

I. RESPONSE TO THE FUKUSHIMA NUCLEAR ACCIDENT

I.1. ACTIONS IN SLOVENIA

The SNSA emergency team was partly activated already on Saturday, 12 March, and remained activated for two weeks. Main activities involved providing information to the public and media. The team issued 13 press releases and answered a number of questions. All the information, including answers to the media, was published on the SNSA website. In April the SNSA continued to follow the accident as regular work and made daily updates on the website.

In the early stage of the accident, the SNSA kept answering questions from media and played an important role in explaining and monitoring the events. The SNSA Director was invited by the Government to participate in their regular weekly meeting, where he explained the situation and provided input to governmental decision making about actions to be taken in Slovenia. Due to the long distance from the accident there were no specific protective measures recommended. For Slovenian citizens in Japan, the advice was given to follow local Japanese recommendations on protective actions.

During the accident public was concerned about emergency preparedness in Slovenia in general, in particular about the iodine prophylaxis. So the SNSA emergency team issued a press release dedicated to this topic and there was a special page published on the SNSA website as well.

SNSA has commissioned additional measurements of radioactive iodine I-131 because of the potential impact of the Fukushima accident in Slovenia. The concentration of I-131 in the samples of air was measured to be between 0.1 and 1 mBq/m³. These values are similar to those measured elsewhere in Europe and are in line with the forecasts of dispersion of the radioactive plume. As a comparison, concentrations as high as 29.4 Bq/m³ of I-131 were measured in Ljubljana after the Chernobyl accident. The measured values were very low, barely measurable and do not represent any threat to human health. Even if such a concentration of iodine I-131 remained in the air throughout the year, this would constitute only one hundred-thousandth of the effects of the ever present natural background radiation.

I.2. STRESS TESTS

Following the Fukushima accident the European Council immediately initiated the preparation of specifications for stress tests, which were to be executed in all European NPPs to raise the level of nuclear safety. WENRA prepared the first draft which was followed by extensive negotiation between European Commission represented by Günther Oettinger and ENSREG on behalf of the EU member states. The main issue was the inclusion of man induced events (e.g., aircraft impact and terrorist attack) into the stress tests, which was demanded by Austria and Germany. The final result was obtained by consensus, that the stress tests will include transport accidents (e.g. aircraft impact) as an initiating event, while accidents due to terrorist attacks would be analyzed separately. The main role in the negotiations had the ENSREG's Chairman, dr. Andrej Stritar, the Director of the SNSA.

After the adoption of the stress tests specifications by ENSREG and European Commission the SNSA immediately issued the decision for the Krško NPP to execute the stress tests analysis in accordance with the adopted specifications. The schedule is as follows, the plant will give progress report to the SNSA by August 15, while final report is expected by the end of October 2011. On the basis of plant's report the SNSA will prepare the national report which will be publicly available and will also be subject to peer review of other member states.

In the meantime the Krško NPP has already started preparing a program of improvements, which is to be implemented by the end of June 2011. The program, among other items, includes procurement of fire fighting vehicle, additional mobile diesel generators, mobile pumps and air compressors.

II. LEGAL SYSTEM

II.1. HARMONIZATION WITH WENRA REFERENCE LEVELS

Slovenia has completed the harmonisation process in nuclear safety which WENRA started ten years ago!

The process started by preparation of WENRA draft reference levels which was followed by benchmarking process, endorsement of draft reference levels, action plan preparation and finally by issuing national regulatory requirements. Slovenian Nuclear Safety Administration has started with the preparation of new legal rules immediately after the adoption of WENRA Reactor Harmonisation Working Group Reference Levels in 2008. The majority of almost 300 WENRA Reference Levels were included into Slovenian legal system by adoption of Rules on Radiation and Nuclear Safety Factors and Rules on Operational Safety of Radiation or Nuclear Facilities in fall 2009. The last five WENRA Reference Levels from the area of personnel qualification and training were included in Slovenian legal system by the adoption of the new Rules on providing qualification for workers in radiation and nuclear facilities on 29 April 2011.

By this, Slovenia is among the first EU countries, which has met the WENRA action plan, completing the harmonisation process in the area of nuclear safety requirements.

II.2. AMENDMENTS OF THE ACT ON PROTECTION AGAINST IONIZING RADIATION AND ON NUCLEAR SAFETY

The amendments of the act, which have been under preparation for more than a year, have reached their final stage since the Government has adopted the proposed text and has send it to the Parliament for final adoption.

Out of 145 articles of the existing act more than 110 articles were amended which may indicate the vast number of changes made. In reality the amendments are not so influential and decisive since majority of them are of editorial nature or have been introduced due to the gained experience with use of the Act since 2002. There are also some new provisions, as for example restriction of the right to strike (for certain positions and workers at nuclear installations); transposition of obligation from the Council Directive on establishing a Community framework for the safety of nuclear installations on self assessment and peer review mechanisms; additional provisions on physical protection of nuclear installations as well as nuclear and radioactive materials. The latter were result of recommendations and suggestions from 2010 IPPAS mission to Slovenia. There are also new provisions on measurements of radioactivity in shipments of scrap metal; etc.

We expect to report about the final outcome of the amendments in our next issue of the News.

II.3. RULES ON ASSURING OF QUALIFICATION OF WORKERS IN RADIATION OR NUCLEAR FACILITIES

The new Rules, which derogate the previous one from the year 2005, lay down the tasks and duties forming part of the management of the technological process of a radiation or nuclear facility and supervision of processes related to radiation and nuclear safety, the conditions regarding professional competence, work experience, psycho-physical attributes and non-dependence on alcohol and drugs, the means of verifying such conditions, the frequency of regular testing and the composition of the commission for verifying the prescribed conditions.

The Rules, adopted by the Minister of Environment (and with agreement of the Minister of Health) are published in Official Gazette of RS.

II.4. ORDINANCE ON DETERMINING THE PERSONS TO WHOM THE CONCLUSION OF THE INSURANCE OF LIABILITY FOR NUCLEAR DAMAGE IS NOT OBLIGATORY

Based on the new Act on Third Party Liability for Nuclear Damage, adopted in September 2010 (see more in previous issue of the News - from November 2010), the Government adopted at the end of the same year the above stated Ordinance, which merely determine the operator of nuclear facility, to whom the conclusion of the insurance of liability for nuclear damage is not obligatory, i.e. the Jožef Stefan Institute, which operates the Research Reactor TRIGA Mark II.



III. NEWS FROM KRŠKO NPP

III.1. KRŠKO NPP EVENT: LOSS OF OFF-SITE POWER

On 23 March 2011 at 10:30 there was an automatic shutdown of the Krško Nuclear Power Plant (NPP) due to unexpected disconnection of high voltage 400 kV power line to Zagreb. The disconnection occurred due to a spurious activation of bus protection in NPP's 400 kV switchyard. Activation of protection was followed by the disconnection of circuit breaker in the transformer bay and the loss of generator load. To protect the turbine, the turbine over-speed protection started to rapidly close down the turbine valves, which was followed by the opening of steam dump valves and rapid pressure decrease in main steam line. At 10:29 a safety injection signal on low steam line pressure was triggered which led to an automatic shutdown of the reactor and turbine.

With the generator load switch automatically disconnected a loss of power supply occurred to buses MD1, MD2, M1 and M2. The diesel generators DG1 and DG2, which started automatically with the "safety injection" (SI) signal, connected to the MD1 and MD2 buses and SI loading sequence was launched. At 10:55 "abnormal event" was declared according to the criterion E/1 (Loss of power 6.3 kV bus). At that time the power supply to M1 and M2 buses has been established through the T3 transformer, after which transformers DG2 (11:20) and DG1 (11:34) were shutdown. At 12:15 the plant transitioned to a "hot standby" mode and the termination of "abnormal event" was declared. The NPP was restarted after 7 days due to several difficulties with secondary supporting systems (generator sealing system, oil system of RCP, oil lube system of turbine bearings, etc.).

IV. RADWASTE MANAGEMENT

IV.1. EVENTS IN MANAGEMENT OF RADIOACTIVE WASTE

Few incidents with radioactive material in scrap metal happened in early 2011. In one case the waste – the so called "radon goblet" was returned to country of origin, on the other hand one batch of steel products contaminated with Co-60 was returned to smelter in Slovenia from one of the EU member states. The contamination was only one fifth of exemption level, for this reason no further action was taken by SNSA.

V. INTERNATIONAL COOPERATION

V.1. SLOVENIA - 30th MEMBER OF NEA

On 11 May 2011 the OECD Council (Organisation for Economic Co-operation and Development) endorsed the recommendation of the NEA Committee of 29 April 2011 and adopted a positive decision on Slovenia's accession to the NEA and its database, so Slovenia became the 30th member of NEA. In the context of the accession process NEA mission visited Slovenia in January 2011 in order to collect information, which were presented in a report prepared for the meeting of the Steering Committee.

Since its independence in 1991, Slovenia is party to the main treaties and agreements on the non-proliferation of nuclear weapons, on co-operation with regard to the peaceful uses of nuclear energy and on Third Party Liability in the Field of Nuclear Energy.

Slovenia has been observer in the seven NEA standing technical committees since 2002 and joined the OECD last year. For membership in the NEA Slovenia requested after admission to the OECD, which was followed by a visit of NEA's representatives in January 2011 and identifying conditions necessary for the country's entry into this international organization.

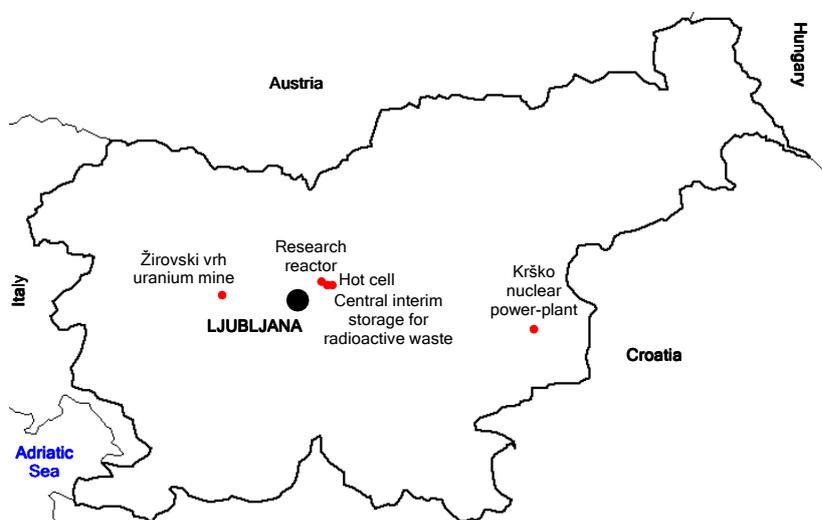
V.2. SIGNATURE OF ARRANGEMENT WITH US NRC

On 4th April the NRC Chairman Gregory Jaczko and the SNSA Director Andrej Stritar signed the Arrangement between the Slovenian Nuclear Safety Administration and the United States Nuclear Regulatory Commission for the exchange of technical information and cooperation in nuclear safety matters. This Arrangement represents the fourth similar arrangement concluded with USNRC since 1995 and proves good relations between both regulatory bodies. The arrangement scope is similar to the previous ones and it foresees the exchange of information, staff and also assistance, if needed. The Arrangement still needs to be ratified by the Slovenian Government.



V.3. IRRS PREPARATORY MISSION

From 23rd to 24th May 2011 the IRRS Preparatory Mission took place in Slovenia. The SNSA finalized self-assessment in March last year, one month after the Slovenian Government invited IRRS Mission to review the regulatory infrastructure. The dates of the IRRS Mission were agreed with the IAEA to be between September 25th and October 4th 2011. The aim of the IRRS Preparatory Mission was to outline the schedule for the forthcoming mission as well as to determine scope of the mission which will include besides core modules also safety of nuclear power plants and research reactors, radioactive waste management, decommissioning, emergency preparedness, transport and radiation monitoring. Also organizational issues were discussed during the IRRS Preparatory Mission.



Nuclear Slovenia in Brief

Slovenia is the smallest country with the nuclear power plant operating at its territory. Nuclear facilities include: **1 Nuclear Power Plant** in operation (PWR, 2-loops, Westinghouse, 696 MWnet), **1 Research reactor** in operation (TRIGA Mark II, 250 kW), **1 Central interim storage of radwaste** (not for NPP waste - radioactive waste and spent nuclear fuel from NPP is stored within the NPP site) as well as radiation facilities and practices: 1 repository of hydro-metallurgical tailings, 1 repository of mine tailings, and around 300 organizations, engaged in radiation practices with altogether about 2000 radiation sources in use.

The **Slovenian Nuclear Safety Administration** was established in 1988 as a body within the Ministry of the Environment and Spatial Planning. It is responsible for nuclear and radiation safety, transport, and management of nuclear and radioactive materials in the Republic of Slovenia.

For the radiation safety in medicine the competent authority is the **Slovenian Radiation Protection Administration** within Ministry of Health.

Physical protection of nuclear materials and nuclear facilities is responsibility of Ministry of Interior.

Agency for Radioactive Waste Management deals with site selection and planning of the repository for low and intermediate level radwaste and is the public service of radwaste management from small producers.

Link to the SNSA's public reports and previous News from Nuclear Slovenia: <http://www.ursjv.gov.si/index.php?id=4635&L=1>

