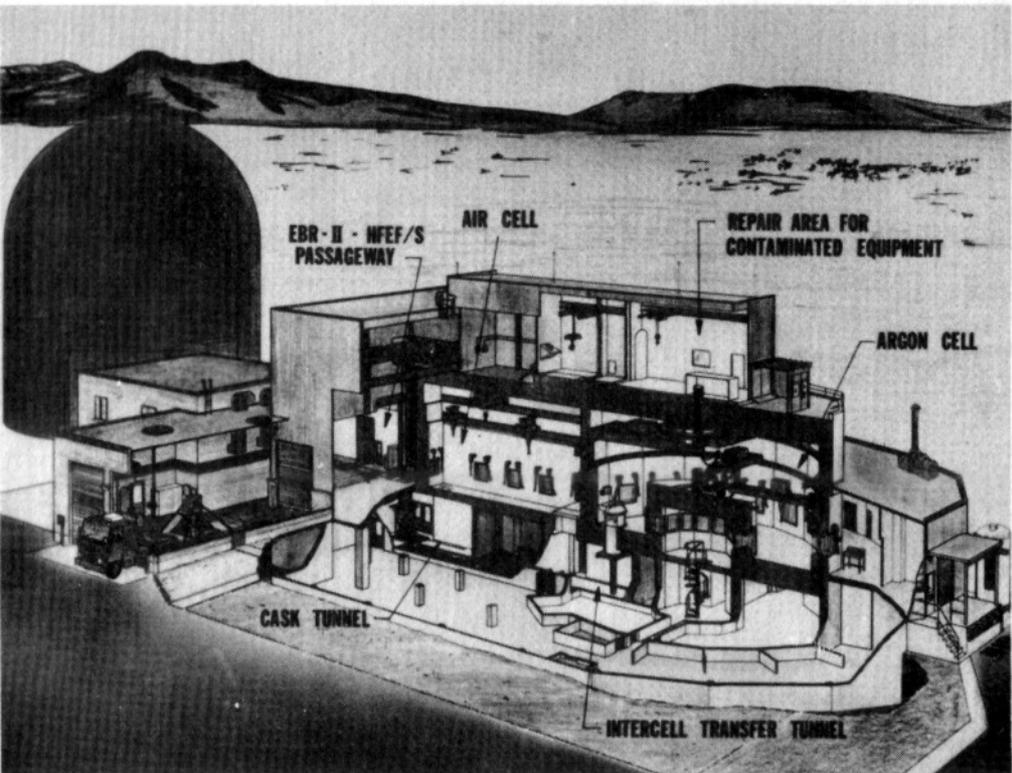


# FCF Fuel Cycle Facility



## *Fuel Cycle Facility*

The Fuel Cycle Facility (FCF) became operational in 1964 and was used to demonstrate pyrometallurgical fuel reprocessing for EBR-II fuel during the first few years following startup of the reactor. In that mode of operation, a remotely-operated production line was used for reprocessing and refabricating the spent EBR-II fuel and returning it to the reactor. That operation involved melt-

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refining the metallic fuel, casting it into new fuel pins, and fabricating fuel elements and subassemblies — all carried out remotely, behind the thick concrete shielding walls of the "hot cells". In 1969, after a successful demonstration of this process, the fuel reprocessing mission was discontinued, and the facility was equipped to handle and examine irradiated fuels and materials experiments from EBR-II and TREAT and to provide other reactor support services such as spent fuel transfer to the Idaho Chemical Processing Plant.

The facility was renamed the Hot Fuel Examination Facility/South when its sister facility, HFEF, became operational. Not long after the startup of HFEF a major effort was begun to clean radioactive materials from (decontaminate) surfaces, refurbish the FCF argon cell, and prepare it for a future, but then undefined, mission. This foresight made the facility available for its current mission to demonstrate the new remote reprocessing and refabrication fuel cycle process for the Integral Fast Reactor (IFR) Program. In 1990 the name of the facility was changed back to the Fuel Cycle Facility to appropriately reflect its mission.

FCF consists of two hot cells, one having an air atmosphere and the other having an inert argon-gas atmosphere. The rectangular air cell is used for handling, storage, and the assembly and disassembly of components. The argon cell is a much larger hot cell and is "doughnut" shaped; that is, personnel can operate from the outside corridor around the hot cell or from an inner shielded

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being outfitted with the processing and fabrication equipment required to perform the IFR fuel reprocessing demonstration.

Major processing equipment in FCF will be large enough to support a commercial size plant. However, only the amount of fuel needed to support EBR-II and demonstrate its commercial potential will be processed. All of the needed equipment will easily fit into the existing hot cell space. Only a few major pieces of equipment are required and they are all relatively small and compact. This compactness, an important characteristic of the IFR fuel cycle, results in a process that is both simple and economical compared with other fuel processing methods. These features potentially make on-site IFR fuel reprocessing a technically feasible and economically viable alternative for future power stations.

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