



RADIOACTIVE WASTE FROM NUCLEAR POWER PLANTS AND BACK-END NUCLEAR FUEL CYCLE ACTIVITIES: THE FRENCH SAFETY APPROACH

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French disposal surface facility: The Centre de l'Aube is designed to receive very different types of waste generated by NPP, reprocessing, dismantling and also by Industrial application, research and medicine.

Such a diversity involves very different potential hazards which have to be apprehended in the safety analysis.

The paper will describe how are used the different safety analysis tools in order to manage the very large range of needs of the waste producers and to ensure a safe disposal.

These tools are :

- functional analysis;
- risk analysis;
- safety calculation;
- etc.

We will show that the most important acceptance criteria for the first barrier of containment, which is the waste package, are :

- the containment;
- the durability;
- the activity limitation;
- etc.

Then, we will give examples of derivation of some of these criteria from the safety scenarios (accident during operational stage, intrusion during post closure period.).

However, recently, waste producers request ANDRA to dispose of new types of waste initially not foreseen. Therefore, safety analysis has to imagine new scenario and derive new acceptance criteria. The paper will mention the example of seals sources, vessel closure heads of NPP WPR, racks of fuel elements, contaminated remote controlled robots, waste with high dose rate, pulverulent waste, etc. which lead to specific potential hazards. Indeed, some waste represent an unusual source of radiation, a risk of additional contamination in case of accidental situation, or increase the probability of occurrence of certain scenario such as the recovery of waste in the post-closure period.

The safety analysis must be adapted and must imagine some new scenarios to consider the acceptability of the waste described above and even, deduce acceptance criteria appropriate to the risks. The paper will give examples of studies which may be still under way at ANDRA offices.