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# INTEGRATED REGULATORY REVIEW SERVICE (IRRS)

## FOLLOW-UP MISSION

**TO**

# THE REPUBLIC OF SLOVENIA

Ljubljana, Republic of Slovenia

*9 to 16 September 2014*

DEPARTMENT OF NUCLEAR SAFETY AND SECURITY

IAEA Integrated Regulatory Review Service IRRS

REPUBLIC OF SLOVENIA
MINISTRY OF AGRICULTURE AND THE ENVIRONMENT
SLOVENIAN NUCLEAR SAFETY ADMINISTRATION

Integrated
Regulatory
Review Service
IAEA IRRS

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# FOLLOW-UP REPORT TO
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Integrated Regulatory Review Service

IAEA IRRS

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# FOLLOW-UP REPORT TO
# THE REPUBLIC OF SLOVENIA

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| **Mission date:** | *9 to 16 September 2014* |
| **Regulatory body:** | *SLOVENIAN NUCLEAR SAFETY ADMINISTRATION (SNSA)* |
| **Location:** | *SNSA HQ in Ljubljana, REPUBLIC OF SLOVENIA* |
| **Regulated facilities and activities:** | *Nuclear power plant, research reactor, waste storage facility, former uranium mine, uses of radiation sources in research and industry and transport* |
| **Organized by:** | *International Atomic Energy Agency (IAEA)* |

| IRRS TEAM | |
|---|---|
| **KRS** Petr | Team Leader (Czech Republic) |
| **ALLAIN** Olivier | Deputy Team Leader (France) |
| **BLOMMAERT** Walter | Reviewer (Belgium) |
| **GUILLAUD** Pascal | Reviewer (France) |
| **CIUREA ERCAU** Cantemir | Reviewer (Romania) |
| **NICIC** Adriana | IRRS Coordinator (IAEA) |
| **MANSOUX** Hilaire | IRRS Deputy Coordinator (IAEA) |
| **LUX** Ivan | IRRS Review Area Facilitator (IAEA) |
| **UBANI** Martyn **O.** | IRRS Administrative Assistant (IAEA) |

**The number of recommendations, suggestions and good practices is in no way a measure of the status of the regulatory body. Comparisons of such numbers between IRRS reports from different countries should not be attempted.**

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# EXECUTIVE SUMMARY

In September 2011, at the request of the Government of the Republic of Slovenia, an international team of 10 experts in nuclear and radiation safety visited the Slovenian Nuclear Safety Administration (SNSA) to conduct an Integrated Regulatory Review Service (IRRS). The purpose of the IRRS mission was to review the framework for regulating safety of all facilities and activities under the jurisdiction of SNSA, and the effectiveness of the regulatory functions implemented by SNSA. At the request of the Government of the Republic of Slovenia, an international team of senior safety experts met representatives of SNSA from 9 to 16 September 2014 to conduct the IRRS follow-up mission. The mission took place at the headquarters of SNSA in Ljubljana. The purpose of the peer review was to review the national regulatory framework for nuclear and radiation safety in Slovenia, including the measures undertaken following the recommendations and suggestions of the 2011 IRRS missions.

The review compared the Slovenian regulatory framework for safety against IAEA safety standards as the international benchmark for safety. The mission was also used to exchange information and experience between the IRRS Team members and the Slovenian counterparts in the areas covered by the IRRS.

The IRRS Team consisted of 5 senior regulatory experts from 4 IAEA Member States and 4 IAEA staff members.

The IRRS Team carried out a review of the measures undertaken following the recommendations and suggestions of the 2011 IRRS missions in the following areas: responsibilities and functions of the Government; 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 the authorization, review and assessment, inspection and enforcement processes; regulations and guides; emergency preparedness and response; waste management, decommissioning, public and environmental exposure control and transport.

The mission included interviews and discussions with SNSA staff. A policy discussion on the potential effects of the present political and economic situation in Slovenia on the SNSA operation was conducted. A meeting with the Minister of Agriculture and the Environment was also organized.

SNSA provided the IRRS Team with advance reference material and comprehensive documentation including the results of the self-assessment in all areas within the scope of the mission.

Throughout the mission, the IRRS Team was extended full cooperation in regulatory, technical, and policy issues by all parties; in particular, the staff of SNSA provided the fullest practicable assistance and demonstrated extensive openness and transparency.

The IRRS Team concluded that the recommendations and suggestions from the 2011 IRRS mission have been taken into account systematically by a comprehensive action plan. Significant progress has been made in many areas and many improvements were carried out following the implementation of the action plan.

During this follow-up mission, the IRRS Team determined that 8 out of 9 recommendations and 28 of 29 suggestions made by the 2011 IRRS mission had been effectively addressed and therefore could be considered closed. SNSA should be commended for this accomplishment.The IRRS Team made the following general observations:

- SNSA has made significant progress in addressing the findings of the 2011 IRRS mission and they demonstrated commitment for an effective implementation of the IRRS programme, by inviting an IRRS follow-up mission.
- The current economic situation in Slovenia may have, in the short and long term an impact on to SNSA's ability to maintain its capacity and competence.
- Little progress was made in the radioactive waste disposal project development since the IRRS mission of 2011. Sustainable governmental commitment is essential for the development of a repository in order to ensure long term safety.

The IRRS Team identified a good practice and made further recommendations and suggestions that indicate where improvements are necessary or desirable to continue enhancing the effectiveness of regulatory functions in line with the IAEA safety standards.

The IRRS team identified the following good practice:

- The Resolution on Nuclear and Radiation Safety in the Republic of Slovenia for the period 2013-2023 was issued as a programmatic, high level national policy document addressing safety principles and objectives, as well as measures to be taken to achieve these objectives. The Resolution includes a formal mechanism for annual review of its implementation. This is a good example for other States who are working, or planning to develop their national policy.

The IRRS Team identified certain issues warranting attention or in need of improvement. This report includes 2 new recommendations and 5 new suggestions. Key areas for improvement identified during the mission include:

- Government should ensure that appropriate human and financial resources are provided to SNSA in the short and long term.
- Government should ensure that sufficient funds are secured and relevant administrative procedures are in place to enable implementation of an appropriate nuclear safety research programme.
- Government should require the organizations involved in Emergency Preparedness and Response to issue the documents referred to in the National Emergency Response Plan for Nuclear and Radiological Accidents.
- SNSA should require from the operator of the Krško NPPs' solid radioactive waste storage facility taking appropriate measures to ensure accessibility and inspectability of the waste packages.

The findings by the IRRS Team of 2011 that remain open can be found in Appendix **IV**.

The new IRRS Team findings are summarized in Appendix **V**.

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

# I. INTRODUCTION

In September 2011, at the request of the Government of the Republic of Slovenia, an international team of 10 experts in nuclear and radiation safety visited the Slovenian Nuclear Safety Administration (SNSA) to conduct an Integrated Regulatory Review Service (IRRS). The purpose of the IRRS mission was to review the framework for regulating safety of all facilities and activities under the jurisdiction of SNSA, and the effectiveness of the regulatory functions implemented by SNSA.

At the request of the Government of the Republic of Slovenia, an international team of senior safety experts met representatives of SNSA from 9 to 16 September 2014 to conduct the IRRS follow up mission to Slovenia. The mission took place at the headquarters of SNSA in Ljubljana. The purpose of the peer review was to review the measures undertaken following the recommendations and suggestions of the 2011 IRRS mission. The review mission was formally requested by the Government of Slovenia in October 2013. A preparatory meeting was conducted from 19 to 20 May 2014 at the IAEA Headquarters in Vienna, Austria, to discuss the purpose, objectives, scope and detailed preparations of the review in connection with the previous IRRS mission conducted in 2011.

The IRRS Team consisted of 5 senior regulatory experts from 4 IAEA Member States and 4 IAEA staff members.

The IRRS Team carried out a review of the measures undertaken following the recommendations and suggestions of the 2011 IRRS mission in the following areas: responsibilities and functions of the Government; 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 the authorization, review and assessment, inspection and enforcement processes; regulations and guides; emergency preparedness and response; waste management, decommissioning, public and environmental exposure control and transport. No additional area of review was considered for this follow up mission.

The IRRS mission also included a policy discussion on the potential effects of the present political and economic situation in Slovenia on SNSA operation.

SNSA developed an action plan after the initial IRRS mission based on its findings. The detailed results of this action plan implementation and supporting documentation were provided to the team as advance reference material for the mission. During the mission the IRRS Team performed a systematic review of all topics by reviewing the advance reference material, conducting interviews with management and staff of SNSA. A meeting with the Minister of Agriculture and the Environment was also organized. During the entire course of the mission the IRRS Team received excellent support and cooperation from SNSA.

# II. OBJECTIVE AND SCOPE

The purpose of the peer review was to review the regulatory framework for nuclear and radiation safety in the Republic of Slovenia, specifically the measures undertaken following the recommendations and suggestions of the 2011 IRRS mission. The IRRS review scope addressed all facilities and activities regulated by SNSA namely the Krško nuclear power plant, the Brinje TRIGA Mark II research reactor, the Central Interim Storage Facility for Radioactive Waste, the former uranium mine, all uses of radiation sources in the industrial and research sectors and transport and decommissioning. The regulatory framework related to the use of radiation sources in the medical and veterinary sector, which is under the regulatory supervision of the Slovenian Radiation Protection Administration (SRPA), was not included in the scope as it was, during the conduct of the 2011 IRRS mission. The review was carried out by comparison against IAEA safety standards as the international benchmark for safety.

It is expected that the IRRS mission will facilitate regulatory improvements in the Republic of Slovenia and in other Member States from the knowledge gained and experiences shared by SNSA and IRRS reviewers and through the evaluation of the effectiveness of the Slovenian regulatory framework for nuclear and radiation safety and its good practices.

# III. BASIS FOR REVIEW

## A) Preparatory work and IAEA Review Team

At the request of the Government of the Republic of Slovenia, a preparatory meeting for the Integrated Regulatory Review Service (IRRS) follow up mission was conducted from 19 to 20 May 2014. The preparatory meeting was carried out by the appointed Team Leader, Mr Petr KRS, Deputy Team Leader, Mr Olivier Allain and the IAEA representatives, Ms Adriana Nicic, Mr Hilaire Mansoux, Mr Ivan Lux and Mr Rodrigo Salinas.

The IRRS mission preparatory team had discussions regarding the progress made by SNSA in addressing measures undertaken following the recommendations and suggestions of the 2011 IRRS missions. The SNSA team was led by its director Mr Andrej Stritar. The discussions resulted in agreement that the following areas of its regulatory programme were to be reviewed by the IRRS mission:

- Follow up of IRRS findings from the 2011 mission;
- Selected policy issues.

SNSA representatives made presentations on the major regulatory changes in nuclear and radiation safety since 2011, as well as progress made in implementing recommendations and suggestions of the 2011 IRRS mission.

IAEA staff presented the IRRS principles, process and methodology for an IRRS follow-up mission. This was followed by a discussion on the tentative work plan for the implementation of the IRRS in the Republic of Slovenia in September 2014.

The proposed IRRS Team composition (senior regulators from Member States to be involved in the review) was discussed and the size of the IRRS Team was tentatively confirmed. Logistics including meeting and work space, counterparts and Liaison Officer identification, proposed site visits, lodging and transportation arrangements were also addressed.

The SNSA Liaison Officer for the preparatory meeting and the IRRS mission was Mr Igor Grlicarev, Head of International Co-operation Service, SNSA.

SNSA provided the IAEA (and the review team) with the advance reference material for the review in July2014. In preparation for the mission, the IRRS team members conducted a review of the advance reference material and provided their initial review comments to the IAEA Team Coordinator prior to the commencement of the IRRS mission.

## B) Reference for the review

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

## C) Conduct of the review

An initial IRRS Team meeting was conducted on Monday, 8 September 2014, in Ljubljana by the IRRS Team Leader and the IRRS IAEA Team Coordinator to discuss the general overview, the focus areas and specific issues of the mission, to clarify the basis for the review and the background, context and objectives of the IRRS and to agree on the methodology for the review and the evaluation among all reviewers. They also presented the agenda for the mission.

The 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 reviewers also reported their first impressions of the advance reference material.

The IRRS entrance meeting was held on Tuesday, 9 September 2014, with the participation of SNSA senior management and staff, SRPA senior management and representatives from the Administration for civil protection and disaster relief. Opening remarks were made by Mr Andrej Stritar, Director of SNSA, Mr Petr Krs, IRRS Team Leader and Ms Adriana Nicic, IRRS Team Coordinator. Mr Stritar gave an overview of the major regulatory changes in nuclear safety since 2011 and presented a status of the progress made regarding previous IRRS findings.

During the mission, a review was conducted for all the review areas with the objective of providing the Republic of Slovenia and SNSA with recommendations and suggestions for improvement as well as identifying good practices. The review was conducted through meetings, interviews and discussions.

The IRRS Team performed its activities based on the mission programme given in Appendix **II**.

The IRRS exit meeting was held on Tuesday 16 September 2014. The opening remarks at the exit meeting were presented by Mr Andrej Stritar and were followed by the presentation of the results of the mission by the IRRS Team Leader, Mr Petr Krs. Closing remarks were made by Ms Adriana Nicic on behalf of Mr Jim Lyons, Director, Division of Nuclear Installation Safety.

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

# 1. LEGISLATIVE AND GOVERNMENTAL RESPONSIBILITIES

## 1.1. NATIONAL POLICY AND STRATEGY

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **R1** | **Recommendation:** The Government should produce a document that sets out the national policy and strategy for safety. This document would then be supported by a national co-ordinated plan to ensure the appropriate national infrastructure is in place to secure its delivery. |
| **S1** | **Suggestion:** SNSA should draft a National Policy and Strategy for Safety and promote its adoption. |

**Changes since the initial IRRS mission**

**Recommendation 1 and Suggestion 1:** The Resolution on Nuclear and Radiation Safety in the Republic of Slovenia for the period 2013 – 2023 (Resolution) was adopted in the Parliament in June 2013. The Resolution is a programmatic, high level national policy document which contains a descriptive part divided into different chapters and sets the objectives and measures to be taken to achieve these objectives. The Resolution therefore comprises the national policy and strategy. The Resolution is available on the SNSA web page.

SNSA has to report to the Parliament on enactment of the provisions of the Resolution once a year and this constitutes the evaluation mechanism for its implementation. This is done through annual report on Ionizing Radiation Protection and Nuclear Safety, which each year is adopted by the Government and later on by the Parliament of the Republic of Slovenia. Since 2014, SNSA has included in the Annual Report on Radiation and Nuclear Safety in the Republic of Slovenia a description of the implementation of Resolution objectives.

Since the Resolution assigns tasks to several governmental institutions, resources necessary for their implementation need to be secured at a governmental level. Based on the review of the advance reference material and through interviews with SNSA counterparts, the IRRS team has found in certain areas evidence of possible lack of resources, which would be necessary to ensure that the goals set out by the Resolution will be met. Such areas include preservation of knowledge (research and development, training, etc.) as part of SNSA's human resource management and certain areas of SNSA's operation. This issue is addressed in a new recommendation (RF1) which is raised at the end of this section.

**Status of the finding in the initial mission**

**Recommendation 1 is closed** since the Resolution on Nuclear and Radiation Safety in the Republic of Slovenia (for the period 2013 – 2023) was adopted by the Parliament in 2013.

**Suggestion 1 is closed** as SNSA had prepared and submitted to the Government a draft for the above mentioned Resolution.

## 1.2. ESTABLISHMENT OF A FRAMEWORK FOR SAFETY

**There were no findings in this area in the initial IRRS mission.**

## 1.3. ESTABLISHMENT OF A REGULATORY BODY

| 2011 MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S2** | **Suggestion:** The Government should consider alternative methods of financing SNSA to provide it with the flexibility to meet its regulatory obligations whilst also ensuring it operates effectively. This should include provision for research and development. |

### Changes since the initial IRRS mission

**Suggestion 2:** In 2012 SNSA prepared a document to support a project of reorganization and a transformation of both SNSA and the SRPA into a single Public Agency for Nuclear and Radiation Safety, as this was considered to be the best alternative method for financing SNSA and in response to Suggestion 2. In parallel, the necessary modifications of the Nuclear Act were drafted. This challenge and its possible solution are also mentioned in paragraph 6 of the Resolution (see section 1.1 of this report). However, after discussion with all stakeholders including other public administration bodies, independent nuclear experts, licensees and representatives of major political parties it was concluded, that the risks of such transformation would be much higher than the benefits and therefore the idea was abandoned.

The main reasons for not moving forward this transformation, as identified by SNSA, are:

- There was no political support for creation of the new Public Agency primarily because bad experiences with some similar agencies in the past.
- The transformation would require substantial change in the way the organization operates, which would be difficult and time consuming with the existing staff used to the "old" way of operation of the state administration and without possibilities for hiring new staff.
- Financial benefit, i.e. dependence primarily on one major licensee, the nuclear power plant, could be problematic in case of any financial problems in the utility.

SNSA remains in the same position in the government with the same means of funding as at the time of the initial IRRS mission in 2011. It is a so called "Administration in the scope of the ministry", which means that it has its own part of the State budged as part of the budget of the Ministry of Agriculture and Environment.

Due to the economic situation in Slovenia in recent years the whole state administration, including SNSA, is subject to savings and reductions. Even though budget of SNSA stayed approximately the same in recent years, SNSA has informed the Government and consequently the Parliament through the annual report about constraints coming from this situation with indication of possible risks for the future.

The IRRS team recognizes the efforts of SNSA and the Slovenian Government in attempting to address the suggestion and understands that the option of a public agency is not considered appropriate for the time being, the suggestion can therefore be closed. However, the issue of ensuring adequate funding of SNSA remains and is addressed in the new Recommendation RF1.

### Status of the finding in the initial mission

**Suggestion 2 is closed** as SNSA, after discussions with interested parties, considers that the project of creation of an independent public agency is not an optimal solution in the Slovenian context.

## 1.4. INDEPENDENCE OF THE REGULATORY BODY

**There were no findings in this area in the initial IRRS mission.**

## 1.5. PRIME RESPONSIBILITY FOR SAFETY

**There were no findings in this area in the initial IRRS mission.**

## 1.6. COMPLIANCE WITH REGULATIONS AND RESPONSIBILITY FOR SAFETY

**There were no findings in this area in the initial IRRS mission.**

## 1.7. COORDINATION OF DIFFERENT AUTHORITIES WITH RESPONSIBILITIES FOR SAFETY WITHIN THE REGULATORY FRAMEWORK

| 2011 MISSION RECOMMENDATIONS, SUGGESTIONS | |
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| **S3** | **Suggestion:** SNSA should consider establishing a joint coordinated and effective inspection programme with other regulatory bodies such as SRPA and the Administration for Civil Protection and Disaster Relief. |

**Changes since the initial IRRS mission**

**Suggestion 3:** In 2013, three joint inspections with SRPA were carried out at the Krško NPP and one joint inspection was carried out in the field of radiation practices.

In 2014, SNSA has planned inspections with Inspectorate for Natural and Other Disasters and also with SRPA. It is also planned to carry out a joint fire inspection at the Krško NPP.

From the interviews with SNSA counterparts it appears that joint inspection activities are planned without having in place formal arrangements with the interested parties. Such a formalization of cooperation with major partners within the governmental structures would further improve effectiveness of planning, preparation and realisation of joint activities.

**Status of the finding in the initial mission**

**Suggestion 3 is closed based on the basis of progress made and confidence in effective completion** considering that already established joint inspection efforts will be further formalised through appropriate written arrangements between SNSA and other regulatory bodies such as SRPA, Inspectorate for Protection against Natural and Other Disasters.

## 1.8. COMPETENCE FOR SAFETY

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
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| **R2** | **Recommendation:** SNSA should develop and implement a process for carrying out a systematic review of its organisational structure, competencies and resource needed to effectively discharge its current and future responsibilities. |

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S4** | **Suggestion:** SNSA should develop a strategy for research and development and establish an annual programme of work which it considers necessary to meet its regulatory responsibilities. |

## Changes since the initial IRRS mission

**Recommendation 2:** In recent yearsSNSA has developed a system called SAT-URSJV. This system is aimed at ensuring competences and optimizing the internal organization of the SNSA. It is designed and built primarily on the basis of the IAEA TECDOC 1254 "Training the staff of the Regulatory Body for Nuclear Facilities: A competency framework". This document describes the implementation of so-called Systematic Approach to Training (SAT) in the regulatory bodies. During the development the SAT concept was adapted to the needs of the SNSA.

The SAT-URSJV has been gradually introduced during the last three years and further improvements are expected. Training components still need to be completed and interconnected with the rest of the system as in emergency preparedness module for example.

According to the existing restrictions on recruitment, SNSA is not able to use SAT as an input for appropriate human resources planning - both for long term or in response to unexpected demands on human resources (see recommendation RF1).

**Suggestion 4:** In the beginning of 2013 the draft strategy for research and development of the SNSA was prepared as an internal document. There are four main research areas comprising nuclear safety, radioactive waste management, radiation protection including environmental radiation monitoring and emergency preparedness. The strategy also recognizes cross-cutting areas which make a solid basis for all aforementioned areas. The cross-cutting areas refer to "training and maintaining the knowledge" such as coordination of databases, access to lectures and teaching material, including development of e-learning tools, and to "experimental infrastructures", which may encompass supporting research infrastructures in Slovenia and also supporting the infrastructures abroad, where Slovenian researchers conduct projects in collaboration with others.

The document was reviewed by the Expert Council for Radiation and Nuclear Safety which recommended it as an input for the potential national strategy of research and development in the field of nuclear and radiation safety; the strategy was issued in August 2013. In February 2014 the document was also discussed with all interested parties in a panel discussion.

For the time being, due to the economic crisis and state budget reductions, SNSA is not in a position to finance any research in the area of nuclear and radiation safety, which were identified in the research strategy. Administrative arrangements are also necessary to be adjusted for enabling revival of nuclear safety research in Slovenia (see suggestionSF1). Effective execution of research and development programme in the field of nuclear and radiation safety is essential for preserving knowledge in this area for the future.

## Status of the findings in the initial mission

**Recommendation 2 is closed based on the basis of progress made and confidence in effective completion.** SAT-URSJV software was developed and implemented to a large extent. There is an approved plan for its completion.

**Suggestion 4 is closed** as the strategy document for research and development in area of nuclear safety has been developed. There is a new suggestion formulated by the IRRS team to encourage the Government and SNSA, to adjust existing procedures and secure appropriate funding for implementation of this strategy.

## 1.9. PROVISION OF TECHNICAL SERVICES

**There were no findings in this area in the initial IRRS mission.**

### New observations from the follow-up mission

Since the IRRS mission to Slovenia in 2011 the budgetary funds for operation of ministries and other state bodies continued to be reduced due to unfavourable economic situation. State institutions have been repeatedly asked to reduce material expenses, less resources are earmarked for wages and participation in international conferences and meetings, staff promotions have been limited, etc. Conditions in the field of research and education are reported to be even more severe.

The IRRS team has found clear evidence of employment restrictions for SNSA. The last recruitment at SNSA took place in 2011 and since then, the number of SNSA personnel has decreased by two. At the end of 2013 the average age was just over 46 years. The replacement of retired employees or employees on extended sick or maternity leave is not allowed. All these constraints mean that implementation of any long-term personnel policy, such as scholarships, targeted training, workplace promotion, etc., is practically not possible. In the absence of a flow of young people into the team, the risk due to the eventual departure of senior workers (either due to retirement or new and better employment possibilities) has markedly increased. Taking into account the size of SNSA (41 people) such staff reduction would severely affect its ability to fulfil its statutory obligations.

As stated in the 2013 Annual Report the SNSA's financial situation remains critical. While the parent ministry has provided additional funds to cover basic needs and to prevent further reductions in the SNSA's budget, the general financial restrictions and cuts in the SNSA's budget in the long term may jeopardize SNSA's ability to fulfil its regulatory responsibilities in ensuring nuclear safety and radiation protection in Slovenia.

IRRS team has concerns related to issues occurring due to the budgetary limitations in areas such as human resources, knowledge management, certification of SNSA management system, waste management, development of regulations and guides. Another area where lack of financial resources leads to real difficulties is research and development programmes for nuclear and radiation safety.

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
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| **Observation:** *Continued budgetary and staffing restrictions may affect SNSA in discharging of its regulatory responsibilities in short term as well as in the future.* | |
| **(1)** | **BASIS: GSR Part 1, Requirement 3 states that** *"The government, through the legal system, shall establish and maintain a regulatory body, and shall confer on it the legal authority and provide it with the competence and the resources necessary to fulfil its statutory obligation for the regulatory control of facilities and activities."* |

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
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| **(2)** | **BASIS: GSR Part 1, Requirement 16 states that** *"The regulatory body shall structure its organization and manage its resources so as to discharge its responsibilities and perform its functions effectively; this shall be accomplished in a manner commensurate with the radiation risks associated with facilities and activities."* |
| **(3)** | **BASIS: GSR Part 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."* |
| **RF1** | **Recommendation: Government should ensure that appropriate human and financial resources are provided to SNSA in the short and long term.** |

For research and development in the area of nuclear and radiation safety, SNSA developed a strategy document to formulate its general needs and priority areas (for details see text related to resolution of S4). Before adoption of the strategy, SNSA conducted formal consultation with interested parties and the Expert Council for Radiation and Nuclear Safety. Nevertheless, there are some important pre-requisites missing for successful implementation of this strategy. Mainly it is the lack of dedicated financial resources that would allow sustainable financing of research for safety. There are also other aspects that influence successful planning and execution of nuclear safety research projects, such as promotion of fusion research through much higher impact factors in comparison with fission research. Well executed research and development programme in the field of nuclear safety is one of the cornerstones for preserving the knowledge to maintain and further improve safety of nuclear facilities and radiation activities. Such programme is vital for regulators to meet their statutory obligations. The difference between research for purely scientific purposes and research needed for industry and regulatory purposes should be made.

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
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| **Observation:** *Strategy for research and development in the field of nuclear and radiation safety that was prepared by SNSA is not being implemented at the moment due to budgetary and administrative constraints.* | |
| **(1)** | **BASIS: GSR Part 1, para.2.35 states that** *"The building of competence shall be required for all parties with responsibilities for the safety of facilities and activities, including authorized parties, the regulatory body and organizations providing services or expert advice on matters relating to safety. Competence shall be built, in the context of the regulatory framework for safety, by such means as:*<br>*—Technical training;*<br>*—Learning through academic institutions and other learning centres;*<br>*—Research and development work.* |
| **(2)** | **BASIS: GSR Part 1, para. 4.45 states that** *"In the process of its review and* |

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
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| | *assessment of the facility or activity, the regulatory body shall take into account such considerations and factors as: … relevant research and development plans or programmes relating to the demonstration of safety;"* |
| **SF1** | **Suggestion: Government should consider ensuring that sufficient funds are secured and relevant administrative procedures are adjusted to enable implementation of an appropriate nuclear safety research programme that SNSA needs to conduct for meeting its regulatory responsibilities.** |

The Resolution on Nuclear and Radiation Safety in the Republic of Slovenia for the period 2013 – 2023 (Resolution) was adopted in the Parliament in June 2013. National policy and strategy promulgated through this Resolution express a long term commitment to safety. The Resolution accounts the following:

a) The fundamental safety objective and the fundamental safety principles established in the IAEAs' Fundamental Safety Principles;
b) Binding international legal instruments, such as conventions and other relevant international instruments;
c) The specification of the scope of the governmental, legal and regulatory framework for safety;
d) The need and provision for human and financial resources;
e) The provision and framework for research and development;

National policy and strategy for safety that is being implemented in Slovenia through the Resolution was developed in accordance with a graded approach to ensure that the radiation risks associated with facilities and activities, including activities involving the use of radiation sources receive appropriate attention by the responsible state administration.

Fulfilment of the Resolution is reviewed regularly. It is done through annual report on Ionizing Radiation Protection and Nuclear Safety, which is adopted each year by the Government and later on by the Parliament of the Republic of Slovenia.

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
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| **Observation:** *National policy and strategy for nuclear safety is in Slovenia promulgated through resolution of the Parliament. SNSA has to report to the Parliament on progress in fulfilling the Resolution once a year and this constitutes the evaluation mechanism for its implementation.* | |
| **(1)** | **BASIS: GSR Part 1, Requirement 1 states that** *"The government shall establish a national policy and strategy for safety, the implementation of which shall be subject to a graded approach in accordance with national circumstances and with the radiation risks associated with facilities and activities, to achieve the fundamental safety objective and to apply the fundamental safety principles established in the Safety Fundamentals."* |
| **GPF1** | **Good practice: Long term commitment to safety was expressed in Slovenia by Resolution of the Parliament. The Resolution stipulates high level national policy and strategy for safety and includes formal mechanism for** |

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
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| | **annual review of its implementation.** |

The IRRS Team, together with the director of SNSA, met the Minister of Agriculture and Environment. SNSA is under this ministry for a few more days only, as it will split into two different ministries when the new government is installed. The two main issues that the IRRS Team wanted to address to the minister are the current constraints on the SNSA resources (human and financial) as well as the lack of progress in the construction of the radioactive waste repository.

This meeting was followed by a policy issue discussion on potential effects of the present political and economic situation in Slovenia on the SNSA operation. Slovenia, like most States in the EU, suffered from the international economic and financial crises over the last years. As a result, the Government has almost frozen any civil servant recruitment, and people leaving the administration are not being replaced.

As a result of the restriction on civil servant replacement, SNSA has lost 2 staff out of 43 over the last three years. The impact of this staff reduction is considered acceptable, in particular in comparison with other administrations that are facing large staff shortening. SNSA is an administration that is well respected by the Government, the operator of the NPP, as well as the general public. It is considered as a credible, professional body, fulfilling its mandate in a very satisfactory manner. However, this situation is quite fragile and could rapidly deteriorate. Indeed, due to its size, SNSA would be in difficulty if a few more staff would leave. On the opposite, a small staff increase would be very beneficial for SNSA to be able to do more than just discharging its regulatory functions, and to contribute to its long term sustainability, including knowledge transfer to younger staff, and investment in activities such as developing a sound research programme in safety. Another area where the current status of SNSA resources shows its limits is the staffing of the emergency centre. In case of a general emergency situation, only two shifts could be organized and all other activities of SNSA would have to be stopped.

A few years ago, Slovenia was considering the expansion of its national nuclear power programme, which created a momentum for SNSA possible development. However, Slovenia did not manage to bring a new energy programme to be adopted by the Parliament, and no formal decision was ever taken. The recently approved national safety resolution, an initiative of SNSA, could be an opportunity to maintain nuclear and radiation safety at a high level on the political agenda.

Due to its status, SNSA is funded 100 % by State budget, and is not expected to charge, even partly, the cost of its activities, to the licensees. That would have been possible if SNSA had become a public agency (see chapter 1). The small administrative taxes paid by operator to the State are not related to SNSA operation.

# 2. GLOBAL NUCLEAR SAFETY REGIME

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S5** | **Suggestion:** SNSA should expand its number of staff trained in using root cause analysis techniques to ensure its regulatory effectiveness is not compromised. |
| **S6** | **Suggestion:** SNSA should review the current licensees' event reporting threshold to ensure the data used in for evaluating and analysing the effectiveness of the licensees' operating experience programme is appropriate. |

**Changes since the initial IRRS mission**

**Suggestion 5:** In order to expand its number of staff trained in using root cause analysis techniques, SNSA has sent a member of its staff for 6 months, as an intern at IAEA (Department of nuclear installation safety). In addition, another member of SNSA's staff has participated in training courses at the Joint Research Centre (JRC) in Petten (Netherlands) in 2012. Finally, a 3 day workshop was organised by IAEA for SNSA's and Krško NPP Operator's staff in December 2013.

The IRRS team has consulted the training courses certificates, the agenda of the 3 day workshop and the list of attendees. 19 members of SNSA's staff participated to this workshop.

**Suggestion 6:** The current licensee's event reporting threshold is legally established by JV9 Rules on operational safety of radiation or nuclear facilities (Annex 6). The IRRS Team was informed that new proposal for events which should be reported is in preparation. SNSA indicated that criteria for reporting events follow IAEA standards, WENRA requirements and NRC guidelines and there is no major discrepancy from criteria established by other countries. In addressing this suggestion, SNSA considered that the main issue was not the threshold, but the process for collecting and analyzing events. As a result a technical guideline will be drafted to enhance the robustness of the process for collecting and analyzing the events, and to be used as of 2015.

**Status of the findings in the initial mission**

**Suggestion 5 is closed**as additional staff has been trained on using root cause analysis.

**Suggestion 6 is closed on the basis of progress made and confidence in effective completion** as according to the information provided by SNSA and taking into account a new technical guideline on that topic will be available in 2015.

# 3. RESPONSIBILITIES AND FUNCTIONS OF THE REGULATORY BODY

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

**There were no findings in this area in the initial IRRS mission.**

## 3.2. EFFECTIVE INDEPENDENCE DURING CONDUCT OF REGULATORY ACTIVITIES

| 2011 MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S7** | **Suggestion:** SNSA should establish a process for directly obtaining and financing technical or other expert professional advice or services in support of its regulatory functions (e.g. inspections), in order to ensure impartiality of advice and avoid conflict of interest. |

**Changes since the initial IRRS mission**

**Suggestion 7:** Considering that suggestion 7 is related to the general legislation and other Slovenian practices in the field of expertise delivered by authorized expert, SNSA did not propose any changes since the initial IRRS mission. SNSA is of the opinion that the current system works and has not been compromised yet. The IRRS team noticed that SNSA has the necessary provision given in the General Administrative Procedure Act to contract directly an authorised expert and in the Nuclear Act to carry out inspections in order to check if the authorized expert fulfills the requirements given in the "Rules on authorized radiation and nuclear experts (JV3 March 2011)". During these inspections SNSA can check if there is no conflict of interest between the authorized expert and the licensee especially in the field of commercial relationships. Nevertheless, the IRRS team also noticed (see Suggestion 12) that each authorized expert is reassessed by SNSA once every 5 years. The IRRS team was informed that, due to the administrative burden SNSA does not usually resort to directly contracting an authorised expert. The team further noticed that no formal process had been established yet for assessing the risk of conflict of interest for the authorized experts. SNSA indicated that they will address this issue as part of their management system processes/procedures.

**Status of the finding in the initial mission**

**Suggestion 7 is closed on the basis of progress made and confidence in effective completion** considering that SNSA has planned to establish a process for checking the impartiality of authorized experts.

## 3.3. STAFFING AND COMPETENCE OF THE REGULATORY BODY

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S8** | **Suggestion:** SNSA should consider the establishment of a systematic training programme to develop and maintain the competence and skills of its entire staff. |

**Changes since the initial IRRS mission**

**Suggestion 8:** SNSA has developed a system called SAT-URSJV (see Recommendation 2). Among numerous functions, this system lists the necessary competences to perform the tasks at SNSA and the corresponding training courses available. This appears to be a good basis to build a training programme for a newcomer at SNSA. The IRRS team noticed that some competences and training courses still have to be completed, notably in the field of emergency preparedness and response, and that SAT-URSJV system is regularly updated by SNSA.

**Status of the finding in the initial mission**

**Suggestion 8 is closed on the basis of progress made and confidence in effective completion** as SNSA will regularly update its SAT-URSJV system to reflect the list of training courses available to get the necessary competences.

## 3.4. LIAISON WITH ADVISORY BODIES AND SUPPORT ORGANIZATIONS

| 2011MISSON RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S9** | **Suggestion:** SNSA should initiate the modification of Article 58 of the Nuclear Act in order to better define the term "Specific Issues related to Radiation and Nuclear Safety. |

**Changes since the initial IRRS mission**

**Suggestion 9:** It appears that the Nuclear Act had been modified by an amendment which was brought into force shortly before the initial IRRS Mission in 2011. During the follow up mission, the IRRS team noticed that the article 58 is now modified to make the requirements more understandable.

**Status of the finding in the initial mission**

**Suggestion 9 is closed** according to the findings mentioned above.

## 3.5. LIAISON BETWEEN THE REGULATORY BODY AND AUTHORIZED PARTIES

**There were no findings in this area in the initial IRRS mission.**

## 3.6. STABILITY AND CONSISTENCY OF REGULATORY CONTROL

**There were no findings in this area in the initial IRRS mission.**

## 3.7. SAFETY RELATED RECORDS

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S10** | **Suggestion:** SNSA should finalize the revision of regulations to include regulatory requirements for keeping records related to safety of nuclear facilities, including requirements for retention period, disposal of records and notification to the regulatory body. |

**Changes since the initial IRRS mission**

**Suggestion 10:** SNSA has presented to the IRRS team the draft of the amendment to the Nuclear Act. This amendment includes regulatory requirements for licensee's safety records keeping. This amendment is expected to be issued as soon as the new government has been nominated.

**Status of the finding in the initial mission**

**Suggestion 10 is closed on the basis of progress made and confidence in effective completion**considering the examination of the draft amendment.

## 3.8. COMMUNICATION AND CONSULTATION WITH INTERESTED PARTIES

| 2011 MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S11** | **Suggestion:** SNSA should provide interested parties and the public with reasons and justification for its decisions, using a graded approach. |

**Changes since the initial IRRS mission**

**Suggestion 11:** SNSA provides information on its regulatory activities, such as authorizations or modifications (categories I and II for Krško NPP), draft regulatory texts etc. via its website (www.ursjv.gov.si). When appropriate, a short comment is added to briefly present the context and the issue of the subject. Since early 2013 SNSA has also introduced a practice of publishing all relevant documents related to specific issues, for which the increased public interest is expected. SNSA is prepared to respond to questions raised and provide more details on specific regulatory subjects. Another example of providing the public with the relevant information is the Annual Report on Radiation and Nuclear Safety in Slovenian and English, which is required by the Nuclear Act.

**Status of the finding in the initial mission**

**Suggestion 11 is closed** as SNSA is now providing information to the public on its regulatory activities.

**New observations from the follow-up mission**

The IRRS team has reviewed in more depth the rules on authorized radiation and nuclear experts (JV3 March 2011) and noticed that each authorized expert is allowed to subcontract parts of the expertise outside without informing SNSA. In addition, when an authorized expert subcontracts to a third party, it is not required to check the competence and impartiality of the subcontracted party. For example, during the assessment of the Krško NPP's new safety report, an authorized expert subcontracted parts of the expertise to an "International team" composed by individuals from different countries. SNSA was not formally informed by the authorized expert if the competence and independence of this international team was assessed. SNSA will address this issue when revising the rules on authorized radiation and nuclear experts (JV3 March 2011).

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
|---|---|
| **Observation:** *The IRRS team noticed that SNSA is not formally notified by authorized experts when parts of the expertise are subcontracted. In addition, there is no requirement addressed to authorized expert to verify the competence and the independence of their subcontractors.* | |
| **(1)** | **BASIS: GSR Part 1 para. 4.18 states that** *"The regulatory body may decide to* |

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
|---|---|
| | *give formal status to the processes by which it is provided with expert opinion and advice. If the establishment of advisory bodies, whether on a temporary or a permanent basis, is considered necessary, it is essential that such bodies provide independent advice, whether technical or non-technical in nature."* |
| **(2)** | **BASIS: GSG-4 para. 2.5 states that** *"If the provider of external expert support uses experts from outside its own organization as subcontractors, who in turn may use other subcontractors, the primary provider of external expert support should document the independence, reliability and competence of these organizations and individuals. Furthermore, the employment of subcontractors should be properly communicated to the regulatory body in accordance with the contractual arrangements between the regulatory body and the provider of external expert support."* |
| **SF2** | **Suggestion: SNSA should consider requiring authorized experts to properly communicate to SNSA of subcontracted activities and to verify the competence and the independence of the subcontractors.** |

# 4. MANAGEMENT SYSTEM OF THE REGULATORY BODY

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S12** | **Suggestion:** SNSA should establish a process to routinely assess the competence and independence of its authorized experts. |
| **S13** | **Suggestion:** SNSA should take measures to better define and formalize the graded approach of its management system requirements and to ensure that the graded approach is consistently applied for all the management system processes. |
| **S14** | **Suggestion:** SNSA should establish a specific procedure for implementing the process for management of organizational changes. |
| **S15** | **Suggestion:** SNSA should specify in the Management Manual that the causes of non-conformances have to be systematically analysed. |

## Changes since the initial IRRS mission

**Suggestion 12:** In response to the suggestion formulated by the initial IRRS mission, SNSA has taken action to formally establish a process for the routine assessment of the competence and independence of its authorized experts. In this regard, the current revision of the OP 3.1 "Management Manual of the Radiological and Nuclear Safety Inspection" contains a new chapter (chapter. 4.7 - "Control of authorized experts for radiation and nuclear safety") that describes the assessment process.

Three inspections have been performed since the initial IRRS mission, with the objective of reassessing the competence and independence of the experts, as well as the compliance with other authorisation conditions.

The periodicity established in the process for the re-assessment of an authorized expert involved in the supervision of plant outages or producing expert opinion on a regular basis is once in every 5 years. The re-authorization of authorized experts who are not involved in the supervision of plant outages or do not provide expert opinion on a regular basis is as well once in five years, as required by the "Rules on authorized radiation and nuclear experts" (JV3). However, the periodicity of inspections defined in OP 3.1 "Management Manual of the Radiological and Nuclear Safety Inspection" for these experts is once in every 10 years, The IRRS team is of the opinion that for the latest type of experts the reassessment period is too large. The suggestion will be fully complied with, once the SNSA revises the time interval (based on a graded approach) for reassessment of experts who are not involved in the supervision of plant outages or not producing expert opinion on regular bases.

**Suggestion 13:** General principles for the use of graded approach in Slovenian administration system are described in several Acts of the Slovenian legal system. In response to the suggestion formulated in the initial IRRS mission, SNSA has taken actions to better define and formalize the graded approach of its management system requirements and to ensure that the graded approach is applied in the management system processes. As result of these actions several management system documents (e.g. the management manual, licensing, inspections/enforcement and review and assessment processes as well as the applicable procedures for support processes) have been revised in order to emphasise the use of the graded approach.

**Suggestion 14:** The Management Manual of SNSA includes the description of the main principles to be observed when implementing organizational changes, i.e. "planned, controlled, communicated, monitored, tracked and recorded to ensure that safety is not compromised". In addition to that, in response to the suggestion formulated in the initial IRRS mission, chapter 5.2 – "The allocation of task in organisational units and optimisation of internal SNSA organisation" of the procedure OP 1.60 – "Management of employees competence and conducting annual appraisal interviews", issued by SNSA in 2013, provides practical guidelines with regard to the main steps that have to be followed in order to successfully implement an organizational change.

**Suggestion 15:** In response to the suggestion formulated in the initial IRRS mission, SNSA developed new provisions in chapter 8.3 of the Management Manual in order to improve the non-conformance analysis process through systematic and explicit implementation of the non-conformance cause analysis. The implementation of this provision (including the revision of the forms) in the SNSA information system is currently in progress.

**Status of the findings in the initial mission**

**Suggestion 12 is closed on the basis of progress made and confidence in effective completion,** as SNSA has established a formal processfor the assessment of the competence and independence of its authorized experts, but the periodicity of this assessment should be revised based on a graded approach.

**Suggestion 13 is closed** as SNSA has implemented actions to define and formalize the graded approach of its management system requirements and revised its processes accordingly.

**Suggestion 14: is closed** asSNSA has implemented a procedure for the management of organizational change.

**Suggestion 15: is closed on the basis of progress made and confidence in effective completion** as SNSA has established the management requirements for the systematic analysis of non-conformances and has initiated the steps to implement this process.

# 5. AUTHORIZATION

## 5.1. GENERAL

**There were no findings in this area in the initial IRRS mission.**

## 5.2. NUCLEAR POWER PLANTS

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S16** | **Suggestion:** SNSA should consider defining a prioritized structure of which requirements and acceptance criteria apply, indicating the order of applicability of referenced international standards and other regulatory bodies' guides. |

**Changes since the initial IRRS mission**

**Suggestion 16:** In response to this suggestion SNSA has recently issued the Practical Guide 1.05 - "Using the reference documentation in the administrative proceedings relating to nuclear and radiation facilities". This Practical Guide provides a framework for the use and defines a prioritized structure for the applicability of the international and foreign standards, technical guidance and recommended practices related to nuclear and radiation safety (reference documentation) and defines the manner in which this documentation should be applied. It is planned that the set of relevant standards, regulations, recommendations and related reference documents annexed to the guide will be available on the SNSA website and will be kept updated. It is expected that the application of the guide will ensure easier and faster decision-making of the regulatory authority on the applicability and use of the proposed reference documentation. SNSA has taken steps to update its information system and the licensing and review and assessment related documentation in order to reflect the use of the new practical guideline in support of these processes.

**Status of the finding in the initial mission**

**Suggestion 16 is closed on the basis of progress made and confidence in effective completion** as SNSA has issued a guideline for the prioritization of regulatory requirements and criteria used in decision-making and has initiated steps for its application**.**

## 5.3. RADIATION PRACTICES IN INDUSTRY AND RESEARCH

**There were no findings in this area in the initial IRRS mission.**

## 5.4. WASTE FACILITIES

**There were no findings in this area in the initial IRRS mission.**

# 6. REVIEW AND ASSESSMENT

## 6.1. GENERAL

**There were no findings in this area in the initial IRRS mission.**

## 6.2. COMPETENCES FOR REVIEW AND ASSESSMENT AND ORGANIZATIONAL ASPECTS

| 2011mission RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S17** | **Suggestion:** SNSA should take measures to address more systematically the regulatory review and assessment aspects related to the licensees' management system. |

**Changes since the initial IRRS mission**

**Suggestion 17:** Since the initial IRRS mission, the SNSA reviewed and assessed the management systems of the research reactor operating organizations and Krško NPP, either as part of the licensing submission or in the framework of the PSR. As a regular practice, desktop review and assessment of the management system documentation is always supplemented by inspections on the site and follow-up regular inspections, as an area in the annual inspection plan.

In order to perform inspection of licensees' management system more systematically, annex 7 "Inspections of the Management System" of rev. 7 of the organizational procedure OP 3.1 - "Management manual of the radiological and nuclear safety inspection", was supplemented with requirements related to regulatory oversight of management systems. SNSA is planning to use the IAEA draft check list – Management System Inspection Tool as a reference for the development of a specific internal technical guideline for the review and inspection of the licensees' management systems.

SNSA has planned to review once a year the management system of Krško NPP, while the review of management system of other nuclear and radiation facilities is planned to be performed once in every two years.

**Status of the findings in the initial mission**

**Suggestion 17 is closed on the basis of progress made and confidence in effective completion** as SNSA has performed inspections on licensees' management systems and has initiated actions to complement its internal processes and procedures to support the implementation of a systematic regulatory oversight in this area.

## 6.3. REFERENCE DOCUMENTS FOR REVIEW AND ASSESMENT AND UTILIZATION OF LESSONS LEARNED

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S18** | **<u>Suggestion</u>:** SNSA should consider expanding and further developing its own set of internal technical review guidelines and provide the necessary training in their application for regulatory review and assessment, in order to cover all areas important to safety (such as for the regulatory review of PSA, SAR, PSR, Safety Analyses, radioactive waste management applications, etc.) |

**Changes since the initial IRRS mission**

**Suggestion 18**: Progress has been made by SNSA to complete the set of practical guidelines for applicants and licensees, as well as the internal technical review guidelines in support of the SNSA review and assessment process but further work remains to be done. So far considerable effort has been invested by SNSA staff in reviewing the existing internal procedures in order to better reflect the implementation of the graded approach principle. With regard to the suggestion for expanding the set of internal technical review guidelines, SNSA has issued additional documents since the initial IRRS mission (e.g. ON. 2.2 - PSR review and assessment and ON 2.1.6- Safety culture oversight) and provided the training in their application for regulatory review and assessment in accordance with SNSA procedure OP. 1.60 – "Management of employees competence and conducting annual appraisal interviews".

**Status of the findings in the initial mission**

**Suggestion 18 is closed on the basis of progress made and confidence in effective completion** as SNSA has issued new internal technical review guidelines and provided the necessary training in their application for regulatory review and assessment but further work needs to be done by SNSA to complete its internal set of technical review guidelines.

**New observations from the follow-up mission**

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
|---|---|
| **Observation:** *SNSA has made progress for expanding the set of internal technical review guidelines, but work remains to be done until SNSA can demonstrate that its set of internal technical review guidelines is comprehensive. SNSA has developed a specific plan for further development of the practical guidelines for applicants and licensees that could also be used by SNSA in support of the authorization and review and assessment processes but no such plan was yet developed by SNSA to support further development of the internal technical review guidelines.* | |
| **(1)** | **BASIS: GS-G-1.2, para. 3.2 states that** *"The regulatory body should provide internal guidance on the procedures to be followed in the review and assessment process and guidance on the safety objectives to be met. Detailed guidance on specific topics for review and assessment should also be provided,* |

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
|---|---|
| | *as necessary. "* |
| **SF3** | **Suggestion: SNSA should consider establishing a plan (based on the results of a gap analysis) for further development of the internal technical review guidelines following similar approach as for the development of the practical guidelines.** |

## 6.4. WASTE FACILITIES

**There were no findings in this area in the initial IRRS mission.**

# 7. INSPECTION

## 7.1. GENERAL

**There were no findings in this area in the initial IRRS mission.**

## 7.2. ORGANIZATION FOR INSPECTION

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S19** | **Suggestion:** SNSA should consider taking steps in order to relieve the limitations on the personnel who may perform inspections. |

**Changes since the initial IRRS mission**

**Suggestion 19**as discussed in the Advance Reference Material compiled by the host, SNSA inspectors may involve other SNSA staff in the conduct of inspections. The observations related to the suggestion raised the concern that by virtue of the limitations set by Article 15 of Inspection Act; SNSAs' use of inspectors may be limited in conducting field inspections associated with licensing activities. This, however, is not the case as the Act does not limit the use of inspectors within SNSA in any way; it only restricts their participation in activities made by other employees in the field.

**Status of the finding in the initial mission**

**Suggestion 19 is closed** as the limitations on inspectors set by the Inspection Act pose no real problems in the activity of SNSA.

## 7.3. SCOPE OF INSPECTIONS

| 2011 MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S20** | **Suggestion:** To better increase the transparency and predictability of the inspection, SNSA should further develop the internal guidance material with methods on how to inspect different areas and practices and how to evaluate and act upon findings against requirements. |
| **S21** | **Suggestion:** SNSA should perform more unannounced inspections and in a broader scope than in its current practice for nuclear facilities as appropriate. |

**Changes since the initial IRRS mission**

**Suggestion 20:** Internal guidance of inspection is contained in the organizational procedure OP 3.1 entitled "Rules of inspection for radiation and nuclear safety". It includes guidelines in sufficient details on inspection of all radiation and nuclear facilities and activities in Slovenia. The latest update of the guidance (version 7) took place in June 2014. In addition, the Nuclear Act includes detailed description of cases when inspection is to be performed and of practical enforcement issues that might as well be the subject to guidelines. The Inspection Act is also fairly detailed in its requirements on performing inspections.

**Suggestion 21:** This suggestion triggered a systematic planning of unannounced inspections in all nuclear and radiation facilities regulated by SNSA. Also the scope of such inspections has been broadened to include walk-downs and inspection of systems and components of the power plant. Reports on recent unannounced inspections were presented to the IRRS team that demonstrate the extended scope of the inspections. It was reported that five such inspections were held in 2014: two in the NPP, two on radiation practices and one at the research reactor.

**Status of the findings in the initial mission**

**Suggestion 20 is closed** since sufficient guidance is available for SNSA inspectors to perform inspections of nuclear and radiation facilities and activities.

**Suggestion 21 is closed** because performing unannounced inspections of sufficiently broad scopes has become a practice of SNSA.

## 7.4. UTILIZATION OF INSPECTION RESULTS AND INSPECTION EXPERIENCE

**There were no findings in this area in the initial IRRS mission.**

## 7.5. RISK INFORMED INSPECTIONS AND GRADED APPROACH

**There were no findings in this area in the initial IRRS mission.**

## 7.6. INSPECTOR TRAINING AND QUALIFICATION

**There were no findings in this area in the initial IRRS mission.**

# 8. ENFORCEMENT

**There were no findings in this area in the initial IRRS mission.**

# 9. REGULATIONS AND GUIDES

## 9.1. GENERAL

| 2011MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S22** | **Suggestion:** SNSA should perform systematic periodic screening/review of nuclear safety legislation, to ensure keeping regulatory safety requirements complete and up-to-date. |
| **S23** | **Suggestion:** SNSA should establish a long term legislative plan to improve the use of its limited resources and enhance awareness of applicants/ licence holders of possible changes in regulatory requirements. |

### Changes since the initial IRRS mission

**Suggestion 22:** The SNSA organizational procedure OP 4.1 entitled "Preparation and Monitoring of SNSA regulations" has recently been revised and its version 6 published in August 2013. This version lists the internal legal vehicles, regulations and international requirements that need to be monitored in order to initiate the respective changes in SNSA regulations. Persons responsible for monitoring and for initiating revisions receive automatic notification from the SNSA electronic document management system when action is due (with a periodicity of 6 or 12 months). Since entering into operation of this system no such change in the domestic or international environment has been experienced that would have made it necessary to modify SNSA regulations. The revised versions of the European nuclear safety Directive and the European Basic Safety Standards Directive should trigger this process.

**Suggestion 23:** A long term plan for drafting and revising legislation was prepared in early 2013. It is now an unofficial appendix to SNSAs' organizational procedure OP 4.1. The plan is subject to regular revisions. Due to the changes in the Slovenian government the dates foreseen in the current version of the plan cannot be kept and new deadlines for the completion of drafting have to be established. Furthermore, governmental discussions of the Nuclear Act (revised by SNSA on schedule), are being deferred and revision of the governmental decrees and ministerial orders related to the changes in the Act are to be postponed.

### Status of the findings in the initial mission

**Suggestion 22 is closed** as a systematic periodic screening and revision of the Slovenian nuclear safety regulations is in place at SNSA.

**Suggestion 23 is closed on the basis of progress made and confidence in effective completion** as the only remaining step for the full completion is that the long term drafting plan becomes official.

## 9.2. NUCLEAR POWER PLANTS

| 2011 MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **R3** | **Recommendation:** SNSA should develop long term plan for development of *Practical Guidance* in order to complete the framework of principles, requirements and associated criteria for safety upon which its regulatory judgements, decisions and actions are based. The plan should be periodically tested with plans for legislative actions of the SNSA. |
| **S24** | **Suggestion:** Where possible, SNSA should consider use of external support for development of *Practical Guides*. |

**Changes since the initial IRRS mission**

**Recommendation 3:** The latest revision of the SNSA organizational procedure OP 4.2 entitled "Preparation of SNSA Practical Guides" was performed right after the initial IRRS mission in December 2011. A subsequent revision (resulting in version 4) is being performed at the time of the follow-up IRRS mission. The new revision shifts the target dates in the plan to 2015 and 2016 mainly for lack of SNSA financial resources to outsource elaboration of Practical Guides as well as because of its limited own human resources. Outsourcing is also hindered by unfavourable past experience with external contributors. Furthermore, stakeholders have not expressed their need for revised or new guidelines thus timing is not considered a priority at the moment.

**Suggestion 24:** Practical Guidelines assist licensees and other stakeholders in clarification of details of the respective legislation as well as make clear the position of SNSA on the best accepted way of complying with the legislative requirements. SNSA expressed its firm opinion that Practical Guidelines need to be necessarily prepared by SNSA staff and involvement of external experts in this work would not represent benefit.

**Status of the findings in the initial mission**

**Recommendation 3 is closed on the basis of progress made and confidence in effective completion** as the recommendation shall be fully complied with once the revised version of the long term plan for developing Practical Guidelines will be formally appended to OP 4.2.

**Suggestion 24 is closed** because it was considered by SNSA and was then rejected.

## 9.3. RADIATION PRACTICES IN INDUSTRY AND RESEARCH

**There were no findings in this area in the initial IRRS mission.**

## 9.4. WASTE FACILITIES

**There were no findings in this area in the initial IRRS mission.**

**New observations from the follow-up mission**

As discussed in connection with the follow-up of Recommendation 3, human and financial resources of SNSA substantially hinder the elaboration of the Practical Guides foreseen in the long term development plan. Lack of resources of the regulatory body is a serious hampering factor. A recommendation (RF1) of the follow-up mission to remedy this problem is given in Chapter 1.

# 10. EMERGENCY PREPAREDNESS AND RESPONSE

| 2011 MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S25** | **Suggestion:** SNSA should require the operator of Krško NPP to assess the reliability of the means of communication in order to verify that data transfer between the NPP and the NPP Emergency Off-Site Facility in Ljubljana would still be ensured in case of both natural disaster and nuclear accident (lessons from the TEPCO-Fukushima Dai-ichi accident) |
| **S26** | **Suggestion:** SNSA should initiate a work towards planning the transition between the emergency phase to long term recovery operations and the post-accident phase. |
| **R4** | **Recommendation:** SNSA should strengthen its arrangements to ensure that the minimum staffing requirements of its emergency centre continue to be met throughout any General Emergency. |
| **S27** | **Suggestion:** SNSA should work, alongside with the competent authorities, towards the harmonization of emergency preparedness and response arrangements with Croatia in case of an emergency occurring in Krško NPP. |
| **R5** | **Recommendation:** SNSA should, through the inter-ministerial committee, promote the organization of full scope field exercises more frequently, to test the coordination of all stakeholders. |
| **R6** | **Recommendation:** SNSA should encourage the responding organizations involved in the performance of functions mentioned in the national plan to have an emergency plan compliant with the requirements of the NERPNRA. |

**Changes since the initial IRRS mission**

**Suggestion 25:** On 18th January 2013, SNSA issued a formal demand to the operator of the Krško NPP to carry out a reliability assessment of its communication channels. Following this demand, the operator of the Krško NPP has sent a response letter that announced the upgrading of emergency communication systems both onsite and offsite. The planned modification consists in developing satellite communications between the NPP and other emergency centres, and particularly with the EOF in Ljubljana.

However, the technical solution has not been presented in full details yet by the operator, concerning in particular the foreseen type of transmission (voice communication, data transfer or both).

This modification will be assessed by the Nuclear Safety Division of SNSA as part of the overall safety upgrade program of Krško NPP. The full implementation of this action is expected in 2015.

**Suggestion 26:** In December 2013, SNSA has issued a procedure (ON 5.3.8 "Post-Accident Strategy after a Nuclear or Radiological Accident"). This document, which is attached to the National Emergency Plan Response Plan for Nuclear and Radiological Accidents, requires the preparation of a rehabilitation program (after the emergency phase of an accident), is expected to

cover 7 strategic matters (e.g. monitoring of the environment, protective actions, information of the public…). The procedure also identifies the leading organization for these different matters.

This strategy is about to be presented to stakeholders (operators, local and national administrations) during a seminar scheduled in October 2014. It will then have to be integrated in the internal plans and documentation of the organizations involved in the response in case of a nuclear or radiological emergency.

**Recommendation 4:** The requirements for staffing SNSA emergency centre are set down in procedure OP 5.2 "Alarming / Activating of the emergency team". According to this document, the required staffing to join the centre in case of a general emergency on Krško NPP would consist of a team of 19 members. The minimum staffing would be 6 members for a lower level emergency on the NPP, whereas for radiological emergencies the minimum is 4.

Following Recommendation 4 addressed after the 2011 IRRS Mission, SNSA has developed software that checks the availability of staff and displays possible emergency team composition, on a daily basis up to 8 weeks in advance. Information provided by the software is accessible to all SNSA staff. The purpose of the software is to automatically identify possible critical situations for emergency team staffing on time.

It generates different e-mail alerts to the SNSA Director, head of Emergency Preparedness Division and General Affairs Office.

This software represents a major improvement in forecasting the possible staffing of the emergency centre. However:

- The information related to the availability of staff during weekends is not perfectly reliable, since there is no specific input for these periods, due to privacy considerations.
- Staff on leave is systematically mentioned as "unavailable" by the software, while they could join SNSA premises in case of a real emergency as regular tests demonstrate. This explanation has been put forward by SNSA to justify situations where the staffing requirements were not fully met according to the software.

The reliability of the software could be enhanced by taking into account these above observations.

In addition, as already indicated in the 2011 IRRS Mission report, the staffing requirement for a general emergency (19 staff) represents nearly half of SNSAs' staff. In this context, any additional reduction in manpower would jeopardize SNSA's capability to perform its duties in case of an emergency (see recommendation RF1)

**Suggestion 27:** SNSA started intensive activities towards harmonization during an emergency at the Krško NPP with Croatia. In January 2013 a meeting was organized between SNSA and the Croatian State Office for Radiation and Nuclear Safety in Zagreb. The issue of harmonization of EPR was raised and both countries agreed to work on harmonization of emergency response strategies. A similar meeting was held on 7$^{th}$ January 2014 at the SNSA's offices in Ljubljana.

The Slovenian inter-ministerial committee on emergency preparedness has established a working group at the end of 2013 to re-evaluate the hazard assessment of the Krško NPP and redefine response strategies. Representatives from Croatia are members of this working group that has held 4 meeting so far. One of the main issues to be addressed by the group concerns the definition of the planning zones and protection strategy and their harmonization with Croatia.

Besides, the necessary work towards harmonization was put on the agenda of the last official meeting between the SNSA and the Croatian State Office for Radiation and Nuclear Safety on

the basis of bilateral agreement on early notification in case of a radiation emergency in Zagreb on 18th April 2014.

As a result of recent efforts, cooperation has largely improved, comparing to the previous years. The Croatian regulatory authority was put on the MKSID notification channel. In addition, Croatia is taking part in this year's national exercise in Slovenia. However, there are no conclusions yet on the harmonization of the emergency zone sizes and protection strategy.

**Recommendation 5:** After the national table top exercise carried out in 2008, the period report issued by the Administration for Civil Protection and Disaster relief recommended a frequency of 3 years for the realization of such exercises.

Following the 2011 IRRS Mission, SNSA informed the Inter-ministerial Committee on Emergency Preparedness of the importance of carrying out field exercises. A 5 year programme of trainings and exercises on the national level relating to radiation emergencies was established and is updated on an annual basis. In this programme, national exercises on the NPP, scheduled every 3 years, are forecasted as field exercise.

According to these new requirements, a field exercise was organized in November 2011 and two others are scheduled in November 2014 and in 2017.

**Recommendation 6:** SNSA informed the Inter-ministerial Committee of the importance of updating emergency plans. This position was shared by the Inspection for Protection against Natural and Other Disasters and a dedicated meeting was held on the subject.

However, the current situation shows little improvement since the last mission, since nearly 13% of the documents referred to in the National Emergency Response Plan for Nuclear and Radiological Accidents (NERPNRA) are still missing.

The Inter-ministerial Committee has initiated a motion to invite an EPREV mission in Slovenia in 2016 or 2017. This motion has to pass through the government in order to formally invite the mission.

SNSA has fulfilled its obligations with regards to its area of competence for implementing the recommendation. However, the overall objectives of the recommendation are not fully met. Therefore the IRRS team concluded that recommendation 6 (R6) should be closed on the basis of progress made and offers to introduce a new suggestion addressed to the government (see below). In addition, the foreseeable invitation on an EPREV Mission in Slovenia should help promote the development and the updating of emergency response plans and procedures of involved organizations.

**Status of the findings in the initial mission**

**Suggestion 25 is closed on the basis of progress made and confidence in effective completion,** as the operator of the Krško NPP has announced the development of satellite communications in 2015.

**Suggestion 26 is closed,** as a strategy for the post-accident phase has been defined, formalized and integrated in the National Emergency Response Plan for Nuclear and Radiological Accidents.

**Recommendation 4 is closed,** as the new software recently developed provides a clear view on the availability of agents, with regards to the minimum staffing requirements.

**Suggestion 27 remains open** as discussions between Slovenia and Croatia are still in progress concerning the definition of emergency zones and protection strategy.

**Recommendation 5 is closed** as field exercises are now scheduled and conducted on a regular basis (3 years).

**Recommendation 6 is closed on the basis of progress made and confidence in effective completion** as SNSA has fulfilled its obligations with regards to its area of competence.

## New observations from the follow-up mission

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
|---|---|
| **Observation:** *Information obtained from the 2014 follow-up mission shows that around 13% of the documents referred to in the NERPNA (plans and procedures in case of an emergency) are still missing.* | |
| **(1)** | **BASIS: GS-R-2 para. 5.14 states that** *"Each response organization shall prepare a general plan or plans for coordinating and performing their assigned functions […]."* |
| **(2)** | **BASIS: GS-R-2 para. 5.21 states that** *"The operating and response organizations shall develop the necessary procedures, analytical tools and computer programs in order to be able to perform the functions specified to meet the requirements for emergency response.[…]"* |
| **SF4** | **Suggestion: Government should consider requiring the organizations involved in Emergency Preparedness and Response to issue the documents referred to in the NERPNRA.** |

# 11. TRANSPORT OF RADIOACTIVE MATERIALS

| 2011 mission RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **S28** | **Suggestion:** SNSA should take initiative, together with other concerned authorities, to go through the list of CA tasks and clarify, when needed, which authority is responsible for what task, and to find means to communicate this along with relevant contact information to consignors, carriers and consignees. |

## Changes since the initial IRRS mission

**Suggestion 28:** Transport of radioactive material is regulated mainly through the Transport of Dangerous Goods Act (ZPNB). ZPNB in Article 3 refers to international regulations and conventions on transport of dangerous goods such as ADR. The Slovenian Ionising Radiation Protection and Nuclear Safety Act (ZVISJV) also covers transportation of nuclear and radioactive materials, which is defined in this Act as a "radiation practice", therefore requiring licensing and inspection by either SNSA or SRPA (based on their respective jurisdiction).

In response to the suggestion, SNSA, together with the Ministry of Infrastructure and Spatial Planning (in charge of transport), reviewed the allocation of responsibilities assigned by ZPNB and ADR. The agreed outcomes of this review are:

- The assignment of responsibilities in ZPNB is clear, with no overlap and no gap. Unless otherwise specified, the competent authority is the Ministry of Infrastructure and Spatial Planning;
- There is no need to modify significantly the distribution of responsibilities but the roles played by SNSA and SRPA should be emphasized in the ZPNB;
- The only change in responsibilities needed, is the transfer of package approval from the Minister responsible for environment to SNSA, as this responsibility is formally assigned to the Minister responsible for environment, but in practice is discharged by SNSA.

Amendments to ZPNB (articles 7 and 52) have been drafted and agreed by interested parties to reflect these clarifications and changes. These amendments were presented to the IRRS team. It is expected that these amendments will be enacted in the course of 2015.

Licensees performing transport of nuclear and radioactive materials are already informed of these coming amendments. Once enacted, the amended ZPNB will be published in the Official Gazette and the list of Competent Authorities according to ADR will be updated, to better reflect the main roles of SNSA and SRPA, as "other competent authorities", the "main competent authority" remaining the Ministry of Infrastructure and Spatial Planning.

## Status of the finding in the initial mission

**Suggestion 28 is closed on the basis of progress made and confidence in effective completion** as clarifications have been made in the responsibilities of the different competent authorities for transport of radioactive materials, and these clarifications will be reflected within a year through the amendment of the Transport of Dangerous Goods Act.

# 12. RADIOACTIVE WASTE MANAGEMENT AND DECOMMISSIONING, PUBLIC AND ENVIRONMENTAL EXPOSURE CONTROL

## 12.1.RADIOACTIVE WASTE MANAGEMENT

| 2011 MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **R7** | **Recommendation:** SNSA should require Krško NPP operators to include in the Periodic Safety Review the evaluation of the integrity of the RW packages stored for demonstrating that the safety conditions are kept. |
| **R8** | **Recommendation:** The Government should make the necessary provision for the LILW Repository to ensure radioactive waste can be disposed at the appropriate time. |
| **S29** | **Suggestion:** SNSA should continue with the regulatory monitoring activities at Boršt for the time necessary to reach a stable situation. The plan for surveillance and monitoring should be periodically reviewed. |

**Changes since the initial IRRS mission**

**Recommendation 7:** A plant packaging inspection program had already been in place before the implementation of the second PSR.

As recommended, the second PSR program specifically included a re-evaluation of the design basis with respect to durability and integrity of waste packages stored in the solid waste storage facility of the Krško NPP. The PSR program required the assessment of the integrity of the radioactive waste barrels based on evaluation of design adequacy and also on events or other plant specific operating experience data. This approach would give enough bases for a credible safety demonstration which would confirm that the safe conditions will be maintained during the next ten years (up to the next PSR).

The resulting PSR report, approved by SNSA, has shown that the design basis for durability and integrity of the waste packages are within acceptable level. From the PSR report and based on the information taken up in the internal inspection procedure from the operator, it was clear that only limited criteria were used in the evaluation process. Indeed, discussion with the counterpart revealed that the internal inspection procedure from the operator only deals with the visual inspection of the drums and that this procedure does not have to be approved by SNSA. However, results from the visual inspections are discussed with the SNSA inspector on a regular basis. Criteria used in the evaluation process should be clearly mentioned in the next PSR.

**Recommendation 8:**In view of the spare capacity left for storage of radioactive waste (as is the case for the Central Interim Storage Facility for LILW at Brinje, as well as for the solid radioactive waste storage facility at the Krško NPP ("because its LILW storage is filling up, the NPP will have to ensure normal operation in the next few years by finding a different solution as regards waste manipulation"; page 61 of annual report 2013) , Slovenia may in the short term face administrative, structural and major safety and radiation protection problems. Also the approval of the extension of the lifetime of the Krško NPP will have a direct impact on the need for storage capacity for LILW. The fact that both storage facilities are almost filled up also creates problems with respect to accessibility and inspectability of the waste packages. These are

prerequisites to allow effective verification of the waste packages and hence to ensure that safety conditions are respected at all times during storage (awaiting disposal). Effective verification of the integrity of the packages is hampered mainly because of the spare storage capacity left as a result of the unavailability of a repository.

The slow progress in the development of a repository for LILW (site qualification, environmental impact assessment and safety case development) will also hamper the development of waste acceptance criteria (WAC). Moreover, ageing of waste forms and packages may reveal important shortcomings with respect to (future) WAC's and might result in the need to recondition waste, thus increasing further the volume of radioactive waste to be disposed of.

In 2013, a preliminary safety assessment as part of the safety case and including a proposal for waste acceptance criteria was prepared by ARAO and sent to SNSA in the framework of pre-licensing activities. Based on the information provided, two meetings took place at the request of the operator. As a result of these meetings the operator is now expected to further prepare the license application file. Until now, only field investigations for qualification purposes are ongoing. The unavailability of exact site qualification data is an important issue in the evaluation and development process.

In June 2014 the investment plan for the disposal project development was signed by the Minister of Infrastructure and Spatial Planning. However the licensing process still to be conducted will require a significant amount of time, while the remaining storage capacity is very limited. The IRRS team noted that no major progress was made in the project development since the IRRS mission of 2011 and that the initial date foreseen for operating the disposal facility is already past.

The bilateral 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 prescribes joint responsibility of both countries for management of radioactive waste and spent fuel. The Agreement was signed in 2001 and ratified by Slovenia in the year 2003.

Up to now, Slovenia and Croatia have not reached an agreement on a common LILW disposal and spent fuel management solution. There was some common work on the revision of the Krško NPP decommissioning plan, but it has not been finalized yet.

The IRRS team was informed that if no agreement is reached on a common solution for radioactive waste, the two countries should remove in equal shares all operational radioactive waste and spent fuel from the Krško NPP by 2025. It would be beneficial to both parties to reach agreement in this matter as soon as possible.

All these issues clearly demonstrate that priority should be given to decisions and actions concerning long term management of waste and that human and financial means should be made available for SNSA and other organizations involved in the development and construction of a repository. Moreover sustainable governmental commitment is essential to ensure long term safety and in order to solve storage problems in the short term.

**Suggestion 29:** The IRRS team verified the content of the regulation JV10 that serves as the basis for the operator of the Boršt facility to develop his monitoring program. This rule JV10 contains information concerning the type and frequency of monitoring activities to be performed.

The monitoring program is part of the safety report prepared by the operator and is approved by SNSA and SRPA. With respect to environmental monitoring activities, SNSA approves the

partitioning of the monitoring activities between the facility operator and the TSOs', in order to guarantee that the monitoring program will be fully implemented.

The operator and the TSOs 'annually report annually to SNSA and SRPA. Inspections by SNSA assure that all monitoring actions are effectively implemented, especially in view of the fluctuation of the licensee's managerial staff and the difficult financial situation resulting in slow accomplishment of remediation measures.

The content of the SNSA inspection program, covering the verification of the monitoring activities, was reviewed by the IRRS team.

JV10 does not contain a requirement with respect to the frequency of reviewing the monitoring program for facilities. The initial monitoring program had a validity of 5 years. This was mentioned in the safety report. For the next monitoring program however no periodicity for review is foreseen. The IRRS team suggests to SNSA to propose an amendment to JV10 and to incorporate therein a periodicity for review of the monitoring program. As such it will be applicable for all types of facilities covered by JV10. The IRRS team was informed that SNSA will revise JV10 in the coming year.

### Status of the findings in the initial mission

**Recommendation 7 is closed** as the second PSR program included an evaluation of the integrity of the radioactive waste packages stored and the PSR report was approved by SNSA.

**Recommendation 8 remains open** as no major progress was made in the disposal project development since the IRRS mission of 2011.

**Suggestion 29 is closed on the basis of progress made and confidence in effective completion** as continued monitoring is foreseen and the effective implementation of the monitoring program is assured by inspections, JV10 will be amended to impose a periodicity for the review of the monitoring program.

### New observations from the follow-up mission

The second PSR report on the Krsko NPP, revealed possible problems concerning durability and integrity of some packages of spent resins conditioned waste stored in the solid waste storage facility at Krško NPP, which may impact safety. The ARM mentioned also problems with respect to accessibility and inspectability of the packages, besides occupational safety problems. SNSA indicated that it did not require an action plan from the operator as yet for these drums because no immediate safety problem was expected. From the discussions with the counterpart the IRRS team concluded that the actual situation is not in agreement with existing IAEA requirements. The construction of a new waste manipulation building in near future and movement of the manipulation equipment from the present storage building to the aforementioned building however will create some additional storage capacity that might open the possibility of better accessibility and inspectability of waste packages in the future. At present, the internal inspection procedure by the operator only deals with the visual inspection of the waste packages.

The hereby formulated recommendation is strongly linked to recommendation 8 from the IRRS mission report of 2011, dealing with the availability of a disposal facility for LILW.

| FOLLOW UP MISSION RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES | |
|---|---|
| **Observation:** *Accessibility and inspectability of waste packages in the solid waste storage at the Krško NPP are not ensured and regulatory requirements for inspection should be developed.* | |
| **(1)** | **BASIS: GSR Part 5, Requirement 11 states that:** *"Waste shall be stored in such a manner that it can be inspected, monitored, retrieved and preserved in a condition suitable for its subsequent management. Due account shall be taken of the expected period of storage, and, to the extent possible, passive safety features shall be applied. For long term storage in particular, measures shall be taken to prevent degradation of the waste containment."* |
| **(2)** | **BASIS: GSR Part 5, Requirement 10 states that:** *"Radioactive material for which no further use is foreseen, and with characteristics that make it unsuitable for authorized discharge, authorized use or clearance from regulatory control, shall be processed as radioactive waste. The processing of radioactive waste shall be based on appropriate consideration of the characteristics of the waste and of the demands imposed by the different steps in its management (pre-treatment, treatment, conditioning, transport, storage and disposal). Waste packages shall be designed and produced so that the radioactive material is appropriately contained both during normal operation and in accident conditions that could occur in the handling, storage, transport and disposal of waste."* |
| **RF2** | **Recommendation: SNSA should require from the operator of the Krško NPPs' solid radioactive waste storage facility taking appropriate measures to ensure accessibility and inspectability of the waste packages.** |
| **SF5** | **Suggestion: SNSA should consider developing regulatory requirements to be addressed by the operator in its inspection program for the verification of the integrity and storage conditions of radioactive waste packages.** |

## 12.2.DECOMMISIONING

| 2011 MISSION RECOMMENDATIONS, SUGGESTIONS | |
|---|---|
| **R9** | **Recommendation:** SNSA should require ARAO to prepare and present a Decommissioning Plan for the CISF at Brinje. That plan should be updated periodically. |

### Changes since the initial IRRS mission

**Recommendation 9:** The IRRS team verified that one of the license conditions of ARAO is the preparation of a decommissioning plan to be submitted to SNSA as part of the application for cessation of the operation of the waste storage facility in Brinje, foreseen in 2018.

Following the recommendation of the initial IRRS mission, ARAO was requested to submit a first decommissioning plan. SNSA considered this plan acceptable, for the current status of the

facility. The IRRS team reviewed that the table of content of the decommissioning plan was in accordance with the rule JV5. According to the current license, ARAO will review the decommissioning plan at the end of the license period in 2018. In addition, JV5 imposes a periodicity of 10 years for the review of the plan.

**Status of the finding in the initial mission**

**Recommendation 9 is closed** as the decommissioning plan for the CISF exists and will be updated periodically, according to the rule JV5.

# IRRS SLOVENIA FOLLOW UP TEAM

# APPENDIX I - LIST OF PARTICIPANTS

| INTERNATIONAL EXPERTS: | | |
|---|---|---|
| **KRS** Petr | State Office for Nuclear Safety (SÚJB) | petr.krs@sujb.cz |
| **ALLAIN** Olivier | Autorité de Sûreté Nucléaire (ASN) | olivier.allain@asn.fr |
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| **GUILLAUD** Pascal | Autorité de Sûreté Nucléaire (ASN) | pascal.guillaud@asn.fr |
| **CIUREA-ERCAU**Cantemir Marian | National Commission for Nuclear Activities Control (CNCAN) | cantemir.ciurea@cncan.ro |
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| **LIAISON OFFICER** | | |
| **GRLICAREV** Igor | Slovenian Nuclear Safety Administration (SNSA) | igor.grlicarev@gov.si |

# APPENDIX II - MISSION PROGRAMME

<table>
<tr><th>Time</th><th>08-MON</th><th>09-TUE</th><th>10-WED</th><th>11-THU</th><th>12-FRI</th><th>13-SAT</th><th>14-SUN</th><th>15-MON</th><th>16-TUE</th></tr>
<tr><td>9:00-10:00</td><td rowspan="4">Arrival of Team Members</td><td>Entrance Meeting</td><td rowspan="3">Interviews</td><td colspan="2">Written preliminary findings delivered</td><td colspan="2">Draft text to TL</td><td colspan="2">Submission of the Draft to the Host</td><td rowspan="12">Free day</td><td>Written comments by the Host</td><td rowspan="2">Exit Meeting & Press Conference</td></tr>
<tr><td>10:00-11:00</td><td rowspan="2">Interviews</td><td>Interviews /TM write Report</td><td>Admin. Assistant edits findings</td><td>Cross reading</td><td>Admin. Assistant edits Report</td><td colspan="2" rowspan="2">Discussion of Executive Summary</td><td rowspan="2">Discussion by the TM</td></tr>
<tr><td>11:00-12:00</td><td rowspan="11">Departures of Team Members</td></tr>
<tr><td>12:00-13:00</td><td>Lunch</td><td>Lunch</td><td colspan="2">Lunch</td><td colspan="2">Lunch</td><td colspan="2">Lunch</td><td>Lunch</td></tr>
<tr><td>13:00-14:00</td><td rowspan="4">Interviews</td><td rowspan="4">Interviews /TM write findings</td><td colspan="2" rowspan="2">TM discuss findings</td><td>Cross reading</td><td>Admin. Assistant edits Report</td><td rowspan="4">Host reads Draft</td><td rowspan="4">TL finalises the presentation</td><td rowspan="4">TC drafts the Press Release</td><td rowspan="2">Discussion with the Host</td></tr>
<tr><td>14:00-15:00</td></tr>
<tr><td>15:00-16:00</td><td rowspan="2"></td><td colspan="2" rowspan="2">TM finalize findings/write Report</td><td colspan="2" rowspan="2">Discussion of the results of cross-reading</td><td rowspan="2">Finalisation of the Report</td></tr>
<tr><td>16:00-17:00</td><td rowspan="3">Initial Team Meeting</td></tr>
<tr><td>17:00-18:00</td><td>Daily Team Meeting</td><td>Daily TM Meeting</td><td colspan="2">Daily TM Meeting</td><td>TM finalize Report</td><td>TL/TC write Exec. Sum</td><td rowspan="3">Free</td><td>Presenting the final Draft of the Report to the Host</td></tr>
<tr><td>18:00-19:00</td><td>Dinner</td><td>Dinner</td><td colspan="2">Dinner</td><td colspan="2">Dinner</td><td rowspan="2">Free</td></tr>
<tr><td>19:00-20:00</td><td rowspan="2"></td><td rowspan="2">Team Members (TM) write Report</td><td rowspan="2">TM write findings</td><td colspan="2" rowspan="2">TM write Report</td><td colspan="2" rowspan="2">Admin. Assistant edits Report</td></tr>
<tr><td>20:00-24:00</td></tr>
</table>

# APPENDIX III - MISSION COUNTERPARTS

| | IRRS Experts | SNSA Lead Counterpart | SNSA Support Staff |
|---|---|---|---|
| 1. | **LEGISLATIVE AND GOVERNMENTAL RESPONSIBILITIES** | | |
| | Petr KRS<br>Olivier ALLAIN<br>Adriana NICIC | Andrej STRITAR | Aleš ŠKRABAN<br>Aleš JANEŽIČ |
| 2. | **GLOBAL NUCLEAR SAFETY REGIME** | | |
| | Petr KRS<br>Olivier ALLAIN<br>Adriana NICIC | Andrej STRITAR | Djordje VOJNOVIČ<br>Matjaž PODJAVORŠEK |
| 3. | **RESPONSIBILITIES AND FUNCTIONS OF THE REGULATORY BODY** | | |
| | Petr KRS<br>Olivier ALLAIN<br>Adriana NICIC | Andrej STRITAR | Aleš ŠKRABAN<br>Igor SIRC |
| 4. | **MANAGEMENT SYSTEM OF THE REGULATORY BODY** | | |
| | Cantermir CIUREA-ERCAU | Darja SLOKAN-DUŠIČ | Andrej STRITAR<br>Aleš JANEŽIČ |
| 5. | **AUTHORIZATION** | | |
| | Cantermir CIUREA-ERCAU | Djordje VOJNOVIČ | Andrej STRITAR<br>Andreja PERŠIČ |

| | IRRS Experts | SNSA Lead Counterpart | SNSA Support Staff |
|---|---|---|---|
| **6.** | **REVIEW AND ASSESSMENT** | | |
| | Cantermir CIUREA-ERCAU | Djordje VOJNOVIČ | Andreja PERŠIČ<br>Matjaž PODJAVORŠEK<br>Darja SLOKAN-DUŠIČ |
| **7.** | **INSPECTION** | | |
| | Ivan LUX | Aleš JANEŽIČ | Matjaž PRISTAVEC<br>Aleš ŠKRABAN |
| **8.** | **ENFORCEMENT** | | |
| | Ivan LUX | Aleš JANEŽIČ | - |
| **9.** | **REGULATIONS AND GUIDES** | | |
| | Ivan LUX | Aleš ŠKRABAN | Andrej STRITAR<br>Igor SIRC<br>Andreja PERŠIČ |
| **10.** | **EMERGENCY PREPAREDNESS AND RESPONSE** | | |
| | Pascal GUILLAUD | Marjan TKAVC | Andrej STRITAR<br>Helena JANŽEKOVIČ |
| **11.** | **TRANSPORT OF RADIOACTIVE MATERIALS** | | |
| | Hilaire MANSOUX | Igor OSOJNIK | Polona TAVČAR |

| | IRRS Experts | SNSA Lead Counterpart | SNSA Support Staff |
|---|---|---|---|
| **12.** | **RADIOACTIVE WASTE MANAGEMENT AND DECOMMISSIONING, PUBLIC AND ENVIRONMENTAL EXPOSURE CONTROL** | | |
| | Walter BLOMMAERT | Igor OSOJNIK | Polona TAVČAR<br>Barbara VOKAL-NEMEC |

# APPENDIX IV - RECOMMENDATIONS (R) AND SUGGESTIONS (S) FROM THE PREVIOUS IRRS MISSION THAT REMAIN OPEN

| Section | Module | R/S | Recommendation/Suggestion |
|---|---|---|---|
| - | 2 | S6 | **Suggestion:** SNSA should review the current licensees' event reporting threshold to ensure the data used in for evaluating and analysing the effectiveness of the licensees' operating experience programme is appropriate. |
| - | 10 | S27 | **Suggestion:** SNSA should work, alongside with the competent authorities, towards the harmonization of emergency preparedness and response arrangements with Croatia in case of an emergency occurring in Krško NPP. |
| 12.1 | 12 | R8 | **Recommendation:** The Government should make the necessary provision for the LILW Repository to ensure radioactive waste can be disposed at the appropriate time. |

# APPENDIX V - RECOMMENDATIONS (RF), SUGGESTIONS (SF) AND GOOD PRACTICES (GPF) FROM THE 2014 IRRS FOLLOW-UP MISSION

| Section | Module | RF/SF/GPF | Recommendation, Suggestion or Good Practice |
|---|---|---|---|
| 1.9 | 1 | RF1 | **Recommendation:** Government should ensure that appropriate human and financial resources are provided to SNSA in the short and long term. |
| 1.9 | 1 | SF1 | **Suggestion:** Government should consider ensuring that sufficient funds are secured and relevant administrative procedures are adjusted to enable implementation of an appropriate nuclear safety research programme that SNSA needs to conduct for meeting its regulatory responsibilities. |
| 1.9 | 1 | GPF1 | **Good practice:** Long term commitment to safety was expressed in Slovenia by Resolution of the Parliament. The Resolution stipulates high level national policy and strategy for safety and includes formal mechanism for annual review of its implementation. |
| 3.8 | 3 | SF2 | **Suggestion:** SNSA should consider requiring authorized experts to properly communicate to SNSA of subcontracted activities and to verify the competence and the independence of the subcontractors. |
| 6.3 | 6 | SF3 | **Suggestion:** SNSA should consider establishing a plan (based on the results of a gap analysis) for further development of the internal technical review guidelines following similar approach as for the development of the practical guidelines. |
| - | 10 | SF4 | **Suggestion:** Government should consider requiring the organizations involved in Emergency Preparedness and Response to issue the documents referred to in the NERPNRA. |
| 12.1 | 12 | RF2 | **Recommendation:** SNSA should require from the operator of the Krško NPPs' solid radioactive waste storage facility taking |

| Section | Module | RF/SF/GPF | Recommendation, Suggestion or Good Practice |
|---|---|---|---|
| | | | **appropriate measures to ensure accessibility and inspectability of the waste packages.** |
| **12.1** | **12** | **SF5** | **Suggestion: SNSA should consider developing regulatory requirements to be addressed by the operator in its inspection program for the verification of the integrity and storage conditions of radioactive waste packages.** |

# APPENDIX VI - REFERENCE MATERIAL PROVIDED BY SNSA

| [1] | IRRS Questions and Answers: |
|---|---|
| | - *Slovenian_ARM_for_IRRSfu2014* |
| **[2]** | **General Items** |
| | - *ManagamentManualSNSA9*<br>- *RESOLUTION - unofficial translation* |

# APPENDIX VII - IAEA REFERENCE MATERIAL USED FOR THE REVIEW

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|---|---|
| 1. | **IAEA SAFETY STANDARDS SERIES No. SF-1** - Fundamental Safety Principles |
| 2. | **IAEA SAFETY STANDARDS SERIES No. GSR PART 1** - Governmental, Legal and Regulatory Framework for Safety |
| 3. | **IAEA SAFETY STANDARDS SERIES No. GS-R-2** - Preparedness and Response for a Nuclear or Radiological Emergency |
| 4. | **IAEA SAFETY STANDARDS SERIES No. GS-R-3** - The Management System for Facilities and Activities |
| 5. | **IAEA SAFETY STANDARDS SERIES No. NS-R-1** – Safety of Nuclear Power Plants: Design |
| 6. | **IAEA SAFETY STANDARDS SERIES No. NS-R-2** – Safety of Nuclear Power Plants: Operation |
| 7. | **IAEA SAFETY STANDARDS SERIES No. NS-R-4** - Safety of Research Reactors |
| 8. | **IAEA SAFETY STANDARDS SERIES No. GS-G-1.1-** Organization and Staffing of the Regulatory Body for Nuclear Facilities |
| 9. | **IAEA SAFETY STANDARDS SERIES No. GS-G-1.2** - Review and Assessment of Nuclear Facilities by the Regulatory Body |
| 10. | **IAEA SAFETY STANDARDS SERIES No. GS-G-1.3-** Regulatory Inspection of Nuclear Facilities and Enforcement by the Regulatory Body |
| 11. | **IAEA SAFETY STANDARDS SERIES No. GS-G-1.4** - Documentation for Use in Regulatory Nuclear Facilities |
| 12. | **IAEA SAFETY STANDARDS SERIES No. GS-G-2.1** - Arrangements for Preparedness for a Nuclear or Radiological Emergency |
| 13. | **IAEA SAFETY STANDARDS SERIES No.GS-G-3.1** - Application of the Management System for Facilities and Activities |
| 14. | **IAEA SAFETY STANDARDS SERIES No. GS-G-3.2** - The Management System for Technical Services in Radiation Safety |
| 15. | **IAEA SAFETY STANDARDS SERIES No. RS-G-1.3** - Assessment of Occupational Exposure Due to External Sources of Radiation |
| 16. | **IAEA SAFETY STANDARDS SERIES No. RS-G-1.4** - Building Competence in Radiation Protection and the Safe Use of Radiation Sources |
| 17. | **IAEA SAFETY STANDARDS SERIES No. NS-G-2.10** - Periodic Safety Review of Nuclear Power Plants Safety Guide |

18. **IAEA SAFETY STANDARDS SERIES No. NS-G-211 -** A System for the Feedback of Experience from Events in Nuclear Installations Safety Guide

19. **INTERNATIONAL ATOMIC ENERGY AGENCY** - Convention on Early Notification of a Nuclear Accident (1986) and Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1987), Legal Series No. 14, Vienna (1987).

20. **INTERNATIONAL ATOMIC ENERGY AGENCY** - Generic Assessment Procedures for Determining Protective Actions during a Reactor Accident, IAEA-TECDOC-955, IAEA, Vienna (1997).

# APPENDIX VIII - SNSA ORGANIZATIONAL CHART