WASTE 7

MANAGEMENT OF RADIOACTIVE WASTE

Directive 2011/70/Euratom[1] for the responsible and safe management of spent nuclear fuel and radioactive waste requires Member States to establish national policies and programmes for the long-term management of radioactive waste, from generation to storage.

A federal competence

In Belgium, the National Agency for Radioactive Waste and Enriched Fissile Materials (*Organisme national des déchets radioactifs et des matières fissiles enrichies - ONDRAF/ Nationale instelling voor radioactief afval and verrijkte splijstoffen - NIRAS*) is responsible for the management of radioactive waste. This waste comes in particular from electricity generation installations from nuclear energy and applications in medicine and industry (including food). It is made up of various substances, materials, tools, appliances, pipes and protective coatings which can no longer be used[2] (excluding spent nuclear fuel which is not yet considered as radioactive waste). ONDRAF/NIRAS is responsible *inter alia* for isolating this waste from all contact with humans and the environment for as long as the radioactivity which they contain has not decayed to a level deemed to be acceptable.

Containing radioactivity

The majority of radioactive waste produced in Belgium is transported to the processing facilities located in Dessel. The aim of the treatment is to concentrate the radioactivity of the waste and confine it in a suitable recipient. At the end of 2014, the total volume of waste packed and provisionally stored in Dessel pending a long-term management solution amounted to 22,440 m³ (+76% compared to 1995). This volume consisted of 80.8% of "Category A" waste. The decrease in the stock of "Category C" waste observed between 2013 and 2014 is explained by the evolution of knowledge on radioactive waste management, which led ONDRAF/NIRAS to reclassify part of the waste from "Category C" to "Category B".

The future of waste

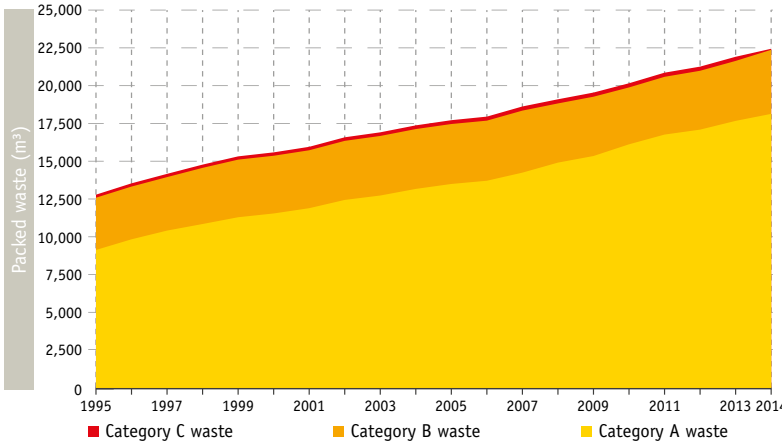
ONDRAF/NIRAS is currently developing an integrated surface disposal project for "Category A" waste at the Dessel site. With this project, Belgium will have an operational solution for the long-term management solution for this category of waste. As regards the long-term management solution of "Category B and C" waste, geological disposal in deep clay is envisaged. An experiment[3] has been under way since the end of 2014 to refine our understanding of clay properties in the event of heating on a scale representative of a real storage facility.

Managing nuclear liabilities has a cost

The Royal Decree of 25/04/2014 lays down guidelines for setting tariffs for the management of radioactive waste. They aim to ensure compliance with the "polluter pays" principle by imposing an obligation on the major producers of radioactive waste to continue to pay ONDRAF/ NIRAS fees as long as all costs related to the long-term management solution of their waste are not fully covered.

[1] Transposed into Belgian law by the law of 03/06/2014 | [2] www.ondraf.be | [3] PRACLAY experiment: www.euridice.be

Fig. WASTE 7-1 Stock of radioactive waste packed in Belgium



SOERW 2017 – Source: ONDRAF/NIRAS

Tab. WASTE 7-1 Classification of radioactive waste for long-term management

	Low activity	Average activity	High activity
Short half-life (less than 30 years)	A	A	C
Long half-life (more than 30 years)	B	B	C

Half-life: time taken to reduce the radioactive activity by half