

Licensing of MAPLE Reactors in Canada

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The Operating Licence for a MAPLE reactor (i.e., a 10 MW(th), pool-type reactor), has been approved by the Atomic Energy Control Board (AECB) on August 16th, 1999. This Operating Licence has been obtained within three years of the initiation of the MDS Nordion Medical Isotopes Reactor (MMIR) project, which entails the design, construction and commissioning of two 10 MW MAPLE reactors at AECL's Chalk River Laboratories. The scope and nature of the information required by the AECB, the licensing process and highlights of the events which led to successfully obtaining the Operating Licence for the MAPLE reactor are discussed. These discussions address all phases of the licensing process (i.e., the environmental assessment in support of siting, the Preliminary Safety Analysis Report, PSAR, in support of design, procurement and construction, the Final Safety Analysis Report, FSAR, in support of commissioning and operations, and the development of suitable quality assurance subprograms for each phase). An overview of some of the unique technical aspects associated with the MAPLE reactors, and how they have been addressed during the licensing process are also provided (e.g., applying CSA N285.0, General Requirements for Pressure-Retaining Systems and Components in CANDU Nuclear Power Plants, to a small, low pressure, low temperature research reactor, confirmation of the performance of the driver fuel via laboratory and/or in-reactor testing, validation of the computer codes used to perform the safety analyses, critical parameter uncertainty assessment, full scale hydraulic testing of the performance of the design, fuel handling, human factors validation, operator training and certification).

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