

management in a secluded and special area. This area is on bedrock which forms a shallow basin with only one water outlet — a small stream — which is monitored to ensure that levels of radio-activity remain below those permissible for drinking water. Should such levels be approached the flow can be held back to increase the dilution, or alternatively, the whole stream can be processed.

Highly radio-active fission product residues including strontium-90 and cesium-137 were formed into glass blocks which were buried in this area in 1959; since that time the surrounding groundwater has been monitored. Activity levels have been found to be extremely low, giving good grounds for confidence in this method of managing certain high-level wastes. There is no reason to suppose that operation of CANDU power reactors will impose any significant radiological burden on the environment. Management of high-level solid wastes from power reactors is simplified by the fact that over a 35-year operating life a 1,000-MW(e) nuclear generating station will produce only as much spent fuel as could be safely contained in an Olympic-size swimming pool.

In order to obtain independent monitoring the Department of National Health and Welfare, many years ago, undertook responsibility for the radio-active monitoring of public water supplies, discharges into rivers, and the atmosphere.

Commercial activities. AECL's Commercial Products Division is responsible for marketing radio-isotopes produced at Chalk River. Radio-isotopes are increasingly being used in medicine (for diagnosis and therapy), agriculture, industry and pollution control, a trend which is expected to continue.

Well established as a world leader in the design of cancer therapy equipment, Commercial Products' most recent activities include the introduction of a new cobalt therapy machine known as the Brachytron, which can remotely locate up to three small cobalt-60 sources in body cavities for internal radiation therapy, and the development of a computerized treatment planning and therapy system. AECL Commercial Products is also embarking on a program to produce and market accelerators for cancer therapy.

Another activity of growing importance is the Commercial Products' trace-element analysis service. Employing neutron activation analysis, the service can identify elements and their quantities in submitted samples. This has particular application in the determination, for example, of various contaminants in food sources and human tissue.

Relations with other organizations. A strong feature of the Canadian organization for atomic energy is that the regulatory body, the Atomic Energy Control Board (AECB), is separate from the chief executive agency (AECL). This, however, does not preclude close working relations. The President of AECL is, ex officio, a member of the Control Board and AECL staff are members of several AECB advisory committees.

AECL shares with the Department of Industry, Trade and Commerce a desire to increase the participation of Canadian industry in the developing nuclear market and AECL's many overseas interests involve relationships with the Department of External Affairs and the Export Development Corporation.

While AECL does not make grants to universities, research contracts are negotiated in many cases where the university has the necessary facilities and expertise. Some 20 Canadian universities undertake such work for AECL. However, the close relations that have been built up with universities are mainly the result of personal contacts. During the summer, many graduates and undergraduates of Canadian universities work at AECL establishments. A number of professors also use AECL facilities for research projects, a service which, due to the demand, is now available through the year under the aegis (at CRNL) of the Experiments Advisory Committee, a joint universities and CRNL committee. It is also noteworthy that some 60 former AECL staff now hold staff positions at Canadian universities.

AECL has encouraged and fostered Canadian industrial participation in many aspects of its program, by the award of research and development contracts, and the employment of professional and consulting services. Development contracts have contributed materially in qualifying Canadian companies to supply services, materials and equipment to the exacting standards required in the nuclear industry. As a result, two Canadian companies are now established as qualified and competitive suppliers of nuclear fuels. In other cases, qualification results from trial orders, supported by the provision of a prototype or samples, specifications and assistance from the laboratories and technical staff.