

The DAROD Project: International Project on Decommissioning and Remediation of Damaged Nuclear Facilities

Background

Decommissioning of accident-damaged nuclear facilities and site remediation are challenging problems. Each accident is unique and each accident-damaged facility presents a unique challenge. Before an accident there is a licensed functioning facility; after an accident, and depending upon its severity, there may be a facility that can be repaired and brought back into service or one that is simply beyond repair. Factors such as the extent of fuel damage, whether there has been a breach of containment, as well as the nature of the site (e.g., location and climatic conditions), all have an impact on decommissioning and remediation. Accident sites present challenges such as the remediation of basins holding contaminated water and the management of large volumes of contaminated debris and vegetation.

Legacy nuclear sites that went into operation in the early years of the atomic era are also problematic from the decommissioning point of view. Many lessons drawn from the decommissioning and remediation of legacy sites can be applied to damaged nuclear facilities (DNFs).

Decommissioning and remediation of a severely damaged facility is not something that countries include within normal planning practices – rather it is something to be dealt with should the situation arise. For countries confronted with this challenge it would be beneficial to have resources available for dealing with such situations. These resources would include among others the important lessons learned from the past, and the roles and responsibilities that policy makers, regulators and technical organizations need to assume. For example, policy makers will have to weigh in on issues related to selection of decommissioning and remediation end states and funding arrangements; regulatory control will have to be exercised under very unique circumstances; and technical organizations will have to be very innovative in the way they adapt existing techniques to new situations.

Project Overview

The DAROD project was launched in January 2015 as part of the IAEA's Nuclear Safety Action Plan¹, which was adopted following the 2011 accident at the Fukushima Daiichi Nuclear Power Plant. Running for three years, through to the end of 2017, the project was launched at an IAEA Technical Meeting held in Vienna on 19-23 January 2015, with the participation of 35 experts from 19 Member States.

The aim of the project is to learn and benefit from the experiences derived from the decommissioning and remediation of DNFs. The key to meeting this objective will be to disseminate experience and information from the various interested parties involved in the post-emergency phase (regulators, operators, governments and the public). The need to develop a strategy in advance to support the recovery phase of a potential accident is becoming recognized as crucial. Decommissioning, remediation and waste management plans to elaborate such a strategy cannot be highly prescriptive and should be readily adaptable. One of the purposes of this project is to elaborate on such advance planning. Recognizing that national regulations, international safety standards and other sources provide considerable guidance for managing normal decommissioning

¹ <https://www.iaea.org/newscenter/focus/nuclear-safety-action-plan>

and remediation situations, the purpose of this project is also to identify where this guidance may require adaptation and elaboration when applied to DNFs.

The scope of the project covers the time period once the emergency is declared over and until such time as decommissioning and remediation of the facility is completed. The focus of the DAROD project will be on the physical infrastructure and contaminated areas within a licensed site boundary.

Working Arrangements

The project work is being undertaken by three Working Groups (WGs) made up of representatives nominated by the participating IAEA Member States. The Working Groups address: (1) Regulatory Issues; (2) Technical Issues; and (3) Institutional Framework and Strategic Planning. Project activities will be coordinated by a Coordinating Working Group (CWG) comprised of the project chair, the vice-chair and the chairs of the three WGs.

The project chair is Mr George Dolinar (Canadian Nuclear Laboratories) and the vice-chair is Mr Kentaro Funaki (Nuclear Damage Compensation and Decommissioning Facilitation Corporation, Japan). Ms Tetiana Kilochytska (Ukraine) is chairperson for WG1, Regulatory Issues; Mr Gregory Jones (USA) is chairperson for WG2, Technical Issues; and Mr John Mathieson (UK) is chairperson for WG3, Institutional Framework & Strategic Planning.

The next DAROD meeting is scheduled for 31 August to 4 September 2015 at IAEA Headquarters in Vienna. Between project meetings, participants will be engaged with the formulation and analysis of test case studies, which in turn will inform the final report of the project.

The IAEA scientific secretaries for the DAROD project are Mr. John Rowat, Department of Nuclear Safety and Security and Mr. Vladimir Michal, Department of Nuclear Energy.