

HEAVY WATER GROUP

G. Young

Design (L. A. Ohlinger) of preliminary exploratory work continues on a light water cooled heavy water pile. Two types of plant design are being considered: one with straight through tubes, the water entering at the top and leaving at the bottom; and the other a U tube arrangement which avoids openings in the bottom of the heavy water tank. A number of arrangements of the metal within the cooling tubes are conceivable, of which the simplest is a small solid rod centered by ribs within the tube, as in the W plant. Another possibility is a metal rod centered within a metal pipe, with water flowing outside the pipe and between the pipe and rod. Mr. Creutz is investigating the extrusion of such pieces. This latter gives a greater distance between tubes and thus eases the structural problems; however, Mr. Ohlinger is working out the construction on the basis of the smaller spacing, to be on the safe side.

In view of the current 70° limitation on aluminum coatings, the whole coating problem is being re-examined since methods had been previously ruled out on the basis of failure at 100°. Mr. Friedman has pointed out the possibility of running the metal uncoated, which simplifies construction and avoids the danger of a loose coating in a high heat flow system.

Our inadequate understanding of heat transfer to flowing liquids is becoming apparent, and estimates of the power output which can be obtained are correspondingly uncertain. It appears that an experiment may have to be made to test each seriously proposed cooling arrangement.