

Operational waste from nuclear facilities



Surface or near-surface disposal of low- and intermediate-level short-lived waste.

Disposal of waste packages at the CSFMA

➔ All nuclear facilities, whether reactors, fuel-cycle front-end facilities (conversion, enrichment, fuel-fabrication plants) or spent-fuel processing plants, generate operational waste. In particular it is generally estimated that about 100 m³ of operational waste are produced every year just by each power reactor.

Such waste includes, for instance, the ion-exchange resins produced in reactor circuits or the operating filters, both of which contain a large amount of cobalt-60 activation products. A significant process is necessary to ensure that all operational residues are sorted, measured, treated, conditioned, packaged and stored or disposed of under good operational safety and long-term safety conditions. Those activities must also be carried out at the most cost-efficient rates.

The selection of the disposal concept has an impact on all phases of the waste-management process, especially on the producer's premises beginning when the radioactive waste is produced. Therefore the waste manager must intervene very early in the process in order to ensure its entire consistency.

Methodology

The ADS Surface methodology is to set up an iterative process that includes the following steps:

- > The implementation and follow-up of the radiological and chemical inventory (both for existing and future waste);
- > The identification of the adequate ratios for long-lived radionuclides that are difficult to measure;
- > The determination of the radiological capacity of the disposal sites and acceptance limits;
- > The definition of the waste-packaging and containment specifications, from which will derive the relevant sorting and conditioning operations on the producer's premises;
- > The prescription and enforcement of systems to measure waste activities;
- > The implementation of waste-acceptance criteria and control procedures required prior to accepting waste at the disposal facilities;
- > The selection of the disposal site;

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- > The design of disposal facilities, followed by their construction, operation and, finally, their closure;
- > The realisation of safety assessment studies on the disposal sites;
- > The enforcement of environmental monitoring programmes;
- > The closure of disposal facilities and enforcement of the long-term post-closure monitoring programme;
- > The preparation and submission of application files for review by authorities.

Andra Disposal Solutions

➔ *Andra is responsible for managing all radioactive waste produced in France. It benefits from 40 years' experience in the management of the waste coming from the French nuclear reactors, including all fuel-related facilities.*

The Agency is currently operating two disposal facilities: one for short-lived low- and intermediate-level waste (CSFMA) and the other for very-low-level waste (CSTFA). In accordance with waste production rates and with a very good safety record, both facilities accommodate almost all operational waste

generated in France. Andra also ensures the active monitoring of a third disposal facility, the Manche Disposal Facility, which is now in post-closure monitoring phase.

Moreover, the Agency intervenes on the overall processing of the waste and prescribes the waste-

acceptance criteria to be met by the producers before they send their waste to Andra's disposal facilities. Hence, it implements integrated solutions for radioactive waste management, from initial production until final disposal.



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1• Drum containing low-level waste resulting from the operation of a nuclear facility



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2• Grass sampling as part of the environmental monitoring at the CSFMA



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3• Filter-cartridge waste from the water primary circuit of a nuclear-power plant



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4• Compaction of a radioactive-waste package at the CSFMA

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