

Marcoule : dismantling the UP1 reprocessing plant



Spent fuel reprocessing operations at UP1 ceased at the end of 1997, and the clean-up and dismantling programme began quickly thereafter. The continuity made it possible to leverage the expertise of the teams in place.

Clean-up work to date has removed 95% of the radioactivity, and work for dismantling the high-level part of the plant has reached a very advanced phase. The plant main components will be entirely dismantled before 2020. Recovery of old waste will be completed around 2040, on line with the availability of the deep geological repository, slated to open in 2025. The dismantling operations aim to :

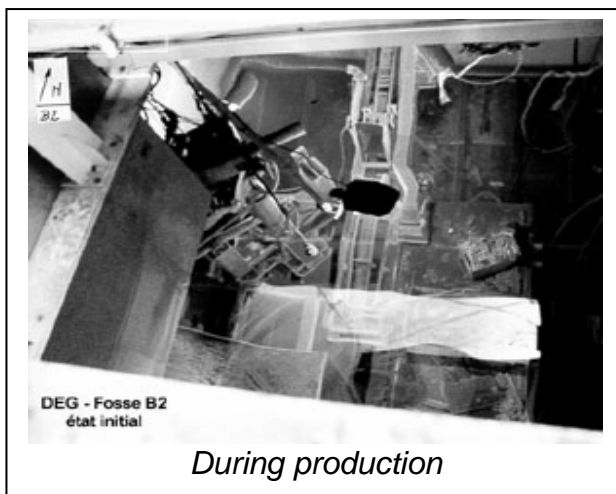
- disassemble production equipments ;
- eliminate any radiological risk in all buildings concerned ;
- remove all the resulting waste.

Clean-up and dismantling of UP1, not including the support installations, involves one thousand rooms. Around 27,000 tonnes of waste will be produced, most of which can go to a surface disposal facility, and 5,300,000 hours of studies and operations will be required. At the end of the project, the radioactive dose rate of all the installations will be less than the detection thresholds of measuring devices.

The project total cost is around 5 billion euros, 1.4 billion having been already expensed.

CEA will act as the contracting authority for the operations and will also be responsible for the nuclear installations. AREVA NC has been entrusted with running the operations, together with other nuclear actors, and will be responsible for project management, studies and implementation.

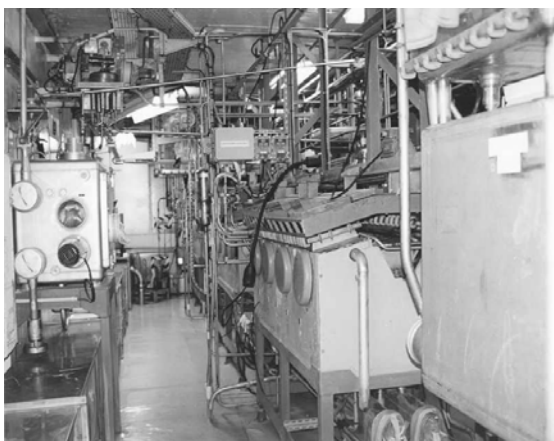
Fuel decladding facilities



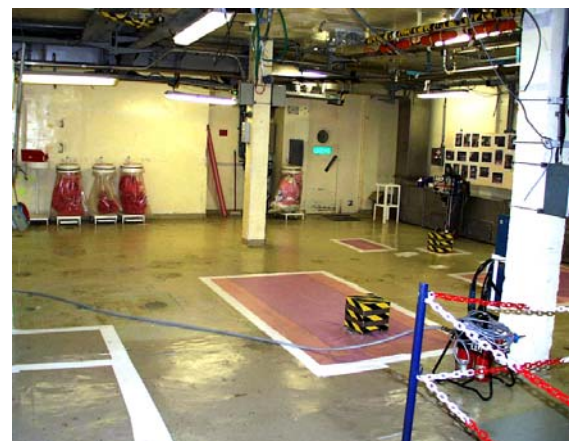
The facilities for receiving, storing and preparing fuels for reprocessing had high radiation levels requiring remote-control operations.

Plutonium dissolution and extraction facilities

The major technical challenges in cleaning up/dismantling UP1 are linked to the wide range of complex components and equipment in the facilities – chemical dissolvers, extractor batteries, evaporators, tanks, etc. – together with a high risk of exposure, due to the presence of fission products. Most of the clean-up operations before dismantling need use of remote control.



*Plutonium processing facility
in operation*



After clean-up

Installations for treating high-level effluents

The storage installations for fission products and the vitrification facility for high-level effluents are still in operation in order that the radioactive effluents produced by the clean-up operations can be stored and treated.

These installations are scheduled to be dismantled starting in 2011.

Old waste support and recovery units

The clean-up and dismantling operations described above make use of the support installations (laboratory, waste conditioning facility, effluent treatment station), which will be the last to undergo dismantling, around 2035.

There are two types of waste to be treated and conditioned according to the source :

- Waste from the production period on site when UP1 shut down. These waste are being reconditioned and most of them will be sent to the future deep geological repository.
- Waste resulting from the dismantling operations.

Safe storage facilities have been built in Marcoule until the waste can be sent to ANDRA's future repositories.