Association of Professional Engineers

of the

Province of Manitoba

Certificate of Engineering Achievement

to

ATOMIC ENERGY OF CANADA LIMITED

The 1990 Certificate of Engineering Achievement is awarded to Atomic Energy of Canada Limited (AECL), for its Underground Research Laboratory (URL), a multi-disciplinary engineering research and development facility being constructed near Pinawa, Manitoba. The URL project is part of the Canadian Nuclear Fuel Waste Management Program, which is developing the technology to engineer the safe and permanent disposal of Canada's nuclear fuel wastes. The objective of the program is to ensure that nuclear wastes are dealt with in a manner which protects human health and the environment, and minimizes the burden on future generations.

Construction of the URL commenced in 1980. The surface facilities were completed in 1984 and underground development, consisting of a 443-m deep shaft and testing levels at depths of 240 m and 420 m, was completed early in 1990. A comprehensive geotechnical research and development program was concluded concurrently with construction, to develop the equipment and technology for characterizing the rock mass and groundwater systems, and to establish the boundary conditions for a series of in-situ, multi-disciplinary studies and engineering demonstrations, to be carried out during the operating phase. These experiments are designed to assess the performance of natural and engineered barriers to ensure the integrity of the disposal concept. Research work at the URL will continue for about ten years.

The URL project has provided unique opportunities to develop the technology and procedures applicable to site selection, characterization, design, construction and safety assessment of a nuclear fuel waste disposal vault. Innovative equipment and procedures have been used to construct the underground facility. Unique design and construction management approaches have been adopted to ensure effective integration of characterization and construction work. A high standard of quality control has been employed throughout the project. A wide variety of multi-disciplinary research and development engineering work was conducted in parallel with the development of the URL. Significant advancements have been made in both instrumentation and the state of knowledge of hydrogeology, geology, hydrogeochemistry, and geomechanics in hard rock.

AECL staff has been responsible for supervising the planning, design, characterization, excavation and construction work. Over 25 different Canadian engineering consultants and contractors, nine Canadian universities and ten international agencies have assisted AECL on the project. Engineering excellence and an integrated team approach have resulted in a world class facility. As well as meeting the needs of the Canadian Nuclear Fuel Waste Management Program, the technology developments under the program have potential applications in related industries, such as hazardous waste management and civil and mining engineering.

October 26, 1990