

# International Conference on Management of Spent Fuel from Nuclear Power Reactors: An Integrated Approach to the Back End of the Fuel Cycle



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## Ageing Management of Spent Nuclear Fuel Facilities

Argentina has three nuclear Power Plants in operation, Atucha I (CNA I), Embalse (CNE) and Atucha II (CNA II). All of them are based on natural uranium as fuel with heavy water moderation and refrigeration.

Atucha I (370 Mwe) and Atucha II (750 Mwe) are almost unique in their type, both are Pressure Vessel type. The Embalse Nuclear Power Plant ( 600 Mwe) is a CANDU type.

In this work we will refered to the Atucha I spent fuel. The fuel of Atucha is 6 meter long and has 36 bars of zircaloy-4. For these fuels there are deposits located in the places where the reactors are situated. Atucha I has two pools houses where about 11.000 spent fuels is accumulated so far. From middle of the year 2000 the whole nucleus are of fuels with 0,85% enrichment and therefore, the consumption of fuel will be of 210 fuels per year.

One of the alternatives is when the Atucha Nuclear Power Plants concludes their operation to pass the spent fuel to dry storage and another alternative is to continue with the operation of the pools and pass to dry a group of select spent fuel. The main objective is to elaborate a life management programme of the deposits of spent fuel inside the general life management programme of nuclear facilities. The life management plan of a facility is permanent and it is adjusted to the changes that may occur in the ageing mechanisms and the technological advances that allow them to be mitigated or solved.

For the selection of the technology it should be kept in mind, those characteristic of the fuel element Atucha, their longitude and their burn up one that it will be different according to the time that is considered. The construction should also be to modulate, allowing to add sectors according to the necessities. It should also be considered the conditions in which it can be carried out the transfer from the pools to the deposits in dry.

### Country/ int. organization

Argentina-Comision Nacional de Energia Atomica

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