



NRPA regulatory cooperation program

The Norwegian Radiation Protection Authority (NRPA) is involved in the enhancement of regulatory regimes, in the areas of nuclear safety, radiation protection and environmental protection in the Russian Federation and Ukraine. For several years, NRPA has also been involved in regulatory cooperation with the former soviet republics in Central Asia-Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. The Program has brought tangible results; more than 60 regulatory documents were revised and updated or newly developed. Achievements of the Program have been documented in NRPA reports and several international publications.

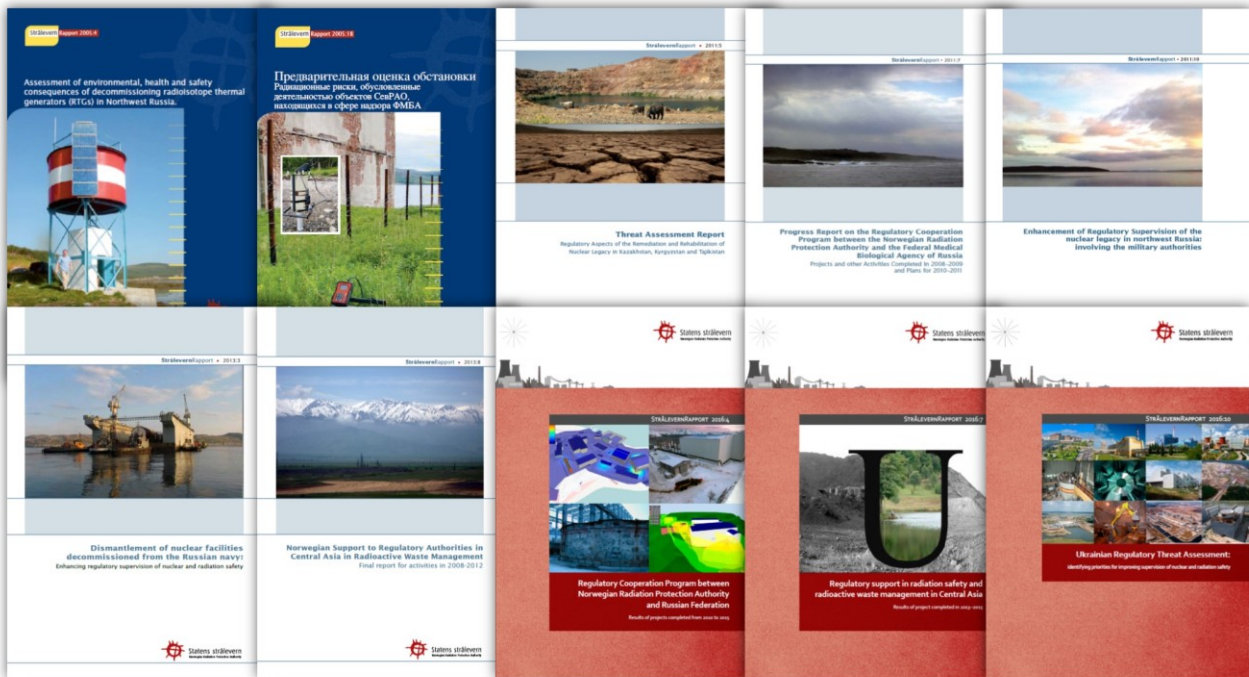


Fig. 1 Some of NRPA Reports on regulatory cooperation program.

The cooperation program has been flexible enough to address a broad range of activities, mainly focusing on the solution of specific safety problems. Program includes discussions with interested parties, sharing of information in working groups during the preparation and review of draft documents, promotes and supports the neighborly cooperation via discussions in wider international forums that include all project beneficiaries and Western experts.

Norway provides expertise and international experience with respect to IAEA Safety Standards and

recommendations. However, each country participating in the program takes responsibility for the final version of developed documents and the approval process. This can result in changes to the final version of the documents reviewed by NRPA expertise when other national authorities and legislative procedures are involved in each country.

It is anticipated that this work will lead to enhanced legal and regulatory frameworks pertaining to radiation safety, safety culture and environmental protection awareness among operators, regulators

and other interested parties. This, in turn, supports the wider implementation of national strategies for the safe management of radioactive waste, environmental protection and sustainable development.

Russian Federation

NRPAs cooperation with a number of authorities in the Russian Federation, are oriented towards a holistic approach to problems in radiation protection, emergency preparedness and response, monitoring and safety culture in relation to different types of nuclear legacy, which need to be addressed in the nearest future.



Pic. 2 ROSATOM's award for assistance in solving the problems of nuclear legacy the North-West of Russia's and improving radiation safety, Russian Embassy, 17th October 2015 Oslo, Norway. (Source: NRPA).

- **The Federal Nuclear and Radiation Safety Authority of Russia (initially Gosatomnadzor, later Rostekhnadzor)** has cooperated with NRPA in developing regulatory requirements specific to the control of operations for the decommissioning of Lepse storage vessel with damage spent nuclear fuel. The scope of three regulatory requirements developed within this cooperation includes requirements on safety assessment and on quality assurance, with special emphasis on safety management procedures.
- **The Federal Environmental, Industrial and Nuclear Supervision Service, (Rostekhnadzor)**, has been supported by NRPA in upgrading of the regulatory framework for the safe decommissioning and disposal of Radioisotope Thermoelectric Generators (RTGs). This cooperation resulted in the development of Russian regulations on emergency response requirements for the safe transport of large radioactive sources. As results of this project, one regulatory document was developed and several

safety guides improved. A joint emergency drill was conducted in St. Petersburg.

- **The Federal Medical Biological Agency (FMBA)** is the main radiation protection regulatory authority for the regulation and control of nuclear legacies in northwest Russia. The first step was the development of an “Initial Threat Assessment Radiological Risks Associated with SevRAO Facilities falling within the Regulatory Supervision Responsibilities of FMBA” (Strålevern Rapport 2005:17). This Threat Assessment provided an overview, from a regulatory perspective, of the most important issues requiring regulatory oversight, with emphasis on the work to be carried out at the Andreeva Bay and Gremikha sites. Cooperation included comprehensive considerations of radiation protection issues related to remediation of the Andreeva Bay site and coordination of emergency preparedness and response.



Pic. 3 Practical approach to the optimization of the radiation protection at Andreeva Bay, (3.1-3.2) Training personnel reliability management hardware/software system, (3.3-3.6) Joint emergency exercise in Andreeva Bay on 01-03rd June 2016. (Source: NRPA, FMBC)

Key outputs include enhanced regulatory requirements and guidance for planning and response in case of abnormal situations at nuclear legacy sites, supporting an efficient regulatory process to improve radiation safety and protection during their remediation. The cooperation program substantially enhanced approximately 30 regulatory guidance, documents and procedures to address legacy situations in the Russian Federation and supported the

practical implementation of an enhanced regulatory system.

- **The Directorate of State Supervision over Nuclear and Radiation Safety of the Ministry of Defence of Russia (DSS NRS).** Cooperation with the DSS NRS raised the issue of remediation of military legacy sites, which are due to be handed over to civilian control. As a result of the cooperation, two regulatory guides were developed: “Safety Provision while Managing Radioactive Waste Containing Nuclear Materials at the Enterprises of the State Atomic Energy Corporation “Rosatom” in the Northwest of Russia” and “Methodological Instructive Regulations for Monitoring the Effectiveness of State Supervision over Nuclear and Radiation Safety at Dismantling of Nuclear Powered Submarines, Surface Ships with Nuclear Installations, Nuclear Service Vessels Retired from the Navy”
- **The Federal State Unitary Enterprise Scientific Research Institute of Industrial and Marine Medicine of the FMBA (FSUE SRI IMM).** In order to ensure radiation safety during decommissioning and dismantling activities of facilities such as Atomflot and others, a safety assessment of the decommissioning and dismantling activities to be undertaken in nuclear facility of marine engineering (NFME) was conducted. Consequently, the regulatory guide “Ensuring Radiation Safety and Prevention of Environment Contamination in the Process of NFME Decommissioning and Dismantling” was developed.

Central Asia

After the collapse of the Soviet Union, the extraction and processing of the majority of uranium ore sites in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan were closed fully or partially but without proper regulatory control, remediation or institutional control.



Pic. 4 Workshop on the regulatory enhancement in Kyrgyzstan on 26th January 2016, Bishkek, Kyrgyzstan.

The NRPA has been involved in a regulatory cooperation program since 2008. For the initial three years, NRPA assisted the regulatory authorities in Kazakhstan, Tajikistan, Kyrgyzstan and Uzbekistan with the development of threat assessment reports, which identified the weaknesses to be addressed in our cooperation along with the regulatory documents, identified and required in the field of radioactive waste management in each country.

Threat assessment reports have shown that the regulatory basis in the field of management of the waste of the former uranium production industry has not been fully completed yet and requires improvement and harmonization with the IAEA Safety Standards and other international recommendations on good practices.



Pic. 5 Meeting on regulatory support in radiation safety and radioactive waste management in Central Asia 27-28th January 2016, Bishkek, Kyrgyzstan.

The most important step was development of the law on radioactive waste management in all respective countries. Kazakhstan, Kirgizstan and Uzbekistan followed the recommendation. The drafted documents accounted for the current needs and local specifics, and their content differed from country to country. Uzbekistan, on the other hand, despite NRPA comments and suggestions decided to develop only a policy with a limited scope called “Policy for the management of uranium mining and milling radioactive waste and legacy sites”. This document does not consider radioactive waste management in general.

Between 2008 and 2015, altogether 28 regulatory documents on different levels were developed, part of which have already been approved and introduced into the legal and regulatory framework of the respective countries.

Ukraine

NRPA established cooperation with the Ukrainian regulatory body a long time ago, but in 2014 this cooperation was significantly expanded. A Ukrainian Regulatory Threat Assessment (StrålevernRapport 2016:10) was first developed to assess the primary nuclear and radiation threats to safety from a regulatory perspective, with the objective of identifying the current key challenges, threats and gaps in the Ukrainian regulatory framework.

In the next stage of the cooperation, 6 high level regulatory documents were developed in the areas of waste management, uranium mining and processing as well as on the use of radiation sources in medicine. These documents are currently undergoing final approval within the national system.



Pic. 5 Review working meeting with SNRIU and SSTC NRS on joint regulatory projects under Norwegian Regulatory Cooperation Program in Ukraine, 3-4 October 2016, Kiev, Ukraine.

The next steps, according to the threat assessment, will focus on safety during the transport of radioactive materials, radioactive source management and decommissioning of nuclear facilities.

International cooperation with IAEA, ICRP and OECD NEA based on bilateral outputs

The NRPA bilateral regulatory cooperation program described above provide practical background material for several on-going international initiatives that address regulatory supervision of nuclear legacy and related issues on a wider international level. These includes the work of Task Group 98 of the International Commission on Radiological Protection (ICRP), which is addressing the application of the Commission's recommendations to exposures resulting from contaminated sites from past industrial, military and nuclear activities. Another activity is the work of the Nuclear Energy Agency's Expert Group on Legacy Management (EGLM) and several initiatives at the International Atomic Energy Agency's (IAEA)

programs, for example, on modelling and assessment (earlier EMRAS and now MODARIA) and the definition of remediation end states (DERES), as well as the Forum on Regulatory Supervision of Legacy Sites (RSLs).

Conclusion

Important features of the NRPA's regulatory cooperation program are flexibility and using an holistic approach to nuclear and radiation safety relevant to each individual beneficiary organization, while taking advantage of international recommendations and experience.

Exchange of information and joint meetings including all of the participating organizations in the program, improves the review process and provides better understanding of the problems to be solved, based on the historical similarities. Within the program, over 60 regulatory documents of different levels have been developed, from laws, through regulations and standards to guidance on their application. In addition, relevant scientific research and innovative approaches to radiation protection and optimization have been developed, such as real time modelling and visualization.

Fig.1 Number of documents developed under NRPA regulatory cooperation program.

