

Pierrelatte : uranium enrichment plant



In 1952, French government decided to begin developing an independent, self-sufficient nuclear industry. In this context, it launched the French uranium enrichment programme, then in 1958 decided to build a facility for producing highly enriched uranium dedicated to defence needs. Construction work on the Pierrelatte gaseous diffusion plant began in 1960. The first enrichment unit (called the "low plant") came into service four years later, and the entire plant was operational by the beginning of 1967. Operations continued until 1996.



Aerial view of the Pierrelatte site

The gaseous diffusion plant included four units, of decreasing size, which corresponded to the four levels of uranium enrichment :

- the low plant, the first to come into service and the largest, received a flow of natural uranium and delivered material enriched to 2% to the middle plant ;
- commissioned in 1965, the middle plant enriched the incoming flow to 6% and transferred it to the high plant ;
- starting in 1966, the high and very high units increased enrichment to the level required for military applications.



Enrichment stages

The gaseous diffusion enrichment process involved concentrating uranium-235 by diffusing a gaseous compound (UF_6 , uranium hexafluoride) through porous barriers. Because the difference in diffusion rate between the gas molecules containing the two isotopes is small, a very large number of diffusion stages had to be arranged in series. Each stage included a compressor to circulate the gas and two diffusers, containers in which the porous barriers were placed.

The Pierrelatte plant has been designed accordingly: the low plant was 900 metres long and the four units occupied an area of around 12 hectares.