ARTEMIS Good Practices

Concepts, plans and technical solutions

(Topic 4)

SPAIN

Mission Date: 14 to 26 October 2018

Good Practice

The process of incorporating the best in class in the design of the CSF together with multiple capabilities for the management for spent fuel is considered as good practice.

Observation

The overall design of the CSF has been formulated with multiple safety features and capabilities to provide lifetime flexibility; for example, the receipt and processing of casks and waste packages are decoupled. The design has been informed through engaging with the designers and operators of existing facilities and adopting best in class for each element of the design.

Basis

GSR Part 5 Requirement 17, para. 5.14 states that "The need for operational maintenance, testing, examination and inspection has to be addressed for the conceptual design stage onwards."

IAEA Comments/Highlights

No comments or highlights on this good practice.

SLOVENIA

Mission Date: 22 to 30 May 2022

Good Practice

The commitment to proactive pursuit of a wide range of opportunities for waste minimisation across all radioactive wastes in Slovenia is exemplary.

Observation

Waste minimisation opportunities are proactively pursued for all waste types in Slovenia.

Basis

GSR Part 5 Requirement 8, para. 4.8 states that "The reuse and recycling of materials has to be applied to keep the generation of radioactive waste to the minimum practicable, provided that protection objectives are met."

IAEA Comments/Highlights

No comments or highlights on this good practice.

SLOVAKIA

Mission Date: 12 to 22 February 2023

Good Practice

The application of an immediate dismantling strategy combined with the treatment of all materials arising was considered to be outstanding. The integrated approach of JAVYS, a.s. and other participating organizations to the decommissioning project V1 effectively supported optimized execution of all technical activities in a timely and cost effective manner. Furthermore the openness of JAVYS, a.s in sharing their experience can be highly beneficial to a number of comparable present and future decommissioning projects.

Observation

Project planning and control, development of necessary technologies, execution of dismantling activities and comprehensive management of associated material as it is generated were combined in a highly integrated manner. This allowed for the timely conduct of the V1 decommissioning project within the planned budget. Experience and lessons learned as well as newly developed technologies are openly communicated and made available to comparable projects internationally.

Basis

GSR Part 6 Requirement 7, para. 4.1 states that "An integrated management system shall provide a single framework for the arrangements and processes necessary to address all the goals of the operating organization [9], including goals relevant to decommissioning. These goals shall include safety, health, security, environmental, quality and economic elements."

GSR Part 6 Requirement 6 states that "The licensee shall select a decommissioning strategy that will form the basis for the planning for decommissioning. The strategy shall be consistent with the national policy on the management of radioactive waste."

GSR Part 6 Requirement 14, para. 6.2 states that "Radioactive waste shall be managed for all waste streams in decommissioning."

SSG - 47, para. 7.29 states that "When preparing the decommissioning plan, experience from ongoing or completed decommissioning projects of similar facilities should be utilized. [….]"

GSR Part 6 Requirement 9, para. 6.2 states that "The cost estimate for decommissioning shall be updated on the basis of the periodic update of the initial decommissioning plan or on the basis of the final decommissioning plan. The mechanism used to provide financial assurance shall be consistent with the cost estimate for the facility and shall be changed if necessary."

IAEA Comments/Highlights

No comments or highlights on this good practice.

SWEDEN

Mission Date: 16 to 27 April 2023

Good Practice

Sweden has designed the KBS-3 for spent nuclear fuel disposal concept and developed it to a mature concept, carried out a successful siting process and interacted with all stakeholders for achieving wide acceptance and a governmental licence for the proposed disposal project.

Observation

Sweden started the development of the KBS-3 concept in the 1970s and at the same time started the site studies to find suitable location for the planned disposal concept. During the 50 years of R&D-work, the concept has been developed from a plan to an industrial concept and the site studies have resulted in the selection of a suitable disposal site. The concept and site have been approved both on national and local level and the construction works are scheduled to start in the near future.
All this realised as a governmental licence for the disposal project in 2022 with aim to avoid imposing an undue burden of the spent fuel problem for the future generations.

Basis

SF-1 Principle 7, para 3.29 states that “Radioactive waste must be managed in such a way as to avoid imposing an undue burden on future generations; that is, the generations that produce the waste have to seek and apply safe, practicable and environmentally acceptable solutions for its long term management. The generation of radioactive waste must be kept to the minimum practicable level by means of appropriate design measures and procedures, such as the recycling and reuse of material.”

IAEA Comments/Highlights

No comments or highlights on this good practice.

BELGIUM

Mission Date: 3 to 13 December 2023

Good Practice

The centralized management of the radioactive waste by Belgoprocess prior to disposal contributes to the minimization of waste and helps to optimize the interdependencies of the different waste management steps.

Observation

Belgium established a policy centralizing the radioactive waste storage facilities at Belgoprocess premises. The provisions of the article 27b of the Royal Decree of 20 July 2001 prevent the accumulation of waste stored by producers. This policy reduces the number of storage facilities, optimizes interdependencies, and thus enhances the overall safety of the waste management.

Basis

GSR Part 5, Requirement 6 states that "Interdependences among all steps in the predisposal management of radioactive waste, as well as the impact of the anticipated disposal option, shall be appropriately taken into account."

WS-G-6.1, para. 5.3 states that "The storage of waste in centralized facilities rather than in a multitude of on-site facilities should be considered, since there will be opportunities to adopt more stringent safety standards and at the same time to realize economies of scale."

IAEA Comments/Highlights

No comments or highlights on this good practice.

BELGIUM

Mission Date: 3 to 13 December 2023

Good Practice

The proposed approach for remediation of the radium-contaminated Umicore site in Olen is a very effective means for waste minimization.

Observation

Plans for remediation of the Olen site indicate that, by volume, less than 5% of the Ra-226 residues at the Olen site will need to be managed as radioactive waste.

Basis

SF-1 Principle 7, para. 3.29 states that "Radioactive waste must be managed in such a way as to avoid imposing an undue burden on future generations; that is, the generations that produce the waste have to seek and apply safe, practicable and environmentally acceptable solutions for its long term management. The generation of radioactive waste must be kept to the minimum practicable level by means of appropriate design measures and procedures, such as the recycling and reuse of material."

GSR Part 5 Requirement 8 states that "All radioactive waste shall be identified and controlled. Radioactive waste arisings shall be kept to the minimum practicable."

GSG-15 (Rev. 1), para. 9.16 states that "Segregation of residual materials on the basis of characterization data is particularly important for maximizing the amount of material that can be reused or recycled, or disposed of in landfill sites. This then minimizes the volume of material to be managed as radioactive waste and helps to identify appropriate management options […]."

IAEA Comments/Highlights

No comments or highlights on this good practice.