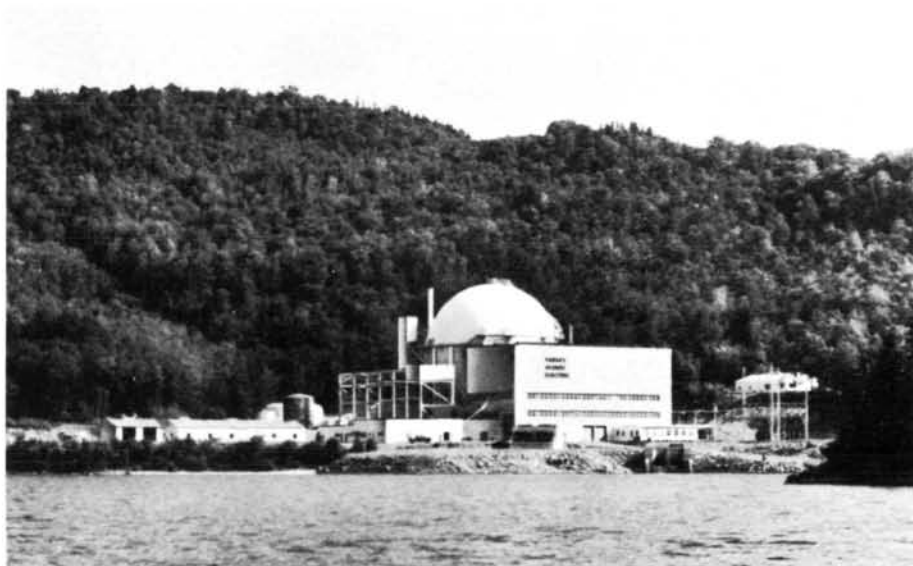


MORE EXPERIENCE IN SAFEGUARDS

For several weeks from the beginning of August onwards, a team of atomic inspectors was engaged in carrying out the first inspection ever to be made under the Agency's safeguards system of a plant in which potentially explosive material is extracted from uranium used as fuel in a reactor. Their inspection of the Nuclear Fuel Services plant in USA is extending the experience gained, hitherto confined to reactors. It also ensures that 100 kilograms of plutonium produced there each year and originating in the Yankee reactor will be used only for peaceful purposes.

The NFS plant employs complicated chemical processes, many of them carried out in "cells" behind walls of concrete five feet thick to shield operators from intense radioactivity and from contamination which could also be toxic.

The Yankee Power Station, USA, which is subject to Agency safeguards. Fuel used here is sent to the NFS processing plant, where IAEA inspectors have now had their first experience of examining chemical methods of extraction.



Remote handling methods have been developed to a high degree. Inspection to determine the quantities involved and the amount of fissile material produced is therefore a task entirely different to that involved in a reactor and calls for specialist knowledge in a number of disciplines.

What comes into the plant is fuel which has been used in the Yankee commercial power plant at Rowe, Massachusetts, already placed under the safeguards system voluntarily by USA following an offer made at the Eighteen-Nation Disarmament Committee in 1964. Inspections there have helped considerably in developing inspection techniques and procedures for large reactors—Yankee is rated at 600 megawatts of heat and produces 175 megawatts of electricity (a megawatt equals a million watts). For fuel it uses uranium with a slightly higher proportion of the fissile material than occurs naturally, and while operating it creates within the fuel about 100 kilograms of plutonium annually. Plutonium is one of the materials from which atomic bombs can be made. It is also a material which is expected to increase considerably the efficiency and economy of power reactors of the future.

The plutonium and other elements created in the used fuel are extracted by the lengthy and intricate chemical processes. The work of the inspectors entails observation, verification of quantities, analysis of samples and, as always in their activities, many mathematical calculations. It was only last year that the system was extended to cover reprocessing plants, and this first inspection of such a nature has given an opportunity for training in what it is hoped will be an important and growing branch of the work.

The plant, built at a cost of \$32 million, is the world's first privately-owned facility for the reprocessing of spent nuclear fuel, constructed by the Yankee Atomic Electric Company. It started operating in April 1966.

Eleven members of the Agency's staff were included in the team, drawn from nine different nationalities.