
Management of Radioactive Waste

Objective

To achieve harmonization in policies and standards governing waste safety and public and environmental protection, together with provisions for their application, including sound technologies and good practices.

Waste and Environmental Safety

Radioactive waste and spent fuel management

Remediation activities undertaken after nuclear accidents may generate large quantities of waste with low levels of radionuclides. Member States have requested a simple methodology to evaluate disposal options for material with residual amounts of radionuclides. In response to these requests, the Agency launched a new project aimed at deriving specific clearance levels for disposal of waste on landfill sites. The project was launched in June and is scheduled to run for two years.

In February, the Agency conducted the third International Peer Review of the Mid-and-Long-Term Roadmap towards the Decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station Units 1–4. The mission involved 15 international experts, who provided an independent review of the planning and implementation of the decommissioning of the Fukushima Daiichi nuclear power plant based on Agency safety standards and other relevant good practices (Fig. 1). The team of experts found that the situation on the site had improved since the last Agency mission, conducted in 2013. Since that time, several important tasks had been accomplished: the fuel had been removed from Unit 4; the systems for treating contaminated water had been expanded and improved; the underground water bypass was in operation; and further clean-up of the site debris had resulted in a reduction in the radiological dose rate. A comprehensive seawater monitoring programme, including control by independent laboratories, had also been introduced. In this connection, the IAEA Environment Laboratories in Monaco cooperated with Japanese and other international marine laboratories in conducting an interlaboratory comparison exercise for seawater analysis to ensure the quality and consistency of monitoring results.

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FIG. 1. A team of Agency experts during a decommissioning review at Unit 4 of the Fukushima Daiichi nuclear power plant.

Assessment and management of environmental releases

In 2015, the Agency conducted a peer review of the environmental impact assessment prepared for the Baltic nuclear power plant in Kaliningrad, Russian Federation. The review team, consisting of four international experts, compared the assessment against the requirements for radiation protection established in the Agency's safety standards.

In 2012, the Agency established the MODARIA (Modelling and Data for Radiological Impact Assessments) Programme to improve capabilities in the field of environmental radiation dose assessment by acquiring improved data for model testing; testing and comparing models; reaching consensus on modelling philosophies, approaches and parameter values; developing improved methods for assessment; and exchanging information. Work on the MODARIA Programme was completed in 2015. The Programme's achievements were reviewed at a workshop held in November at the Agency's Headquarters in Vienna that was attended by over 150 experts — including regulators, operators and scientists — from over 40 countries. A follow-up project is scheduled to begin in 2016.

Decommissioning and remediation safety

In January, the Agency established the International Project on Decommissioning and Remediation of Damaged Nuclear Facilities (DAROD). The project was launched at a Technical Meeting held in Vienna, with the participation of 35 experts from 19 Member States, and is aimed at sharing and learning from the experience gained during decommissioning and remediation of damaged nuclear facilities and legacy sites. During the year, the Agency developed training materials on remediation of legacy uranium production sites, including three summary documents and 140 presentations covering both short term and long term aspects of remediation. To avoid future legacy issues, the Agency also developed related materials on safety aspects of new uranium exploration and production activities.

Joint Convention Meeting

The Fifth Review Meeting of the Contracting Parties to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management was held in May at the Agency's Headquarters in Vienna. Sixty-one of the 69 Contracting Parties participated in the Review Meeting. The Contracting Parties discussed, in particular, the progress made since the Fourth Review Meeting with regard to the management of disused sealed sources; the safety implications of very long storage periods and delayed disposal of spent fuel and radioactive waste; and international cooperation in finding solutions for the long term management and disposal of different types of radioactive waste and spent fuel.

The participants also identified a number of overarching issues, including: staffing, staff development, funding and other human resources matters; maintaining and increasing public involvement and engagement on waste management to foster public confidence and acceptance; managing disused sealed sources; and developing and implementing a holistic and sustainable management strategy for radioactive waste and spent fuel at an early stage.

The meeting included a topical session on progress on lessons learned from the Fukushima Daiichi accident. The discussions focused on spent fuel and radioactive waste management, and on related issues such as the relevance of the Fukushima Daiichi accident for Contracting Parties without a nuclear power programme, the management of large volumes of accident waste and lessons learned from decontamination following a radiological accident.

The Contracting Parties decided on a number of actions with a view to, *inter alia*, encouraging adherence to the Joint Convention and active participation in the review process, and to increasing the effectiveness of the review process for Contracting Parties without a nuclear power programme. An Extraordinary Meeting to address some of these issues is scheduled for 2017, prior to the Organizational Meeting for the Sixth Review Meeting.