required; instead, notification is sufficient. The first category comprises dental, veterinary, or bone density X-ray equipment, as well as the import, export, or distribution of generators (excluding LINACs). For these facilities, registration is required. Category II encompasses diagnostic medical facilities and the industrial facilities (NDT); for these facilities standard licensing is required. Category III encompasses facilities such as irradiation facilities, accelerator facilities, standard calibration facilities, and radiation source production facilities, which necessitate licensing. Category IV involves nuclear facilities. Notifications, registrations, or licenses remain valid throughout the facility's operational lifetime until decommissioning.

The IRRS team received information indicating that as of the end of 2022, there were approximately 5,500 licensed sealed sources and 11,000 licensed generators. Additionally, there are 57 licensees operating 89 Category III workplaces.

The regulation also prescribes requirements for exemption from regulatory requirements of radiation sources (mainly tritium light goods and non-significant laboratory sources). Furthermore, the requirements for import and export specify that when importing sealed radioactive sources from foreign countries, an additional authorization must be obtained in addition to the license required for the use of such radioactive sources.

In the event of modifications to radiation source facilities due to changes in the conditions under which the authorization was granted, licensees are required to notify such changes to the regulatory authority. This can be done

through email or via the online notification system (data box). Upon receiving the notification, the documents sent are evaluated. If pertinent, a new license is issued reflecting the updated conditions.

In Section 69 of the Atomic Act, the special obligations of licensees in the field of radiation protection are specified. At the request of the user of the ionizing radiation source, the manufacturer of the ionizing radiation source will take the source back and ensure its safe disposal or reuse. SÚJB authorization mechanisms ensure the control of radiation sources throughout the lifecycle of the source, that is, from the time sources are imported until they are exported out of the country or transferred to the waste facility.

Content of the authorization application for radiation sources facilities is prescribed in Atomic Act. Information on the content of the application for different types of facilities and activities is provided and accessible on the SÚJB webpage.

5.7. AUTHORIZATION OF DECOMMISSIONING ACTIVITIES

Decommissioning activities are subject to the same legislative requirements that apply to the other phases of a nuclear installation's, or workplace's lifecycle. Although no nuclear installation is planned to be decommissioned within several decades there are provisions to be applied during the operational phase of each facility in order to facilitate its future decommissioning.

Legal provisions separate decommissioning authorization in three phases as follows:

- Firstly, an approval of an initial decommissioning report in a form of a draft concept for safe decommissioning within the framework of the siting licence, and a concept for safe decommissioning of the nuclear installation or workplace within the framework of the construction licence. The licensing documentation for each commissioning stage shall also include the decommissioning plan for a nuclear installation other than the RAW disposal facility or the decommissioning and closure plan for the RAW disposal facility, approved by the SÚJB, as well as the estimated cost of decommissioning verified by SÚRAO.
- In the second phase, during operation, ongoing decommissioning plans and a proposal of creation of a financial reserve are submitted to regulatory body for review and approval with a periodicity of 5 years. For decommissioning purposes, the licensee is obligated, under the provisions of Section 54 of the Atomic Act and based on the estimated total cost of decommissioning as verified by SÚRAO, to continuously implement and maintain financial provisions. The monetary funds are deposited in a blocked account within the Czech National Bank until the end of their operating lifetimes. They are made available for the preparation and process of decommissioning at the required time and in the amounts outlined in the decommissioning plan approved by SÚJB. Within the decommissioning plan, the decommissioning strategic scope and justification shall be provided. The decommissioning strategy shall meet requirements of Decree No. 377/2016, Part five. If shutdown of a facility is sudden, the decommissioning strategy shall be reviewed. Within the decommissioning plan the decommissioning strategic scope and justification shall be provided.
- In the third phase, during the decommissioning, the activity itself is subject to a licence issued by SÚJB. Annex 1, Section 1, g) of the Atomic Act, provides for the necessary provisions for a decommissioning safety case (final decommissioning plan) and further details are specified in Decree No. 377/2016 Coll.

Finally, the Atomic Act also requires a license for the completion of decommissioning. A final license that allows the release of the former facility from regulatory control, and the use of the site for another purpose. Before a facility or site can be released from regulatory control, the licensee shall perform a final survey to demonstrate that the end-state, as defined in the application for so called complete decommissioning and as approved by the regulatory body, has been met. In the case of restricted use, the licensee shall specify the conditions for further use of the site and SSCs, including the scope and method of monitoring, measurement, evaluation, verification and recording of quantities and facts relevant to radiation protection and monitoring.

5.8. AUTHORIZATION OF TRANSPORT

Organisations who transport specific types of radioactive material identified in Decree 379/2016 section 3 (nuclear fuel, high activity material etc) are required to obtain a licence for transport from SÚJB via the Division of RAW and SF Management. The process for authorisation includes reviews of safety, security, and emergency plan documentation.

Other organisations that transport radioactive material may be licenced for the management of ionizing sources and this licence will cover transport related to this use. These licences are issued by the Section for Radiation Protection. Organisations that only transport material, without a fixed location where they use the material, do not require licencing but are assumed to be covered by the organisation consigning the material.

SÚJB is also the competent authority (CA) for issuing approvals and validations for transport packages and shipment. The regulations governing transport apply a graded approach and the aspects of radioactive materials transport involving the higher hazards are regulated by a licensing regime in which certain designs and activities require prior CA approval.

Organisations apply to SÚJB for CA approval for new designs, renewal of existing approvals and, validation of overseas approvals or modifications to approved designs of transport packages or materials. The approval process for application is well defined and provided in the Atomic Act and on SÚJB website.

Evidence of package/material compliance is required to be presented in a safety report, details of the evidence and supporting information required to be provided is included within the Atomic Act.

The process of approval usually includes a range of technical assessments. The output of the approval process is a certificate of approval, issued by SÚJB for up to a 10-year period. Certificates are signed by the head of the Spent Fuel and Radioactive Waste division in accordance with VDS054.

5.9. AUTHORIZATION ISSUES FOR OCCUPATIONAL EXPOSURE

SÚJB has a well-documented authorization process for occupational exposure. The information required for a licence application for occupational exposure is widely described in the regulation (Atomic Act No. 263/2016 and Decree No. 422/2016). The licence application must contain the subject matter of the activity to be licensed, the scope, place, and period of performance of the activity to be licensed and the expected method of termination of the activity to be licensed. In addition to other evidence of compliance with the conditions laid down by the Atomic Act, the licence application shall be accompanied by a document certifying the professional competence for the activity to be licensed appointing, if necessary, a radiation protection expert (supervisor as required in §43 Decree No. 422/2016). The main document for activity to be licensed is the radiation protection assurance programme. This document shall include, among other things, a description of the licensed activity, including the specification of the types of radiation sources, the rights and duties of employees, a description of the method of addressing non-conformities, a description of the system of informing and training of an exposed worker. Furthermore, this documentation describes, for example, the method of ensuring occupational health services for exposed workers, ensuring metrologically correct measurements and measuring devices or the method of ensuring tests of sources.

The monitoring program required by the licence application is required to describe rules for individual monitoring, monitoring of a workplace, monitoring of discharges and the environment for the standard operation of the workplace, foreseeable deviations from the standard operation of the workplace, radiation incidents and radiation accidents.

According to Section 66 (4) of the Atomic Act a licence holder shall determine the relevant dose constraints for a set period of time in the monitoring programme in order to minimize occupational exposure. Implementing legislation establishes the procedures used when optimising radiation protection, including the method of determination of dose constraints. However so far, SÚJB has applied the authorized limits only to the regulation of the discharges of nuclear power plant. The application of this provision could be extended for discharge of other facilities, or for occupational exposure.

The protection and safety of workers is underpinned by the principles of justification, optimisation, and limitation. The dose limits for radiation workers, pregnant and breast-feeding women and for students and apprentices are consistent with International Safety Standards.

During the administrative procedure for issuing the licence, SÚJB verifies that the applicant has submitted all the information required by the Atomic Act and assesses whether the documentation for the activity to be licensed respects all requirements of the Atomic Act and related decrees. This verification benefits from the close relationship SÚJB maintains with applicants to satisfy the objective of having a more complete application. SÚJB also rely on internal exchanges through groups of inspectors to ensure consistency of the assessment of the applications. The IRRS team consider that the experienced acquired over the years for the assessment of applications should be shared in a guidance.

5.10. AUTHORIZATION ISSUES FOR MEDICAL EXPOSURE

The operation of ionizing radiation generators, and the use of radioactive sources for medical exposures require a license according to the Atomic Act, except for the operation of dental X-Ray sources and bone densitometers which are subject to registration.

Producers and suppliers of radioactive sources for medical exposures, and the providers of services in radiation protection (including the performance of acceptance tests and status tests) require licensing according to the Atomic Act, while the suppliers of radiation generators are registered.

SÚJB has developed application forms for the authorization of the different operation or use of radiation sources for medical exposures. These forms are available on SÚJB's website and indicate the supporting documents that should be submitted with the form.

The supporting documents describe how the applicant complies with the regulatory requirements for diagnostics levels, dose constraints and criteria for release of patients. These supporting documents also contain information regarding the applicant's compliance with the requirements on radiation protection of pregnant and breast-feeding patients, on periodic radiological review of facilities in the medical exposure area, and on minimization of unintended or accidental medical exposure (including flaws in design, operational failures, failures and errors in software, human errors) and reporting.

One of the most important supporting documents is the local radiological standards. Act No. 373/2011 Coll which requires the authorization applicant to develop this document based on national radiological standards, if available.

Licenses and registration contain information on the type of medical radiological practice, the radiation sources, and the purpose of their use. Additionally, the Atomic Act requires that licenses contain the conditions for the performance of the licensed activity, however, in registration, no such conditions can be imposed, and registrants are required to comply only with requirements included in the legislation.

5.11. AUTHORIZATION ISSUES FOR PUBLIC EXPOSURE

The main responsibilities of authorized facilities and activities for the control of public exposure are specified in the Atomic Act No. 263/2016 of Coll. in § 62, 63, 66, 76, 81-83. The dose limits for public exposure are defined in line with the IAEA safety standards in the Atomic Act and linked to the implementing legislation Decree No. 410/2012 Coll. The regulatory body has established and enforces requirements for the optimization of protection and safety for situations in which individuals are or could be subjected to public exposure. The application of a dose optimization approach is required in the regulation in Atomic Act No. 263/2016 of Coll. in § 81-83.

Provisions are in place for optimization of public exposure through application of dose constraints at workplaces from discharges. These are in line with the IAEA safety standards.

There are monitoring programmes required by the Czech Republic in the Atomic Act 263/2016 § 149 and § 150; of which the records of the results and reports to the regulatory body, also assess the adequacy of the assumptions made for the assessment of public exposure. The IRRS team had noted the results from source monitoring and

environmental monitoring programmes and the assessments of doses from public exposure. This issue is addressed in Suggestion S9 in Chapter 6.11.

There are justifications and optimizations for protection and reference levels in place, as per the IAEA Safety Standards. This includes reference levels for indoor radon concentration, drinking water, building materials and criteria for long-term stay in a contaminated area (existing exposures as a result of an emergency situation) in the Atomic Act § 99, § 101 and § 102 respectively.

5.12. SUMMARY

The IRRS team considers that SÚJB operates its licensing programmes within a robust legal and regulatory framework, but it should consider developing in its management system a process for authorization of all facilities and activities. In addition, application of the graded approach in licensing of research reactors and fuel cycle facilities can be enhanced. SÚJB's mandate to authorized limit that is lower than the dose constraint is recognized as a good performance.

6. REVIEW AND ASSESSMENT

6.1. GENERIC ISSUES

Review and assessment of relevant information to determine whether facilities and activities comply with regulatory requirements are part to the basic competencies of SÚJB. Generally, review and assessment activities can be divided into 3 groups:

a) Review and assessment related to an authorized activity,
b) Review and assessment related to performance of an activity (not only authorized, but all regulated),
c) Review and assessment related to regulatory activities.

6.1.1. MANAGEMENT OF REVIEW AND ASSESSMENT

SÚJB is empowered, by law, to carry out the review and assessment for all applications of technology that give rise to radiation risks; that is, for all types of facilities and activities. Review and assessment are performed through the whole lifetime of the facility or duration of the activity. Different phases of the lifecycle and types of activities are authorized by SÚJB (for nuclear facilities: siting, construction, commissioning, operation, and decommissioning; for ionizing radiation sources and workplaces: handling, transport, import, services).

Lists of documents for licensed or registered activities are identified in Annexes of the Atomic Act. The scope and contents of the documentation are further detailed in secondary legislation, adequately in accordance with the subject-matter of the documentation. Decrees cover every aspect of review and assessment. This includes, but is not limited to, the requirements for the defence in depth, safety margins, multiple barriers, deterministic and probabilistic safety analyses, safety functions, site characteristics, radiation protections, engineering aspects, human factors, long-term safety etc. The comprehensiveness of the requirements is graded based on the complexity of the licensed or registered activity, safety aspects of activity and facility and risks associated, e.g., for lower risk activities, such as handling of simple ionizing radiation sources, the scope and content of documentation are less extensive than for operation of a nuclear facility.

There is a general procedure for administrative and other proceedings legally formalized in the Czech Republic by Code of Administrative Procedure. This procedure sets rules for commencement, delivery, participants (including public) and their rights and duties, and also criteria and rules for evaluation of any relevant information about an activity or facility. Based on this, SÚJB has established a formal process for the review and assessment within its integrated management system. The process is described in the internal management system document for the review and assessment. The process covers regulated facilities and activities, and aspects relevant for safety. The process description includes principles for review and assessment, required activities, roles and responsibilities, requirements for outputs, criteria for process evaluation etc. However, the IRRS team found that the internal procedure for review and assessment is incomplete. Some lifecycle phases of nuclear facilities are not covered. This issue is addressed in Suggestion S7 in Chapter 6.2.

SÚJB prepares a programme for major review and assessment activities to effectively manage the resources available and document the systematic approach to the review and assessment. The programme is prepared by the management of SÚJB and shared with SÚJB staff.

All official outcomes of SÚJB activities, including the results of review and assessment, are documented usually in the form of decision, statement, or other official document. Documentation management is managed based on Act on Archiving and Filling, and its implementing decrees, but also based on SÚJB internal documents and instructions. All official outcomes are recorded in digital form in the document management system of SÚJB – eSSL. Working documents of a significant nature are also recorded in working databases of particular SÚJB sections and departments.

SÚJB takes appropriate actions, as necessary, and the results of previous review and assessments are used to provide feedback information for the regulatory process.

Quality control of review and assessment process and produced documents is assured within the management system. However, IRRS team noted that internal audits specifically dedicated to the review and assessment process have not been conducted for a couple of years. This issue is addressed in Recommendation R3 in Chapter 4.7.

Co-ordination and co-operation among authorities are regulated by the Code of Administrative Procedure, and in some special cases, requiring more precise rules, are regulated specifically by explicit institutes and provisions of laws.

SÚJB applies a graded approach to review and assessment. Principles of graded approach in SÚJB review and assessments are summarised in the Integrated Management System Manual and further developed in other documents including assignment of responsibilities for its application. There are regulatory guidelines, such as on the content of safety analysis report, defence in depth, deterministic safety analyses, nuclear installation siting, monitoring of external exposure, find and capture of radiation sources. However, the IRRS team concluded that there was a lack of guidance relating to review and assessment of transport activities and application to some lifecycle phases for fuel cycle facilities.

6.1.2. ORGANIZATION AND TECHNICAL RESOURCES FOR REVIEW AND ASSESSMENT

Review and assessment activities are an integral part of the administrative activities of SÚJB. They are a prerequisite for licensing and continual observance/supervision of the safety relevant activities in the Czech Republic regulatory framework.

SÚJB has adequate organisational arrangements and resources for the review and assessments of all type of facilities and activities. The resources for the review and assessment are assigned according to the radiation risk and in compliance with the graded approach. However, review and assessment of new nuclear installations could require new resources. This issue is addressed in Recommendation R2 in Chapter 3.3.

In review and assessment activities SÚJB uses its own expertise and specialists, it implements a policy to ensure necessary competencies and knowledge exist 'in-house' to be able to fulfil its regulatory responsibilities. SÚJB has regularly evaluated the needs of human resources and competences for the fulfilment of its tasks including review and assessment. The regulatory body staff are provided with internal/external training using external experts and are placed in specific areas depending on the staff competences and the regulatory needs. There is limited training and internal procedures for review and assessment. SÚJB administers and manages communication regarding educational and training programs, especially abroad (e.g., training sponsored by the IAEA, NEA, or the EU), and enables experts from various technical support organisations (TSO) to participate. Maintaining a high professional level and professionalism of staff of SÚJB and TSO has also been helped by the participation in international projects and the application of the results of research and development.

SÚJB utilizes technical services from its technical support organisations (SÚRO and SÚJCHBO), expert organizations (research institutes, universities, Czech Geological Service) and relevant public administrative bodies (Ministry of Health, Ministry of Industry and Trade, Ministry of Environment, Czech Mining Authority) to support its review and assessment activities and its decision making in responding to safety and protection matters on a regular basis. Independence of such support is strictly required and ensured through contractual tools and internal supervision. The inputs to SÚJB review and assessment activities, are provided mostly in the form of expert statements, reports and consultations on topics relevant for ensuring safety that cannot be achieved solely by SÚJB. For special review and assessment needs, if special expertise is required, SÚJB also utilizes the project management approach.

Rules for the establishment of advisory bodies and committees to solve specialised issues are provided in the Integrated Management System Manual. There is permanent SÚJB Chairperson’s advisory body. SÚJB also uses the advice from independent experts in the particular technical areas or in the authorization process, when an appeal against SÚJB’s decision is filed.

It is the general policy (and duty) of SÚJB to ensure is capable to actively respond to its jurisdiction and responsibilities. The tools necessary for review and assessment include a wide range of equipment (for testing, taking measurements, monitoring, etc.), know-how (research and development outcomes, methodologies, techniques etc.), and software (computer models, computing tools, etc.). Their utilization and need are determined based on the types

of activities and facilities, level of associated risks and their availability. Capability is planned with yearly or longer periodicity, based on the expected needs and strategy, planned official activities and priorities of SÚJB (i.e., a plan of procurement is prepared for the upcoming year and farther intentions are planned within strategy and priorities). Ad hoc acquisition is possible as well, in case of need.

Adequate competence to perform comparison calculations of safety analysis and various computer codes and computational models for nuclear facilities are available at TSO and utilised for SÚJB technical support.

6.1.3. BASES FOR REVIEW AND ASSESSMENT

All official activities of SÚJB, review and assessment included, are based on the requirements stipulated in the national legislation, other legal regulations as well as international treaties, which form part of the legislation, or in the conditions attached to the authorizations.

As a basis for the determination of the criteria for the regulatory review and assessment the following are applied: national legislation (i.e. the Atomic Act and its supplementing regulations), the EU/EURATOM legislation (if directly applicable; i.e. EU regulations), international law (i.e. conventions) requirements, international recommendations (i.e. the IAEA safety requirements and guides, WENRA reference levels, Nuclear Energy Agency's guides and International Committee for Radiation Protection's recommendations), and technical norms (i.e. American Society of Mechanical Engineers' Standards, Czech Technical Norms, European Standards). Besides these normative documents also non-normative sources of good or best practice descriptions are used as a basis for the criteria, such as SÚJB's own guidelines, provided by international and foreign expert organizations, research and development reports and other outcomes.

The process of defining criteria is graded upon type of activity and its level of associated risk. Information provided for the regulatory review and assessment is usually divided into categories according to the requested expertise and requirements included in the base criteria. For each category relevant requirements are chosen from the criteria and metrics/grades for determining of level of compliance are set. This process covers the most complex type of review and assessment (such as for licensing related to nuclear power plants), however, the same principles are applied also for less comprehensive activities within the regulatory review and assessment.

Criteria in use for review and assessment can be quantitative or qualitative, radiological or technical criteria. Criteria are consistent and derived from the legal requirements. However, SÚJB guidance does not include criteria that differentiate between minor and major authorization application documentation changes.

There is a general consistency of safety assessment requirements with the IAEA Safety Standards. SÚJB ensures transposition of IAEA standards into national legislation and regulatory guidelines. IRRS team noted that some SÚJB Decrees and guidelines are not in line with the latest IAEA safety standards. In addition, there is no formal process for developing and amending regulations and guides.

As required by the Atomic Act, authorized parties are obliged to submit any safety relevant information that SÚJB requires to conduct its review and assessment.

Consistency with regulatory requirements on safety assessment in various licensing documents is ensured mostly by the clear setting of requirements on the content of the licensing document in the generally binding legal documents (Atomic Act and Decrees) and rules which are set up for review and assessment process in the frame of integrated management system implemented at SÚJB.

6.1.4. PERFORMANCE OF REVIEW AND ASSESSMENT

The review and assessment are carried out by means of a systematic and formalized process within SÚJB's integrated management system. The process consists of several steps consistent with guidance provided in the IAEA standard GSG-13. The process is implemented through specific instructions. The review and assessment are a precondition for granting a licence and registration – therefore they are performed before any phase of the life cycle and activity begins. Review and assessment are performed throughout the whole life cycle of the facility and activity.

SÚJB requires technical and other documents to be submitted, for the review and assessment, to determine whether the nuclear installation or activity complies with relevant objectives, principles and associated criteria for safety or conditions in authorization.

The review and assessment consist of examination of the submissions from the authorized party and verification of the safety analysis. This safety analyses cover normal operation, anticipated operational occurrences and accident conditions in order to demonstrate that the safety of the facility or activity meets the safety objectives and requirements of the regulatory body. The review and assessment performed by SÚJB covers all aspects of the safety analyses including thermo-hydraulic aspects, neutron-physic aspects, stress-mechanic aspects, radiological aspects, etc. The regulatory body determines whether these submissions have provided a sufficiently complete, detailed, and accurate demonstration of this. During the review process, Decrees and guidelines are applied; where there are no SÚJB guidelines available then the IAEA safety standards are used as reference.

The operating organization carries out an independent verification of the safety assessment before it is submitted to the regulatory body which is stipulated in the Atomic Act.

Communication with the licensees in connection with review and assessment is based on the provisions of Code of Administrative Procedure which are further specified in SÚJB internal documents. There are various methods of communication in use including request for additional information or communication of review findings.

For significant radiation risks or unusual/complex facilities and activities, SÚJB verifies the contents of the submitted documents by means of inspection of the site where the radiation sources are installed or used. Such inspections will also allow SÚJB to supplement the information and data necessary for review and assessment.

6.2. REVIEW AND ASSESSMENT FOR NUCLEAR POWER PLANTS

SÚJB performs review and assessment for nuclear power plants (NPP) during siting, design, construction, commissioning in two stages, modification, and operation of NPPs. The regulatory requirements to be met at various stages of lifetime of a nuclear installation are defined in the Atomic Act.

The safety assessment is reviewed both analytically and as part of the inspection activities of SÚJB in accordance with the Atomic Act.

As part of the authorisation of the individual phases of the life cycle of the NPP, SÚJB reviews the Safety Analysis Report (SAR) as one of the submitted documents. The licence holder submits an updated SAR annually to include changes that have occurred the previous year. Recently, SÚJB has implemented and uses a database for the evaluation of SARs, which contains the individual evaluation criteria established by the legislation. The evaluation process is described in the internal management system document – Evaluation of Safety Analysis Reports.

The requirements for deterministic safety analyses (DSA) and probabilistic safety assessments (PSA) are stipulated in SÚJB Decrees. Details are described in the set of SÚJB guidelines. The licence holder conducts PSAs beginning with the construction phase of the NPP life cycle. The PSA includes PSA Level 1 and PSA Level 2. The results of the PSA are included in the SAR, which is periodically reviewed by SÚJB. SÚJB's TSO is staffed with highly experienced safety analysts. They carry out the safety analysis work annually to systematically review and verify the deterministic and probabilistic safety analyses of the supervised nuclear installations.

SÚJB performs evaluation of periodic safety review (PSR) submittals as per requirements of the SÚJB Decree – The Requirements for Safety Assessment Pursuant to the Atomic Act. The Decree provides rules and deadlines for conducting the PSR, the deadlines for conducting the PSR, the method of documenting, and the content of the PSR documentation. The Decree specifies a total of 16 areas of assessment, of which 14 areas are areas primarily focused on nuclear power plants, the other two areas are specific to nuclear research facilities and radioactive waste management facilities. The scope of assessment of all areas is detailed in SÚJB guidelines. The PSR is required every ten years. SÚJB's evaluation is carried out in accordance with the internal management system document – Assessment of Periodic Safety Evaluation Documentation for Nuclear Installations. Apart from review of the PSR submissions, SÚJB arranges inspections related to the topics covered in the PSR process.

For operational experience feedback (OEF), SÚJB has used a Decree No. 21/2017 Coll. – Assuring Nuclear Safety of a Nuclear Installation, which lays down the basic contents of the event investigation reports to be submitted

following the incident. The Decree sets out the requirements for information to be used by the licence holder's operational experience feedback system. This includes information from operational events, experience from other nuclear facilities, including foreign ones, and experience from other technical and technological fields. The Decree also sets out the requirements for how the operational event is to be investigated. SÚJB evaluates the effectiveness of OEF through its inspection activities, carrying out regular checks on the use of operational experience. Internal feedback inspections are carried out quarterly at each site, according to SÚJB internal management system document. However, there is no formal process within SÚJB to obtain, identify and disseminate lessons learned from operating and regulatory feedback experience. This issue is addressed in Suggestion S5 in Chapter 4.7.

Legislative requirements for ageing management and long-term operation are stipulated in SÚJB Decree – Assuring Nuclear Safety of a Nuclear Installation. SÚJB evaluates the life-time extension in the framework of the so-called special safety assessment.

Before each modification is made, a safety assessment is carried out (special pre-modification safety assessment). The modifications and review results are stored in SÚJB database.

SÚJB has developed and maintained databases in support of review and assessment. The databases are processed in MS Office environment. The databases, among other things, contain individual evaluation criteria and their fulfilment.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: The procedure for review and assessment does not include provisions for commissioning a nuclear installation without a nuclear reactor (including SF storage facilities), the first physical start-up and power generation start-up of a nuclear reactor.	
(1)	**BASIS: GSR Part 1 (Rev. 1) Requirement 22, para. 4.26 states that** "*The regulatory process shall be a formal process that is based on specified policies, principles and associated criteria, and that follows specified procedures as established in the management system*".
(2)	**BASIS: GSG-12, para. 4.1 states that** "*To meet its regulatory responsibilities, there are several core functions that a regulatory body should fulfil. These core functions are described in detail in GSG-13 [4] and only a brief description is provided in this section*".
S7	**Suggestion: SÙJB should consider completing its procedure for review and assessment so that all lifecycle phases of nuclear facilities are covered.**

6.3. REVIEW AND ASSESSMENT FOR RESEARCH REACTORS

Approval for various phases of research reactors is applied in the same way as for nuclear power plants based on the Atomic Act, and the documents to be submitted for each phase of approval are the same as those for nuclear power plants. When design modifications affecting nuclear safety, technical safety, and physical protection of the facility are required, the operator prepares and submits a revised safety analysis report to the regulatory body for the review.

Based on the implementing Decree (162/2017, Article 16, (2)), periodic safety review must also be conducted for research reactors. Article 26 of the Decree stipulates that the periodic safety review of the nuclear installation being operated prior the date of coming into force of this Decree shall be performed within ten years after the force of this Decree.

6.4. REVIEW AND ASSESSMENT FOR FUEL CYCLE FACILITIES

SÚJB conducts the same review and assessment process as for any other facility. The schedule for the submission of documents necessary to be reviewed is defined in the Atomic Act, § 9 and § 16 and in Annex 1 to the Atomic Act: Technical assessments in targeted areas (typically criticality, radiation protection, heat dissipation, containment and confinement system, and retrievability) are captured in SÚJB's assessment reports. For dry cask storage facilities

additional conditions are listed in type approval of cask, such as cask inventory, cask loading pattern, cooling media, cask drying, equilibrium temperature, leak tightness test, decontamination and dosimetric control, cask surface temperature, maintenance, operational controls, management system.

SÚJB has an internal directive on the review and assessment of nuclear installations (VDS 104) which does not cover all life cycle phases of fuel cycle facilities. Guidance VDI 017 on the review and assessment of any nuclear installation has been recently revised and aims to ensure an efficient organization of activities in the evaluation of safety reports of nuclear installations, including fuel cycle facilities. But it does not establish the criteria to be used for assessing compliance. Directive VDS 018 provides for guidelines for the assessment of the periodic safety review (PSR) document of a nuclear installation. Although this guide explicitly applies to nuclear power plants, research reactors and radioactive waste disposal facilities, it is not formally applicable to fuel cycle facilities. This issue is addressed in Recommendation R7 in Chapter 9.1.

6.5. REVIEW AND ASSESSMENT FOR WASTE MANAGEMENT FACILITIES

The review and assessment process for the siting, construction, commissioning, operation and decommissioning, incl. periodic safety review of standalone RAW management facilities is no different from that described in the general process for nuclear installations.

The safety case and its supporting safety assessment is the fundamental document used within the licensing process of any installation or facility regulated by SÚJB. The safety case including the safety assessment has to be submitted to SÚJB in a form of safety documentation as a part of the licensing process. For disposal facilities the review and assessment process covers both the operational phase and the post-closure period of the disposal facility lifetime.

The licence holder of a disposal facility is required to establish prior to the closure of his facility unique documents reflecting the specific nature of the facility and the long-term safety assessment. The licensee is also required to proof of availability of the necessary financial resources to achieve closure, the post-closure institutional programme for monitoring the closed disposal facility site, the description of expected normal evolution of the facility and identification of all features, events and processes that could significantly influence the performance of the disposal system.

6.6. REVIEW AND ASSESSMENT FOR RADIATION SOURCES FACILITIES AND ACTIVITIES

Review and assessment for radiation sources is carried out by the Section of Radiation Protection throughout the lifetime of the facilities, according to the Atomic Act.

The review and assessment of documents for radiation source facilities follows a specific procedure outlined in the "Order of Director of Section of Radiation Protection SÚJB/OEHO/27782/2021." Review starts with the completeness check of documents submitted by email or notification system (data plot) by the applicant for obtaining the License. SÚJB reviews the documents submitted by the applicant (e.g., Radiation protection assessment/assurance program, Monitoring program, Emergency plan, Controlled area proposal, Optimization program, Security plan, Acceptance tests).

Following the review, SÚJB inspectors compile a report, which is uploaded into the management system which is accessible by any other SÚJB inspector. In case any issues or findings arise during the review and assessment procedure, the facility is notified via data box, phone call or e-mail communication.

Once the license has been obtained, any modifications to the facility inventory, shielding, or site design must be promptly reported to SÚJB. Licensees are required to notify such changes by e-mail or by the online notification system (data box). Additionally, on an annual basis, licensees must submit a Radiation Protection Summary Report and an Inventory of Sources to SÚJB inspectors. While these documents are analysed, the licensee is only notified if any discrepancies are found in relation to regulatory requirements. Otherwise, the documents are uploaded to the management system without any formal report or approval.

6.7. REVIEW AND ASSESSMENT FOR DECOMMISSIONING ACTIVITIES

Each licensee of nuclear installation or cat. III or cat. IV. workplace is expected to produce and maintain a decommissioning strategy and plan for each facility it is responsible for. A schedule for the submission of documents necessary to be reviewed at the appropriate times in the licensing process is defined in the Atomic Act.

6.8. REVIEW AND ASSESSMENT FOR TRANSPORT

The transport package/material approval process requires SÚJB to carry out assessments of technical and management systems relating to package/material design. The assessment process is managed by inspectors within the Radioactive Waste and Spent Fuel Division, technical specialist assessment capability is provided by the technical support organisation SURO.

There is currently no transport specialist resource within the Division of RAW and SF Management, one specialist having retired and the other, identified on the competency map for transport package approvals, being on maternity leave. The package assessment activity is being carried out by two non-transport specialist inspectors and a recently joined member of the team who is not currently qualified as an inspector – this is in addition to their normal workload. This shortage of transport specialists is considered to be a significant aspect within Recommendation R2 in Chapter 3.3.

Assessment of technical aspects cover the key areas of criticality, shielding and containment/thermal as required, and the management arrangements of the applicant are also assessed by SÚJB. The assessment activity is recorded by TSO in a report format and provided to the SF&RW inspector who then collates the recommendations and significant findings into a final report. This report identifies the decision to issue a certificate, the certificate is also produced at this time. The final report and certificate are subjected to the review and approval process prior to the certificate being issued.

There is currently no internal guidance document for the review and assessment of transport authorisations.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB does not have internal guidance for the review and assessment for transport authorisations.	
(1)	**BASIS: GS-G-1.2, para. 3.2, states that** *"3.2. The regulatory body should provide internal guidance (…) on the safety objectives to be met. Detailed guidance on specific topics for review and assessment should also be provided, as necessary (…)".*
(2)	**BASIS: GSG-13, para 3.191 state that** "*The regulatory body should provide internal guidance for its own staff on the procedures to be followed in the review and assessment process and on the safety objectives to be met. Internal guidance on specific topics for review and assessment should also be provided, as necessary".*
S8	**Suggestion: SÚJB should consider developing internal guidance for the review and assessment for transport authorizations.**

6.9. REVIEW AND ASSESSMENT FOR OCCUPATIONAL EXPOSURE

The requirements for review and assessment of occupational exposure are primarily based on the Atomic Act and Decree No. 422/2016 Coll. which state that licence holders should perform an evaluation of the method of radiation protection assurance for the activity performed on an annual basis. The evaluation of the radiation protection shall include assessment of radiation protection optimisation based on the results of individual monitoring or workplace

monitoring, a list and a summary of deviations from standard operation and exceeding monitoring levels or dose constraints, and measures taken.

The documentation supporting the licence application must be kept consistent with the requirements of the Atomic Act and the related Decrees, the principles of good practise and the real state of the licensed activity and its changes must be done according to § 24 of the Atomic Act. A review of existing situation such as classification of areas is done through the submission of modified document by licence holders. However, the provisions of § 24 of the Atomic Act do not provide criteria to determine modifications based on their significance. SÚJB may apply a graded approach through the review of the transmitted revised documents.

SÚJB ensures that the monitoring program proposed by the licence applicant is effectively in place. The regulations set the basis for the enforcement of monitoring and transmission of information to SÚJB. Moreover, the Central register hosted and managed by SÚJB provides information on the worker, the workplace, the dose (internal, external, extremities and skin) and the dosimetry service used. According to the licence issued by SÚJB, the dosimetry service must transmit the dosimetry information to SÚJB to input in the central register and SÚJB performs monthly reviews of the content of the database against potential worker exposure.

6.10. REVIEW AND ASSESSMENT FOR MEDICAL EXPOSURE

The duties and responsibilities of authorization holders (Registrants and licensees) with regards to medical exposure to ionizing radiation are defined in the regulatory framework for radiation protection, which includes the Atomic Act, and the Decree nº 442/2016 Coll. on radiation protection. A graded approach, commensurate with the radiation risks associated with medical exposure, is used in the review and assessment.

SÚJB regularly reviews and assesses information relevant to safety of medical exposures regarding optimization (including design, conduct, source calibration, dosimetry of patients, reference levels, dose constraints), as well as the results of the annual safety assessment reports which that the authorization holders are required to submit to SÚJB, according to the Atomic Act and the Decree No. 422/2016 Coll. To review and assess the quality assurance for medical exposure SÚJB evaluates the results of the acceptance tests and of the status tests of the radiation sources. The adequacy of the methodologies adopted by radiation protection service providers for the acceptance and status tests are reviewed and assessed by SÚJB inspectors specializing in quality assurance, supported by experts of SÚRO. This assessment is done during the authorization process of radiation protection services providers, and during the inspection of these authorization holders.

SÚJB also reviews and assesses any significant radiological events reports.

Justification of medical exposures is reviewed through clinical audits (internal and external), which also assesses if the local radiological standards documents comply with the requirements defined in the National Radiological Standards issued by the health authority (see Chapter 5.10). Internal clinical audits should be conducted annually, and external clinical audits every 5 years.

The national radiological standards require authorization holders (Registrants and licensees) to regularly assess their local Diagnostic Reference Levels (DRLs) and compare them to the national DRLs. If the local DRLs are constantly above the national ones, the authorization holder is required to review the optimization procedure for that specific medical exposure practice. SÚJB collects and assesses information about local DRLs though the mandatory annual reports (according to Decree No. 422/2016 Coll.)

The National DRLs are assessed regularly once every 5 to 10 years, through a wide national data collection, and the process is completed with the update of Decree No. 422/2016 Coll.

6.11. REVIEW AND ASSESSMENT FOR PUBLIC EXPOSURE

The requirements for review and assessment of public exposures in the Czech Republic as a result of nuclear and non-nuclear sources are provided for in the Atomic Act No. 263/2016 Coll. § 76.

Exemptions exist to this requirement, such as when a radioactive substance may be discharged from a workplace with radiation activity without a licence of the office. The applicant or licensee is required to submit documentation relevant to the discharge. Discharge limits for all relevant nuclides are specified in the implementing legislation.

Licensees must provide for the monitoring of discharges and the surrounding areas, including accidental monitoring as per the Atomic Act No. 263/2016 Coll. § 150 (1) (a). This is reviewed by the regulatory body and a decision is communicated to the licensee in which the outcome of the application is documented.

The Czech Republic has established a National Monitoring Programme to determine the extent of radiation situation monitoring in the country and to clarify the requirements for the transfer of data to the Data Centre of the SÚJB including data formats and data interfaces.

The requirements on monitoring and reporting, including the monitoring programmes and periodic reports on public exposure are in place.

The Atomic Act in § 67 (3) requires that the addition of a radioactive substance to consumer products when manufacturing or preparing them and when importing and exporting such consumer products. Currently, it is not a legal requirement for providers of consumer products to legibly print the specified information on the visible surface of each consumer product. This has been recognized in the ARM and is part of the action plan.

As noted in Section 5.11 of this report, reference levels are established, and the review of these levels are being performed, as per the National Radon Action Plan for the indoor radon levels and the long terms stay for existing exposures after an emergency.

SÚJB undertakes an assessment of the independent environmental verification monitoring programme on an annual basis of DIAMO's impact on the environment in terms of discharges and effective dose to the representative persons in the public. The annual report by DIAMO presents the results on the various monitoring aspects and the optimisation results. However, the annual report does not include the analysis of all of the significant radionuclides which contribute to total effective dose, since it only reports on the ^{238}U and ^{226}Ra radionuclides activity concentrations, and not the other important decay products in the same decay series that contribute to effective dose, such as ^{210}Po and ^{210}Pb.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB performs review and assessment of the annual environmental monitoring reports by the licensees. SÚJB also provides guides on the evaluation and assessment of public exposures, however the guides are not consistently implemented for the reporting by the licensees operating category III workplaces related to uranium mining activities and NORM workplaces. The reports do not include consideration of all the radionuclides as per the guidance provided.	
(1)	**BASIS: GSR Part 3 Requirement 32, para. 3.135 states that** *"The regulatory body shall be responsible, as appropriate, for… (d) Assessment of the total public exposure due to authorized sources and practices in the State on the basis of monitoring data provided by registrants and licensees".*
(2)	**BASIS: RS-G-1.8 para. 5.6 states that** "*…the monitoring programme should pay particular attention to the critical pathways and the critical radionuclides*".
S9	**Suggestion: SÚJB should consider monitoring effective implementation of the regulatory guides for category III workplaces in relation to public exposure control as per the guide for NORM workplaces.**

6.12. SUMMARY

The IRRS team concluded that SÚJB carries out its review and assessment programme according to the Atomic Act and regulations. The depth and scope of review and assessment correspond to the radiation risk associated with the facility or activity, in accordance with the graded approach. Associated criteria, on which SÚJB judgments and decisions are based, are stipulated in the generally binding legal documents. Specifications are provided in the regulatory guides.

Areas of improvement include development of new regulatory guidelines and updating the existing ones in line with referenced IAEA standards, effective implementation of the regulatory guides on public exposure by licensees and specification of graded approach for research reactors.

7. INSPECTION

7.1. GENERIC ISSUES

Act No. 255/2012 Coll. (Inspection Code) is the enabling legislation for inspection procedures, including for inspection announcement, reports, and checklists. Inspections must adhere to the general principles of public administration, including independence and impartiality, as specified in Act No. 500/2004 Coll. The rights and obligations of inspected persons, and the powers and responsibilities of inspecting persons, are governed by the Inspection Code.

SÚJB carries out inspections to ensure compliance with the Atomic Act and the regulations derived from it. They also conduct inspections related to medical exposure conditions as regulated by Act No. 373/2011 Coll., which falls under the jurisdiction of the Ministry of Health. The legal scope of SÚJB inspections encompasses all aspects of its regulatory activities, including all regulated persons, situations, activities, facilities, and resources that fall within the subject matter of the Atomic Act and are under the responsibility of SÚJB.

SÚJB inspection activities are conducted by inspectors located in Prague, in various regions and at nuclear power plant sites. SÚJB may seek support from other institutions, such as TSOs (Technical Support Organizations) and other experts, to assist in their inspection activities.

The IRRS team noted that SÚJB has established and implemented a training programme for inspectors. SÚJB inspectors are civil servants who must undergo general and specialized examinations to demonstrate their qualification and abilities to act as state representatives under the competency of SÚJB, as outlined in Act No. 234/2014 Coll. Candidates for inspector positions must also complete a special training program supervised by a senior inspector. The training and qualification preservation system is regulated by the internal management system document, VDS 039.

The IRRS team noted that SÚJB has established and implemented mechanisms, other than rotation, to promote continued objectivity of inspections. This is further discussed in the sections for NPP (see Chapter 7.2), radiation sources (see Chapter 7.6) and medical exposure (see Chapter 7.10). However, SÚJB does not have a document that identifies these activities comprehensively.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB has established mechanisms to promote continued objectivity of inspections as inspectors for NPPs, radiation source facilities and medical exposures are permanently assigned to a specific site or region. However, SÚJB does not have a document that outlines these activities.	
(1)	**BASIS: GSG-12 section 6.5 states that** "*In order to maintain the necessary independence, the staff of the regulatory body: should be as objective as possible in discharging their responsibilities…*".
S10	**Suggestion: SÚJB should consider documenting its practice for maintaining inspectors' objectivity.**

The IRRS team noted that SÚJB has established a comprehensive inspection program that is based on a graded approach and safety significance. The inspection program is documented in a series of internal management system documents (directives). The program differentiates between various types of inspected facilities and activities and adjusts the complexity of rules based on the associated risks. More complex activities or facilities with higher levels of risk require more detailed and frequent inspections.

The scope and planning of inspections consider different levels of authorized subjects and activities and the comprehensiveness and frequency of inspections are adjusted according to the complexity of the activities, facilities, and associated risks.

The IRRS team noted that all inspection findings are documented in written inspection reports, which are delivered to the inspected party. This is a crucial responsibility of inspectors and a right granted to the inspected party, as stipulated in Act No. 255/2012 Coll. Additionally, as part of the inspection process, the inspectors provide a verbal

debriefing to the inspected party regarding the findings. The findings from inspections serve as inputs for other activities carried out by SÚJB. These approaches are legally authorized by the legislation and are also reflected in the relevant internal management system documents of SÚJB.

In addition to planned inspections, SÚJB conducts reactive inspections, which can be either announced or unannounced. In response to the COVID-19 pandemic, SÚJB introduced a new type of inspection called an "online inspection" or "virtual inspection." However, these types of inspections, while permitted by legislation, have not yet been incorporated into SÚJB's internal management system documents. SÚJB inspection procedures establish specific criteria for all types of inspections, except for conducting unannounced and virtual inspections at NPP (see Chapter 7.2), and virtual inspections for radiation sources facilities (see Chapter 7.6).

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB inspectors perform various types of inspections, including unannounced inspections as well as virtual inspections. However, the inspection documents for nuclear power plants and radiation sources facilities do not include criteria for conducting virtual inspections; moreover, inspection documents for nuclear power plants do not include criteria for conducting unannounced inspections. This has been recognized in the ARM and is part of the action plan for the unannounced inspections.	
(1)	**BASIS: GSR Part 1 (Rev. 1) Requirement 19, para. 4.14 states that** *"The regulatory body shall establish and implement a management system whose processes are open and transparent [10]. The management system of the regulatory body shall be continuously assessed and improved"*
(2)	**BASIS: GSR Part 1 (Rev. 1) Requirement 28 states** *"Inspections of facilities and activities shall include programmed inspections and reactive inspections, both announced and unannounced."*
S11	**Suggestion: SÚJB should consider updating inspection documents to include the criteria for unannounced inspections and for virtual inspections.**

7.2. INSPECTION OF NUCLEAR POWER PLANTS

The Czech Republic has two nuclear power plant (NPP) facilities, Dukovany and Temelin, that are regulated by SÚJB. SÚJB nuclear power plant inspectors include technical inspectors and resident inspectors who are located at the SÚJB headquarters in Prague and at the NPP sites, respectively. Inspection teams may include site inspectors, specialized inspectors and supporting team members from technical support organizations or invited experts.

The IRRS team noted that SÚJB resident inspectors do not rotate to different locations; however, SÚJB has implemented other measures in order to promote continued objectivity during the conduct of inspections. For example, all SÚJB Inspectors for nuclear power plants participate in inspections at both NPP sites; have daily meetings together to discuss the operational and safety status of the plants; routinely hold strategic meetings to discuss findings and share experience; and populate and review a common, shared database of all inspection findings. Also, SÚJB Inspectors for nuclear power plants meet twice a year to receive training, discuss inspection findings and share regulatory operating experience. SÚJB site inspectors periodically participate in inspections at the other NPP facility.

During the Temelin site visit, the IRRS team observed that all inspectors assigned to the NPPs, regardless of their locations, routinely meet at the start of every day to discuss the operational and safety status of the plant including identifying emergent safety concerns and regulatory focus areas. This activity consistently maintains the inspectors' regulatory focus on the effective regulation of NPPs using an approach that considers potentials risks and prioritizes safety significant situations. The IRRS team considers that this activity is a good performance.

In addition, all inspection results are entered into a shared database, and they are reviewed by all inspectors and the Inspection Assessment Committee (HKI). The Committee assesses the observations and independently verifies that corrective actions were appropriately requested. The committee also determines whether there is a need for reactive inspections to focus on emergent issues.

The IRRS team noted that SÚJB implemented a new practice in 2022 to evaluate the performance of inspections on a monthly basis at the inspections assessment committee (HKI) meeting. The committee verifies that inspections are conducted in accordance with the procedure, the inspection plan is respected, the inspection scope is well defined and include the required focus areas, inspection reports contain the required information as per the template, and inspection findings are supported with the appropriate legal basis and facts. The assessment results contribute to an overall metric of 'failed', 'partly completed' or 'completed' to rate the performance of inspections. This activity ensures that SÚJB continuously maintains high quality performance for conducting inspections and maintains oversight of the regulatory focus areas covered during the inspections. The IRRS team considers that this activity is a good performance.

While SÚJB performs many activities that enable and promote inspector objectivity during the conduct of inspections, there is not an internal management system document that comprehensively identifies these activities. This issue is addressed in Suggestion S10 in Chapter 7.1.

SÚJB has enabling legislation and internal management system documents for conducting inspection activities at nuclear power plant (NPP) facilities to verify compliance with regulatory requirements and conditions of the authorization. SÚJB provided various examples to demonstrate that inspection activities were adequately conducted at NPP facilities.

The internal management system documents for inspections were generally comprehensive with minor exceptions. SÚJB has identified that the inspection activity document VDS037 is outdated and intends to update the document in 2024, as per the document review cycle, to reduce complexity and ensure that the document accurately reflects current inspection practices and appropriate legal requirements. For example, SÚJB has identified that the description of inspector identification cards should be included in the document.

SÚJB inspection program includes announced and unannounced programmed and reactive inspections. The IRRS team confirmed during the site visit to the NPP facility that unannounced inspections were conducted by site inspectors. However, the inspection activity document, VDS037, does not include the criteria for triggering unannounced inspections. This issue is addressed in Suggestion S11 in Chapter 7.1.

Due to the challenges imposed by the covid-19 pandemic, SÚJB included virtual inspections as part of the inspection program. However, the inspection activity document, VDS037, does not include the circumstances or criteria for conducting a virtual inspection. This issue is addressed in Suggestion S11 in Chapter 7.1.

SÚJB conducts inspections using baseline and annual inspection plans that were developed in accordance with a graded approach. The inspection plan includes verification activities in a cross-section of areas including nuclear power plant systems, structures and components, management systems, operational activities and safety culture. The plan outlines the frequency and type of inspections in each area. Changes to the plan are clearly highlighted, approved by the Inspection Assessment Committee, and documented.

SÚJB nuclear power plant inspectors also conduct reactive inspections based on emergent issues or concerns at the facility. SÚJB has full time site inspectors that have full and independent access to the nuclear power plant facilities with the exception of specific security areas. However, access can be arranged if needed. The IRRS team confirmed during the site visit that the authorized party provides full and unfettered access to the entire facility to inspectors including access to the main control room, the reactor core area, important safety related equipment in the reactor hall and the secondary systems. It was also noted that the authorized party provides full access to software that provides real-time monitoring of station parameters that are critical for safety systems and systems important to safety.

The IRRS team noted that there were sufficient nuclear power plant inspectors available to implement the inspection plan and respond to emergent concerns; however, considerations should be in place for succession planning for possible retirements in the future. The IRRS team also noted that SÚJB has an extensive training plan in place for the initial qualification, maintenance of qualifications and continuously improving qualifications for nuclear power plant inspectors. Several examples of inspector training plans and completion records were provided to demonstrate the adequate implementation of training for developing and maintaining NPP inspector competencies.

The IRRS team was informed by SÚJB and the NPP operator that the nuclear industry has intentions to construct an additional reactor unit at the Dukovany site in the near future, followed by additional reactor units and a possible

small modular reactor at Temelín. SÚJB is encouraged to consider its future staffing and training needs to enable effective inspections of newly constructed reactors. This issue is addressed in Recommendation R2 in Chapter 3.3.

SÚJB inspectors conduct inspections in accordance with inspection procedures and an inspection guide for each inspection. The IRRS team observed the use of the inspection guide during a site visit. After the completion of the inspection, the inspectors prepare an inspection report to document all observations and communicate to the licensee any required remedial actions. Examples of inspection reports demonstrated that non-compliances are clearly identified and described. In some cases, pictures of the non-compliances were also included in the report. In the event that an inspector makes an observation with immediate and serious implications to safety, the resident inspector communicates the information to the authorized party without delay.

The IRRS team reviewed several inspection reports and noted that the conduct of the inspection, including relevant observations and necessary corrective actions, were clearly described. The IRRS team noted that it is possible for the SÚJB inspectors to identify the names of specific individuals when it is apparent that they are responsible for the non-compliance. The IRRS team acknowledges that the capability to record names is important for the legal implications associated with a higher level of enforcement, including potential prosecution. However, SÚJB should consider practices that avoid propagating a blame culture by naming individuals during routine inspections that are unlikely to proceed to higher levels of enforcement. Inspection observations should be formulated in a manner that encourages the authorized party to use their own management system tools and processes to identify, analyse, correct, and prevent reoccurrence of deficiencies. While SÚJB inspectors are knowledgeable and may easily identify the perceived party responsible for the deficiency, the authorized party should have the opportunity to consider the wider implications and impact of the observation before determining the cause, responsible party, and appropriate corrective actions.

SÚJB inspectors, in accordance with VDS-008 verify that the corrective actions implemented by the authorized party as a result of inspection observations are adequately implemented to correct the deficiency and prevent reoccurrence.

Site Visit to Temelín NPP

The IRRS team conducted a site visit to the Temelín NPP facility in order to assess the performance of inspections, including enforcement, by SÚJB NPP inspectors. The IRRS team observed the daily morning meeting where all NPP inspectors gathered to discuss the operational status of the NPPs and any regulatory focus areas that were identified. The IRRS team observed the SÚJB site and specialized inspectors conduct a section of a planned outage inspection in accordance with the inspection procedure. The inspection was focused on assessing the authorized party's foreign material exclusion practices in the reactor hall. The IRRS team observed the SÚJB inspectors follow their inspection guide, assess locations with an impact on nuclear safety and note several areas for improvement. The IRRS team also observed the SÚJB resident inspectors perform routine inspections of the Main Control Room and Secondary areas in the turbine hall. The resident inspectors demonstrated a thorough understanding of station systems, nuclear safety implications and depth in competencies for assessing compliance with regulatory requirements.

The IRRS team met with the authorized party and noted that the relationship between the regulator and regulated party reflects a common interest in maintaining and continuously improving nuclear safety. The IRRS team also observed the interaction between NPP workers and SÚJB resident inspectors and noted that there was genuine respect and a high level of awareness for the authority and role of the inspectors.

7.3. INSPECTION OF RESEARCH REACTORS

The IRRS team confirmed that SÚJB has procedures in place for the conduct of routine inspections of research reactors (RR). SÚJB inspectors conduct inspections in areas such as physical protection, radiation protection, radioactive material management, training, facility operation, design change and maintenance.

Inspection plans for the four research reactors are established and implemented at the beginning of each year, and unscheduled inspections are also conducted when necessary. For example, in radiation protection, inspectors visit the site multiple times over several months to verify that operators comply with regulatory requirements. RR LVR-15 is subject to regular inspections every year. RR LR-0 and RR VR-1 undergo regular inspections every two years.

Inspection reports are generated digitally. The operator may submit a written objection to the inspection results within the specified period.

Site Visit to Czech Technical University

The IRRS team observed an SÚJB inspection at the research reactor VR-1 and VR-2 facilities installed in Czech Technical University. VR-1 is located on the first floor of the building and contains radiographic equipment using neutrons and a radiation shielding room for used fuel. VR-2 has a construction licence and is also located on the first floor of the building.

The IRRS team observed that SÚJB inspectors followed the radiation protection procedures, including entry records and wearing of the TLD, to enter the radiation control area, and that they confirmed that radiation and contamination monitoring equipment in the control area was available. VR-1, which is in operation, is actively used for reactor operation training and nuclear physics research, and about 200 trainees at home and abroad use the facility annually. In the three-story reactor building, a control room for reactor operation training is suitably arranged, and a separate area for nuclear physics research is provided.

7.4. INSPECTION OF FUEL CYCLE FACILITIES

SÚJB has internal management system documents that consider the graded approach, in place for the inspection of fuel cycle facilities. SÚJB has one inspector assigned to fuel cycle facilities inspections at the headquarters in Prague. Based on additional inspection needs (radiation control, security, emergency arrangements) other SÚJB inspectors and TSO (SÚRO) specialists may be involved.

All inspections of spent fuel storage facilities are planned and aim to verify compliance of facilities with operating limits and conditions, provisions of operating licenses and package type approvals. The scope and frequency of the regulatory inspections correspond to the potential hazards posed by the spent fuel facilities. The usual frequency of inspections is one or two per year for each spent fuel storage facility, and if possible, it is combined with inspections for spent fuel transport.

The qualification of fuel cycle facility inspectors starts upon hiring when they participate in training and have to pass internal exams. Inspectors often participate in training courses offered by the IAEA, and the Czech Technical University in Prague. SÚJB employs an individual plan of personal growth for each employee, covering “soft” (non-technical) and “hard” (technical) skills. Each training or activity related to the qualification programme of the employee is assigned a given number of credits and considered in their individual development process.

7.5. INSPECTION OF WASTE MANAGEMENT FACILITIES

SÚJB has internal procedures and manuals that consider the graded approach principle, in place for the conduct of RAW inspections. SÚJB has three inspectors assigned to RAW predisposal and disposal facilities at the headquarters in Prague. Based on additional supervision needs (e.g., radiation control, security, emergency arrangements) other SÚJB inspectors and TSO (SÚRO) specialists may be involved.

The scope and frequency of the regulatory inspections corresponds to the potential hazards posed by the individual steps of RAW management. The usual frequency of inspections is 1-2 per year at every licensee for RAW management. However, inspections may be more frequent in special cases including abnormal situations that require immediate investigation; if there are serious doubts about a licensee’s capability to deal with normal operation; and to verify the implementation of any corrective actions.

Site Visit to DIAMO

The IRRS team visited the DIAMO Těžba a úprava uranu (TUU) branch in Stráž pod Ralskem to be informed about SÚJB inspections performance. It was noted that SÚJB has 2 inspectors who regularly inspect the facility at a total

of about 12 – 15 inspections per year. Written communication is sent to the licensee to inform them of the inspection, the inspection team, and the intention of the inspection. At the end of the inspection, the inspected party was informed of the inspection findings and that the inspection report will be communicated officially.

The IRRS team noted that the inspectors are competent and respected by the authorized party and that the relationship is beneficial to radiation safety.

7.6. INSPECTION OF RADIATION SOURCES FACILITIES AND ACTIVITIES

Inspection frequency for radiation sources facilities and activities is established based on risk, in accordance with a graded approach. For example, radiotherapy facilities must be inspected every year, while medical tomography must be inspected once in 2 years.

An annual inspection plan is developed for approximately 500 facilities. The inspectors are responsible for defining the annual inspection plan, which is then submitted to the section director for approval at the end of each year to be executed in the following year. The IRRS team was informed that inspection of all facilities is in accordance with the frequency determined the by the VDS 043/2020 procedure.

Each SÚJB inspector is assigned approximately 50 facilities for which they hold responsibility. Their duties encompass conducting reviews, assessments, and inspections of these facilities, according to the predetermined frequency guidelines. The distribution of facilities among inspectors is based on their respective living areas, and it does not necessarily involve rotations. The specialized inspector group meet twice a year to share experience and procedures of the inspections performed.

Inspections conducted for facilities utilizing radiation sources are categorized as planned or unplanned (reactive), cross-sectional (general) or thematic (partial), announced or unannounced, and on-site (majority) or off-site (virtual). The procedures for announcement, reports, and checklists are standardized and outlined in the VDS 043/2020 procedure. This procedure establishes specific criteria for all types of inspections, except for virtual inspections. This issue is addressed in Suggestion S11 in Chapter 7.1.

The IRRS team was informed that there are about 10,000 radiation sources licensees, and a total of 40 inspectors are available for regulatory inspections of these facilities. In the year 2022, 532 inspections were planned, and out of those, 549 inspections were carried out. About 40 unplanned inspections were performed. Mostly reactive, due to suggestions of public, from inspector of different offices or even internal suggestions. The number of inspectors assigned to an inspection may vary depending on the size and complexity of the facility. In some cases, inspections can be conducted by either one or two inspectors. Additionally, SÚJB inspectors may be accompanied by experts from TSO (Technical Support Organizations) when specialized knowledge in a specific aspect is required.

The training of SÚJB inspectors is ensured at the time of their hiring. Initially, they act as invited inspectors during inspections for one year, and subsequently, they are required to pass a special inspector exam within one to three years. Regular re-training of SÚJB inspectors on the inspection of radiation source facilities is conducted periodically.

Following the completion of an inspection, an inspection report is prepared, and the findings are communicated to the licensee within a timeframe of 30 to 60 days. The licensee is given a period of 30 to 60 days to respond to the findings, either through the online notification system (data box) or via email. It is the responsibility of the assigned inspector to monitor and enforce this time limit. If the licensee fails to communicate within the designated timeframe, the first course of action is for the inspector to call to the responsible person and inquire about the lack of communication. If the licensee can provide a valid justification, no further action is taken, but they are required to promptly present a solution for the identified findings. However, if the licensee cannot provide a satisfactory justification, the inspector may conduct a reactive inspection and potentially impose a penalty. There is currently no specific written procedure for this communication process.

Site Visit to General University Hospital

The IRRS team conducted an observation of a SÚJB inspection at the General University Hospital in Prague. The inspection objective was to inspect a recently re-authorized practice of interventional radiology in this facility. The

IRRS team was informed that SÚJB inspector had reviewed the documentation related to all the aspects of radiation protection and safety for the licensing process less than a month before (upon the application of the hospital), hence during the on-site inspection SÚJB inspector only reviewed the documents to check for changes. The inspection started with an entrance meeting, interviews with hospital personnel, and a visual observation of an interventional radiology procedure involving a patient. In a second part of the inspection, SÚJB inspector checked all the documentation for radiation protection and safety, using a checklist specifically designed for interventionist practice. No findings or issues were identified during the inspection. The communication between the authority and the licensee seems professional and open, which is in favour of a good understanding of regulatory requirements and safety culture.

7.7. INSPECTION OF DECOMMISSIONING ACTIVITIES

No nuclear installation and cat. IV workplace reached the decommissioning stage and therefore no inspections have been performed yet.

7.8. INSPECTION OF TRANSPORT

SÚJB inspections of transport is divided between the Radioactive Waste and Spent Fuel Division and the Section for Radiation Protection depending on who has issued the licence for transport/operation. There is a general inspection process document, VDS037, and for transport inspections a specific guide has been produced, VDS064.

The Radioactive Waste and Spent Fuel Division-primarily inspects fresh fuel deliveries as currently spent fuel does not leave the licenced site, within the competency map for this division there is a competency specific to transport compliance inspection. There are usually two inspections of fresh fuel transport per year, the inspector observes a live movement usually at the point it arrives in the country and may follow it through to final delivery.

The Section of Radiation Protection inspects facilities they licence using a graded approach based on the site operation category and not the transport activity. There is no competency identified for inspectors in this area with regards to transport inspection. The inspections are carried out in accordance with the radiation protection inspection guidance, VDS043. This guidance includes a series of industry specific checklists which are used as a guide to carry out the inspections. The checklists contain a variable amount of guidance for transport inspection activities, ranging from a single line to a series of high-level criteria for assessing. The checklists do not fully match the guidance provided in VDS064. The ability of the inspectors in this area to carry out a more in-depth compliance inspection for transport is limited by their lack of specialist knowledge and the limited guidance provided in the checklists. This issue is addressed in Recommendation R2 in Chapter 3.3.

Compliance inspections in both areas are recorded in a report format, any identified shortfalls are agreed with the licensee and a copy is provided to them within 30 days of the inspection. The outcome of inspections is generally well documented and contains the relevant information regarding non-compliances and required remedial actions.

7.9. INSPECTION OF OCCUPATIONAL EXPOSURE

The inspection program is planned according to the risk associated with the workplace. For instance, workplace of category III is inspected every year, workplace of category II is inspected every 2 to 4 years.

The compliance of licensed procedures with the requirements for inspection of occupational exposure at the workplace are verified by check lists, which are annexes to SÚJB internal management system document.

Before the inspection, relevant information such as decisions, registrations, and documents of special professional competence, can be retrieved by the inspectors from the internal registers. Moreover, all dosimetry data of category "A" workers of the inspected subject are listed in the Central Register of Occupational Exposures. Inspection is then the occasion of reviewing the documents supporting the licence application. The implementation of the monitoring program is also reviewed in the light of the results provided or transmitted by the licence holder.

SÚJB has a comprehensive set of internal procedure for conducting inspections of occupational exposure. The procedure includes the assessment of the finding through a graded approach. If violation of some requirements is found, they are identified there together with the evaluation of its severity and the need of corrective actions. In worse cases the matter is evaluated, and a decision made on further steps by the Group for Evaluating Inspections (SHI). It is used to ensure consistency of the decision for using enforcement policy.

Site visit to ISOTREND

The IRRS team observed an SÚJB inspection at an installation for manufacturing and storing radiation sources. This facility is responsible for organising and shipping sources at national and international levels. This visit was a planned inspection conducted by one SÚJB inspector. The previous inspection on this site was conducted last year which is consistent with SÚJB inspection planning policy for category III workplace. The inspection was conducted in line with SÚJB procedure. The inspector reviewed the management system documentation, which includes procedures and rules, information, and training of the workers, monitoring program of the facility. The visit of the facility was consistent with the documentation and description made by the licence holder. Some minor issues were raised during the inspection regarding the modification of a document from the management system without notifying SÚJB.

A subsequent separate discussion between the licensee and the IRRS team revealed that the licensee was overall satisfied with SÚJB. The IRRS team noted that the relationship between the authorized party and the regulation is based on respect and trust that is mutually beneficial.

7.10. INSPECTION OF MEDICAL EXPOSURE

SÚJB conducts inspections regarding the compliance with the requirements for radiation protection in medical exposures defined in the Atomic Act, and in the regulations issued to implement this Act. Additionally, SÚJB performs inspections regarding compliance with the requirement for medical exposure as regulated by the Act. No. 373/2011 Coll. on specific health services.

Inspections in the context of medical exposures are conducted by inspectors from the 6 regional centres (Praha, Severozápad, Ostrava, Hradec Králové, Brno, and České Budějovice). In each centre there are inspectors with the competence for conducting inspections of authorized parties in the different areas of medical exposure, and authorized parties in the field of services in radiation protection performing the most important QC tests. There are in total 28 inspectors: 8 inspectors for radiation therapy, 7 inspectors for nuclear medicine, 12 inspectors for radiodiagnostics, 7 inspectors for dental radiology and 4 inspectors for providers of the most important quality control tests. Each inspector is assigned a set of departments within the area covered by their regional centre. Hence, each department is always inspected by the same SÚJB inspector, which is also the inspector who reviewed the documentation supporting the application for the authorization. SÚJB has formed working groups with inspectors from each regional centre, but with the same specialization, that meet several times per year (at minimum yearly) to harmonize inspection policies among the different regional centres. This issue is addressed in Suggestion S10 in Chapter 7.1.

The regional centres develop yearly inspection plans, which are then combined into a national inspection plan.

Inspections are the basic supervisory activity, while different types of review and assessments (described in Chapter 6.10) serve as a supplement to the inspections. A graded approach based on the radiation risk of the activity in question is used to determine the periodicity of the inspections in different areas, and the minimal frequency of inspection.

The justification of medical exposure is not directly inspected by SÚJB, as inspectors are not considered to have the necessary competencies. However, there are regulatory requirements which allow SÚJB inspection team to be accompanied by a radiologist for that purpose. Hence, the justification of medical exposures is regularly inspected during mandatory external clinical audits and SÚJB reviews the corresponding conclusions and findings as well as corrective actions taken.

The objective of the external clinical audit is to verify and assess compliance with local radiological standards in the provision of healthcare services that include medical exposure. An external clinical audit is performed at least once every 5 years. Local radiological standards are discussed in Chapter 5.10.

The SÙJB has developed comprehensive inspection check lists for each field of medical exposure, according to Act No. 255/2012 Coll., and they are included in SÚJB internal management system document VDS 043.

The results of the inspection are recorded in an inspection report where the process of the inspection and all the findings are described. If a non-compliance with the regulations is found, an evaluation of its severity is performed, as well as the need for corrective actions.

7.11. INSPECTION OF PUBLIC EXPOSURE

SÚJB has a total of 10 inspectors who perform inspection activities regarding public exposure include the verification of building materials, radon in schools and workplaces and facilities involving drinking water; to assess compliance with requirements outlined in § 100 a 101 of the Atomic Act. Specific reference levels are set for the content of natural radionuclides in the drinking water supply for public consumption.

SÚJB inspectors verify reference levels which are established for activity concentrations in the production of drinking water and imported bottled drinking water and imported building materials. SÚJB Inspectors verify compliance with reference levels for optimization purposes where a school or kindergarten facility is operated, and that remediation measures against indoor concentration according to § 99 of the Atomic Act. Reference levels for indoor radon concentration have been established by the Office as per § 97 of the Decree No. 422/2016 Coll.

SÚJB inspects discharges from workplaces with radiation activity (authorised facilities and activities) and clearance levels for workplaces handling radiation sources. The public exposure inspection also includes the results of monitoring according to a monitoring plan on a continuous basis. The Office performs specialized inspections to check compliance with monitoring programmes for discharges and the vicinity from facilities and activities at nuclear installations and the uranium related facilities.

A total of about 130 inspections are performed in the field of exposure to natural sources. Nine (9) inspectors are involved in the inspection activities surrounding exposures to natural sources. Inspection reports are produced as a result of these activities and communicated to the licensees.

7.12. SUMMARY

The IRRS team noted that SÚJB has the legal basis and internal procedures in place for the conduct of inspections in all regulated areas. However, some areas for improvements to the management system for inspections were identified. Inspection plans are developed using a graded approach and inspections can be announced, unannounced, reactive, and planned. SÚJB inspectors identify deficiencies and remedial actions in an inspection report which is issued to the licensee. The IRRS team considers that the conduct of daily NPP inspector meetings and the assessment of the performance of inspections are good performances.

8. ENFORCEMENT

8.1. ENFORCEMENT POLICY AND PROCESS

SÚJB has established and implemented an enforcement policy that includes measures for enabling inspectors to require that authorized parties adhere to regulatory and authorization requirements. The enforcement policy is based on enabling legislation that includes provisions for a robust enforcement approach, including measures for inspectors to issue enforcement using a graded approach based on safety significance and measures for authorized parties to appeal SÚJB enforcement decisions.

SÚJB has legislative and procedural provisions in place to issue enforcement in a graded manner, including requiring that an authorized party modify their facility, perform additional safety analysis, stop activities, shut down a facility and ultimately amend or revoke a licence. SÚJB internal management system contains documents that describe each enforcement tool and outline the criteria and basis for their application. However, the approach for selecting the appropriate enforcement tool based on the safety significance of the situation is not outlined in detail in the enforcement policy. This issue is addressed below Suggestion S12.

The IRRS team noted that during the site visits, the application of the graded approach to enforcement was demonstrated. Examples of various enforcement actions that have been issued by SÚJB demonstrated the application of a graded approach that was commensurate with safety significance.

SÚJB has the legal and procedural provisions in place to require the authorized party to implement remedial actions within a specified timeline. SÚJB inspectors identify the requirement for the authorized parties to take action within a suitable time in the inspection protocols and regulatory letters. SÚJB inspectors may also perform follow up inspection activities to confirm that the authorized party has implemented measures to correct the situation and prevent reoccurrence.

SÚJB Inspectors have the legal authority to take actions immediately to stop work and prevent situations with a high level of risk to safety. Observations of SÚJB Inspectors performing inspections demonstrated an existing culture where the facilities understand and respect the authority of the inspectors and address their concerns in a timely manner. SÚJB also provided several examples of similar situations.

The Atomic Act enables SÚJB to require authorized parties to implement corrective actions if deficiencies in their activities are identified. However, the Atomic Act does not explicitly refer to requiring authorized parties to implement corrective actions when risks are identified. SÚJB may require corrective actions when risks are identified by using a combination of legal bases in other legal documents and an interpretation of the general provisions of the Atomic Act. Subsequently, the internal management system of SÚJB does not include a process document for requiring authorized parties to implement corrective actions when risks are identified.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: The Atomic Act and SÚJB enforcement documents do not include provisions for requiring authorized parties to implement corrective actions when risks are identified. This has been recognized in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 1 (Rev. 1) Requirement 31, para. 4.59. states that** *"In the event that unforeseen radiation risks are identified, whether or not they are due to non-compliances with regulatory requirements or authorization conditions, the regulatory body shall require the authorized party to take appropriate corrective actions to reduce the risks".*
R5	**Recommendation: SÚJB should establish the legal basis and process for requiring authorized parties to implement corrective actions when risks are identified.**

The Atomic Act requires authorized parties to inform SÚJB of the implementation of corrective actions. However, the internal management system document on the enforcement policy, VDK 095, does not describe the process for verifying that the authorized party has effectively implemented appropriate corrective actions, in a timely manner. It

should be noted that the inspection procedure VD008 outlines how SÚJB Inspectors review corrective actions submitted by authorized parties for items arising directly from inspection activities only.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: The enforcement policy does not include the process for verifying that the authorized party has effectively implemented appropriate corrective actions in a timely manner; and for selecting the appropriate enforcement tool based on safety significance. This has been recognized in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 1 (Rev. 1) Requirement 31, para. 4.60. states that** *"Finally, the regulatory body shall confirm that the authorized party has effectively implemented any necessary corrective actions".*
(2)	**BASIS: GSR Part 1 (Rev. 1) Requirement 31, para. 4.54. states that "***The response of the regulatory body to non-compliances with regulatory requirements or with any conditions specified in the authorization shall be commensurate with the significance for safety of the non-compliance, in accordance with a graded approach".*
S12	**Suggestion: SÚJB should consider updating the enforcement policy to describe the verification of corrective actions implemented by the authorized party; and the selection of enforcement tools based on safety significance.**

8.2. ENFORCEMENT IMPLEMENTATIONS

SÚJB issues various levels of enforcement and has provided various examples of appropriately using their enforcement tools in a manner that is commensurate with the risk of the identified deficiencies. SÚJB Inspectors have the ability to issue enforcement in the presence of immediate risk and during routine inspections. In accordance with graduated enforcement, the IRRS team observed during the site visit, a safety culture that was conducive to open and transparent dialogue between the inspectors and the industry on the prevention and elimination of safety risks. In addition, the IRRS team noted that the authorized parties are responsive to verbal and written warnings from SÚJB site inspectors.

SÚJB Inspectors issue inspection reports and letters to authorized parties to communicate, in writing, the areas that require corrective actions and the timeline for completion. The IRRS team was informed that it is possible in certain situations to be prescriptive with regards to describing the corrective actions that the authorized party must implement to correct the deficiency, for example, in cases where the non-compliance is against a very prescriptive regulatory requirement. The IRRS team acknowledges that this practice may be warranted in certain situations, however, care should always be taken to avoid shifting the ultimate responsibility for safety from the authorized party to the regulatory body.

The IRRS team noted that SÚJB nuclear power plant inspectors have routine meetings with the authorized parties to discuss observations, trends and emergent concerns.

The IRRS team also noted that all SÚJB inspectors for nuclear power plants and radiation sources and facilities meet twice a year to share experiences and receive training including discussing enforcement actions at various facilities.

8.3. SUMMARY

SÚJB has enforcement legislation and internal management system documents in place to require that authorized parties implement corrective actions with two exceptions regarding requirements for corrective actions when risks are identified, and verification of corrective actions and selection of enforcement tools based on safety significance. Overall, SÚJB demonstrates the availability of enforcement policies and processes, and the effective implementation of enforcement tools.

9. REGULATIONS AND GUIDES

9.1. GENERIC ISSUES

SÚJB regulatory framework for safety is governed by the Atomic Act. It allows SÚJB to regulate the area of nuclear and radiation safety. The system of regulations (decrees), guides and recommendations established by SÚJB is based on this Atomic Act.

Regulations are developed via the constitutional power of SÚJB as a central administrative body of the state. Specific provisions of Article 79(3) of CCR enable SÚJB, as one of the central administrative bodies, to issue regulations in the areas elaborated in the Atomic Act.

The regulations of SÚJB provide more detailed requirements for activities and facilities related to the peaceful utilization of ionizing radiation and nuclear energy, they are legally binding and must be complied with by all licensees and non-compliance can lead to enforcement actions.

The regulations and guides are based on international legal requirements from conventions and other agreements, EU/EURATOM legislation, international requirements including IAEA requirements and guides, and international recommendations (WENRA reference levels, ICRP recommendations). A Regulatory Impact Assessment is carried out before deciding if a regulation needs to be developed or revised.

The Atomic Act was enacted in 2017 and the related decrees were revised to ensure alignment. SÚJB, on a yearly basis, carries out a review of regulations and identifies if they need any changes. A review is requested by the Czech Republic Government to analyse needs of creating new or amending existing regulations. The input provided by SÚJB is used by the government to prepare legislation making plan which is binding. There is currently no documented process for preparing this input. On the basis of the government's plan, SÚJB prepares individual plans for the Atomic Act and each regulation approved by the Chairperson. The plan identifies who is responsible for the activity and what steps will be followed in internal review and consultations with stakeholders during preparation and review. There is no internal process for establishing or adopting, promoting and amending regulations.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: Several Decrees have been developed or revised to elaborate the requirements of the Atomic Act. However, the process for assessing, reviewing, revising, establishing or adopting regulations is missing. This has been identified in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 1 Requirement 4.61 states that** *"The government or the regulatory body shall establish, within the legal framework, processes for establishing or adopting, promoting and amending regulations and guides. These processes shall involve consultation with interested parties in the development of the regulations and guides, with account taken of internationally agreed standards and the feedback of relevant experience. Moreover, technological advances, research and development work, relevant operational lessons learned and institutional knowledge can be valuable and shall be used as appropriate in revising the regulations and guides.*
R6	**Recommendation: SÚJB should develop a process for assessing the need for, drafting, establishing or adopting, promoting and amending regulations.**

Once SÚJB has completed the internal review process, draft regulations are shared with the relevant ministries and also placed on a special web site/database where it is accessible to all ministries, stakeholders and general public for comment. For some key regulations, the interested parties are directly involved in the drafting process. However, SÚJB has no mechanism to share documents directly with the public for its input during the drafting phase. It is proposed by the IRRS team that SÚJB should consider identifying and using additional tools to inform the general public about the drafts of regulations and guides. This issue is addressed in Suggestion S3 in Chapter 3.8.

Once feedback/comments on the drafts are settled, the regulations are also reviewed by the legislative review department of the government. The chairperson of SÚJB approves the regulations and they are published in the official Journal of the Czech Republic.

The regulatory framework also includes guides and recommendations which are non-binding. Detailed internal analyses of actual need is carried out before deciding to develop a guide. Guides are prepared following an internal procedure of SÚJB. When the Atomic Act and relevant regulations were updated, a complete review and revision of all existing guides was carried out. Guides are prepared by teams composed of staff from SÚJB and SÚRO, often with technical assistance from other external subject matter experts and in coordination with SÚJB Legal Department. The relevant stakeholders are consulted on the preparation and the licence holder is also given an opportunity to comment.

Guides and recommendations provide information in detail on how the regulatory requirement should be met and complied with. Licensees may use a different approach, however, in such cases they must demonstrate that their approach is equally compliant.

All regulations are published in the official Journal called Collection of Laws of the Czech Republic and available on the government web site. The guides and recommendations are published on the website of SÚJB. SÚJB also publishes all laws, regulations, and guides on its webpage. In case of important regulations and guides, SÚJB conducts workshops, conferences, webinars.

The IRRS team concluded that there are no specific regulations and guides for research reactors and the only statement of the application of the graded approach to these facilities are related to PSA, PSR, and containment design. The guide for fuel cycle facilities is outdated. Additionally, a draft guidance document for the technical assessment of package approvals (BN-JB-TR-1.2) needs to be finalized. More details are provided in Chapter 9.3 and Chapter 9.4.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: There are no specific regulations and guides for research reactors and the only statement of the application of the graded approach to these facilities are related to PSA, PSR, and containment design. The guide for fuel cycle facilities is outdated. Additionally, a draft guidance document for the technical assessment of package approvals (BN-JB-TR-1.2) needs to be finalized.	
(1)	**BASIS: SSR-3 Requirement 3.10 states that** *"The review and assessment shall be commensurate with the magnitude of the potential radiation risk associated with the research reactor facility in accordance with a graded approach".*
(2)	**BASIS: GSR Part 1 (Rev. 1) Requirement 32 Para 4.61 states that** *"The regulations and guides shall be kept consistent and comprehensive and shall provide adequate coverage commensurate with the radiation risks associated with the facilities and activities, in accordance with a graded approach".*
R7	**Recommendation: SÚJB should develop or revise regulations and guides for research reactors and guides for fuel cycle facilities, to ensure that the graded approach is effectively applied, and finalize the guidance document for the technical assessment of package approvals.**

9.2 REGULATIONS AND GUIDES FOR NUCLEAR POWER PLANTS

The requirements for NPPS licensing are set in the Atomic Act which are then supported by a number of implementing decrees that further elaborate these requirements.

The licensing stages of NPP and associated processes are given in the Atomic Act. SÚJB issues licenses to NPPs for Siting, construction, first physical start-up and first power generation, commissioning, operation, modifications, and decommissioning. The documentation that is required for each stage is also defined in the Atomic Act.

SÚJB has established requirements for extended shutdown of Research Reactors; however similar requirements do not exist, for Nuclear Power Plants. Establishing the requirement for extended shutdown for NPPs would contribute to the harmonization of the regulatory framework.

Regulations exist for Siting of Nuclear Installations, Design of a Nuclear Installation, Ensuring Nuclear Safety, Safety Assessment, Quality Assurance and Management System, Technical Safety, Conformity Assessment and Verification of Selected Equipment, Competence and Training of the Person.

The requirements for the management system and quality assurance are given in the Atomic Act and Decree 408, however, some aspects related to an integrated management system for licensees could be more clearly addressed in these documents.

Additionally, regulations for design cover safety margins but the requirements on cliff-edge effect needs to be clearly addressed.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: Requirements for authorized parties, including Management system and Quality assurance are given in the Atomic Act and relevant Decree. However, some aspects related to an integrated management system and cliff edge effects are not clearly addressed. This has been identified in the ARM and is addressed in the action plan.	
(1)	**BASIS: SSR-2, Requirement 2 para 3.5 states that** *"The management system shall integrate all the elements of management so that processes and activities that may affect safety are established and conducted coherently with other requirements, including requirements in respect of leadership, protection of health, human performance, protection of the environment, security and quality, and so that safety is not compromised by other requirements or demands".*
(2)	**BASIS: SSR 2/1 Requirement 7, 4.11 (b) states that** *"Shall be conservative, and the construction shall be of high quality, so as to provide assurance that failures and deviations from normal operation are minimized, that accidents are prevented as far as is practicable and that a small deviation in a plant parameter does not lead to a cliff edge effect".*
(3)	**BASIS: SSR 2/1 Requirement 17, 5.21 (b) states that** *"The design of the plant shall provide for an adequate margin to protect items important to safety against levels of external hazards to be considered for design, derived from the hazard evaluation for the site, and to avoid cliff edge effects".*
S13	**Suggestion: SÚJB should consider taking actions to clarify requirements related to the Integrated Management system and cliff edge effect in the regulatory framework.**

The legal framework does not include requirements related to the new types of NPPs and SMRs that the Czech Republic is planning to build. This issue is addressed in Recommendation R1 in Chapter 1.2. Subsequently relevant regulations should be developed to address the broad spectrum of NPP types.

In addition to the Atomic Act and Decrees for NPPs, SÚJB has issued a number of guides to meet the requirements in the Atomic Act and Decrees. The guides cover key areas including management system, quality assurance, education and training of nuclear power plant personnel, nuclear facility design requirements, safety classification of nuclear facility SSCs, PSA, PSR, operational experience and feedback, maintenance, inspection and testing of facilities, aging management of components, fire protection, management of abnormal and severe accident conditions, external risks, safety culture, etc.

The guides are generally updated as required or at a ten year interval maximum, the guides are generally based on latest IAEA's documents. However, some key guides still need revision, including the guides on siting, aging management, implementation of EOPs and SAMGs. SÚJB should expedite the process of revision of these guides.

Overall, SÚJB has a well-established regulatory framework that enables effective regulatory oversight of nuclear facilities in the Czech Republic.

9.3. REGULATIONS AND GUIDES FOR RESEARCH REACTORS

SÚJB regulations apply generally to all types of nuclear installations, however they have limited application to research reactors. Systems that exist only in nuclear power plants, such as energy converters and tertiary cooling circuits, may not be applicable to the safety requirements for research reactors.

For the radiation safety of radiation workers in nuclear installations or who are exposed to ionizing radiation, the Atomic Act stipulates that nuclear safety, radiation protection, and radiation emergency management should be applied on the graded approach. It is specified in the Decree that safety requirements related to PSA, PSR, and containment design may be applied based on the reactor output. However, there are no specific regulations or guidelines on how to apply graded approach to the design, operation, approval, review, and evaluation of research reactors. This has also been pointed out in SÚJB's Action Plan, new guides are currently being prepared for the application of graded approach to research reactors. This issue is addressed in Recommendation R7 in Chapter 9.1.

9.4. REGULATIONS AND GUIDES FOR FUEL CYCLE FACILITIES

According to the Czech Republic's regulatory framework, fuel cycle facilities are considered nuclear installations and follow common regulations for this type of facility. The regulations for nuclear installations encompass the entire lifecycle of a facility from siting, through its construction, commissioning, operation, and decommissioning. However, the availability of guides specific for fuel cycle facilities is very limited.

Annex 1 to the Atomic Act outlines the documentation required for the licensing of the siting, construction, commissioning, operation, decommissioning or modification of nuclear installations, which are applicable to fuel cycle facilities.

Although some points from SÚJB Guide on the Content of the Safety Analysis Reports could be applicable to fuel cycle facilities, it is specific for nuclear power plants and there is no formal provision for its application, when appropriate, to spent fuel storage facilities, using a graded approach.

9.5. REGULATIONS AND GUIDES FOR WASTE MANAGEMENT FACILITIES

Safety at all licensed RAW management facilities is regulated by SÚJB. Regulations on safety during siting, construction, commissioning, operations and decommissioning of radioactive waste management facilities are similar to those described earlier and in Chapter 9.1. Closure of disposal facilities and the release of the facility from regulatory control (so called "final decommissioning") are also authorized activities and are regulated by the Atomic Act and Decree.

The regulations contain requirements on all individual steps in RAW management such as collection, segregation, treatment, conditioning, storage, and disposal. Further safety relevant aspects of e.g., the site, the design, the managerial control, and the radiation protection are also covered by regulations.

There is a guide specific to authorization of RAW management facilities.

The IRRS team concludes that the regulations and guides for waste management facilities are in accordance with the IAEA Safety Standards.

9.6. REGULATIONS AND GUIDES FOR RADIATION SOURCES FACILITIES AND ACTIVITIES

The Radiation Protection Section of SÚJB is responsible for developing regulation for Radiation Sources facilities and activities.

There are guides and recommendations specific for radiation sources. These guides undergo a thorough review process and are subsequently submitted to the board for approval. Several examples of guides that have been developed in recent years include Individual Monitoring, Radiation Protection on Temporary NDT Workplaces, Operational Stability Tests, Security of Radiation Sources, Transport of Radioactive Material, National Strategy for Safety of Radionuclide Sources and Orphan Sources, and Recommendations for Finding and Capture of Radionuclide Sources in Facilities involved in the Collection and Processing of Scrap Metal. All these guides, along with others, are available on SÚJB website.

The IRRS team concludes that the regulations and guides for radiation sources facilities and activities are in accordance with the IAEA Safety Standards.

9.7. REGULATIONS AND GUIDES FOR DECOMMISSIONING ACTIVITIES

With reference to the Atomic Act, decommissioning of nuclear installations is one of the activities associated with utilization of nuclear power, while decommissioning of Cat. III and IV workplaces is one of the activities within exposure situations. Atomic Act defines decommissioning as the activities aimed at putting a nuclear installation or a Cat. III and IV workplaces into a condition allowing:

- its use for a different purpose or for different use of the territory on which it was situated, without any limitations, or
- its use, with a limitation, for other activities relating to utilization of nuclear energy or activities in exposure situations.

The decommissioning license shall be issued for each stage of the nuclear installation decommissioning in the scope and manner set forth in the implementing regulation.

The preparation for decommissioning shall be included in each stage of a nuclear installation lifecycle in the form of a draft concept for safe decommissioning (siting license documentation), a concept for safe decommissioning (construction license), a decommissioning plan and cost of decommissioning (commissioning and operational license). The scope and method of decommissioning and completion of decommissioning are specified in SÚJB Decree No. 377/2016 Coll.

The transitional period from the end of energy operation of NPP until the issue of a decommissioning license for various stages of decommissioning is considered to be a part of NIs operation.

No nuclear installation is planned to be decommissioned within several decades. Guides related to the regulatory supervision of decommissioning of nuclear installation will be developed in due time.

9.8. REGULATIONS AND GUIDES FOR TRANSPORT

SÚJB is the Competent Authority (CA) for the transport of Class 7 (radioactive material) dangerous goods within the Czech Republic as defined in the Atomic Act. SÚJB cover all modes of transport (Air, Road, and Rail) and are responsible for issuing Decrees and guidance related to transport of radioactive material.

The Atomic Act was updated in 2016 and contains text based on SSR-6 edition 2012 primarily relating to the process for package approval and inspections, however, SSR-6 was updated in 2018. Decree 379/2016 was created to support the Atomic Act and contains the technical requirements for package design also based on SSR-6 edition 2012. The Atomic Act also requires compliance with the international modal transport requirements (ADR/RID etc). These are currently based on SSR-6 2018 edition. There is potential for conflicting requirements to exist between the Atomic Act/decree and the referenced modal requirements as they are based on different versions of SSR-6.

A Guide on transport safety has been produced and contains information relating to package approval requirements, expectations for emergency and radiation protection documentation and forms for import/export of radioactive material. It is also based on the 2012 edition of SSR-6 and associated guide. As), but as discussed above these editions have been superseded.

SSR-6 requires organisations to report non-compliances regarding radiation or contamination in transport, these reports are dealt with via the relevant division/section in SÚJB but there is no formal procedure for recording, analysing, and trending. This issue is addressed in Suggestion S5 in Chapter 4.7.

There is currently a draft of guidance document for the technical assessment of package approvals (BN-JB-TR-1.2). There is an intent to complete this, but it is not being progressed due to lack of human resources. This issue is addressed in Recommendation R7 in Chapter 9.1.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: The majority of the transport aspects of the Atomic Act and Decree are still based on SSR-6 edition 2012, which has been superseded.	
(1)	**BASIS: GSR Part 1 Requirement 33, para. 4.61 states that** *"The government or the regulatory body shall establish, within the legal framework, processes for establishing or adopting, promoting and amending regulations and guides. These processes shall involve consultation with interested parties in the development of the regulations and guides, with account taken of internationally agreed standards and the feedback of relevant experience."*
(2)	**BASIS: GSR Part 3 Requirement 2, para 2.25 states that** *"The government shall ensure that the transport of radioactive material is in accordance with the IAEA Regulations for the Safe Transport of Radioactive Material (the IAEA Transport Regulations) and with any applicable international conventions, taking into consideration other internationally endorsed standards and recommendations derived from the IAEA Transport Regulations."*
R8	**Recommendation: SÚJB should take action for the legal transport safety requirements to be based on the current edition of SSR-6.**

9.9. REGULATIONS AND GUIDES FOR OCCUPATIONAL EXPOSURE

The regulations and guides to support the implementation of protection and safety measures for occupational exposures have been addressed in SÚJB regulations, in accordance with the requirements of the IAEA Safety Standards.

SÚJB has adopted a series of guides "Safe Use of Nuclear Energy and Ionizing Radiation". In the area of existing exposure situations, there are recommendations described in these guides: 'Determining personal doses of workers at workplaces using a material with increased content of natural radionuclides' and 'Determining personal doses of workers at workplaces with potentially increased exposure to radon'.

9.10. REGULATIONS AND GUIDES FOR MEDICAL EXPOSURE

The requirements for radiation protection and safety for medical exposures are defined in the Atomic Act and in an Act on specific health services. A decree of the Ministry of Health and SÚJB lays down rules and procedures for radiation protection in medical exposure. Individual medical exposures must be justified by both the referring physician and the radiological medical practitioner. However, there is no requirement for them to consult with each other. SÚJB has identified in its action plan the necessity to include in the regulations that medical exposure must be justified by means of consultation between the radiological medical practitioner and the referring medical practitioner.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: The regulations require the involvement of the radiological medical practitioner and the referring medical practitioner in the justification process. However, there is no specific requirement for them to consult each other. This has been recognized in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 3 Requirement 36, para. 3.151(b) states that** *"Registrants and licensees shall ensure that no patient, whether symptomatic or asymptomatic, undergoes a medical exposure unless:* *(...)* *(b) The medical exposure has been justified by means of consultation between the radiological medical practitioner and the referring medical practitioner, as appropriate, or it is part of an approved health screening programme;*

(2)	**BASIS: GSR Part 3 Requirement 37, para. 3.157 states that** *"The justification of medical exposure for an individual patient shall be carried out by means of consultation between the radiological medical practitioner and the referring medical practitioner, as appropriate, with account taken, in particular for patients who are pregnant or breast-feeding or are paediatric, of:* *(a) The appropriateness of the request;* *(b) The urgency of the radiological procedure;* *(c) The characteristics of the medical exposure;* *(d) The characteristics of the individual patient;* *(e) Relevant information from the patient's previous radiological procedures".*
S14	**Suggestion: SÚJB should consider taking action to ensure that medical exposures justification includes consultation between the radiological medical practitioner and the referring medical practitioner.**

There are no requirements in the radiation protection regulation for registrants and licensees to include the number of exposures in the records for medical exposures in fluoroscopic interventional radiological procedure. This information is necessary for retrospective assessment of doses, more effective radiation protection, and safety of patients, workers and the public.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: There are no requirements in the regulations requiring registrants and licensees to maintain records of the number of exposures occurring during interventional radiology. This has been recognized in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 3 Requirement 42, para. 3.185 (b) states that** *"Registrants and licensees shall maintain for a period as specified by the regulatory body and shall make available, as required, the following records for medical exposure:* *(...)* *(b) For image guided interventional procedures, information necessary for retrospective assessment of doses, including the duration of the fluoroscopic component and the number of images acquired;".*
S15	**Suggestion: SÚJB should consider ensuring that there are requirements in the regulations to maintain records of the number of exposures occurring during interventional radiology.**

The requirement for the regulatory body to establish National Diagnostic Reference Levels (DRLs) is defined in the Atomic Act, and the national diagnostic reference levels are published in regulations. Guides on how they should be used is described in National Radiological Standards for Medical Physics, issued by the Ministry of Health.

SÚJB has issued several guides to help licensees and registrants implement the requirements of the legal framework for radiation protection, these are freely available at SÚJB's website. These guides are continuously being reviewed for compliance with the regulations, national and international standards, and norms, and updated to account for new requirements and new best practices. As a result, some of the guides are not yet formally approved by SÚJB but are ready for use by licensees and registrants. The development, or update, of guides in radiation protection for medical exposures, is done in consultation, and cooperation with the relevant national professional bodies and the Ministry of Health.

SÚJB has issued a guide for the implementation of the regulations and the criteria for the release of patients after radionuclide therapy. However, the criteria and guide for the release of patients who still retain implanted sealed sources after brachytherapy has not been developed. Additionally, the criteria and guide for the release of patients implanted with a sealed source for reference marking related to the treatment of breast cancer has also not yet been developed.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB has not developed the criteria and guides specific to the release of patients who still retain implanted sealed sources.	
(1)	**BASIS: GSR Part 3 Requirement 34, para. 3.149(b) states that** *"The government shall ensure that, as a result of consultation between the health authority, relevant professional bodies and the regulatory body, the following are established:* *(…)* *(b) Criteria and guidelines for the release of patients who have undergone therapeutic radiological procedures using unsealed sources or patients who still retain implanted sealed sources."*
S16	**Suggestion: SÚJB should consider developing, in consultation with health authority and the relevant professional bodies, the criteria and guides for the release of patients retaining implanted sealed sources.**

The reporting and management of unintended and accidental medical exposures (including exposures of the patient, the public, and of workers), and the correspondent measures to minimize the risk of such occurrences, is regulated by the Atomic Act and Decree. Although this legal framework covers the principles of radiation protection and safety regarding unintended and accidental medical exposures, it is very complex. Therefore, a guide could help licensees and registrants to implement the requirements.

Act No. 373/2011 Coll. requires the authorization applicant to develop local radiological standards based on national radiological standards, which describe the procedures for the implementation of the radiation protection requirements in medical exposure and correspond to the current knowledge of science and clinical medicine. The National Radiological Standards are developed by the "Working Group on Medical Exposure", composed of representatives from the Ministry of Health, SÚJB, and the relevant professional orders. The IRRS team considers this a good performance.

9.11. REGULATIONS AND GUIDES FOR PUBLIC EXPOSURE

Regulations and guides have been established for public exposures in the Czech Republic. Clearance levels for a workplace handling sources of ionising radiation have been established in the Atomic Act and further elaborated on in the Decree. There are guides that have been established for public exposure to further elaborate on the Regulatory Control of Radioactive Discharges to the Environment and on radioactive materials clearance.

Dose limits had been established in the Atomic Act and Decree to be general limits for public exposure from all authorized or registered activities per calendar year, which are:

a) 1 mSv for the sum of effective doses from external exposure and committed effective doses from internal exposure;

b) 15 mSv for the equivalent dose for the eye lens; and

c) 50 mSv for the average equivalent dose per cm2 of the skin regardless of the size of exposed surface.

SÚJB sets dose constraints and authorized limits for a dose of a representative person from the population regarding public exposure. The licence holder must prove compliance with authorized limits on the base of monitoring. Special conditions for release of radioactive substances from workplaces are set up in the Atomic Act. Release of radioactive substances is also subject to a licence according to the Atomic Act.

Legislation controlling consumer products have been established as it is prohibited to be sold or make available to the public, if the consumer products contain radionuclides, unless these satisfy the conditions for exemption from notification, registration, or licence, under the Atomic Act.

The Atomic Act identifies SÚJB as the central administrative authority to draw up and update the Action Plan for Control of Public Exposure to Radon in the Czech Republic. The National Action Plan for Radon Exposure Control

have been published in 2019 by SÚJB, in which the authorities involved in the implementation of the action plan have been identified and specific responsibilities assigned.

A focal point for the action plan and the implemented objectives is available on internet and used by the responsible organisation to communicate its strategy, as a source of information for radon and its implications, monitoring programmes for radon in public places, and recommendations on construction of new homes and sale of houses.

The IRRS team concludes that these provisions are in line with the IAEA Safety Standards.

9.12. SUMMARY

SÚJB has key regulations and guides in place, in line with the IAEA safety standards. They are developed within the scope of SÚJB's regulatory functions.

Regulations are adopted in the form of SÚJB decrees and are legally binding. The establishment of regulations follows the process of the Czech Republic government, however a detailed internal procedure for development of regulations needs to be prepared. SÚJB does not directly involve the general public in the development of regulations and guides. An internal procedure for the preparation of Guides and Recommendations is established. Guides and Recommendations prepared by SÚJB are not binding but reflect good practices.

IRRS team identified some areas for improvement such as the regulatory framework does not specify requirements for long-term shutdown of NPP. Requirements for the cliff-edge effect are not sufficiently detailed. SÚJB should develop guidance for Research Reactors and Fuel Cycle Facilities. For Medical Exposure, SÚJB needs to develop a guide for the release of patients after brachytherapy with permanent implants and dose recording.

The IRRS team considers the requirements to develop local Radiological Standards based on National Radiological Standards as a good performance.

10. EMERGENCY PREPAREDNESS AND RESPONSE – REGULATORY ASPECTS

10.1. AUTHORITY AND RESPONSIBILITIES FOR REGULATING ON-SITE EPR OF OPERATING ORGANIZATIONS

SÚJB has the authority to regulate on-site emergency preparedness and response arrangements within its scope of responsibility.

Applying the graded approach to the assessment of severity of radiation events, the Atomic Act defines first degree radiation extraordinary event, radiation incident and radiation accident.

The Atomic Act defines the concept of emergency preparedness, on-site and off-site emergency plan and emergency planning zone. It also stipulates the obligations on the licensee to ensure emergency preparedness and response in the event of a radiation incident, or a radiation accident that occur due to the activities performed by the operator under the issued licence.

It is specifically required that the documentation regarding emergency preparedness and response (EPR) (e.g., on-site emergency plans and documents such as the establishment of the emergency planning zone) shall be assessed and approved by SÚJB before commencement of the operation of the facility or before the conduct of the activity. This documentation must be kept up-to-date by the licensee and must correspond to the actual condition of the facility and activity. Changes to the approved documentation are subject to assessment of SÚJB.

Nuclear or radiological emergency management system in the Czech Republic is effectively integrated at the national level into an all-hazards framework, as described in the Constitutional Act on the Security of the Czech Republic.

The Government ensures that a hazard assessment is performed to provide a basis for a graded approach in preparedness and response for a nuclear or radiological emergency. A comprehensive hazard assessment in line with the GSR Part 7 is included in the Czech legislation, namely threat categories by mode and place of their origin and potential consequences. Depending on the possible consequences of a radiation incident or radiation accident on the territory of the Czech Republic, a nuclear installation, a workplace with ionising radiation sources or an activity in exposure situations are classified into threat categories A to D. Category E threats are defined as those that originate from outside the Czech Republic.

The Atomic Act empowers SÚJB to draw up, in cooperation with the Ministry of the Interior, the National Radiation Emergency Plan for threat categories A, B, D and E and submit it to the Czech Government for approval. The National Radiation Emergency Plan describes the linkage between nuclear or radiological emergency preparedness and response and the all-hazards National Emergency Response System. The Decree No. 359 defines the requirements for the content of the National Radiation Emergency Plan and the scope and method of exercises under the National Radiation Emergency Plan.

10.2. REGULATIONS AND GUIDES ON ON-SITE EPR OF OPERATING ORGANIZATIONS

The provisions of Section 154 of the Atomic Act establish, besides other obligations, that the applicant for a licence is required to perform a radiation extraordinary event analysis and evaluation and to determine, on the basis of the results, the category of the radiation extraordinary event that may arise while performing the licensed activity. Additionally, the applicant for a licence is obliged to report the declared threat category to the SUJB and in case of category A and B to the developer of the off-site emergency plan (regional authority).

According to the regulations, the operating organizations need to review and, when appropriate, to revise their emergency arrangements prior to any changes in the facility or activity and during this process they shall also take into account lessons learned from exercises, training, and events.

In accordance with the Atomic Act and Decree, the operator of a nuclear power plant or a workplace with radiation sources is obliged to have in place appropriate organizational processes and personnel to ensure the EPR.

As part of this approval process and according to the Atomic Act, discussions between the operator and relevant regional authorities are required to ensure the compatibility between the off-site and on-site emergency plans.

Scrap metal yards and recycling plants are not obligated to prepare an on-site emergency plan for the detection of an orphan source. However, the IRRS team concluded that control and awareness for scrap metal yards and recycling plants has been established in the country. Operators of recycling plants and scrap metal yards are obligated to take measures to detect any orphan sources and ensure that the workers who may be exposed to ionising radiation from that source are informed of the risk of ionising radiation and trained for the response.

An integral part of the EPR regulatory framework including the National Radiation Emergency Plan is the (Radiation) Protection Strategy. The strategy includes relevant reference levels, criteria for a long-term stay in a contaminated area, protective actions, rules for decontamination, etc. Provisions of the Atomic Act define reference levels for the exposure of an individual in an emergency exposure situation. The provisions set out criteria for the implementation of urgent protective actions in emergency exposure situations and specify the amount of an absorbed dose in the whole body or individual organs above which urgent protective actions must be implemented immediately.

Details of emergency action levels (EAL) are provided in regulations, in line with GSR Part 7. Criteria for the transition from an emergency exposure situation to an existing exposure situation or to a planned exposure situation and for the termination of an on-site or off-site emergency are also established.

However, the IRRS team concluded that all elements of the protection strategy as defined in GSP Part 7 are not addressed (e.g., national generic criteria and operational intervention levels (OILs)) to respond effectively to a nuclear or radiological emergency. SÚJB should revise default generic criteria and OILs in order to be aligned with the GSR Part 7.

The Atomic Act, together with the Decree, define clear legal basis for the protection of emergency workers for all facilities and activities and protection of helpers in a nuclear or radiological emergency.

10.3. VERIFYING THE ADEQUACY OF ON-SITE EPR OF OPERATING ORGANIZATIONS

The licensee is obligated to regularly check EPR arrangements by means of drills, emergency exercises and verification of the functionality of technical means in accordance with the on-site emergency plan, intervention instructions and emergency regulations. Verification of the adequacy of EPR arrangements of operating organizations shall be conducted based on an annual exercises plan.

According to the Decree No. 359, the licensee is obligated to prepare an evaluation of the emergency exercise and submit it to SÚJB. The evaluation report shall be subject to review and revision by SÚJB in the light of experience gained. The evaluation of exercises carried out by the licensee also serves as a basis for inspection.

The IRRS team concluded that SÚJB verifies continuously the on-site EPR planning and arrangements of the licensee by conducting recurring inspections, reviews and assessment. SÚJB has the authority to evaluate and supervise the operator’s emergency arrangements and to carry out inspections over the implementation of the Atomic Act and subordinate regulations in this regard.

Additionally, SÚJB has established procedures mandating that SÚJB site inspector must be present during emergency situations at the Technical Support Centre, located at the licensee’s Emergency Control Centre at the site of NPPs. SÚJB has also made arrangements to have the site inspector at the Emergency Control Centre when conducting NPP emergency exercises.

In the field of EPR there are, in addition to SÚJB, a number of bodies with which SÚJB cooperates and jointly coordinates the response. The large scale and multilevel exercises (called 'ZÓNA') are designed to verify the effectiveness and coherence of the on-site emergency plan and the off-site emergency plan. From 2023, this exercise will also be extended to the National Radiation Emergency Plan, when the implementation of the Plan is expected to be completed. The quality management program for EPR of SÚJB includes provisions for the availability and reliability of all supplies, equipment, communication systems and facilities, plans, procedures, and other arrangements necessary to perform functions in a nuclear or radiological emergency. However, the programme does not include the obligation of periodic and independent appraisals, including participation in international appraisals.

During discussions with IRRS team members, the benefits of a thorough EPR peer review mission, such as the IAEA's Preparedness and Response Review Service (EPREV) to assess national EPR capabilities, were also mentioned.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB's quality management programme for emergency preparedness and response does not include the obligation for periodic and independent appraisals, including participation in international appraisals.	
(1)	**BASIS: GSR Part 7 Requirement 26, para 6.35 states that** *"The programme shall also include periodic and independent appraisals against functions as specified in Section 5, including participation in international appraisals".*
R9	**Recommendation: SÚJB should revise its quality management programme for emergency preparedness and response to include the obligation of periodic and independent appraisals, including participation in international appraisals.**

10.4. ROLES OF THE RB IN A NUCLEAR OR RADIOLOGICAL EMERGENCY

The Czech Republic is a Party to the IAEA "Convention on Early Notification of a Nuclear Accident", and "Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency". SÚJB is the Competent Authority for Emergencies Abroad and the Competent Authority for Domestic Emergencies for these conventions and assumes the role of the INES National Officer.

Roles and responsibilities for preparedness and response to a nuclear or radiological emergency are clearly allocated among stakeholders. In order to fulfil its role in EPR, SÚJB has established its own Crisis Staff for the management and coordination of activities in case of an emergency. The team performs the tasks arising from the Atomic Act and the National Radiation Emergency Plan and other crisis legislation and related documentation.

The Chairperson of SÚJB is a permanent member of the Central Crisis Staff. The Central Crisis Staff is a working body of the Government responsible for crisis management at national level in dealing with extraordinary events, including radiological and nuclear emergencies. In the case of a radiological or nuclear emergency, the Head of SÚJB crisis staff is a member of the Central Crisis Staff, which coordinates all national response activities in the Czech Republic.

In an emergency, SÚJB (through its Crisis Staff) is responsible for evaluating radiological situations based on information from the licensee, prognoses from the decision support system Emergency Source Term Evaluation System (ESTE) and measurement data from the Radiation Monitoring Network. SÚJB is also responsible for recommending protective actions to the Government or to the Head of the affected region (depending on the type of emergency).

In accordance with SÚJB Exercise Plan, SÚJB conducts coordination exercises with other stakeholders, including licensees, regularly organizes internal exercises, and also conducts internal training and drills for the members of the Crisis Staff. SÚJB is also involved in numerous international exercises conducted by the IAEA and the EU.

However, as recognized in the Action Plan, the IRRS team concluded that SÚJB has not developed a procedure that covers all phases of the exercise.

The IRRS team was informed that suitably qualified personnel are available to promptly staff necessary positions in an emergency response as well as in long term if needed.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: SÚJB has not developed a procedure that covers all phases of the emergency exercise, i.e. preparation, conduct and evaluation to test the preparedness for a nuclear or radiological emergency. This has been recognized in the ARM and is part of the action plan.	
(1)	**BASIS: GSR Part 7 Requirement 26. para 6.34 states that** *"... response organizations, as part of their emergency management system, shall establish a programme to ensure the availability and*

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
	reliability of all supplies, equipment, communication systems and facilities, plans, procedures and other arrangements necessary to perform functions in a nuclear or radiological emergency as specified in Section 5 (see para. 6.22). The programme shall include arrangements for inventories, resupply, tests and calibrations, to ensure that these are continuously available and are functional for use in a nuclear or radiological emergency."
R10	**Recommendation: SÚJB should develop a procedure with guidance on preparation, conduct and evaluation of emergency exercises to test the preparedness and response for a nuclear or radiological emergency.**

10.5. SUMMARY

The IRRS team concluded that the legislative framework of the Czech Republic establishes an adequate regulatory system with clearly assigned roles and responsibilities to support the emergency preparedness and response for radiological and nuclear emergencies. However, the following areas for further improvement have been identified:

- Development of a procedure covering all phases of emergency exercises and
- Revision of the quality management program for emergency preparedness and response to include the obligation for periodic and independent appraisals.

11. INTERFACE WITH NUCLEAR SECURITY

11.1. LEGAL BASIS

The Czech Republic government has established the legal and regulatory framework for oversight and enforcement security arrangement for maintaining safety. The legislative and regulatory framework addresses safety, security and accounting and nuclear control of nuclear material. However, there is no specific provision requiring that safety and nuclear security measures shall be designed and implemented in an integrated manner so that nuclear security measures do not compromise safety and safety measures do not compromise nuclear security The IRRS team was informed that SÚJB is aware of this and the amendment of the Atomic Act will include such provision.

SÚJB, in accordance with the Atomic Act, has the necessary powers concerning nuclear safety, nuclear security as well as the national nuclear safeguards and Nuclear Material Accounting and Control system.

Security requirements for nuclear facilities, nuclear material and radioactive sources are addressed in the legal and regulatory framework.

For nuclear facilities, the security requirements are covered within the physical protection. However, cyber security is not covered in the earliest stage of the licensing phases, as it is not considered in the licensing documentation for siting and construction applications.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: There is no requirement within the legal framework to ensure the integration between nuclear safety and security measures, including cyber security, in all licensing phases.	
(1)	**BASIS: GSR Part 1 (Rev. 1) Requirement 12 states that** *"The government shall ensure that, within the governmental and legal framework, adequate infrastructural arrangements are established for interfaces of safety with arrangements for nuclear security and with the State system of accounting for, and control of, nuclear material."*
(2)	**BASIS: GSR Part 1 (Rev. 1) Requirement 12 para 3.40 states that** *"Safety measures and nuclear security measures shall be designed and implemented in an integrated manner so that nuclear security measures do not compromise safety and safety measures do not compromise nuclear security."*
(3)	**BASIS: GSG-13 Para 3.95 states that** "*The regulatory body should ensure that any interfaces between safety and nuclear security measures are addressed by authorized party or applicant and appropriately considered in conjunction with the competent authority with responsibility for nuclear security*".
R11	**Recommendation: The Government should establish legal provisions to ensure that nuclear security measures, including cyber security, do not compromise safety and vice versa, in all licensing phases.**

11.2. REGULATORY OVERSIGHT ACTIVITIES

The fact that the same competent authority oversees nuclear safety and security provides an opportunity to address the safety-security interface issues.

In order to perform its responsibilities and functions effectively, covering the interface between safety and security, the security approval is part of the general safety authorization process.

SÚJB is empowered to issue subordinate legislation, authorize facilities and activities, inspect, and enforce actions related to non-compliance with licensing requirements and physical protection regulations.

Arrangements including inspection manual and procedures for controlling the Physical protection of NM, NI and transport of NM are in place. The relevant employees of SÚJB who deal with the area of security are part of the departments that deal with the area of safety (the Nuclear Safety Section and also the Radiation Protection Section) and are therefore in direct interaction with their 'safety' colleagues.

The IRRS team was briefed on the results of the recent IPPAS mission peer review which was undertaken in the Czech Republic during November 2021 to provide advice and assistance in strengthening the effectiveness of the State regime for the physical protection of nuclear material and nuclear facilities. On the basis of the conclusions of the IPPAS mission, an Action Plan was drawn up for the realization of measures to be taken to implement the recommendations and suggestions of the mission for the period 2022 to 2024.

In agreement with the IPPAS mission, the competencies for regulating nuclear security and interface with safety, including cyber security should be assessed in accordance with the staffing requirements.

11.3. INTERFACE AMONG AUTHORITIES

There are other national authorities which are responsible for conducting various activities in the field of nuclear security and its interference with safety. The interfaces between these authorities are achieved by memorandums of understandings, regular and ad hoc multilateral working groups, such as regular working group for design basis threats determination.

Communication through crisis management centre is established to be used in case of any emergency situations.

The IRRS team was briefed on an emergency drill that had been conducted for Temelin NPP to respond to sudden and unexpected hostile physical breach of the plant's perimeter in order to compromising the nuclear plant's facilities. The IRRS team concluded that the interface among authorities, with regard to the interface between safety and security, is in place.

11.4. SUMMARY

The Government of the Czech Republic has established the legal framework and infrastructure arrangements for oversight and enforcement of the interface between safety and security. However, there is no specific provision in the Atomic Act to ensure that safety and security measures do not compromise each other. As cyber security may impact safety, it should be considered in the early stage of the licensing process.

ANNEX 1 - POLICY DISCUSSIONS

POLICY ISSUE 1 - NEW BUILD CHALLENGES FOR THE REGULATORY BODY

Background

Nuclear energy in the Czech Republic is one of the pillars for ensuring a low-carbon, stable and economically affordable electricity supply while strengthening energy self-sufficiency of the Czech Republic.

In its programme statement, the Government of the Czech Republic, in accordance with the State Energy Concept Policy, anchored the preparation of the decision on the construction of additional NPPs at the existing locations of the Temelín and Dukovany NPPs.

Introduction

IAEA Specific Safety Guide SSG-38, Construction for Nuclear Installation emphasizes that all relevant authorizations should be obtained before construction starts. If this is not done, the licensee bears the risk that structures, systems, and components may fail to meet the necessary regulatory requirements. However, in some instances, manufacturing of some items with a long lead time begins before authorization for the construction is granted by the regulatory body. Such activity should be brought to the attention of the regulatory body. The licensee should verify that the design of such items with a long lead time is of the appropriate standard and is sufficiently complete before construction starts. Any major safety issues should be resolved prior to construction when there is greater flexibility for design changes.

Challenges arising from differences in work culture, geography, and regulatory regimes between countries.

Finland:

- Licensee can start ordering components before obtaining construction licence at their own risk at the time the licence is requested, they must demonstrate compliance with all requirements.
- The Nuclear Energy Act has provisions for preliminary instructions and handling long lead components:
  - STUK may, upon request by anyone planning to use nuclear energy, check the plan drawn up by them and issue preliminary instructions on what should be taken into account with respect to safety, security and emergency arrangements.
  - After Parliament has decided to leave in force a Decision-in-Principle relating to the construction of a nuclear facility of considerable general significance, the Radiation and Nuclear Safety Authority may, on request of the holder of the Decision-in-Principle, carry out inspections on the nuclear facility and its systems, inspect and approve plans relating to devices and structures as well as inspect and oversee the manufacture of individual devices and structures. No work relating to structures affecting nuclear safety may, however, be started at the site before the granting of the construction licence. The structures and devices inspected and approved by the Radiation and Nuclear Safety Authority may be used for the construction of a nuclear facility only if they comply with the construction licence.
- The licensing documentation must be kept up-to-date and there are hold points before the fuel can be brought to the site, loading, several steps for power generation levels.
- Training is organized on the possible facilities to be licensed for STUK staff. Also, STUK is actively involved with international co-operation and exchange of information between regulatory bodies.
- Also, when the Framework plan for the Finnish Nuclear Safety research programme (SAFIR, now SAFER) is made the scenarios on the development of nuclear safety are used in the environmental analysis. SAFER2028 plan includes SMRs and disruptive technologies. The research shall ensure that there is competence available for STUK as necessary.
- After the decisions of principle in 2010 the parliament required the Ministry of Economic Affairs and Employment to make a competence review. This review covers regulatory bodies, licensees, universities,

TSOs and other organizations involved. The review is available at MEAE webpage. It was updated in 2019 and it is going to be updated in a regular manner.
https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/161464/22_19_Survey_of%20_competence.pdf?sequence=1&isAllowed=y

Canada:

- Canada has an optional pre-licensing phase that potential applicants may engage in if they would like to discuss their approach to licensing including the procurement of long-lead components and training of certified personnel. In addition, the potential applicant or vendor may engage in a vendor design review process to gain a regulatory perspective on whether the design has the potential to meet Canadian regulatory requirements. This approach provides some assurance and certainty to the potential applicant; however, it does not provide any guarantees. The potential applicant may choose to assume all associated risks and proceed with procuring items before receiving a licence.
- International collaboration may facilitate regulatory efficiencies throughout the pre-licensing phase. While countries have different legislation, and authorization and compliance processes, for SMRs and new build, the technical assessment of new and novel technologies generally consists of the same elements.
- During the mandatory licensing process, the applicant is required to demonstrate that all regulatory requirements are met. The licence may include hold points that prevent fuel loading and commissioning tests without regulatory approval.
- Training and research programs are essential for the development and maintenance of competencies. Knowledge management is an essential consideration throughout the process. International collaboration may also facilitate effective training of regulators, e.g., Canada shares training with the USNRC and UKONR on reactor technologies such as CANDU, BWR, HTGR, MSR and Na-cooled.
- Staffing considerations should ensure that qualified regulatory staff are available to work in new build, including securing construction expertise, and that qualified staff are retained to conduct regulatory oversight of currently operating reactors.
- Consider project management protocol documents that outline project milestones, promote strong project management techniques and are signed by regulator and industry executives.
- Regarding regulatory oversight of fabrication of reactor pressure vessels, steam generators, and components from other large forgings:
    - Consider change control processes for design and engineering changes
    - Consider new construction methods and techniques
    - Supply chain and procurement - consider arrangements with regulators from other countries who have jurisdiction e.g., CNSC staff participated in a USNRC inspection to perform observations of the manufacturing of concrete slabs in the USA.

France:

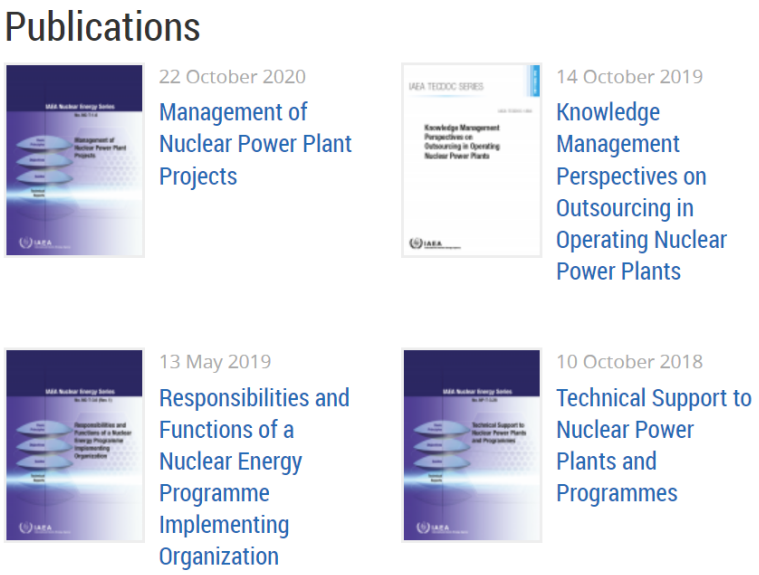
- France has a similar licensing process and issue authorizations at different stages
- Under pressure nuclear equipment are subject to a specific regulation and ASN can perform inspections at the manufacturer
- France has implemented specific inspections (project inspections) at an early stage to verify that the safety requirements or the lessons learned are considered on the specifications and pass on to the subcontractors
- France tried to ensure the transfer of knowledge between projects. Because, the licensing process is very long, the transfer of knowledge is a key issue. France organized a transfer of knowledge between different licensing project for NPP for instance

- For France, along with the licensing process, where ASN review the safety case, sitting, there is a licensing process for under pressure equipment. Under this specific process, ASN will review and inspect the manufacturing of the equipment to ensure that it is in line with the requirements. This can be done at any stage of the licensing process.

IAEA:

In addition to policy discussion, on the IAEA website is stated that the IAEA helps its Member States introduce good project management practices drawn from international experience. It develops guidance on best practices, facilitates learning and development and provides a platform for Member States to share experience with the tools and processes that support the construction, commissioning, and modification of nuclear facilities. IAEA Safety Standards, the Nuclear Energy Series and other IAEA publications serve as guides for these activities.

The Agency also provides construction review services based on IAEA Standards and guidance and international good project management practices to help operating organizations achieve and maintain the highest levels of safety and efficiency. To support regulatory bodies, it offers technical advisory and safety review services to enhance their capacity for an independent, effective regulatory supervision of nuclear power plant safety.



POLICY ISSUE 2: CHALLENGES FOR THE REGULATORY BODY ARISING FROM THE SHORTAGE OF EXPERTS IN THE NUCLEAR FIELD

As in many countries and regulatory bodies for nuclear safety, SÚJB faces new additional challenges to recruit new young staff.

The challenge is not so much their technical knowledge, which might be broader than just nuclear engineering, or their limited experience. SÚJB has a robust programme for assessing its competence needs, and for training junior staff, using an individual approach. The challenges are related to external factors like the limited number of available candidates on the job market, the low interest for the nuclear sector in the recent decades, the less attractive financial conditions for public service, compared to the industry and the shift of mindset among young people entering the job market, with diverse interests, expectations, plans for their professional life.

IRRS team members confirmed their similar challenges and shared their experience to overcome them.

Regulatory bodies have to reach out to young generations, to explain the importance of their role, their contribution to the common good of the society. They should explain what they do, how they do it, and why they do it, to convince candidates that their contributions will be meaningful, a strong value of young generations. They should use the communications means and the new technologies to target the right audience.

In order to overcome administrative limitations strategic means to attract more experts include the flexibility that technical support organizations can introduce, as they do not usually operate under the public service framework. They can be seen as a first step to bring new experts in the nuclear safety domain.

Partnership with universities, offering part time jobs or fellowships in the nuclear industry, in the regulatory bodies or TSOs, to better understand the jobs in the nuclear safety sector have been piloted in some countries.

Knowledge transfer, coaching or mentoring from senior experts to junior staff should be highlighted.

Additional pragmatic incentives, which may sometimes be perceived as symbolic rather than substantial, could also be considered, as they should also make a difference for candidates being offered multiple jobs. The salary is often not the sole criterion for their choice; many practical arrangements that facilitate work life balance, like flexibility of working hours and working from home are important considerations.

APPENDIX I – LIST OF PARTICIPANTS

INTERNATIONAL EXPERTS:		
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OBSERVER		
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GROUP PHOTO

APPENDIX II – MISSION PROGRAMME

Initial Mission First Week

Time	SAT 13 May	SUN 14 May	MON 15 May	TUE 16 May	WED 17 May		THU 18 May		FRI 19 May	SAT 20 May	SUN 21 May	
9:00-10:00	Arrival of Team Members		Entrance Meeting	Interviews	Visits	Interviews	Interviews	Coordinator(s) Write(s) introductory parts	TM write Report Drafts sent to Team Leads	Discussing between TM and improving Draft Report TL, DTL, TC and DTC read everything Secretariat edits the report	Free day, Social Tour	Review of the Report by the Team Leads
10:00-11:00												
11:00-12:00												
12:00-13:00			Lunch with Host	Standing lunch						Lunch break		
13:00-15:00		*IRRS Initial Team Meeting* • Welcome • 5 minutes/TM self-intro • Refresher training		Interviews	Visits	Interviews	Interviews Discussions with Team Lead if necessary	TL and DTL review introductory part	Secretariat edits the report **First Draft Report Ready** Cross-reading by TM	Secretariat edits the report: **New Draft Report Ready**		
15:00-16:00			Interviews							Finalisation of the Draft Report (focus on Observation Boxes)		
16:00-17:00		*Initial Team Meeting* • Mission logistics (LO) • Discussion of first impressions • Closing			**Written preliminary findings delivered**							
17:00-18:00			Daily Team Meeting	Daily Team Meeting	Daily Team Meeting: **Discussion of findings**		Daily Team Meeting		Daily Team Meeting			
18:00-20:00		Team Dinner	Dinner	Dinner	Dinner		Dinner		Dinner	Dinner		
20:00-24:00			Writing of the report	Writing of the report	Daily Team Meeting: Discussion of findings		Writing of the report		TM cross-read Draft	Secretariat edits the report		

Initial Mission Second Week

<table>
<tr><th></th><th colspan="2">MON
22 May</th><th colspan="2">TUE
23 May</th><th colspan="3">WED
24 May</th><th colspan="2">THU
25 May</th><th>FRI
26 May</th></tr>
<tr><td>9:00-10:00</td><td>Policy Discussions
Topic 1</td><td rowspan="2">Individual Discussions of Recommendations, Suggestions and Good Practices</td><td rowspan="3">Discussion of the Report by the Team</td><td rowspan="2">Common read through and finalisation of the Report by the Team</td><td rowspan="3">Host reads Draft Report</td><td></td><td>Submission of the IRRS Mission Preliminary Report</td></tr>
<tr><td>10:00-11:00</td><td>Policy Discussions
Topic 2</td><td rowspan="2">Team discusses the Mission and provides IAEA with feedback</td><td rowspan="2">Exit Meeting
Publication of Press Release</td></tr>
<tr><td>11:00-12:00</td><td colspan="2"></td><td>Submission of the Draft to the Host</td></tr>
<tr><td>12:00-13:00</td><td colspan="9">Standing lunch</td></tr>
<tr><td>13:00-15:00</td><td rowspan="2">Individual Discussions of Recommendations, Suggestions and Good Practices</td><td rowspan="2">Finalization / Cross-Reading of contributions to the report

Team Leads read everything</td><td rowspan="3">Discussion of the Report by the Team</td><td rowspan="3">TC, DTC prepare Executive Summary and exit presentation</td><td rowspan="3">Host reads Draft Report</td><td rowspan="3">TL finalises Executive Summary and Exit Presentation</td><td rowspan="3">TC Drafts the Press Release</td><td colspan="2">Written comments provided by the Host

Team meeting to discuss and resolve Host comments</td><td rowspan="4">Departure</td></tr>
<tr><td>15:00-17:00</td><td colspan="2">Plenary (Team + Host) to discuss Host comments and finalize the report</td></tr>
<tr><td>17:00-18:00</td><td colspan="2">Daily Team Meeting</td><td colspan="3">Finalization of Executive Summary</td><td colspan="2">Briefing of the Senior IAEA Manager.
Finalisation of the press release and
of the Preliminary Report</td></tr>
<tr><td>18:00-20:00</td><td colspan="2">Dinner</td><td colspan="2">Dinner</td><td colspan="3">Dinner</td><td colspan="2" rowspan="3">Farewell Dinner</td></tr>
<tr><td>20:00-21:00</td><td colspan="2" rowspan="2">Secretariat updates Report</td><td colspan="2" rowspan="2">Secretariat finalises Report</td><td colspan="3" rowspan="2">Free</td></tr>
<tr><td>21:00-24:00</td></tr>
</table>

APPENDIX III – SITE VISITS

Czech Technical University

Fuel Cycle Facility

General University Hospital

Industrial facility ISOTREND

SÚBJ emergency centre

Temelín NPP

Waste facility DIAMO

APPENDIX IV – LIST OF COUNTERPARTS

	IRRS EXPERTS	Lead Counterpart	Support Staff
1.	**LEGISLATIVE AND GOVERNMENTAL RESPONSIBILITIES**		
	SIRC Igor	MERXBAUER Michal	KRÁLÍK Lukáš
2.	**GLOBAL NUCLEAR SAFETY REGIME**		
	KAMOON Ashraf Sedky Ahmed	CHÁRA Jan	BOZENHARD Marek HORT Milan
3.	**RESPONSIBILITIES AND FUNCTIONS OF THE REGULATORY BODY**		
	FRANZEN Anna	KLOBOUČEK Eduard	KÜNZEL Karel KOLLÁROVÁ Darina
4.	**MANAGEMENT SYSTEM OF THE REGULATORY BODY**		
	PREDA Stefania-Iuliana	HOLOVKOVÁ Petra	KOVAČEVIĆOVÁ Dana KÜNZEL Karel RYBKOVÁ Alena
5.	**AUTHORIZATION**		
	JAERVINEN Marja-Leena **SHIN** DaeSoo **FIGUEIRA DA SILVA** Eduardo **SALATA** Camila **REVILLA GONZALES** Jose Luis **JONES** Christopher **GUANNEL** Yves **DE ALMEIDA SANTOS** Paula **SPEELMAN** Wilcot John	HORT Milan	KADEŘÁBEK Tomáš NOVÁČKOVÁ Magdalena VRZALOVÁ Jitka VENCLÍK Zdeněk MATĚJKA Václav SCHMUTZER Petr LIETAVA Peter NĚMEC Miloslav BURIANOVÁ Nicola PETROVÁ Irena VINKLÁŘ Jan BUDAYOVÁ Miluše PAPÍRNÍK Petr ŠTĚDROVÁ Veronika BERČÍKOVÁ Marcela

	IRRS EXPERTS	Lead Counterpart	Support Staff
			JURDA Miroslav DANĚK Tomáš
6.	**REVIEW AND ASSESSMENT**		
	HUSARCEK Jan **SHIN** DaeSoo **FIGUEIRA DA SILVA** Eduardo **SALATA** Camila **REVILLA GONZALES** Jose Luis **JONES** Christopher **GUANNEL** Yves **DE ALMEIDA SANTOS** Paula **SPEELMAN** Wilcot John	DLOUHÁ Hana	HAVRÁNEK Jiří ADAMEC Petr SYBLÍK Jan NOVÁČKOVÁ Magdalena VRZALOVÁ Jitka VENCLÍK Zdeněk MATĚJKA Václav SCHMUTZER Petr LIETAVA Peter NĚMEC Miloslav BURIANOVÁ Nicola PETROVÁ Irena VINKLÁŘ Jan BUDAYOVÁ Miluše PAPÍRNÍK Petr ŠTĚDROVÁ Veronika BERČÍKOVÁ Marcela JURDA Miroslav
7.	**INSPECTION**		
	BULKAN Anupama **SHIN** DaeSoo **FIGUEIRA DA SILVA** Eduardo **SALATA** Camila **REVILLA GONZALES** Jose Luis **JONES** Christopher **GUANNEL** Yves **DE ALMEIDA SANTOS** Paula **SPEELMAN** Wilcot John	MACOURKOVÁ Alžběta	WITKOVSKÝ Zdeněk FUCHSOVÁ Dagmar TIPEK Zdeněk NOŽIČKOVÁ Jitka KOCHÁNEK Štěpán
8.	**ENFORCEMENT**		
	BULKAN Anupama	KOCHÁNEK Štěpán	NOŽIČKOVÁ Jitka

	IRRS EXPERTS	Lead Counterpart	Support Staff
	SHIN DaeSoo **FIGUEIRA DA SILVA** Eduardo **SALATA** Camila **REVILLA GONZALES** Jose Luis **JONES** Christopher **GUANNEL** Yves **DE ALMEIDA SANTOS** Paula **SPEELMAN** Wilcot John		WITKOVSKÝ Zdeněk MACOURKOVÁ Alžběta TIPEK Zdeněk
9.	**REGULATIONS AND GUIDES**		
	KANWAL Samina **SHIN** DaeSoo **FIGUEIRA DA SILVA** Eduardo **SALATA** Camila **REVILLA GONZALES** Jose Luis **JONES** Christopher **GUANNEL** Yves **DE ALMEIDA SANTOS** Paula **SPEELMAN** Wilcot John	RATAJOVÁ Michaela	ŠÍPEK Jaromír NOVÁČKOVÁ Magdalena VRZALOVÁ Jitka VENCLÍK Zdeněk MATĚJKA Václav SCHMUTZER Petr LIETAVA Peter NĚMEC Miloslav BURIANOVÁ Nicola PETROVÁ Irena VINKLÁŘ Jan BUDAYOVÁ Miluše PAPÍRNÍK Petr ŠTĚDROVÁ Veronika BERČÍKOVÁ Marcela JURDA Miroslav
10.	**EMERGENCY PREPAREDNESS AND RESPONSE**		
	POPOVIC Stela	CHOCHOLA Ondřej	DRAŽANOVÁ Kristýna
11.	**ADDITIONAL AREAS**		
	KAMOON Ashraf Sedky Ahmed	HORÁKOVÁ Andrea	DANĚK Tomáš

APPENDIX V – RECOMMENDATIONS (R), SUGGESTIONS (S) AND GOOD PRACTICES (GP)

AREA	R: Recommendations S: Suggestions G: Good Practices	Recommendations, Suggestions or Good Practices
1. RESPONSIBILITIES AND FUNCTIONS OF THE GOVERNMENT	R1	Recommendation: The Government should review the framework for safety to include provisions for new types of facilities and activities foreseen in national strategic energy plans
	S1	Suggestion: SÚJB and the Ministry of Defence should consider reviewing the 2003 memorandum on cooperation in performing state authority over the use of ionizing radiation by the armed forces of the Czech Republic, clarifying the respective responsibilities and ensuring consistency in regulatory oversight.
2. THE GLOBAL SAFETY REGIME	n/a	n/a
3. RESPONSIBILITIES AND FUNCTIONS OF THE REGULATORY BODY	S2	Suggestion: SÚJB should consider defining the respective responsibilities for all departments and divisions as per the organisational rules.
	R2	Recommendation: SÚJB should identify current and future staffing needs and develop a plan to ensure sufficient staff are available and qualified to fulfil its statutory and regulatory functions.
	S3	Suggestion: SÚJB should consider establishing mechanisms to systematically describe its practice of informing or consulting the public.
4. MANAGEMENT OF THE REGULATORY BODY	R3	Recommendation: SÚJB should further develop the documented process for conducting internal audits to assess the functioning of its integrated management system processes and to investigate performance problems.
	S4	Suggestion: SÚJB should consider further developing the documented process “Review and evaluation of the Office's own activities” for conducting periodic reviews of the management system to include all significant sources of information on performance.
	R4	Recommendation: SÚJB should implement provisions to measure, assess and improve leadership for safety and safety culture, including conducting regular safety culture self-assessments.

AREA	R: Recommendations S: Suggestions G: Good Practices	Recommendations, Suggestions or Good Practices
	S5	**Suggestion: SÚJB should consider further developing the process to collect, identify, analyse and disseminate national and international operating and regulatory experiences and lessons learned.**
5. AUTHORIZATION	**S6**	**Suggestion: SÚJB should consider developing a process in the management system for licensing of facilities and activities.**
6. REVIEW AND ASSESSMENT	**S7**	**Suggestion: SÙJB should consider completing its procedure for review and assessment so that all lifecycle phases of nuclear facilities are covered.**
	S8	**Suggestion: SÚJB should consider developing internal guidance for the review and assessment for transport authorizations.**
	S9	**Suggestion: SÚJB should consider monitoring effective implementation of the regulatory guides for category III workplaces in relation to public exposure control as per the guide for NORM workplaces.**
7. INSPECTION	**S10**	**Suggestion: SÚJB should consider documenting its practice for maintaining inspectors' objectivity.**
	S11	**Suggestion: SÚJB should consider updating inspection documents to include the criteria for unannounced inspections and for virtual inspections.**
8. ENFORCEMENT	**R5**	**Recommendation: SÚJB should establish the legal basis and process for requiring authorized parties to implement corrective actions when risks are identified.**
	S12	**Suggestion: SÚJB should consider updating the enforcement policy to describe the verification of corrective actions implemented by the authorized party; and the selection of enforcement tools based on safety significance.**
9. REGULATIONS AND GUIDES	**R6**	**Recommendation: SÚJB should develop a process for assessing the need for, drafting, establishing or adopting, promoting and amending regulations.**

AREA	R: Recommendations S: Suggestions G: Good Practices	Recommendations, Suggestions or Good Practices
	R7	**Recommendation: SÚJB should develop or revise regulations and guides for research reactors and guides for fuel cycle facilities, to ensure that the graded approach is effectively applied, and finalize the guidance document for the technical assessment of package approvals.**
	S13	**Suggestion: SÚJB should consider taking actions to clarify requirements related to the Integrated Management system and cliff edge effect in the regulatory framework.**
	R8	**Recommendation: SÚJB should take action for the legal transport safety requirements to be based on the current edition of SSR-6.**
	S14	**Suggestion: SÚJB should consider taking action to ensure that medical exposures justification includes consultation between the radiological medical practitioner and the referring medical practitioner.**
	S15	**Suggestion: SÚJB should consider ensuring that there are requirements in the regulations to maintain records of the number of exposures occurring during interventional radiology.**
	S16	**Suggestion: SÚJB should consider developing, in consultation with health authority and the relevant professional bodies, the criteria and guides for the release of patients retaining implanted sealed sources.**
10. EMERGENCY PREPAREDNESS AND RESPONSE – REGULATORY ASPECTS	**R9**	**Recommendation: SÚJB should revise its quality management programme for emergency preparedness and response to include the obligation of periodic and independent appraisals, including participation in international appraisals.**
	R10	**Recommendation: SÚJB should develop a procedure with guidance on preparation, conduct and evaluation of emergency exercises to test the preparedness and response for a nuclear or radiological emergency.**
11. INTERFACE WITH NUCLEAR SECURITY	**R11**	**Recommendation: The Government should establish legal provisions to ensure that nuclear security measures, including cyber security, do not compromise safety and vice versa, in all licensing phases.**

APPENDIX VI – COUNTERPART'S REFERENCE MATERIAL USED FOR THE REVIEW

I.	Self-Assessment Report	EN
II.	ARM Summary Report	EN
III.	Initial Action Plan	EN
IV.	Other documents	

A. Acts

No.		Title in Czech	Title in English	Version (EN/CZ)
1.	263/2016 Sb.	Atomový zákon	Act No. 263/2016 Coll., Atomic Act	EN
2.	234/2014 Sb.	Zákon č. 234/2014 Sb., o státní službě	Act No. 234/2014 Coll., on Civil Service	EN
3.	255/2012 Sb.	Zákon č. 255/2012 Sb., o kontrole (kontrolní řád)	Act No. 255/2012 Coll., on Inspection	EN
4.	412/2005 Sb.	Zákon č. 412/2005 Sb., o ochraně utajovaných informací a o bezpečnostní způsobilosti	Act No. 412/2005 Coll., on the Protection of Classified Information and Security Eligibility	EN
5.	181/2014 Sb.	Zákon č. 181/2014 Sb., o kybernetické bezpečnosti a o změně souvisejících zákonů (zákon o kybernetické bezpečnosti)	Act No. 181/2014 Coll., on Cyber Security and Change of Related Acts (The Act on Cyber Security)	EN
6.	500/2004 Sb.	Zákon č. 500/2004 Sb. správní řád	Act No. 500/2004 Coll., Code of Administrative Procedure	EN
7.	40/2009 Sb.	Zákon č. 40/2009 Sb., trestní zákoník	Act No. 40/2009 Coll., Criminal Code	EN
8.	141/1961 Sb.	Zákon č. 141/1961 Sb., o trestním řízení soudním (trestní řád)	Act No. 141/1961 Coll., Code of Criminal Procedure	EN
9.	240/2000 Sb.	Zákon č. 240/2000 Sb., o krizovém řízení a o změně některých zákonů (krizový zákon)	Act No. 240/2000 Coll, Crisis Management Act	EN
10.	1/1993 Sb.	Ústavní zákon č. 1/1993 Sb., Ústava České republiky	Act. No. 1/1993 Coll., the Constitution of the Czech Republic	EN
11.	262/2006 Sb.	Zákoník práce	Act No. 262/2006 Coll., Labour Code	EN
12.	505/1990 Sb.	Zákon o metrologii	Act No. 505/1990 Coll. on Metrology	EN
13.	95/2004 Sb.	Zákon o podmínkách získávání a uznávání odborné způsobilosti a specializované způsobilosti k výkonu zdravotnického povolání lékaře, zubního lékaře a farmaceuta	Act No. 95/2004 Coll., on Requirements for the Obtaining and Recognition Qualifications for Pursuing the Profession of Doctor, Dental Practitioner and Pharmacist	EN* (Art. 3–5, Art. 7, Annex 1)
14.	96/2004 Sb.	Zákon o podmínkách získávání a uznávání způsobilosti k výkonu nelékařských zdravotnických povolání a k výkonu činnosti souvisejících s poskytováním zdravotní péče a o změně některých souvisejících zákonů (zákon o nelékařských zdravotnických povoláních)	Act No. 96/2004 Coll., on the Conditions for the Obtaining and Recognition of Qualifications for Pursuing Paramedical Professions and for Carrying Activities in Connection with the Provision of Health Care and on the Amendments of Some of the Related Acts (Act on Paramedical Professions)	EN* (Art. 3, Art. 8, Art. 55-58)

15.	372/2011 Sb.	Zákon o zdravotních službách a podmínkách jejich poskytování (zákon o zdravotních službách)	Act No. 372/2011 Coll., on health services and on conditions of their provision (the Health Services Act)	EN
16.	373/2011 Sb.	Zákon o specifických zdravotních službách	Act No. 373/2011 Coll., on specific health services	EN
17.	134/2016 Sb.	Zákon č. 134/2016 Sb., o zadávání veřejných zakázek	Act No. 134/2016 Coll, on Public Procurement	
18.	106/1999 Sb.	Zákon č. 106/1999 Sb., o svobodném přístupu k informacím	Act No. 106/1999 Coll., on Free Access to Information	EN

B. Decrees

No.	Title in Czech	Title in English	Version (EN/CZ)
19.	21/2017 Sb.	Vyhláška ze dne 23. ledna 2017 o zajišťování jaderné bezpečnosti jaderného zařízení	Decree No. 21/2017 Coll. of 23 January 2017 on Assuring Nuclear Safety of a Nuclear Installation	EN
20.	162/2017 Sb.	Vyhláška č. 162/2016 ze dne 25. května 2017 o požadavcích na hodnocení bezpečnosti podle atomového zákona	Implementing Decree No. 162/2017 Coll. of the State Office for Nuclear Safety of 25th May 2017 On The Requirements for Safety Assessment Pursuant to the Atomic Act	EN
21.	329/2017 Sb.	Vyhláška ze dne 26. září 2017 o požadavcích na projekt jaderného zařízení	Implementing Decree of 329/2017 Coll. on the requirements for nuclear installation design	EN
22.	358/2016 Sb.	Vyhláška o požadavcích na zajišťování kvality a technické bezpečnosti a posouzení a prověřování shody vybraných zařízení	Decree No. 358/2016 Coll. on requirements for assurance of quality and technical safety and assessment and verification of conformity of selected equipment	EN
23.	359/2016 Sb.	Vyhláška o podrobnostech k zajištění zvládání radiační mimořádné události	Decree No. 359/2016 Coll. on details of ensuring radiation extraordinary event management	EN
24.	361/2016 Sb.	Vyhláška č. 361/2016 ze dne 17. října 2016 o zabezpečení jaderného zařízení a jaderného materiálu	Decree No. 361/2016 Coll. of 17th October 2016 on security of nuclear installation and nuclear material	EN
25.	374/2016 Sb.	Vyhláška č. 374/2016 ze dne 7. listopadu 2016 o evidenci a kontrole jaderných materiálů a oznamování údajů o nich	Decree No. 374/2016 Coll. of 7th November 2016 on the accountancy and control of nuclear materials and reporting of information on them	EN
26.	375/2016 Sb.	Vyhláška č. 375/2016 Sb. ze dne 7. listopadu 2016 o vybraných položkách v jaderné oblasti	Decree No. 375/2016 Coll. of 7th November 2016 on selected items in the nuclear area	EN

27.	376/2016 Sb.	Vyhláška č. 376/2016 Sb. ze dne 7. listopadu 2016 o položkách dvojího použití v jaderné oblasti	Decree No. 376/2016 Coll. of 7th November 2016 on dual-use items in the nuclear area	EN
28.	377/2016 Sb.	Vyhláška o požadavcích na bezpečné nakládání s radioaktivním odpadem a o vyřazování z provozu jaderného zařízení nebo pracoviště III. nebo IV. Kategorie	Decree No. 377/2016 Coll. on the requirements for the safe management of radioactive waste and on the decommissioning of nuclear installations or category III or IV workplaces	EN
29.	378/2016 Sb.	Vyhláška č. 378/2016 Sb. ze dne 7. listopadu 2016 o umístění jaderného zařízení	Decree No. 378/2016 Coll. of 7th November 2016 on siting of a nuclear installation	EN
30.	379/2016 Sb.	Vyhláška o schválení typu některých výrobků v oblasti mírového využívání jaderné energie a ionizujícího záření a přepravě radioaktivní nebo štěpné látky	Decree No. 379/2016 Coll. concerning the approval of some products in the field of peaceful use of nuclear energy and ionising radiation and the carriage of radioactive or fissile material	EN
31.	408/2016 Sb.	Vyhláška č. 408/2016 Sb. ze dne 6. prosince 2016 o požadavcích na systém řízení	Decree No. 408/2016 Coll. of 6th December 2016 on management system requirements	EN
32.	422/2016 Sb.	Vyhláška č. 422/2016 Sb. ze dne 14. prosince 2016 o radiační ochraně a zabezpečení radionuklidového zdroje	Decree No. 422/2016 Coll. of 14th December 2016 on Radiation Protection and Security of a Radioactive Source	EN
33.	409/2016 Sb.	Vyhláška č. 409/2016 Sb. o činnostech zvláště důležitých z hlediska jaderné bezpečnosti a radiační ochrany, zvláštní odborné způsobilosti a přípravě osoby zajišťující radiační ochranu registranta	Decree No. 409/2016 Coll. of 6 December 2016 on activities especially important from nuclear safety and radiation protection viewpoint, special professional qualification and training of persons ensuring radiation protection of the registrant	EN
34.	82/2018 Sb.	Vyhláška č. 82/2018 Sb. ze dne 21. května 2018 o bezpečnostních opatřeních, kybernetických bezpečnostních incidentech, reaktivních opatřeních, náležitostech podání v oblasti kybernetické bezpečnosti a likvidaci dat (vyhláška o kybernetické bezpečnosti)	Decree No 82/2018 Coll. of May 21, 2018 on Security Measures, Cybersecurity Incidents, Reactive Measures, Cybersecurity Reporting Requirements, and Data Disposal (the Cybersecurity Decree)	EN
35.	317/2014 Sb.	Vyhláška č. 317/2014 Sb. ze dne 15. prosince 2014 o významných informačních systémech a jejich určujících kritériích	Decree No 317/2014 Coll. of December 15, 2014 on important information systems and their determination criteria	EN
36.	437/2007 Sb.	Vyhláška č. 437/2017 Sb. ze dne 8. prosince 2017 o kritériích pro určení provozovatele základní služby	Decree No 437/2017 Coll. of December 8, 2017 on the criteria for the determination of an operator of essential service	EN

37.	39/2005 Sb.	Vyhláška, kterou se stanoví minimální požadavky na studijní programy k získání odborné způsobilosti k výkonu nelékařského zdravotnického povolání	Decree No. 39/2005 Coll. laying down minimum requirements for the study programmes to obtain qualification to pursue non-medical healthcare profession	EN* (Art.7)
38.	187/2009 Sb.	Vyhláška o minimálních požadavcích na studijní programy všeobecné lékařství, zubní lékařství, farmacie a na vzdělávací program všeobecné praktické lékařství	Decree No. 187/2009 Coll., on the minimum requirements for the study programmes in general medicine, dental practice, pharmacy and for the educational program in general practitioner medicine	EN* (Art. 2)
39.	55/2011 Sb. ve znění vyhlášky č. 158/2022 Sb. platném od 1.7.2022	Vyhláška o činnostech zdravotnických pracovníků a jiných odborných pracovníků	Decree No. 55/2011 Coll. on the activities of healthcare professionals and other professionals	EN* (Art. 7, 21, 26, 131, 160-163)
40.	98/2012 Sb.	Vyhláška o zdravotnické dokumentaci	Decree No. 98/2012 Coll. on medical records	EN* (Art. 2, Annex 3 B.11)
41.	99/2012 Sb.	Vyhláška o požadavcích na minimální personální zabezpečení zdravotních služeb	Decree No. 99/2012 Coll. on the requirements for the minimum staffing levels to provide health services	EN* (Art 1, Annex 1. I. B. 1.55. Annex 1. II., Annex 3. I. 25., Annex 3 II. 1.8.)
42.	410/2012 Sb.	Vyhláška o stanovení pravidel a postupů při lékařském ozáření	Decree No. 410/2012 Coll. laying down rules and procedures for medical exposure	EN

C. Government Regulations

No.		Title in Czech	Title in English	Version (EN/CZ)
43.	567/2006 Sb.	Nařízení vlády o minimální mzdě, o nejnižších úrovních zaručené mzdy, o vymezení ztíženého pracovního prostředí a o výši	Government Regulation No. 567/2006 Coll. on minimum wage, the lowest levels of guaranteed wage, the definition of arduous	EN* (Art. 6)

		příplatku ke mzdě za práci ve ztíženém pracovním prostředí	working environment, and premium for work in an arduous working environment	
44.	31/2010 Sb.	Nařízení vlády o oborech specializačního vzdělávání a označení odbornosti zdravotnických pracovníků se specializovanou způsobilostí	Government Regulation No. 31/2010 Coll. on the fields of postgraduate education and on the designations of specialisations of healthcare professionals with specialised qualifications	EN* (Annex 1, points 14, 19)

D. Strategies, Policies, Reports

	Type	No.	Title in Czech	Title in English	Version (EN/CZ)
45.	National Action Plan		Národní akční plán pro regulaci ozáření z radonu	National Action Plan for Control of Public Exposure to Radon	EN
46.			Etický kodex	Code of Conduct of the State Office for Nuclear Safety	EN
47.			Postup při uzavírání smluv	Preparation and circulation of contracts at SÚJB	EN
48.	Order of the MTS Director	Č. 1/2017	Příkaz SŘTP č. 1/2017 k zabránění střetu zájmů při poskytování odborně-technické podpory	Order of the Director for Management and Technical Support No. 1/2017 to prevent conflicts of interest in the provision of professional and technical support	EN
49.	Concept	Usnesení vlády č. 597/2019	Koncepce nakládání s radioaktivními odpady a vyhořelým jaderným palivem v České republice	The concept of radioactive waste and spent nuclear fuel management in the Czech Republic	EN
50.			Typový plán Radiační havárie	Type Plan. Radiation Accident	EN
51.			Metodická pomůcka k vypracování vnitřního havarijního plánu	Requirements for the content of the on-site emergency plan	EN
52.	General measure		Opatření obecné povahy (pro spotřební výrobky s H-3) Č. j.: SÚJB/OEHO/19870/2019	General Measure (for consumer products with added radionuclide H-3) Ref.: SÚJB/OEHO/19870/2019	EN* (p. 1-3)
53.	Guidance of the RP Director		Pokyn ŘSRO č.j. SÚJB/RO/21105/2019	Guidance of the Director for Radiation Protection Ref.: SÚJB/RO/21105/2019	EN
54.	Report		Zpráva o zajištění připravenosti k odezvě a odezvy na radiační mimořádnou událost v České republice (31.12.2022)	Report on Ensuring Response Preparedness and Radiation Extraordinary Event Response in the Czech Republic	EN
55.	Report		Národní zpráva České republiky pro účely Úmluvy o jaderné bezpečnosti (duben 2022)	The Czech Republic National Report under the Convention on Nuclear Safety (April 2022)	

E. Journals of the Ministry of Health of the Czech Republic

	Journal No.	Version (EN/CZ)
56.	1/2022	EN* (p. 1, 31, 32, 43)
57.	4/2021	EN* (p. 1, 2, 7)
58.	3/2021	EN* (p. 1, 2, 5, 7, 8, 12-14, 19, 21, 23)
59.	14/2020	EN* (p. 1, 2, 7, 9-12)
60.	3/2019	EN* (p. 0, 1, 7, 9-15, 18-21, 27, 28, 32-35, 45-47, 60, 61, 66-68)
61.	13/2017	EN* (p.1, 28, 34, 36-38, 40, 41, 45, 48, 51, 54, 56, 59, 62, 65, 68)
62.	10/2016	EN* (p. 1, 34, 41-45, 65, 67-70)
63.	2/2016	EN* (p. 1, 2, 5-10, 62, 71, 79, 86-89, 93-96, 100, 101, 106-108, 112-114, 118-121, 128-138, 141-143, 203, 210, 216-219 (233-348 – the name of the examination + point 5. Indications and contraindications), 349-356, (357-364 – the name of the examination + point 5. Indications and contraindications)
64.	6/2015	EN* (p. 1-4, 8, 9, 11-14, 20-24, 42)
65.	4/2010	EN* (p. 1, 4)
66.	11/2003	EN* (p. 1, 2, 13)

F. Educational Programmes and Qualification Standards

	Type	Title in Czech	Title in English	Version (EN/CZ)
67.	EP	Lékař se specializovanou způsobilostí v oboru radiologie a zobrazovací metody	Radiology and Imaging Methods	EN* (p. 1-4)
68.	EP	Lékař se specializovanou způsobilostí v oboru radiační onkologie	Radiation Oncology	EN* (p. 1-4)
69.	EP	Lékař se specializací v oboru NM	Nuclear Medicine	EN* (p. 1-4)
70.	EP	Intervenční radiolog	Vascular Interventional Radiology	EN* (p. 1-4)
71.	EP	Kardiolog	Cardiology	EN* (p. 1, 3-6, 10, 14)
72.	EP	Zubní lékař	Clinical Stomatology	EN* (p. 1, 14)
73.		Všeobecný lékař se specializací v maxilofaciální chirurgii	Oral and Maxillofacial Surgery	EN* (p. 1, 14)
74.	EP	Lékař se specializovanou způsobilostí v oboru klinická osteologie	Clinical Osteology	EN* (p. 1, 13)
75.	QS	Radiologický asistent	Medical Radiation Technologist	EN* (p. 1-6)
76.	QS	Radiologický technik	Radiation Technologist	EN* (p. 1-4)
77.	QS	Radiologický fyzik	Medical Physicist	EN* (p. 1-4)
78.	EP	Zobrazovací technologie v radiodiagnostice	Educational program of postgraduate education in the field Diagnosting Radiology	EN* (p. 1-3)
79.	EP	Zobrazovací technologie v radioterapii	Educational program of postgraduate education in the field Imaging and Radiation Technology in Radiotherapy	EN* (p. 1-3)
80.	EP	Zobrazovací technologie v nukleární medicíně	Educational program of postgraduate education in the field Imaging and Radiation Technology in Nuclear Medicine	EN* (p. 1-3)
81.	EP	Klinický radiologický fyzik	Imaging in Diagnosting Radiology	EN* (p. 1-3)
82.	EP	Bioanalytik pro nukleární medicínu	Educational program for the specialty Nuclear Medicine – postrgraduate	EN* (p. 1, 7, 8, 13)
83.		Farmaceutický asistent pro přípravu radiofarmak	Preparation of Radiopharmaceuticals	EN*

				(p. 1, 3, 4)
84.	EP	Odborný pracovník v laboratorních metodách	Specialist in Laboratory Methods and in the Preparation of Medical Products	EN* (p. 1, 6-9)
85.	QS	Dentální hygienistka	Dental Hygienist	EN* (p. 1, 6, 13)
86.	EP	Sestra v nukleární medicíně	Nurse, Medical Laboratory Technician, Medical X- ray Technician	EN* (p. 1, 15, 20)

G. SÚJB Safety Guides and Recommendations

	Type	No.	Title in Czech	Title in English	Version (EN/CZ)
87.	Recommendation	DR–ZA–1.0	Zabezpečení radionuklidových zdrojů a jejich kategorizace	Security of radionuclide sources and their categorisation	EN
88.	Recommendation	DR– RO-4.1 (REV 1.0)	Nález a záchyt radionuklidových zdrojů v zařízeních určených k tavbě, shromažďování a zpracování kovového šrotu	Finding and capture of radionuclide sources in installations inteded for melting, collecting and processing scrap metal	EN
89.	Recommendation	DR-RO-4.0 (Rev. 0.0)	Radiační ochrana na přechodných defektoskopických pracovištích se zdroji ionizujícího záření	Radiation Protection at Temporary NDT Workplaces with Sources of Ionising Radiation	EN
90.	Safety Guide	BN-JB-2.10	Deterministické bezpečnostní analýzy abnormálního provozu a základních projektových nehod	Deterministic Safety Analyses of Abnormal operation and Design Basis Accidents	EN**
91.	Safety Guide	BN-JB-2.2	Deterministické bezpečnostní analýzy rozšířených projektových podmínek bez vážného poškození paliva DEC A	Deterministic Analyses of Design Extension Conditions without Severe Fuel Damage (DEC A)	EN**
92.	Safety Guide	BN-JB-2.3	Deterministické bezpečnostní analýzy postulovaných iniciačních událostí a scénářů DEC B (DEC s tavením paliva)	Deterministic Safety Analyses of Postulated Initiating Events and DEC-B Scenarios	EN**
93.	Safety Guide	BN-JB-2.5	Pravděpodobnostní hodnocení bezpečnosti	Probabilistic Safety Assessment	EN**
94.	Safety Guide	BN-JB-4.1(Rev. 1.0)	Umístění jaderného zařízení – hodnocení přírodních vlastností a jevů	Nuclear Installation Siting - Assessment of Natural Characteristics and Phenomena	EN**
95.	Safety Guide	BN-JB-1.3	Obsah bezpečnostní zprávy	Content of the Safety Analysis Reports	EN**
96.	Safety Guide	BN-JB-1.5	Ochrana do hloubky	Defence in Depth	EN**

97.	Safety Guide	BN-JB-4.2	Umístění jaderného zařízení – hodnocení jevů způsobených činností člověka	Nuclear Installation Siting – Assessment of Anthropogenic Effects	EN**
98.	Recommendation	DR-RO-6.0 D.1(Rev. 0.0)	Osobní monitorování Část I. – zevní ozáření	Individual monitoring Pat I – External Exposure	EN**
99.	Recommendation		Požadavky SÚJB při provádění terapie onemocnění štítné žlázy radiojodem na pracovištích nukleární medicíny	Requirements of SÚJB in radioiodine therapy for thyroid disease in nuclear medicine centres	EN**

H. SÚJB Internal Management System Documents

	Type	No.	Title in Czech	Title in English	Version (EN/CZ)
100.	VDK	001	Organizační řád SÚJB	Organisational Rules of the SÚJB	EN
101.	VDS	004	Pracovní řád	Work Rules	EN
102.	VDS	006	Bezpečnostní politika SÚJB v oblasti informatiky	Security Policy for the Area of Information and Communication Technologies	EN
103.	VDS	008	Plánování, provádění a hodnocení kontrolní činnosti na jaderných zařízeních	Planning, Impelemntation and Evaluation of Control Activities on Nuclear Installations	EN
104.	VDK	013	Zásady interního auditu	Principles of Internal Audit	EN
105.	VDS	014	Pravidla, zásady a způsob používání IKT prostředků v SÚJB	Rules, principles and method of using ICT assets in SÚJB	EN
106.	VDS	015	Kontrola držitelů povolení v oblasti zvládání radiační mimořádné události	Inspection of Licence Holders in the Area of Radiological Emergency Management	EN
107.	VDS	019	Pravidla činnosti Krizového štábu	Rules for Emergency Staff Activity	EN
108.	VDS	028	Tvorba organizačních norem SÚJB	Development of Organizational Standards of SÚJB	EN
109.	VDI	034	Inspekční manuál pro kontrolu způsobu zajištění fyzické ochrany jaderných materiálů, jaderných zařízení a přeprav jaderných materiálů	Inspection Manual for Controlling the Method of Physical Protection of Nuclear Materials, Nuclear Installations and Transportation of Nuclear Materials	EN
110.	VDS	036	Přezkoumávání a hodnocení vlastní činnosti	Review and Assessment of Internal Activities	EN
111.	VDS	037	Provádění kontrol	Inspection Activity	EN

112.	VDS	038	Sběr a hodnocení dat k vyhodnocení úrovně kultury bezpečnosti na jaderných zařízeních	Data Collection and Evaluation to Evaluate the Level of Safety Culture of Nuclear Installations	EN
113.	VDS	039	Systém přípravy a vzdělávání pracovníků SÚJB	SÚJB Staff Training and Education System	EN
114.	VDS	043	Plánování, příprava, provádění a hodnocení kontrol v sekci radiační ochrany	Planning, Preparation, Implementation and Assessment of Inspections in Section for Radiation Protection	EN
115.	VDS	050	Administrativní směrnice pro nakládání s utajovanými skutečnostmi u Státního úřadu pro jadernou bezpečnost	Administrative Guideline for the handling of classified information within the State Office for Nuclear Safety	EN
116.	VDS	054	Stanovení oprávněných úředních osob pro správní řízení vedená SÚJB	Appointment of Authorised Officials for Administrative Procedures Conducted by SÚJB	EN
117.	VDS	057	O zadávání veřejných zakázek	On Public Procurement	EN
118.	VDK	058	Koncepce vnitřní komunikace	Internal Communication Concept	
119.	VDS	064	Činnosti inspektorů SÚJB při kontrolách přeprav jaderných materiálů, nebo štěpných látek anebo radioaktivních látek	Activities of SÚJB Inspectors in Inspections of Carriage of Nuclear Materials or Fissile Materials or Radioactive Materials	EN
120.	VDS	086	Bezpečnostní požadavky na dodavatele	Security Requirements on Suppliers	EN
121.	VDS	087	Pravidla činnosti inspektora oddělení lokalitních inspektorů v TPS	Rules Concerning the Activity of Inspector of Site Inspection Unit in TPS	EN
122.	VDK	090	Strategie informování veřejnosti a médií při radiační mimořádné události	Strategy for Informing the Public and Media in a Radiological Emergency	EN
123.	VDS	091	Pravidla činnosti regionálního krizového štábu	Rules for Operations of the Regional Crisis Staff	EN
124.	VDK	095	Strategie vymahatelnosti	Enforcement Policy	EN
125.	VDK	097	Strategie dlouhodobého rozvoje lidských zdrojů	The Long-Term Strategy for Development of Human Resources	EN
126.	VDI	098	Zpracování kompetenční mapy	Creating a Competence Map	EN
127.	VDK	099	Politika integrovaného systému řízení	Integrated Management System Policy	EN
128.	VDK	100	Manuál integrovaného systému řízení SÚJB	Integrated Management Systém Manual	EN

129.	VDK	101	Strategie Státního úřadu pro jadernou bezpečnost	Strategy of the State Office for Nuclear Safety	EN
130.	VDS	104	Hodnocení v rámci povolovaných fází životního cyklu jaderných zařízení v působnosti sekce jaderné bezpečnosti	Assessment throughout Licensed Phases of Life Cycle of Nuclear installations under the Authority of Section for Nuclear Safety	EN
131.	VDS	107	Řízení změn	Change Management	EN
132.	VDS	110	O přestupcích	on Offences	EN
133.	VDI	137	Instrukce pro ztrátu, nález a záchyt jaderného materiálu	Instruction for Lose, Finding and Seizure of Nuclear Material	EN
134.	VDS	150	Šetření spokojenosti zaměstnanců	Employee Satisfaction Survay	
135.	VDK	155	Koncepce kultury bezpečnosti	Safety Culture Concept	
136.	VDI	156	Program kultury bezpečnosti	Safety Culture Program	

APPENDIX VII – IAEA REFERENCE MATERIAL USED FOR THE REVIEW

1.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Fundamental Safety Principles, No SF-1, IAEA, Vienna (2006)
2.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Governmental, Legal and Regulatory Framework for Safety, General Safety Requirements Part 1, No. GSR Part 1 (Rev. 1), IAEA, Vienna (2016)
3.	**INTERNATIONAL ATOMIC ENERGY AGENCY –** Leadership and Management for Safety, General Safety Requirements Part 2, No. GSR Part 2, IAEA, Vienna (2016)
4.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, General Safety Requirements Part 3, No. GSR Part 3, IAEA, Vienna (2014).
5.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Safety assessment for facilities and activities, General Safety Requirements Part 4, No. GSR Part 4 (Rev. 1), IAEA, Vienna (2016)
6.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Predisposal Management of Radioactive Waste, General Safety Requirement Series Part 5, No. GSR Part 5, IAEA, Vienna (2009)
7.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Decommissioning of Facilities, General Safety Requirement Series No. GSR Part 6, IAEA, Vienna (2014)
8.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Preparedness and Response for Nuclear or Radiological Emergency, General Safety Requirement Series No. GSR Part 7, IAEA, Vienna (2015)
9.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Site Evaluation for Nuclear Installations, Specific Safety Requirement Series No. SSR-1, IAEA, Vienna (2003)
10.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Safety of Nuclear Power Plants: Design, Specific Safety Requirements Series No. SSR-2/1 (Rev. 1), IAEA, Vienna (2016)
11.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Safety of Nuclear Power Plants: Commissioning and Operation, Specific Safety Requirements Series No. SSR-2/2 (Rev. 1), IAEA, Vienna (2016)
12.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Safety of Research Reactors, Specific Safety Requirements Series No. SSR-3, IAEA, Vienna (2016)
13.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Safety of Nuclear Fuel Cycle Facilities, Specific Safety Requirements Series No. SSR-4, IAEA, Vienna (2017)
14.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Disposal of Radioactive Waste, Specific Safety Requirements Series No. SSR-5, IAEA, Vienna (2011)
15.	**INTERNATIONAL ATOMIC ENERGY AGENCY** – Regulations for the Safe Transport of Radioactive Material, Specific Safety Requirements Series No. SSR-6, IAEA, Vienna (2012)
16.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Regulations for the Safe Transport of Radioactive Material, 2018 Edition, Specific Safety Requirements Series No. SSR-6 (Rev. 1), IAEA, Vienna (2018)
17.	**INTERNATIONAL ATOMIC ENERGY AGENCY -** Classification of Radioactive Waste, General Safety Guide No. GSG-1, IAEA, Vienna (2009)
18.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency, Safety Guide Series No GSG-2, IAEA, Vienna (2012)
19.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Communication and Consultation with Interested Parties by the Regulatory Body, General Safety Guide Series No. GSG-6, IAEA, Vienna (2017).
20.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Occupational Radiation Protection, Safety Guide Series No. GSG-7 , IAEA, Vienna (2018)
21.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Regulatory Control of Radioactive Discharges to the Environment, Safety Guide Series No GSG-9, IAEA, Vienna (2018)

22.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Organization, Management and Staffing of the Regulatory Body for Safety, General Safety Guide Series No. GSG-12, IAEA, Vienna (2018).
23.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Functions and Processes of the Regulatory Body for Safety, General Safety Guide Series No. GSG-13, IAEA, Vienna (2018).
24.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Arrangements for Preparedness for a Nuclear or Radiological Emergency, Safety Guide Series No. GS-G-2.1, IAEA, Vienna (2007)
25.	**INTERNATIONAL ATOMIC ENERGY AGENCY** Leadership, Management and Culture for Safety in Radioactive Waste Management, Safety Guide Series No GSG-16, IAEA, Vienna (2022)
26.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Criteria for use in Preparedness and Response for a Nuclear or Radiological Emergency, General Safety Guide Series No. GSG-2, IAEA, Vienna 2011)
27.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Operating Experience Feedback for Nuclear Installations, Safety Guide Series No. SSG-50, IAEA, Vienna (2018)
28.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Modifications to Nuclear Power Plants, Safety Guide Series No SSG-71, IAEA, Vienna (2022)
29.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Recruitment, Qualification and Training of Personnel for Nuclear Power Plants, Safety Guide Series No NS-G-2.8, IAEA, Vienna (2002)
30.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Environmental and Source Monitoring for Purposes of Radiation Protection, Safety Guide Series No. RS-G-1.8, IAEA, Vienna (2005)
31.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Safety of Radiation Generators and Sealed Radioactive Sources, Safety Guide Series No. RS-G-1.10, IAEA, Vienna (2008)
32.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Borehole Disposal Facilities for Radioactive Waste, Safety Guide Series No SSG-1, IAEA, Vienna (2009)
33.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Deterministic Safety Analysis for Nuclear Power Plants, Specific Safety Guides Series No. SSG-2, IAEA, Vienna (2010)
34.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Development and Application of Level 1 Probabilistic Safety Assessment for Nuclear Power Plants, Specific Safety Guide Series No. SSG-3, IAEA, Vienna (2010)
35.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Development and Application of Level 2 Probabilistic Safety Assessment for Nuclear Power Plants, Specific Safety Guide Series No. SSG-4, IAEA, Vienna (2010)
36.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Safety of Conversion Facilities and Uranium Enrichment Facilities, Specific Safety Guide Series No. SSG-5, IAEA, Vienna (2010)
37.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Safety of Uranium Fuel Fabrication Facilities Specific Safety Guide Series No. SSG-6, IAEA, Vienna (2010)
38.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Safety of Uranium and Plutonium Mixed Oxide Fuel Fabrication Facilities, Specific Safety Guide Series No. SSG-7, IAEA, Vienna (2010)
39.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Licensing Process for Nuclear Installations, Specific Safety Guide Series No. SSG-12, IAEA, Vienna (2010)
40.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Geological Disposal Facilities for Radioactive Waste Specific Safety Guide Series No. SSG-14, IAEA, Vienna (2011)
41.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Storage of Spent Nuclear Fuel, Safety Guide Series No SSG-15 (Rev. 1), IAEA, Vienna (2020)
42.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Periodic Safety Review for Nuclear Power Plants, Safety Guide Series No SSG-25, IAEA, Vienna (2013)
43.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material, Specific Safety Guide No SSG-26, IAEA, Vienna, (2014)
44.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Commissioning for Nuclear Power Plants, Safety Guide Series No. SSG-28, IAEA, Vienna (2014)

45.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors, Safety Guide Series No SSG-40, IAEA, Vienna (2016)
46.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Predisposal Management of Radioactive Waste from Nuclear Fuel Cycle Facilities, Safety Guide Series No SSG-41, IAEA, Vienna (2016)
47.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Management of Waste from the Use of Radioactive Material in Medicine, Industry, Agriculture, Research and Education, Safety Guide Series No SSG-45, IAEA, Vienna (2019)
48.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Radiation Protection and Safety in Medical Uses of Ionizing Radiation, Safety Guide Series No SSG-46, IAEA, Vienna (2018)
49.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities, Safety Guide Series No SSG-47, IAEA, Vienna (2018)
50.	**INTERNATIONAL ATOMIC ENERGY AGENCY** – Ageing Management and Development of a Programme for Long Term Operation of Nuclear Power Plants, Safety Guide Series No SSG-48, IAEA, Vienna (2018)
51.	**INTERNATIONAL ATOMIC ENERGY AGENCY** –Decommissioning of Medical, Industrial and Research Facilities, Safety Guide Series No SSG-49, IAEA, Vienna (2019)
52.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Accident Management Programmes for Nuclear Power Plants, Safety Guide Series No SSG-54, IAEA, Vienna (2019)
53.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Preparedness and Response for a Nuclear or Radiological Emergency Involving the Transport of Radioactive Material, Safety Guide No SSG-65, IAEA, Vienna (2022)
54.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Radiation Protection Programmes for the Transport of Radioactive Material, Safety Guide No TS-G-1.3, IAEA, Vienna, (2007)
55.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - The Management System for the Safe Transport of Radioactive Material Safety Guide No TS-G-1.4, IAEA, Vienna, (2008)
56.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Compliance Assurance for the Safe Transport of Radioactive Material, Safety Guide No TS-G-1.5, IAEA, Vienna, (2009)
57.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material (2009 Edition), Safety Guide No TS-G-1.6 (Rev.1), IAEA, Vienna, (2014)
58.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Storage of Radioactive Waste, Safety Guide Series No WS-G-6.1, IAEA, Vienna (2006)
59.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Safety Assessment for the Decommissioning of Facilities Using Radioactive Material, Safety Guide Series No.WS-G-5.2, IAEA, Vienna (2009)
60.	**INTERNATIONAL ATOMIC ENERGY AGENCY** - Storage of Radioactive Waste, Safety Guide Series No. WS-G-6.1, IAEA, Vienna (2006)

APPENDIX VIII – ORGANIZATIONAL CHART