

# RADIOACTIVE WASTE MANAGEMENT IN FRENCH NUCLEAR CIVIL CENTERS

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- I) Waste management is rather easy, in any country, when three conditions are met simultaneously :
- existence of a final depository,
  - clear criteria for acceptance of the wastes in the depository,
  - acceptance of the public opinion.

I do not mention the subsidiary condition, rather trivial, which is to have good techniques for waste confinement, but I insist on the important point of having coherent regulations and laws ruling the waste business.

- II) The French situation is contrasted, but rather good, on the whole.

A - We have a clear policy as far as final disposal is concerned :

- . The greatest part of the wastes can be sent to surface waste depositories when the waste contain short life nuclei only.
- . When the wastes contain long life nuclei, the situation is less simple. Nevertheless, our parliament has issued a law in December 1991, which guides us.

This law says that, during the next 15 years :

- we must look for solutions allowing separation and transmutation of long life nuclei,
- we must study the possibility of retrievable and non retrievable storage in deep underground places, through specific laboratories,
- we must study waste conditioning systems able to sustain long duration in surface storage.

Clearly, the technical choices for the storage of waste containing long life nuclei are not made, and the recommendations of the law reflects the conflicts which persist in French public opinion.

I must add that an arbitrator has been nominated by the Parliament in order to investigate the wishes of local communities to accept the laboratories. Surprisingly, the candidate are many.

We guess that, even though the process might be delicate, two sites will be chosen as underground laboratories next year.

B - We have clear criteria for acceptance of the wastes in our surface repositories. They are edicted by ANDRA, now independant of CEA.

This independance increases the credibility of the system of acceptance of the wastes.

C - The French public opinion on waste is contrasted. There is no rejection of our system of waste management as far as surface storage is concerned.

The situation is different for underground storage of wastes containing long life nuclei. A moratorium on prospection of sites has been decided three years ago by our government. To day, the situation is improving, as I said above, and, no doubt that the studies on separation and transmutation of long life nuclei will bring some interesting and useful results.

III) There is nothing special in the way we condition and manage our wastes. Our techniques are very similar to those of many countries.

We insist on :

- sorting out the wastes according to their nature,
- reducing the volumes,
- decontaminating as far as possible,
- conditioning, according to the physical nature of the wastes, to meet the Andra criteria,
- measuring the radioactive content as well as possible.

The R and D supporting the waste management teams is oriented towards better new containments (glasses and ceramics) and drastic reduction of volume (plasma torch).

IV) Apart for the major issue of underground depositories for long life nucleï containing wastes, CEA has met great difficulties with the problem of very low level waste management.

Those problems came when a press campaign revealed the existence of two depositories of very low level waste near Paris.

Those affairs revealed that :

- 1) our laws and regulations were very poor on that subject,
- 2) CEA managers were not prepared to discuss with public representatives.

Our experience is that the question of low level wastes is as important and raises as many problems as the question of high level wastes.

This question is even possibly more important, as it is linked to the problem of low doses of irradiation and possible large dispersion of radioactivity.