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Effect of changing the outer fuel element diameter on thermophysical parameters of RITM-200 reactor unit.

Abstract –The thermophysical calculation on the RITM-200 reactor unit is conducted to ascertain the possibility of optimizing the fuel element diameter without compromising the thermal constrains. The calculations included temperature distribution profile of fuel elements at various fuel element diameters, average coolant velocities and critical heat flux for nucleate boiling crisis analysis. It is demonstrated from the results achieved that an inverse relationship exists between fuel element diameter and maximum fuel temperature. The average coolant velocity is directly proportional to fuel element diameter at a constant flowrate of G =9.38 kg/s. It is also determined that decreasing the fuel element diameter below 6.9 mm will lead to boiling crisis.

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Confirm that the work is original and has not been published anywhere else

Yes

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