

## Marcoule : UP1 spent fuel reprocessing plant



UP1, built in the Marcoule centre of the French Atomic Energy Commission, was commissioned in July 1958.

Dedicated to reprocessing irradiated fuel from the G1, G2 and G3 plutonium-producing reactors, the plant extracted plutonium and recovered unburnt uranium.

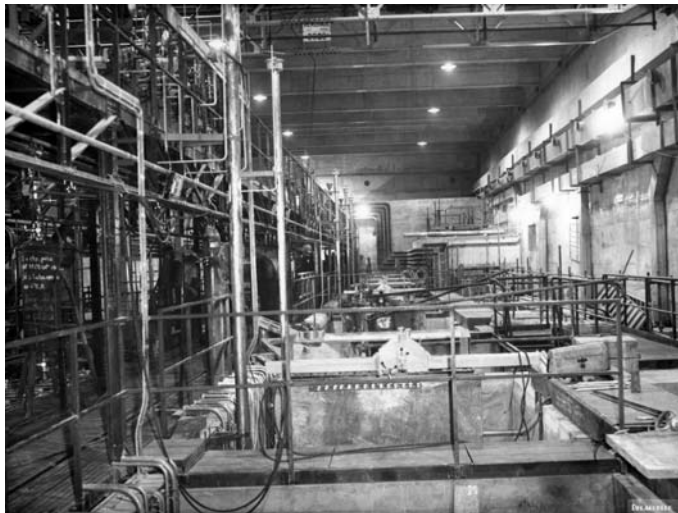
UP1 was the first industrial-scale reprocessing plant in France. It ceased operation in September 1997.



*UP1 included two main areas: the high-level zone and the intermediate-level zone, divided between 14 facilities on 20,000 m<sup>2</sup> of land*

### Reprocessing

Plant operations were based on the American PUREX process. Starting in 1952, the technology was adapted to French needs using CEA developments from its Fontenay-aux-Roses laboratories in Paris vicinities.



*Extraction room*

Spent fuel coming to the reprocessing plant was stored in a pool, prior to mechanical decladding. The fuel rods were then dissolved in an acid solution.

Chemical dissolution was followed by successive extractions using a solvent to separate the plutonium and uranium from the fission products.

Starting in the 1970s, the fission products were vitrified and stored on site. They constitute final waste to be disposed in the future deep geological repository, set to open by 2025 under French law.

Uranium and plutonium, accounting for 96% of the total material, were isolated and conditioned separately before use.

