The entire research program is mission-oriented and there is close interaction between basic and applied researchers. This gives access to expert consultants in relevant disciplines and to international research results through personal contacts. Thus AECL keeps abreast of developments in all methods of nuclear power generation.

The corporation is mindful of its responsibilities to protect people and the natural environment from the undesirable effects of radiation. About 10% of its research effort is devoted to radioactive waste management, health physics, environmental research and biology research.

9.2.6 Department of Energy, Mines and Resources

The Department of Energy, Mines and Resources (EMR) promotes the discovery, development, use and conservation of the country's mineral and energy resources. The Earth Sciences Program, with scientific expenditures of $47.8 million slated for intramural activities in 1976-77, provides the basic geodetic survey and topographical mapping of Canada. It conducts geological research and surveys to provide data on earth materials and terrain, to assess geological and terrain factors affecting the use of these materials, and to develop techniques for monitoring the characteristics of earth materials and terrain features. The Earth Sciences Program also conducts geophysical, seismic, gravity and magnetic studies of the earth's crust and interior, as well as research and field surveys in the area of the Arctic continental shelf. Through the Canada Centre for Remote Sensing the department is involved in the development of facilities and techniques for the production and use of remotely-sensed data from satellites and high flying aircraft.

The Mineral and Energy Resources Program of EMR is another major performer of scientific activities with total intramural allocations of $48.1 million for 1976-77, $34.0 million for R&D. This includes research on the technology of mining, extraction, metallurgy, processing and use of metals and alloys, processing and use of fossil fuels, minerals and mineral processing as well as studies of pollution from thermal, metallurgical and mining processes and the development of prevention and abatement techniques. Geological research and surveys are an important part of this program's activities, including research on the geological history of the earth, development of geological instruments and methods and surveys to describe and interpret the bedrock geology of Canada and to provide information to facilitate the discovery of mineral deposits.

The department encourages the effective use of Canadian mineral and energy resources (mainly fossil and nuclear fuel) and administers these resources on federal lands in the provinces and in the newly declared offshore areas. New knowledge in geology, resource technology and earth physics is gathered and catalogued; this information base for resource development is then made available to the private sector.

The research activities in geoscience, minerals and energy technology provide the base needed for minerals and energy policy development. Thus research programs of the Geological Survey are directed in part to developing new exploration techniques and resource analysis techniques for land and offshore areas. Other research improves methods of understanding mineral and hydrocarbon occurrences, encouraging exploration and resource assessment.

At the Earth Physics Branch a research program is directed toward a better understanding of Canadian earthquakes, seismicity, and seismic risk and hazard. Investigations of the gravity and magnetic fields and the geothermal regime of the earth are carried out in aid of navigation, transportation, communications, surveying and geophysical prospecting.

Some of the R&D activities bear directly on issues of environmental protection. For example, the studies of permafrost not only provide information that will help in planning northern development but also provide the necessary data for assessing the environmental impact.