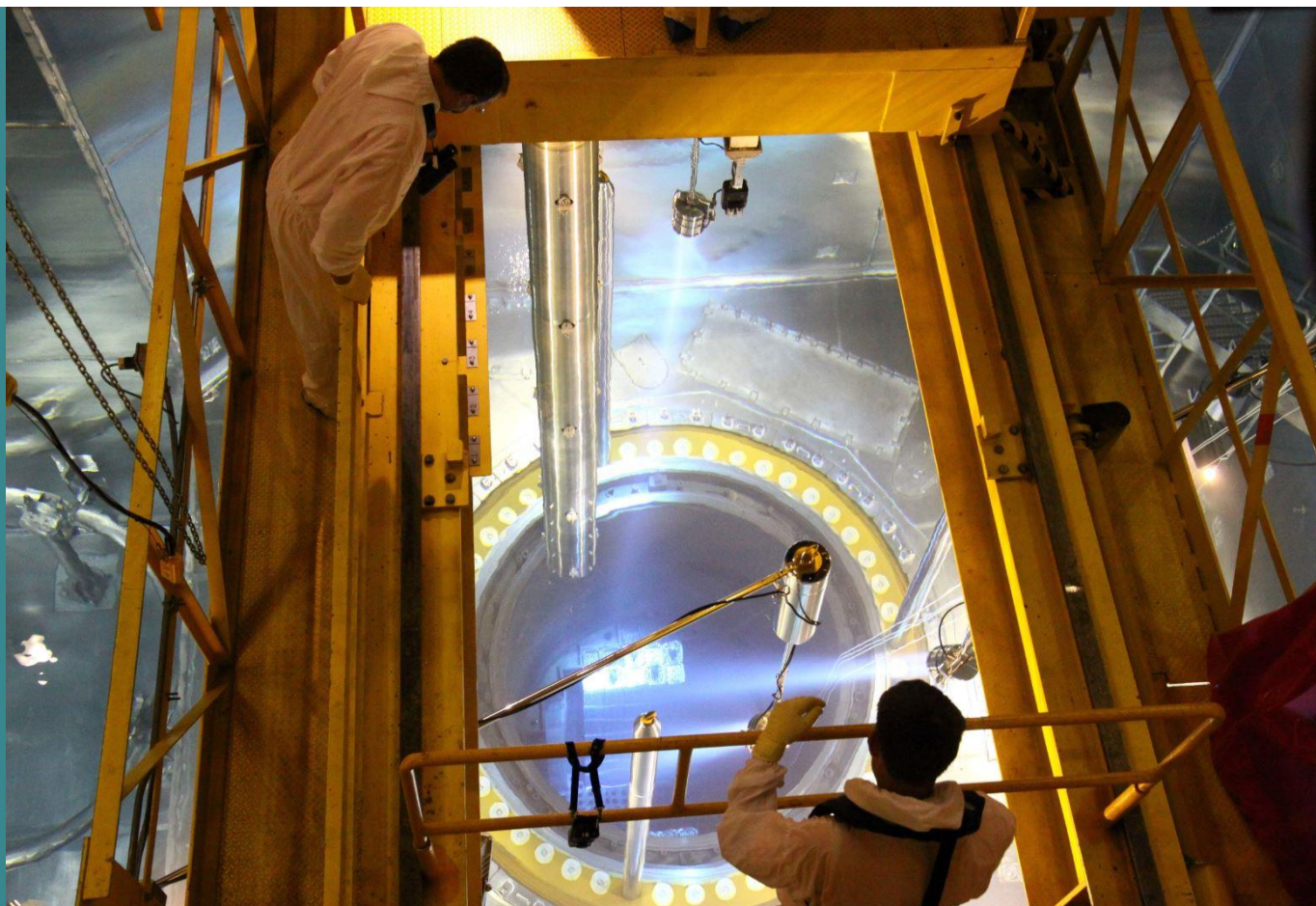




REPUBLIC OF SLOVENIA  
MINISTRY OF THE ENVIRONMENT AND SPATIAL PLANNING  
SLOVENIAN NUCLEAR SAFETY ADMINISTRATION

**Sixth Slovenian Report under the**  
**Joint Convention on the Safety of Spent Fuel Management**  
**and on the Safety of Radioactive Waste Management**  
**Answers to questions raised by other contracting parties**





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**Joint Convention on the Safety of Spent Fuel**  
**Management and on the Safety of Radioactive Waste Management**

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May 2018

## **Introductory explanation**

This document is one of the products of the reviewing process under the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. As a contracting party to that convention Slovenia prepared [a report](#) before the 6<sup>th</sup> review meeting under that convention and submitted it on 17 October 2017 to be reviewed by other contracting parties. In the following weeks numbers of contracting parties have asked questions expecting further explanations from Slovenia. Slovenia prepared answers before the review meeting and sent them to other parties on 23 April 2018. During the country presentation on 25 May 2018 additionally some answers were orally explained.

This document is summarizing all the questions and answers about radioactive waste management and spent nuclear fuel management. Answers were prepared by the Slovenian Nuclear Safety Administration, the Slovenian Radiation Protection Administration, the Jožef Stefan Institute, the Krško NPP, the Agency for Radwaste Management, the public company for mine closure Žirovski vrh Mine d.o.o. and the Ministry of Infrastructure.

Q.No * 1	Country Italy	Article Planned Activities	Ref. in National Report K, 99
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Question/ Comment It is mentioned that the operation of the dry storage facility is postponed to 2020. Could Slovenia provide more elements about the reasons for the delay from the schedule mentioned in the 5th Review Meeting (2018)?

Answer The NPP Krsko made a decision for Dry Storage Project contractor in May 2016. Due to the public procurement process another competitor requested the revision of the process. Final decision for approval NPP Krsko selection was made by public procurement commission in February 2017. This process delayed NPP Krsko original schedule for app. 1 year.

Q.No * 2	Country Italy	Article Planned Activities	Ref. in National Report K, 99
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Question/ Comment Could Slovenia elaborate more details on the schedule foreseen for the licensing process for the LILW disposal facility? Which is the foreseen timing schedule for construction, operation, closure and post-closure?

Answer The Investment Programme for the LILW Repository Vrbina, Krško, confirmed in July 2014, Rev. C and the Resolution on the National Programme for Radioactive Waste and Spent Fuel Management for the 2016-2025 period (ReNPRRO16–25) envisage two scenarios: the baseline scenario allowing for disposal of half of the waste, and the extended scenario, which, in accordance with the Bilateral Slovenian-Croatian Agreement on the Krško NPP, provides for the disposal of all LILW waste from the Krško NPP. The Agency for Radwaste Management applied for the license in 2017 and at the end of 2018 it is expected that construction permission will be issued.

Under the baseline scenario, after obtaining the construction permit, 3 years of construction is envisaged to take place. After that 2 years of trial operation is scheduled for 2020. Regular operation of the repository is planned in the period between 2022 and 2025. In 2025 the repository enters temporary standby mode until re-operation in 2050. During the re-start of operation, the remaining "Slovenian" operating waste generated in the Krško NPP and the waste generated during the decommissioning of the NPP until 2061 will be disposed in the repository. After the disposal of all the waste, the silo and the entire repository will be closed and the long-term monitoring and maintenance of the repository will commence.

Q.No * 3	Country Denmark	Article General	Ref. in National Report Page 8
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Question/ Comment Question regarding the Executive summaryIt is stated that a policy is adopted for Decommissioning of the Krško NPP through the Agreement between the Government of the Republic of Slovenia and the Government of the Republic of Croatia, stating that:

“If contracting parties do not reach agreement on a common solution for radioactive waste and spent fuel management during the regular lifetime of the Krško NPP, they undertake that within two years of that time they must complete the removal of the operational radioactive waste and spent fuel from the location of the Krško NPP (one half by each party) and that they will individually bear the costs of the management thereof (including the subsequent division and removal of radioactive waste from decommissioning).” Does the policy involve statements regarding immediate or deferred dismantling of Krško NPP after the end of the

extended operation lifetime of the NPP in 2043?

Answer According to the Agreement between the Government of the Republic of Slovenia and the Government of the Republic of Croatia decommissioning of the Krško Nuclear Power Plant is the joint responsibility of the contracting parties, and they should ensure efficient common solutions from both the economic and environmental protection points of view. The contracting parties shall, in equal shares, assure funds for the preparation of the decommissioning programme and its execution. The policy does not involve any other specific statements regarding immediate or deferred dismantling of Krško NPP after the end of the extended operation lifetime of the NPP in 2043.

Q.No * 4	Country France	Article General	Ref. in National Report Section K - page 100
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Question/ Comment Slovenian report indicates (p. 100) that the Intergovernmental Commission is responsible for monitoring the implementation of the Slovenian-Croatian agreement on the Krško NPP. Could Slovenia specify clarify the relation between the regulatory bodies of Slovenia (SNSA) and Croatia (SORNS) and the Intergovernmental Commission? In particular, if a decision on one existing or future facility of the Krško site would need to be taken for safety reasons on the point of view of SNSA, how the status report is relayed to the Intergovernmental Commission?

Answer Representatives of the regulatory bodies of Slovenia (SNSA) and Croatia (SORNS) are not members of the Intergovernmental Commission. The Intergovernmental Commission is responsible for monitoring the implementation of the Slovenian-Croatian agreement on the existing Krško NPP. If a decision on one existing facility of the Krško site would need to be taken for safety reasons on the point of view of SNSA it will be addressed to the operator (to the Krško NPP) and not to the Intergovernmental Commission.

Q.No * 5	Country Ireland	Article General	Ref. in National Report n/a
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Question/ Comment Ireland thanks Slovenia for its detailed national report.

Answer Thank you for the comment.

Q.No * 6	Country Ireland	Article General	Ref. in National Report n/a
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Question/ Comment Areas of Good Performance/ Good Practice:

It is noted that significant progress has been made in relation to the management of low and intermediate-level radioactive waste arising from non-power applications. Some of the key milestones include:

- When the national public service for managing waste (ARAO) was established in 1999, responsibility for the storage and management of waste and disused sealed sources transferred from several small producers to a single central authority.
- Since 2000 the “polluter pays” principle has been applied to waste for storage. Since then each waste producer or holder has had to pay a fee for the acceptance of a radioactive waste/disused radioactive source. If the waste producer or holder is not known, the expenses are covered from the national budget.
- The operator of Brinje is taking active on-going measures towards waste conditioning and volume reduction.
- The first periodic safety review of the Central Storage Facility started in 2015 and

is scheduled to be completed in 2018. This will provide the basis for the renewal of the operating license of the facility for another ten years. Important improvements were carried out during this period including: the update of storage technology in 2015 and enhancement of security in 2016.

Answer Thank you for the comment.

Q.No	Country	Article	Ref. in National Report
* 7	Ireland	General	n/a

Question/ Challenges:

Comment The National Report outlines various options for disposal of spent nuclear fuel waste but notes that no decision has yet been made on the disposal of the radioactive waste inventory. It is noted also that the decommissioning of the Krško Nuclear Power Plant and the management of its radioactive waste and spent fuel are the joint responsibility of the Republic of Slovenia and the Republic of Croatia. It is noted that the establishment of a final disposal policy and, if necessary, the construction of a final disposal facility for radioactive waste or will remain a significant challenge for Slovenia into the future.

Answer Thank you for the comment.

Q.No	Country	Article	Ref. in National Report
* 8	Italy	General	L Annex i), 119

Question/ Comment It is mentioned that “All principal structures of the Krško NPP are located on a solid reinforced concrete platform situated on the Pliocene sandy-clay sediments of the Krško basin. The structures are designed and constructed to resist the hazard of earthquakes”.

Could Slovenia provide more information about the hazard of earthquakes in Krško NPP, with reference to the results of the Slovenian National Report in the ENSREG Stress Test verification after the Fuskushima accident?

Answer In Slovenian National Report in the ENSREG Stress Test verification after the Fukushima accident, this item - site specific PSHA (Probabilistic Seismic Hazard Assessment) is described in Chapter 1.4.5, 2.1.1.2 and 2.1.1.3. The results of Stress Test are published on SNSA web page:  
[http://www.ursjv.gov.si/si/info/porocila/nacionalna\\_porocila](http://www.ursjv.gov.si/si/info/porocila/nacionalna_porocila).

Q.No	Country	Article	Ref. in National Report
* 9	France	Article 5	Section D - page 29

Question/ Comment It appears that among the intervention measures taken in 2016 in the Boršt disposal facility for reducing the speed of landslide movements, drainage bores were done so as to lower the groundwater levels (in addition to drainage tunnel and vertical drainage wells of 1995-1996).

Was such measure taken as part of a long term solution or for temporary delaying the landslide during the time when further studies are conducted? Are other measures currently arising to remedy such risk of slide of tailings?

Answer Rainfalls and the extremely complicated rock base of the Boršt disposal site in connection with hydrogeology influence the long-term stability of the landslide. The intervention measures carried out in 2016 and 2017 are the first measures for long term stability as proposed by the professional project board. The analysis of the flows from the drainage wells measured since September 2017 show that the wells have limited effect on drainage in the area of landslide. The current rate of movement is approximately 3 cm per year. An expert group concluded that the probability of collapse of the slope is negligible. It is expected

that the measures for long term stability will be taken this year.

Q.No * 10	Country United Kingdom	Article Article 5	Ref. in National Report p.18
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Question/ Comment On page 18 the report outlines the spent fuel management strategy, stating that following the Fukushima accident in March 2011 it was decided to construct a dry storage facility for spent fuel. According to current plans, it should be constructed by 2020, with an operating lifetime of 60 years. The 2<sup>nd</sup> Krško NPP periodic safety review phase was completed on 15 December 2013. Although not explicitly stated it is assumed that this also considered the safety of the Spent Fuel pool at this plant. It is planned that the operation of the NPP will be extended from 2023 to 2034, subject to periodic safety reviews in 2023 and 2033. Could you please provide more information on the assumptions that were made regarding the remaining lifetime of the spent fuel pool during the PSR in 2013 and how this influenced the spent fuel strategy.

To note, this also relates to Article 7.

Answer The Krško NPP Spent Fuel Pool (SFP) has 1709 positions in the racks to store spent Fuel Assemblies (FA). Considering the extended Krško NPP design life time to 2043 a total of 2282 spent FAs is expected to be stored inside the SFP. Due to operation and management restrictions applied during the past years the Krško NPP will fill the available SFP racks at the end of 2019. At that time the Krško NPP will require additional storage capabilities to store spent FAs.

In 2012 the decision was made to start a new dry storage for spent nuclear fuel to increase safety and increase storage capabilities for spent FAs. Dry Storage Building (DSB) will be constructed within the Krško NPP yard with capacity for app. 2.600 spent FAs. As the existent SFP will be in operation all the time during the plant operation and minimum 5 years after the plant shut down, the Krško NPP can temporarily store FAs from the reactor for at least 5 years in the pool and later transfer them into DSB in four campaigns.

Additionally, in the scope of the Krško NPP safety upgrade program some improvement of the robustness of the existing spent fuel pool are planned. Examples include reassessment/upgrading SFP structural integrity, installation of qualified and power-independent monitoring, provisions for redundant and diverse sources of additional coolant resistant to external hazards, redundant and independent SFP cooling systems. The possibility of venting steam in a case of boiling in the SFP will be also implemented.

Q.No * 11	Country Austria	Article Article 10	Ref. in National Report 94
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Question/ Comment What is the reason to search for a separate solution for spent fuel disposal of the TRIGA Mark 2 research reactor?

What arguments standing against common management with spent fuel from Krsko NPP?

Are contracts in place with the original fuel supplier to take the research reactor fuel back (outside Slovenia)?

Answer Separate solution is to ship spent fuel back to original fuel supplier. Currently, there is no contract in place with fuel supplier to take TRIGA fuel back. If the return of spent fuel is not possible, operator and the owner of the TRIGA Research Reactor and the ARAO have to find jointly a solution for the storage of spent fuel from the research reactor after the cessation of its operation and it will be managed together with the spent fuel generated by the Krško NPP.

Q.No	Country	Article	Ref. in National Report
* 12	Ireland	Article 11	75

Question/ Comment It is noted that following the Fukushima accident, the SNSA issued a decision to the Krško NPP stipulating that safety measures must be undertaken in order to prevent severe accidents and/or mitigate their consequences. This decision specifically addressed the risks associated with spent fuel management and as one of the actions, it was decided to construct a dry storage facility for spent fuel. Can Slovenia provide details of the status of this facility and is construction still on target for 2020?

Answer The Krško NPP has assessed options to reduce risk associated with spent fuel. Dry storage option is proposed as a temporary storage of spent fuel from the Krško NPP. The construction of the dry storage is also a pre-condition for the operation of the Krško NPP till 2043. An Intergovernmental Commission approved the construction as a joint solution (Slovenia and Croatia). An international tender was published on 16 October 2015. The company Holtec was selected as the best provider of a dry storage of spent nuclear fuel. The licensing process for dry storage construction started in August 2017. Dry storage construction is envisaged in 2019 and operation in 2020.

Q.No	Country	Article	Ref. in National Report
* 13	France	Article 13	Section B - page 17

Question/ Comment As indicated p. 17 of Slovenian's report, "the Republic of Slovenia and the Republic of Croatia jointly prepared and approved a Programme for the Decommissioning of the Krško NPP and the Disposal of LILW and High-Level Waste". Regarding spent fuel and high-level waste, it is mentioned p. 78 that the choice of a national or multinational disposal has not been made and that "both options go in parallel until the choice of one of the options is made. In the case of national repository decision is made, it is planned to start preparatory activities for comparative studies, preliminary designs and the preparation of qualified staff by 2045 with siting activities envisaged between 2045 and 2055". In the event of any absence of agreement between Slovenia and Croatia, does that mean that neither SNSA or its TSOs nor a WMO will have any activity before 2045 for preparing a potential "national" choice?

Answer According to Resolution on the National Programme for Radioactive Waste and Spent Fuel Management for the 2016-2025 period (ReNPRRO16–25) the construction of a national repository to accommodate half of the spent fuel generated by the Krško NPP is an ultimate possibility if Slovenia and Croatia fail to reach an agreement on a joint spent fuel repository. In Slovenia research and development activities are carried out in the field of radioactive waste and spent fuel management through the ARAO or as part of a wider research programme implemented in accordance with the Resolution on Nuclear and Radiation Safety. In 2017 ARAO started with the research activities in the field of possibilities for processing, planning for disposal, preparation for construction and construction of spent fuel and HLW disposal facility. ARAO is also a partner in the joint proposal of EC and similar waste management agencies for joint European research and development plan in the field of radioactive waste management and disposal and cooperates in ERDO-WG and IGD-TP technological platform related to development of joint multinational geological repositories. One of ARAO goals is also to implement research and development activities for the construction of its own spent fuel and HLW repository. ARAO as the provider of the radioactive



waste management service of general economic interest, is continuously to conduct planning and carry out development-related activities for the continuation of dry storage after the cessation of the Krško NPP operation and for ensuring the final disposal of the spent fuel and HLW generated by the Krško NPP, and of the reprocessed spent fuel and HLW generated by the TRIGA II Research Reactor and Krško NPP, in a national, regional, or multinational repository.

Q.No	Country	Article	Ref. in National Report
* 14	Croatia	Article 14	H, 80

**Question/ Comment** Does the Decree on the Detailed Plan of National Importance for a LILW Repository in Vrblina in the Municipality of Krško already include additional two silos for future extension of the capacity if needed?

**Answer** With the adoption of the Decree on the National Spatial Plan for a LILW Repository (Official Gazette of the Republic of Slovenia, Nos 114/09 and 50/12), the location and type of repository were confirmed. The selected type of repository envisages the disposal of radioactive waste in a near-surface silo. In the planned waste disposal area 2 disposal structures (silo) shall be located. In accordance with the Decree, LILW repository shall be constructed with the capacity to cover the LILW generated in Slovenia. The location, design of the repository and the Decree permissible deviations enables extension with additional silos. The procedure for extension of the disposal capacity requires amendment of the Decree.

Q.No	Country	Article	Ref. in National Report
* 15	France	Article 14	Section H - page 94

**Question/ Comment** Concerning the siting of a geological disposal, as mentioned p. 94, no site investigation have been carried out in Slovenia but the conceptual reference scenario rely on four basis principles, in particular the construction in a hard rock. Could Slovenia explain the reasons (geological, conceptual, experience feedback...) why the possibility of other types of host rocks was ruled out at this initial stage? Regarding the main principles of a future site screening (with Croatia or not), what would be the main requirements other than geology, such as public acceptance, relative position to frontiers, etc.?

**Answer** In 2004, as part of the Programme of NPP Krško Decommissioning and SF & LILW Disposal the disposal of spent fuel was for the first time more thoroughly addressed. The main purpose was to elaborate key technical solutions and to assess the costs of basic elements of long-term spent fuel management. The disposal reference scenario was developed with the assistance of Swedish and IAEA experts, based on the Swedish concept of disposal in hard rock. The first plan from 2004 was improved with the second revision of the reference scenario of national geological disposal in 2009. The second revision was based on same basic concept with improved and more detailed technical solutions and more reliable cost estimates. However, it is important to recognize that for future revisions of the country strategic documents it is reasonable to investigate alternatives to the existing reference scenario for geological disposal in hard rock with the possible development of disposal concept in sedimentary rock. Small initial steps have already been made in the past and the existing data on sedimentary rock of interest in Slovenia have been gathered. Due to an early stage of national geological disposal program and in line with dual track approach where multinational or regional disposal option is adopted, at this stage main milestones for national geological disposal program are defined with start of comparative studies, preliminary designs and the preparation of qualified staff by 2045, siting is

envisaged between 2045 and 2055 with confirmation of an appropriate and socially acceptable location in 2055. Details of future site screening and main requirements for siting will be developed later.

Q.No	Country	Article	Ref. in National Report
* 16	United States of America	Article 15	Section G&H pg. 86

**Question/ Comment** In April 2017, the Slovenian Nuclear Safety Administration issued a decision to split the contents of the application for a waste storage facility license into content-based thematic sections. Please describe in more detail what is meant by “content based thematic sections” and how this will accelerate the overall licensing process.

**Answer** In case of constructing a new nuclear power plant or a disposal facility for radioactive waste or spent fuel, the Law defines the period for giving approval or consent for construction of the facility within 24 months. In order to accelerate the licensing process, the licensee can submit for example individual chapters of Safety Analysis Report with corresponding reference documentation to the SNSA for review. In this way the subjects that were already prepared by the licensee can be reviewed and closed in advance without waiting that all the application is completed. To run the process in this way the special decision had to be issued and defined which chapters of the Safety Analysis Report and corresponding documentation form thematic sections based on the content or the subject that can be reviewed and closed separately. Typical content based thematic sections are “Management system”, “Site evaluation”, “Design bases” etc.

Q.No	Country	Article	Ref. in National Report
* 17	Italy	Article 16	H, 91

**Question/ Comment** Decommissioning: Two special acts have been approved by the Slovenian National Assembly for the decommissioning of nuclear facilities, one related to Krsko and one related to Uranium Mine at Žirovski Vrh.

Has a decommissioning plan for the Central Storage Facility been prepared, updated and reviewed by the regulatory body?

**Answer** The Decommissioning plan for the Central Storage Facility has been prepared in 2012, submitted to the SNSA and reviewed by the SNSA. First Periodic Safety Review of the facility was finished in October 2017 and one of the actions is the revision of the document which is envisaged for 2019.

Q.No	Country	Article	Ref. in National Report
* 18	Slovakia	Article 19	Section E/ p. 32-39

**Question/ Comment** On page 33, there are mentioned new provisions to prevent the incorporation of non-conforming, counterfeit, fraudulent and suspect items into nuclear and radiation facilities.

Could you please specify the measures of this prevention? Are they repressive or preventive ones? Are there any penalties involved for non-compliance with this requirement?

**Answer** The provision is a part of second level legislation, i.e. Rules on Radiation and Nuclear Safety Factors and it states as follows:

“The investor or operator of a radiation or nuclear facility must implement procedures to identify non-conforming, counterfeit, fraudulent or suspicious objects or activities to strengthen the supply chain to prevent the entry of such objects.” Since this obligation is stipulated in the Rules no penalty provisions are possible; only the Act can have a penalty provisions for non-compliance with the requirements of the Act.

On the other hand, this area is covered by the inspection. The inspectors may require harmonization of inadequate situation with the requirements of the Rules.

Q.No * 19	Country Italy	Article Article 20	Ref. in National Report E, 40
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Question/ Comment With references to the organizational structure of SNSA, could Slovenia elaborate and clarify the position of Radioactive Waste Management and Decommissioning staff within the SNSA structure?

Answer Regulatory matters relating to spent fuel and radioactive waste management are dealt with by the Radiation Safety and Materials Division. For major licensing projects, such as licensing of disposal facility or dry storage for spent fuel, a project team was established. In the project team other staff members participate with different education backgrounds.

Q.No * 20	Country Germany	Article Article 22	Ref. in National Report p. 48, Section F
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Question/ Comment “the number of employees in the ARAO has fallen by almost 17 % over the last five years. The consequences of the human resource deficit are already noticeable.”  
Is there enough staff to fulfil all work to be done or are there any problems, because it is stated that consequences are noticeable?

Is there a plan to increase the staffing level in the future?

Answer In the last years the number of employees in the ARAO was fallen from 24 to 19. And to fulfil all the liabilities the work was redeployed and some subcontractors were included. The plan is to increase the staffing level in the next few years. In 2018 the plan is to employ additional 3 people.

Q.No * 21	Country United States of America	Article Article 22	Ref. in National Report Section F pg. 48
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Question/ Comment Please describe the overall human resource approaches and/or strategies in place to ensure that qualified staff are available for safety-related activities, particularly in the Agency for Radwaste Management where noticeable consequences of a human resources deficit have been reported. Please describe expected recruitment, retention, and/or knowledge management efforts to address concerns with continued loss of staff and critical knowledge.

Answer In the last years the number of employees in the ARAO was fallen from 24 to 19. And to fulfil all the liabilities the work was redeployed and some subcontractors were included. The plan is to increase the staffing level in the next few years. In 2018 the plan is to employ additional 3 people.

Q.No * 22	Country Croatia	Article Article 22.1	Ref. in National Report F, 48
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Question/ Comment The Report states: “The number of employees in the ARAO has fallen by almost 17% over the last five years. The consequences of the human resource deficit are already noticeable.”

Considering the time schedule for the construction, commissioning and operation of LILW repository in Vrbinja, how will ARAO assure availability of qualified staff as needed? How will the reduction be compensated?

Answer In the last years the number of employees in the ARAO was fallen from 24 to 19. And to fulfil all the liabilities the work was redeployed and some subcontractors were included. The plan is to increase the staffing level in the next few years. In 2018 the plan is to employ additional 3 people.

Q.No * 23	Country Italy	Article Article 24	Ref. in National Report F, 55
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Question/ Comment Could Slovenia specify the criterion by which dose constraints were determined?

Answer Dose constraints for nuclear facilities were historically set in different ways:

- For the Krško NPP, the dose constraint (50 microSv) was set based on the US legislation, namely NUREG 1301, dealing with Standard Radiological Effluent Controls for Pressurized Water Reactors.
- 50 microSv for the research reactor in Brinje was set historically, roughly based on the dose due to the maximal argon release from the reactor at full strength.
- 300 microSv for the former uranium mine Žirovski vrh as was set empirically, based on the values measured after the closing of the mine.
- 100 microSv for the Central Storage Facility for Radioactive Waste was set based on safety assessment for storage facility.
- 300 microSv for the disposal facility was set on the basis of ICRP Publications 81 "Radiation protection recommendations as applied to the disposal of long-lived solid radioactive waste".

Q.No * 24	Country Austria	Article Article 25	Ref. in National Report 68
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Question/ Comment Please can you elaborate the revision of the emergency response plan for the Central Storage Facility for Radioactive Waste in accordance with the results of practical exercises and with the aim of improving the plan, which was planned to be updated mid 2017?

Answer The emergency response plan for the Central Storage Facility for Radioactive Waste was updated in 2017. The revision considered the results of practical exercises.

Q.No * 25	Country Ireland	Article Article 25	Ref. in National Report 66
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Question/ Comment It is noted from the report that emergency plans are public documents and should be presented to the public within 90 days of their adoption. Please provide more information on the mechanism for engagement with the public in relation to the emergency arrangements for the Krško NPP. Can Slovenia indicate whether the risks associated with the wet storage of spent fuel on site were specifically addressed in this engagement process?

Answer Based on a general emergency legislation (Protection against Natural and Other Disasters Act and regulation on its basis) Krško NPP is required to prepare a "facility emergency plan" (on-site emergency plan). Based on the provisions of the Regulation on Elaboration of Emergency Plans the facility plan must be harmonized with the national plan. All facilities, that need to prepare a facility emergency plan, must provide all relevant information also to the local and regional authorities before the operation or in case of any change of operation. These information shall contain the description of unusual events leading to emergency, description of emergency showing the approximate amount of possible releases, emergency levels, possible consequences for people and environment, emergency time frames, notification and alarming of workers and public in the vicinity of facility likely to be affected and general public as well as competent authorities and description of protective actions for prevention or minimizing the emergency or its consequences including the description of equipment and procedures. Based on

these inputs, the local and regional authorities must within one year prepare local and regional plans. Local and regional plans must be sent into public hearing for the minimum of 30 days. The public hearing shall be usually conducted after the harmonization of all plans (facility, regional, local) with the national plan. All comments and proposals must be taken into consideration, however only proposals and comments, which are not in conflict with the national plan, can be included into the plan. All plans are public, except the restricted information (classified information, business secret, personal data) and must be presented to the public within 90 days of their adoption. This shall be done on web pages or in public media. The owner of the plan must allow insight into the plan and is encouraged to public plans on the web pages. The risks associated with the wet storage of spent fuel on site were a part of description of all risks related to the NPP. Risks associated with the wet storage of spent fuel are incorporated in Krško NPP on-site emergency plan i.e. in taking into account incidents analysed in USAR, list of equipment, strategies and organization of beyond design states management, emergency classification for events with indication of damaged fuel. The results of probabilistic safety analysis of spent fuel pool emergencies show that risks for events in the spent fuel pool are significantly lower than those related to the reactor core.

Q.No * 26	Country Italy	Article Article 25	Ref. in National Report F, 66
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Question/ Comment Will the transition phase be considered in the revision of the National Plan?

Answer Yes. As described in the report, the revised National Plan will address also requirements of the new EU BSS directive. It is therefore envisaged, that the National Plan will contain criteria for termination of emergency and the transfer of competencies in the transition phase. The new Ionising Radiation Protection and Nuclear Safety Act, which is in force since 6th January 2018, envisages for the rehabilitation in case of a long-lasting residual contamination a special act of the government to determine an overall regime of rehabilitation, including detailed obligations of all stakeholders and measures for prevention of harmful effects of the ionizing radiation.

Q.No * 27	Country Germany	Article Article 26	Ref. in National Report p. 71, Section F
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Question/ Comment Regarding the “Agreement between the Governments of Slovenia and Croatia on the Regulation of the Status and Other Legal Relations Regarding the Investment, Exploitation and Decommissioning of the Krško NPP” it is reported, that the programmes for decommissioning and disposal regarding the Krško Site have not been agreed upon by the competent Intergovernmental Commission, and that there is, at present, no agreement on the project tasks and no progress in the necessary revision of this plans.

To what extent is this lack of agreement reflected in the licence procedure for the extension of the operational lifetime of Krško NPP that is envisaged in the Slovenian “National Programme for Radioactive Waste and Spent Fuel Management for the 2016-2025 period”?

Answer This lack of agreement is not reflected in the licence procedure for the extension of the operational lifetime of Krško NPP that is envisaged in the Slovenian “National Programme for Radioactive Waste and Spent Fuel Management for the 2016-2025 period”. According to the Slovenian regulation Decommissioning plan should be

reviewed during the Periodic Safety Review. The next PSR will be in 2023.

Q.No * 28	Country United Kingdom	Article Article 26	Ref. in National Report p.72 Section F
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Question/ Comment The Central Storage Facility (CSF) for Radioactive Waste is the national storage infrastructure for the storage of institutional radioactive waste. Under the preliminary decommissioning programme formulated in 2012, two scenarios have been developed (page 72). Under both options, the CSF will be decontaminated after waste disposals have been completed and put into unrestricted use. Please provide additional clarification of “unrestricted use” in this context. Please provide additional information on the acceptance criteria that will be applied to determine when the CSF can be put into unrestricted use.

Answer The “unrestricted use” in that context was meant, as the use of the facility for some other business purposes. It will no longer be a nuclear facility.

Q.No * 29	Country United States of America	Article Article 26	Ref. in National Report Section F pg. 71
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Question/ Comment The development of an approved decommissioning plan for the Krško Nuclear Power Plant has been significantly delayed. Please elaborate on the challenges associated with this effort, including management of the radioactive waste resulting from the decommissioning.

Answer Krško Nuclear Power Plant has an approved Decommissioning Plan, revision 1. New Decommissioning Plan revision 3 project has started in 2018 with the aim to be finished at the end of 2018. For this purpose, two terms of reference were prepared with detail description of all inputs and assumptions for new revision.

Q.No * 30	Country Bosnia and Herzegovina	Article Article 27	Ref. in National Report I, 95
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Question/ Comment The Report states: It is necessary to obtain SNSA consent for shipments from and into other EU Member States and for licences for the import, export or transit of radioactive waste and spent fuel. Before issuing consent or a licence, the SNSA evaluates the measures relating to radiation and nuclear safety throughout the duration of the transport of radioactive waste and spent fuel from the place of origin to the final destination.

Will Slovenia apply these provisions in case of radioactive waste shipment from the Krško NPP to Croatia, taking into account the Bilateral Agreement between the Slovenian and Croatian governments on the Krško NPP?

Answer Council Directive 2006/117/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel in 6th paragraph of Article 1 is without prejudice to rights and obligations under international law. Bilateral Agreement between the Slovenian and Croatian governments on the Krško NPP in Article 10 requires that in case no common solution is reached by the end of regular life time of the NPP, each contractor takes over the half of the radioactive waste and spent fuel at latest in two years period. In the process of approval of shipments of radioactive waste and spent fuel the SNSA evaluates the measures relating to radiation and nuclear safety throughout the duration of the transport of radioactive waste and spent fuel from the place of origin to the final destination which means that gathers the consents of all transit countries and country of destination. In the pertinent case the Croatia would be the country of destination of the waste and spent fuel of its ownership and its refusal of giving consent to the shipments would be direct violation of a Bilateral Agreement.

Q.No * 31	Country Bosnia and Herzegovina	Article Article 27	Ref. in National Report I, 95
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Question/ Comment The Report states: It is necessary to obtain SNSA consent for shipments from and into other EU Member States and for licences for the import, export or transit of radioactive waste and spent fuel. Before issuing consent or a licence, the SNSA evaluates the measures relating to radiation and nuclear safety throughout the duration of the transport of radioactive waste and spent fuel from the place of origin to the final destination.

Are there any requirements in the Slovenian legislation on how to assess the technical, legal or administrative resources necessary for the safe handling of radioactive waste or spent fuel in a State of destination? Generally, how would Slovenia ensure the implementation of this provision in practice?

Answer Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste in Article 4 paragraph 4 defines criteria for export of waste and spent fuel for final disposal in country other than country of origin. The provisions of the directive are transposed into the Slovenian legislation by the Article 128 of the Law and by the Article 20 of the Rules on transboundary shipments of radioactive waste and spent fuel (Official Gazette of Republic of Slovenia, No. 22/09). However, comment 36 of the Council Directive 2011/70/Euratom explains that a Treaty between the government of the Republic of Slovenia and the government of the Republic of Croatia on the regulation of the status and other legal relations regarding investment, exploitation and decommissioning of the Krško nuclear power plant governs the co-ownership of a nuclear power plant. That Treaty provides for shared responsibility for the management and disposal of radioactive waste and spent fuel. Therefore, an exemption to certain provisions of the pertinent Directive should be laid down in order not to hinder the full implementation of that bilateral Treaty.

Q.No * 32	Country Italy	Article Article 27	Ref. in National Report I, 96
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Question/ Comment Is the practice of transport of radioactive material (radioactive waste) subject to notification or authorization by registration or license?

Answer Transportation of radioactive material is radiation practice that should be notified to the SNSA. Transportation of radioactive material with activities that corresponds to Categories I or II sources is radiation practice that should be licensed. Transportation of nuclear material is licensed as radiation practice where amounts of nuclear material exceeds the amounts defined in Table 6 of Decree on radiation practices (Official Gazette of Republic of Slovenia, No. 19/18).

Q.No * 33	Country Italy	Article Article 27	Ref. in National Report I, 96
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Question/ Comment Is any inspection performed on shipment of radioactive waste crossing the Slovenian territory as transit country?

Answer Recently there was no transit of radioactive waste through the territory of Slovenia. In the past we had some transits of spent fuel. In these cases inspection was carried out.

The SNSA's inspectors have also considered few transits shipments of scrap metal that returned via Slovenia to the countries of origin.

In these shipments increased values of dose rate have been measured, indicating

that within shipments were orphan or abandoned sources, or shipments contained industrial equipment with elevated radioactivity of natural radionuclides (TENORM).

In these cases, inspectors, aligned with legislation (Decree on checking the radioactivity of shipments of scrap metal and the Act) approved the transit of these shipments to the country of origin, mainly neighbouring countries.

Q.No	Country	Article	Ref. in National Report
* 34	Montenegro	Article 27	I, 96

**Question/ Comment** The Report describes that SNSA may refuse to issue an approval for the import, export or transit of radioactive waste and spent fuel if it has concluded that the country of export or the country receiving the consignment does not have the technical, legal or administrative resources necessary for the safe handling of radioactive waste or spent fuel, such as for shipments to a destination south of latitude 60 degrees south. In addition to the insurance stipulated by customs regulations, an exporter, importer, or other person or body carrying out shipments from and into other EU Member States or the transit of radioactive waste, spent fuel or nuclear substances shall ensure for each consignment thereof financial warranties.

1. Do the financial warranties also cover any unfortunate/emergency event that can occur during transportation? How much this financial warranty is in euros and to which account has to be paid in advance?

**Answer** Unfortunately, the text in our report which you are referring to is no longer valid. Financial warranties that were required by the old Radiation Protection and Nuclear Safety Act did not cover possible emergency event that can occur during transportation. They were meant, as explain in our Report, only to cover the payment of expenses incurred in:

- a refusal of the shipment by the competent regulatory authority in the destination country or
- the handling ordered by the regulatory authority when it has concluded that there is no assurance for shipments of radioactive waste out of the EU Member States or imported radioactive waste being handled in a manner pursuant to the Act. But later the provision from the Act was deleted and according to the current legislation, more precisely according to the Rules on the Transboundary Shipment of Nuclear and Radioactive Substances only in case of import or export of nuclear or radioactive substances or shipment of nuclear substances from or to the EU Member States or transit of nuclear substances or radiation sources with significant activity in the Republic of Slovenia the documentary evidence of the provision of financial securities has to be attached to the application - if and when so required by the legislation governing liability for nuclear damage.

Q.No	Country	Article	Ref. in National Report
* 35	United Kingdom	Article 27	p.95 - 96 Section I

**Question/ Comment** The Slovenian report states “The Slovenian legislation (the 2002 Act and the Rules on Transboundary Shipments of Radioactive Waste and Spent Fuel) regarding the transboundary movement of radioactive waste and spent fuel is harmonised with Council Directive 2006/117/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel and with the Commission Decision of 5 March 2008 establishing the standard document for the supervision and control of shipments of radioactive waste and spent fuel referred to in Council



Directive 2006/117/EURATOM.” No mention is made of Article 4(4) of Council Directive 2011/70/Euratom. Reference is made to the European Council Directive on the supervision and control of shipments of radioactive waste and spent fuel (Council Directive 2006/117/Euratom). Are any shipments also subject to an intergovernmental agreement under Article 4(4) of the European Council Directive on the safe management of spent fuel and radioactive waste (Council Directive 2011/70/Euratom)? If so, please provide details.

Answer No such agreement exists.

Q.No	Country	Article	Ref. in National Report
* 36	France	Article 28	Section J - page 98

Question/ Comment As indicated p. 98 of Slovenian's report, since 1999, the Agency for Radwaste Management (ARAO) is the national public service for managing the waste from small producers, in particular for collecting the disused sources.

Regarding such collection of disused sources by ARAO, is there a register of sources produced in Slovenia, allowing evaluating the quantity of the disused sources not yet collected? If so, what are these quantities on the Slovenian territory and abroad? Depending of this quantity in Slovenia, is it foreseen to repeat an action, as done in 2003 by the Slovenian Nuclear Safety Administration (SNSA), to promote the transfer of disused sealed radioactive sources to the ARAO?

Answer There was only one producer of radioactive sources in the past decades. At the beginning of previous decade, the SNSA looked at the then-available lists of all sources, produced by them. A clear majority of them was shipped outside Slovenia (e.g. on the territory of ex-Yugoslavia). Domestically, the focus was set in the next years to change legislation, in particular for the radioactive sources in the lightning rods (also known in the literature as “arrestors”), using Eu-152/154 or Co-60; by 2011, all such devices, with the cited radionuclides, produced in Slovenia, were dismantled and transferred to the recognized facility, “CSRAO” (Central Storage for LILW at Brinje near Ljubljana).

It should be underpinned that also the legislative requirement (i.e. obligation to adequately transfer any disused radioactive source, within a strict timeline of 3 months) is a kind of “promotor” of such transfers, together with the financial implications to cover the costs of annual (or rarer, for certain sources) supervisions, conducted by the technical support organizations (TSOs).

Q.No	Country	Article	Ref. in National Report
* 37	Italy	Article 28	J, 97

Question/ Comment It is reported that concerning DSS the competent authorities are SNSA and SRPA. Could Slovenia elaborate on this issue and clarifying the connections between the two authority within the respective roles?

Answer SNSA and SRPA are two regulators, each of them having clear mandate and scope: SRPA covers the radiation sources (and practices) in medicine and veterinary care, while SNSA covers all other radiation sources and practices. The same “division line” is valid also for the area of safe transport of radioactive material. SRPA and SNSA have both licensing-related as well as inspection-related responsibilities, and they may conduct also joint inspections if the issue is of common interest. SRPA and SNSA have separate registries for radiation sources (i.e. different, not on-line connected databases). It may be added that for nuclear material, regardless of its area of use, SNSA is the only responsible regulator.

Q.No * 38	Country Italy	Article Article 28	Ref. in National Report J, 97
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Question/ Comment Could Slovenia provide more information on specific regulatory framework for the authorization of High Activity Sealed Sources, including its disposal?

Answer Using “graded approach”, SNSA and SRPA are two regulators that are responsible also for safety of HASS. There are two types of licences (permits), i.e. the first one, covering “radiation practice” (e.g. industrial radiography) and the second one, covering “use of radioactive source(s)”. During the licencing process, a due care is taken to all aspects, having in mind “from-cradle-to-grave” concept. Based upon the regulation, e.g. each holder of HASS shall establish certain financial guaranties, take care of security provisions and (as any other holder) is obliged to adequately transfer the disused HASS sources, within the timeline of 3 months, e.g. to the recognised facility, “CSRAO” (Central Storage for LILW at Brinje near Ljubljana). SNSA addresses radiation practices with HASS within its inspection plan – and the frequency of such inspections is normally once a year.

Q.No * 39	Country Italy	Article Article 28	Ref. in National Report J, 97
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Question/ Comment Is recycling of DSS for further use encouraged in Slovenia?

Answer Recycling for further use is not mentioned directly in the national legislation. However, the users of certain HASS (e.g. Ir-192 and Se-75 in industrial radiography; Ir-192 in brachytherapy) usually return decayed sources to the country of origin (consignor) that takes care of the old sources and provide for (deliver) new ones.

Q.No * 40	Country Italy	Article Article 28	Ref. in National Report J, 97
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Question/ Comment Could Slovenia provide information on who is responsible for the financial provision to cover the cost of orphan sources management?

Answer Based upon Article 121 of the Act (as revised in 2017), the costs to cover orphan sources’ management (orphan sources – all cases where “the polluter” is not known) are taken over by the State (budget).

Q.No * 41	Country Denmark	Article Article 32	Ref. in National Report Section B, page 15
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Question/ Comment It is stated that both international solutions as well as national disposal solutions for spent fuel are considered in parallel. Given the plan to determine the siting of a deep geological repository in 2055, will the option for an international solution still remain after that time?

Answer According to current national strategy international solution will no longer be pursued after sitting of a deep geological repository. Both options go in parallel until the choice of one of the options is made. In the case of national repository decision is made, it is planned to start preparatory activities for comparative studies, preliminary designs and the preparation of qualified staff by 2045 with siting activities envisaged between 2045 and 2055. Confirmation of decision on national or multinational approach is made before 2055 and confirmation of an appropriate and socially acceptable location is planned until 2055. Construction is envisaged between 2055 and 2065.

Q.No * 42	Country Germany	Article Article 32	Ref. in National Report p. 29, Section D
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Question/ Comment Regarding the Boršt mill tailings site it is reported that a landslide beneath the deposited mill tailings poses some (minor) risk to the safety of the tailings. In this context, a recent study is mentioned that assesses the distribution of tailings in the case of an extraordinary event (e.g. intensive rain or an earthquake). It is not quite clear whether the mentioned events themselves are supposed to lead to a mobilisation of a part of the tailings material or whether the events lead to a collapse of the landslide and a subsequent destruction of the tailings deposit. Could Slovenia therefore please add some more information on the scenarios developed in this study and the percentage of the tailings' radioactive inventory that is supposed to be released in case of the mentioned events?

Answer The scenarios consider two events: extreme rainfall and an earthquake paired with extreme rainfall. In the case of rainfall, only few hundreds of cubic meters of mill tailings would reach the uninhabited area directly beneath the slope, which is negligible compared to the full mill tailings volume of circa 340,000 m<sup>3</sup>. On the other hand, an earthquake combined with extreme rainfall would cause several thousand cubic meters to be displaced, some reaching the inhabited area down the Todraščica, Brebovščica and even Poljanska Sora river valleys.

Q.No * 43	Country Hungary	Article Article 32	Ref. in National Report Par.1. (V) P24
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Question/ Comment "The Regulation on Radioactive Waste Management and Classification of Radioactive Waste takes into account, with some modifications, the radioactive waste categorisation system recommended in the "EC Recommendation on a Classification System for Solid Radioactive Waste" (OJ L 265, 13 October 1999, p. 37)." With regard to the level and type of radioactivity, solid waste is categorised, where the very low-level radioactive waste category also exists. Do you have present practices for separate handling and storage of VLLW?

Answer VLLW in Slovenia are not handled or stored separately from low and intermediate level waste. However, VLLW is the waste that based on its very low radioactivity content, SNSA can approve its clearance from the regulatory control. The procedure for approval of clearance is conducted based on the holder's application and there were only few such procedures conducted until now, mostly involving material contaminated with natural radionuclides.

Q.No * 44	Country Hungary	Article Article 32	Ref. in National Report Section B, P15
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Question/ Comment "In 2016, Slovenia adopted the second revision of the national strategy: the Resolution on the National Programme for Managing Radioactive Waste and Spent Nuclear Fuel 2016–2025 (hereinafter the 2016 Resolution). This document incorporates several relevant changes affecting spent fuel management plans that have taken place since 2006." The 2016 Resolution also requires that the Krško NPP spent fuel owners evaluate reprocessing as an option that could reduce the volume and radiotoxicity of waste for final disposal. Could you inform us about the evaluation process from technical and economic point of view regarding the reprocessing of spent fuel?

Answer This study was done. Based on its conclusions the decision was to go ahead with dry storage mainly due to the economic evaluation/reasons and the fact that the existing national strategy at that time does not assume any reprocessing option for

spent fuel from NEK (Resolution on the National Programme for Radioactive Waste and Spent Nuclear Fuel Management for the Period 2006–2015 (Official Gazette of the Republic of Slovenia, No. 15/06; ReNPROJG06-15). The new Resolution “Resolution On the National Programme for Radioactive Waste and Spent Nuclear Fuel Management for the 2016–2025 Period (Official Gazette of the Republic of Slovenia, No.31/16; ReNPRRO16–25)” foresees new analysis of possibilities of spent fuel reprocessing.

Q.No * 45	Country Ireland	Article Article 32	Ref. in National Report 15
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Question/ Comment It is noted that the Republic of Slovenia and the Republic of Croatia jointly prepared and approved a Programme for the Decommissioning of the Krško NPP and the Disposal of LILW and High-Level Waste. The National Report notes that in accordance with the requirements set out in the Agreement between the countries, a revision of the document should be adopted every five years. Can Slovenia provide an update on the current status of the Decommissioning Programme and when is the latest revision likely to be approved by the Intergovernmental Commission?

Answer Revision of the Decommissioning Programme has started after the Intergovernmental Commission session held on November 2017. At this session were accepted »terms of reference documentation« for the new revision of The Krško NPP Decommissioning Programme and The Programme for the Disposal of the RW and SNF from the Krško NPP. In November 2017 clear actions were taken to obtain new revision of Decommissioning Programme and The Programme for the Disposal of the RW and SNF from the Krško NPP from Intergovernmental Commission. New Decommissioning Plan, revision 3, project has started in 2018 with the aim to be finished at the end of 2018. For this purpose, two terms of reference were prepared with detail description of all inputs and assumptions for new revision.

Q.No * 46	Country Ireland	Article Article 32	Ref. in National Report 15
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Question/ Comment It is noted that Slovenia approved the first revision of the national strategy on radioactive waste in 2016 referred to as the Resolution on the 2006–2015 National Programme for Managing Radioactive Waste and Spent Nuclear Fuel. Can Slovenia outline what mechanisms were used to engage with the public and key stakeholders in the development of this strategy?

Answer Procedures for preparation the second revision of the national strategy: Resolution on the National Programme for Managing Radioactive Waste and Spent Nuclear Fuel 2016–2025 (2016 Resolution) was very similar as preparation of Law and Regulation. When the draft was prepared two-month public hearing was held. During this period key stakeholders submitted the comments. All received comments and views are publicly available. Finally, a public presentation was organized and all key stakeholders were invited and they had chance to made comments again. After that the procedure for adoption on the government was started.

Q.No * 47	Country Italy	Article Article 32	Ref. in National Report D, 27
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Question/ Comment With reference to the spent fuel assemblies stored in the pool, since at the 5th Review Meeting in 2015 it was mentioned by Rapporteur that storage capacity was

estimated sufficient for operation only until 2018.

Could Slovenia provide an update of the spent fuel in storage at 2018? What will be the impact on the NPP operation until the dry storage facility will be in operation (2020)?

Answer Storage capacity estimation until 2018 was done based on very conservative administrative limitation, which was later on optimized. Slovenia could operate with existing wet SF storage capacity under current nuclear fuel management and operating license till 2023. There is no impact on the NPP operation due to construction and operation of dry storage facility in 2020.

Q.No * 48	Country Italy	Article Article 32	Ref. in National Report D, 29
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Question/ Comment The different RWM facilities in Krško NPP are presented, and in Section L Annex (e) the different streams of RW are reported.

Could Slovenia clarify if the conditioned waste stored in NPP will comply with the acceptance criteria of the LILW disposal facility? Which are the conditioning requirements applied by NPP (WAC)?

Answer All streams of RW will be adjusted in unified final disposal containers and will comply with the acceptance criteria of the LILW disposal facility (WAC). Potential nonconformities of RW streams will be eliminated with additional conditioning procedures to reach WAC for disposal.

WAC for LILW disposal facility has not been fully completed, yet. Characteristics of the waste produced and stored at Krško NPP were used as a Design Input for final repository, since the NPP is the major radioactive waste producer in Slovenia. The intend is not to do any further reprocessing or conditioning of the Plant's waste before it is disposed. Final WAC for LILW disposal facility will be defined within the Safety Analysis Report.

Q.No * 49	Country Italy	Article Article 32	Ref. in National Report B, 17
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Question/ Comment At the beginning of the 2017 in Krško NPP the contract for the construction of a dry storage facility was signed.

When is the end of the construction foreseen?

Answer Krško NPP has a contract with contractor to relocate fuel elements from spent fuel pool to dry storage building in two campaigns. In each campaign 592 elements will be moved from spent fuel pool to dry storage, all together 1184 fuel elements. The first campaign is scheduled for completion in 2021 and the second one for 2028.

Q.No * 50	Country Italy	Article Article 32	Ref. in National Report B, 17
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Question/ Comment Have analysis about the seismic adequacy of the spent fuel pools in the Slovenian NPP and research reactor been performed? Is it an ageing evaluation of the structures, components and systems to verify the remaining period of the safe operation of these pools (or, if necessary, to evaluate refurbishment of the civil structures and modifications/ improvements of the systems) ongoing?

Answer The NPP Krško Aging Management Program includes all required programs, analyses and activities for safe operation of the plant as required by the national regulation and is in compliance with international (NRC and IAEA) standards and practices. Spent fuel is also part of that program. For spent fuel pool in the NPP the National Report in the ENSREG Stress Test verification after the Fukushima accident, this item - site specific PSHA (Probabilistic Seismic Hazard Assessment)

is described in Chapter 1.4.5, 2.1.1.2 and 2.1.1.3. The results of Stress Test are published on SNSA web page:

[http://www.ursjv.gov.si/si/info/porocila/nacionalna\\_porocila](http://www.ursjv.gov.si/si/info/porocila/nacionalna_porocila).

Two spent fuel pools are part of the reactor building of TRIGA Mark II research reactor. The first spent fuel pool was constructed with the reactor in 1966 and is no longer in use. The second one was constructed in 1992. Both pools have been empty since 1999, when all spent fuel elements were shipped to the USA. The new pool is maintained as operational and prepared for immediate use if necessary. The reactor building was designed with consideration 67 % more seismic load than required regulations at that time. An ageing management program for TRIGA Mark II was implemented in 2015. Additionally, the inspection of reactor systems and components important to safety have been performed in the frame of the periodic safety review in 2014. The results of these inspections showed no concern with the physical status of components.

Q.No	Country	Article	Ref. in National Report
* 51	Italy	Article 32	B, 19

Question/ Comment 1. Could Slovenia elaborate in details which criteria have been used for the siting selection for LILW disposal facility in 2009 choosing the Vrblina Site?  
 2. Which type of detailed soil investigations have been conducted in this site the verify the adequacy of the area from the geological, seismic, etc point of view?  
 3. Is a technical guide about siting criteria of the disposal facility available?

Answer 1. Siting process was started in 2004 and all Slovenian municipalities were invited to cooperate. All positive answers for cooperation were analysed through the criteria for the siting. The criteria were given in the site selection documentation and include safety, technical, economical, spatial, environmental and social criteria. On the base of the prefeasibility study three most promising sites were chosen. One of the important criteria for final decision for the site was the public acceptance. Because of that, the local partnerships were established in the local communities to present them the project of LILW disposal facility and to answer the questions. For the final decision for the site the public acceptance was expressed through the community council.

2. Data about the LILW disposal site, and about the corresponding geological, hydro-geological, engineering geological, and geochemical conditions, were collected in several investigation phases. We performed: drilling works, geophysical investigations in the boreholes (down-hole, cross-hole), surface geophysical investigations (seismic high-resolution profiling, geoelectric tomography, vertical electrical sounding, MASW), geological, engineering-geological, hydrogeological, hydro-geochemical paleontological and hydrological investigations.

3. The ARAO decided on a mixed mode site selection process. According to the IAEA recommendations, it is divided into four stages: concept and planning, area survey, site characterisation, and site confirmation. Special attention was devoted to the involvement of local communities in the site selection process. For the first communication with the local communities, an independent mediator was recruited to facilitate negotiations between the community and the Government as the investor. In the second part of the site selection process, so-called local partnerships were established to support the decision-making process and to assure compliance with the Aarhus Convention. At the end of 2004, the official administrative procedure for the siting of the

repository was announced. Based on this, the ARAO invited local communities with a proposal on how to participate in siting. By the end of the first bidding period in April 2005, eight applications from local communities were received. After preliminary characterisation, the sites were ranked and the three most favourable ones were selected and approved for further field investigations and continuation of the siting procedure. All three selected local communities (Brežice, Krško and Sevnica) are in the vicinity of the Krško NPP site. By involvement of all stakeholders and the general public through the local partnerships, a communication forum facilitating dialogue with local communities was created. This provides the opportunity for local and national stakeholders to work together on issues that are of common interest and concern. The municipality of Sevnica soon withdrew from the siting procedure due to strong public opposition to the repository. Similarly, due to strong local opposition, the Municipality of Brežice decided to withdraw its site, though it later proposed a new potential site.

Meanwhile, the procedure for the preparation of the National Spatial Plan for an LILW Repository in Vrbinja in the Municipality of Krško continued. Three disposal options were considered for the site – a surface repository, a silo-type repository and a tunnel-type repository. Based on the evaluation, the ARAO proposed construction of the silo type of LILW repository. The Detailed Plan of National Importance for a Low- and Intermediate-Level Radioactive Waste Repository at the Location of Vrbinja, Krško Municipality was prepared and adopted at the end of the 2009 by the Slovenian Government. All documentation about siting is available at ARAO.

Q.No * 52	Country Italy	Article Article 32	Ref. in National Report B, 21
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Question/ Comment With reference to the construction of the new Waste Manipulation Building in the Krško NPP, could Slovenia update on documents prepared by licensee for the licensing process?

Answer The Waste Manipulation Building was licensed based on construction permit regulation and based on nuclear regulation in Slovenia. The regulation for civil construction permit was used for construction of the building and the nuclear law was used for approval of licensing process with FSAR update as a part of licensing change.

Q.No * 53	Country United States of America	Article Article 32	Ref. in National Report Section E1 pg. 35
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Question/ Comment Figure 3: "Basic elements of the National Programme on Radioactive Waste and Spent Nuclear Fuel Management for the period 2016–2025," is an excellent depiction of Slovenia's spent fuel and waste management objectives. Other graphics and pictures are similarly beneficial.

Answer Thank you for the comment.

Q.No * 54	Country Croatia	Article Article 32.1.1	Ref. in National Report B, 16
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Question/ Comment Until when the decision for final management of SNF (national or multinational disposal program) has to be made?

Answer This depends on finding/reach a common solution for spent fuel management based on Agreement between the Government of the Republic of Slovenia and the Government of the Republic of Croatia on the Regulation of the Status and Other

Legal Relations Regarding the Investment, Exploitation and Decommissioning of the Krško NPP. At the moment, no detailed date could be foreseen.

Q.No * 55	Country Germany	Article Article 32.2.1	Ref. in National Report p. 17, Section B
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Question/ Comment On p. 17 of the National Report it is stated that “[...]the finalisation of safety upgrades and measures by the end of 2021” is assumed while everywhere else in the text the finalization and start of operation is foreseen for 2020. Could Slovenia please resolve whether the dry storage facility will start operation in 2020 or 2021?

Answer According to the contract the dry storage facility will start with operation in second half of year 2020 and campaign I will be completed in first half of year 2021.

Q.No * 56	Country Germany	Article Article 32.2.2	Ref. in National Report p. 27, Section D
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Question/ Comment Some of the fuel assemblies in the spent fuel pool have not been declared to be fully used. These fuel assemblies will probably never return to the core unless emergency core loading has to be performed.

Could Slovenia please explain the term “emergency core loading” in more detail?

Answer Fuel assemblies are declared as spent based on the criteria, defined in Article 32, Paragraph 2: Reporting, (ii) Inventory of Spent Fuel, Krško NPP. Those assemblies are not normally planned to be used in the reactor core again. However, in case of an unprobeable contingency situation, when reactor core could not be assembled using other available (non-spent) fuel assemblies for any number of reasons, an option is reserved by the plant to also use fuel assemblies, previously declared as spent in order to meet design, licensing and safety requirements.

Q.No * 57	Country Croatia	Article Article 32.2.4	Ref. in National Report D, 30
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Question/ Comment What is the available storage capacity of the Central Storage Facility for Radioactive Waste in Brinje? Will it have enough storage capacity for the waste which will be collected in following years, until start of operation of the LILW Repository in Vrbina?

Answer The storage capacity is 115 m<sup>3</sup>. Today’s occupancy is 80%. There are also some reserves in this capacity. With the foreseeable trend it is estimated that this capacity will be sufficient until the operation of the disposal facility.