

Focus 14

Long-lived waste: still an unsolved problem

Under criteria of radiological period and level of activity introduced into French legislation in 2006, six classes of radioactive waste must be distinguished. Table 14 shows these categories and indicates their current management status. Short-lived intermediate and low-level wastes (SL-ILW/LLW) are disposed of in dedicated surface sites. A decision has yet to be taken, however, on the long-term management of the high-level and long-lived intermediate-level wastes (HLW and LL-ILW), most of which arises from spent fuel management. According to Article 3 of the law of 28 June 2006, research on the management of these wastes must be pursued in three “complementary” programs, each with its own deadlines:

- Partitioning and transmutation of long-lived radionuclides. A strategy is to be selected in 2012 and a prototype reactor is to be in operation by 2020; France, as part of the Generation IV Forum, focuses on liquid-sodium-cooled fast breeder reactors (Superphénix was in that category), and gas-cooled fast reactors as an alternative.
- Interim storage. By 2015, existing sites must be expanded or new ones created to satisfy estimated needs; and
- Geological disposal. The licensing process for a site is to be started by 2015 and it is to be put into operation in 2025. A laboratory is carrying out research work in Bures, and the eventual site is to be found in a geographical area of interest around there. The 1991 law on research in radioactive waste management had planned that a second laboratory be implemented, but it could never be sited due to the opposition of the local population in every potential area.

In addition, a plan for the long-term management of uranium mining legacy (mining sites and disposal of residues) should be presented before the end of 2008. Also, a repository site for long-lived, low-level waste (LL-LLW), including the graphite residues from the first generation of French reactors, should be put into operation in 2013. However, when opening the process to find the potential sites (through closed consultation of city councils in areas of interest) in June 2008, Andra acknowledged that a site could not actually start operation before 2018. This was not taking into account doubts cast by the independent consultative commission CNE in a July 2008 report on the feasibility of the safety demonstration for the graphite waste.

Table 14 Categories of radioactive waste in France and their current management status

		<i>LL – Long-lived</i>	<i>SL - Short-lived</i>	<i>VSL – Very short-lived</i>
	Period Activity	> 30 years	≤ 30 years > 100 days	≤ 100 days
HL <i>High Level</i>	> 10 ⁸ Bq/g	Under study Art. 3 of the law of 28 June 2006 1 laboratory for geological disposal: Bures		Management by radioactive decay
IL <i>Intermediate Level</i>	≤ 10 ⁸ Bq/g > 10 ⁵ Bq/g	Under study Art. 3 of the law of 28 June 2006	Surface disposal ^(a) 1 closed facility: Centre de Stockage de la Manche (CSM)	
LL <i>Low Level</i>	≤ 10 ⁵ Bq/g > 10 ² Bq/g	Study of dedicated subsurface disposal	1 facility in operation: Centre de Stockage de l’Aube (CSA)	
VLL <i>Very Low Level</i>	≤ 10 ² Bq/g	Dedicated surface disposal 1 site in operation: Morvilliers Limited recycling for some categories		

a. With the exception of specific waste, eg contaminated with tritium, for which dedicated management is still being studied.

Source: based on PNGMDR, 2007-8