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NUCLEAR POWER IN CANADA

Addressing the First Canadian Conference on Uranium and Atomic Energy in Toronto on January 11, J. Lorne Gray, President of Atomic Energy of Canada Limited, discussed in broad outline the state of nuclear research throughout the world. AECL's knowledge of the atomic programmes of France and the United Kingdom, he said, was "quite up to date, as various staff members visit these areas regularly." "We also have frequent visits of senior representatives of the United Kingdom Atomic Energy Authority and the French Commissariat," Mr. Gray went on. "We are quite familiar with the programme in the United States, as our relations with the United States Atomic Energy Commission are continuous and extremely good. We have co-operative programmes with the United Kingdom, the United States and France, and we are just starting a joint programme with the Euratom countries. Our first-hand knowledge of the programmes in other countries around the world varies, but in general we are well informed."

Mr. Gray then proceeded to discuss briefly the nuclear programmes of what he termed the "lesser 'nuclear-developed' nations" (the Euratom group, Japan, India, Spain, Sweden and Australia) and the chief nuclear powers (the U.S.S.R., France, the U.K., the United States and Canada). Concerning the Canadian programme, he said:

"...The Canadian nuclear power projects are quite definite and fairly easy to explain. They have evolved primarily from the basic

work done at Chalk River where the major pioneer work in the heavy-water moderation system has been performed.

"Chalk River is undoubtedly the foundation of any Canadian programme - not only for the physics of reactor systems but for the applied engineering and metallurgical problems of both the reactor parts and more particularly the fuel.

FUEL DEVELOPMENT

"Millions of dollars have been spent and are being spent each year in the fuel development programme alone. The fuelling of the NRX reactor, which has been operating since 1947, is still subject to continual development - the NRU reactor even more so. It is extremely fortunate that the fuel for Canada's first power reactors is in a much better state of development than was the fuel for either NRX or NRU before start-up. The joint programme carried out at Chalk River with the United States Atomic Energy Commission for uranium oxide (enriched or natural) for their pressurized water systems has been extensive and fruitful. It is the magnitude and success of this work, coupled with many years of operating large-scale heavy-water research reactors, that gives the AECL designers the confidence they have in low fuel costs for the natural uranium heavy water systems.

"The nuclear power projects sponsored by Atomic Energy of Canada Limited, and under way, are four in number - with a total final

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