

## **Investigation on alternative methods to enhance the cooling capacity of an open pool reactor**

### **ABSTRACT**

It is a common phenomenon for any research reactor with less than 1MWth to have very limited applications. Thus, many of such reactors have undertaken upgrading exercises to increase its capacity. Most of the research reactor which have undergone power or flux upgrading, increased the cooling performance through the installation of higher capacity heat removal system along with forced convection mechanism inside the pool. This approach would require higher cost as well as major modification of the reactor pool. Other alternatives which require less modification and cost have been investigated using computed fluid dynamic simulation. This study has shown that the installation of in-pool pumps and conduction rods inside the existing pool system have promising potential to enhance the heat removal capacity of a natural convection cooling system.

**Keyword:** Cooling capacity; Open pool reactor; In-pool pumps; Metal rods