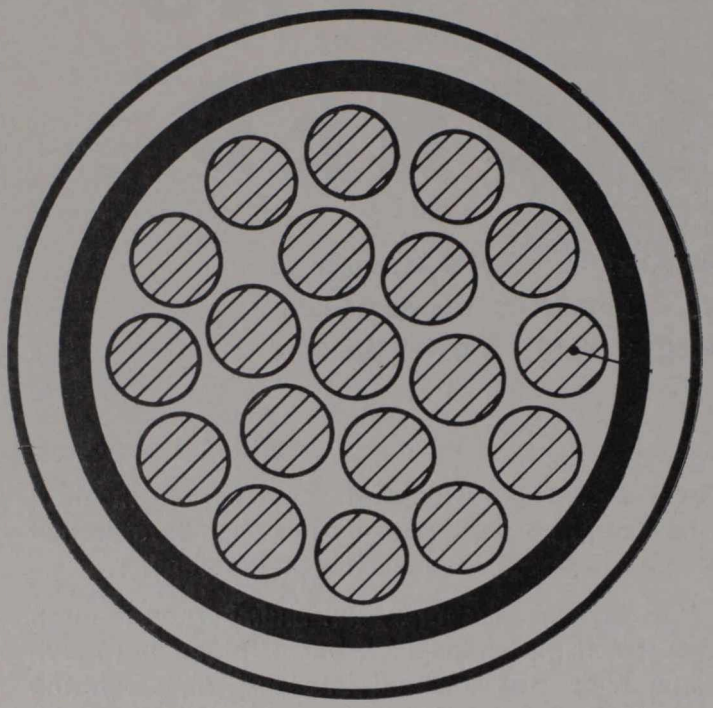

Cross-section of a fuel channel. The outer circle represents the zircaloy calandria tube immersed in the heavy water moderator. Inside is a zirconium alloy pressure tube. The gap between these two tubes serves to minimize the escape of heat. Inside the zircaloy pressure tube are the fuel bundles, each of which is made up of 19 smaller tubes containing uranium oxide pellets. The pellets measure approximately 2 by 1.5 cms. Total weight of fuel in the reactor is 41,600 kilograms. A fuel bundle lasts about two-and-a-quarter years. Spent fuel is replaced remotely to minimize radioactive contamination. Fuel channels are open at both ends for refuelling. The spent fuel is pushed out of one end and fresh fuel is inserted in the other end.

Continued from page 11

the hydrogen and scavenging oxygen. The pumps were started up to circulate the heavy water. Technicians had by now launched into the routine of continuous data taking which would go on as long as RAPP I was in business

In the heat transport system they were working up to the next stage of the commissioning drill. That would involve stepping up the circulation of the heavy water, which would heat up by pump heat alone to about 400 degrees Fahrenheit. It takes about 12 megawatts to run RAPP I. Most of this energy is needed to run pumps. Besides the State grid, there are three alternative sources of power: batteries, diesel generators and the power produced by the station's own turbines. A power breakdown could immobilize some of the plant's pumps. In order to maintain essential cooling on fuel and other items, the plant has several ranks of standby power. After checking terminals and tripping devices the plant's electrical staff stood by to switch off power from the State grid during the heat transport system warm-up. Instantly the batteries took over in the moments that elapsed before the standby diesel generators started up.

Continued on page 14

Perspective view of a refuelling machine