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# ANDRA and the Transport of Radioactive Wastes Toward the Disposal Sites

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## INTRODUCTION

Nowadays, in France, about 300 000 packages containing radioactive materials are carried every year. Among them, there are 80 000 to 90 000 packages of low and medium level wastes, carried by rail or road towards the "Site de Stockage de la Manche" (Waste Disposal Area located near La Hague, on the Channel coast), the only center in operation at the moment.

## I - REGULATIONS

In France, the basic legal text is the "Règlement pour le Transport des Matières Dangereuses" of which an important part is devoted to radioactive materials.

Radioactive wastes are carried in agreement with this regulation.

The regulatory requirements about packages are aiming to the production of safe packages, warranting, in the case of an accident, the containment of the radioactive material. The other requirements specify the actions to be done to assure that the transport itself goes off in the optimal conditions (drivers formation, vehicle's equipment, shipping documents, identification of packages, instructions in case of incident or accident...).

## II - CONDITIONNING AND CARRIAGE OF WASTES

The low and medium level wastes are very diverse in nature and origin. They are packaged in such a way that their storage and their carriage as well, present all the necessary guarantees.

The production of these packages is submitted to strict requirements, including an approval procedure by ANDRA.

Tests are carried out on one or several packages to make sure that they are in agreement with the storage provisions and the transport regulations, as well.

### III - THE ORGANIZATION OF THE TRANSPORT OF RADIOACTIVE WASTES

ANDRA takes possession of packages of wastes when they arrive on the disposal site, but it plays also a part in transport, in two ways :

- first, as operator of the disposal center, it needs to have under control the schedule of the deliveries ;
- then, taking care of the quality of every operations of waste management, it has to control the safety during the carriage of these wastes towards the disposal site.

ANDRA settled a specialized department, the "Bureau des Transports" (BT), to fulfil these two tasks, in close contact with every producer, carrier and the operational department of the disposal site.

#### III.1 - Control of the delivery of wastes

This aim implies the programming of movements and optimization of loadings.

On basis of the provisions stated by the producers and taking into account the operating conditions of the disposal site, ANDRA/BT issues a monthly planning of deliveries which specifies, day by day, the foreseen transports and the detailed loading of each road or rail vehicle.

Each producer has the possibility of selecting the transport modes and the operating company or companies. Some of them give to the ANDRA the task of carrying out these transports.

For rail transports, the planning involves ANDRA/BT, the producer and the SNCF (Rail National French Organization) or its approved sub-contractors.

For road transports, the actors are ANDRA, the producer and the carrier. When ANDRA is contractually linked with carriers, BT optimizes the use of the means (vehicles, loadings, etc...).

Each packaging bears, in addition to the regulatory transport label, two labels for package identification. On each label, is displayed a "clear" identification and a ZIP code. This latter can be read by a laser system.

Each loading is accompanied by the documents necessary to its transport and storage (shipper declaration, transport document, description of packagings and packages).

### III.2 - Safety of transports

ANDRA is authorized to manage all its transports by the "Commission de Sûreté des Transports" (Safety Transport Commission) of the C.E.A. (Commissariat à l'Energie Atomique). This authorization must be renewed every year.

In order to get the highest level of safety in road transport, BT established a qualification procedure for carriers. Only the carriers qualified by ANDRA are allowed to carry the wastes towards the disposal site.

When a carrier proposes its collaboration, ANDRA/BT supplies him with a file recalling the applicable regulations and some practical provisions, in particular :

- Driving personnel (formation, medical and radiological survey)
- Vehicles and equipment (stowing, protection, intervention)
- Transport modalities (instructions, accompanying documents)

An audit is then carried out by an approved organization, in the presence of BT. If this control gives evidence that the carrier satisfies the obligations specified in the qualification file, a certificate, valid one year, is delivered. ANDRA makes a control prior to each renewal of the certificate. Unexpected verifications take place during this year.

Beyond, ANDRA plays an important part in safety by maintaining a permanent staff, night and day on duty. This staff knows in detail the loading of every vehicle and is able to give any useful information about opportunity and conditions of a possible intervention in the case of an incident or accident.

Specialized equipments enhance the safety of transport. For example, ANDRA relies on transcontainers which can be loaded on either road or rail platforms. They are transferable from one to the other without handling of the contents, what is an obvious advantage, specially in order to lessen the handling on the rail terminal of the disposal site.

In the case of an accident, the driver of the vehicle must, according to the instructions, warns :

- the police,
- the Center of Coordination and Broadcasting of IPSN ( Institut de Protection et de Sûreté Nucléaire).

Owing to this organization, specialized staffs intervene rapidly to limit the consequences.

Moreover, the here above qualification procedure requires that every stop of the vehicle, longer than two hours, must be signaled to the central point of security of the C.E.A.

The vehicles assuring the road connection between the rail terminal and the disposal site are equipped with mobile telephones allowing a connection between the driver, the carrier's headquarters and the disposal site.

Some transports are convoyed by a separate vehicle. The accompanying staff has to bring assistance in radiological and fire protection in case of an accident.