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OPERATING EXPERIENCE OF FBTR

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The Fast Breeder Test Reactor (FBTR) is sodium cooled, loop type fast reactor commissioned in the year 1985. It is a research reactor with an evolving core with a unique Pu/U carbide fuel. The reactor has continued to provide valuable experience to improve its performance figure year after year. FBTR has been operated at different power level up to 27.3MWt/5.8MWe over the last thirty years, realizing its objectives viz mastering sodium cooled fast reactor technology and testing future reactor materials.

Based on the performance of the Mark-1 fuel, its burn up limit has been increased in steps and attained maximum burn up level of 155GWd/t completed 25 irradiation campaigns. Primary sodium temperature nearer to rated design value with reduced reactor power level was achieved by operating the Steam Generator with three out of seven tubes blanked.

This paper describes the operating experiences of FBTR starting from commissioning and successful operation and various problems encountered in different systems / areas during the last thirty years viz; Spurious reactor trips due to noise pickup, Experience with failed fuel localization, Fuel handling incident, Spurious trips from Steam generator Leak detection System, Leaks from Biological concrete shield cooling system, Positive Reactivity transients, Problems with Control Rod drive Mechanism & Core cover plate Mechanism, Dropping of orifices from once- through -Steam Generator, Detection and management of sodium leak incidents.

Country/Int. Organization

INDIA/INDIRA GANDHI CENTRE FOR ATOMIC RESEARCH

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