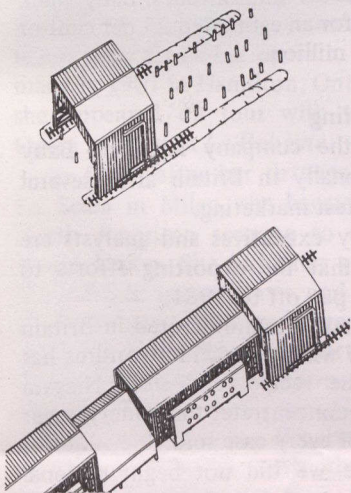


Arctic mine poses unique problems

The construction of the world's most northerly metal mine will entail overcoming "formidable obstacles" but Cominco Limited of Vancouver, which will operate the mine, believes that a successful zinc-lead operation can be developed in the Canadian High Arctic.

The Polaris mine is situated on the northwest corner of Little Cornwallis Island some 900 miles south of the north pole (see *Canada Weekly* dated January 9, 1980). This small island of Arctic tundra that is frozen for most of the year contains a wealth of lead and zinc that will make the mine at least the eleventh largest producer in the world.

Within 70 miles of the magnetic north pole the island is surrounded by ice for most of the year. The only reprieve is a short period starting in late August that those assigned to the project call the "Arctic Window".



First the shell is built, then the rest of the building is built under it, then finally it becomes a gymnasium.

Only then will the waters around the island be navigable, the Arctic Window to the world so to speak. For some ships the window can be as short as six weeks, for stronger built vessels and depending on ice conditions it can be as long as 14 weeks.

Dominates planning

This window period will dominate the planning and scheduling for the project. Most construction equipment and materials will be brought to the island by ship but only when the window is open — a major logistics challenge. Almost everything right down to the last nail, will have to be part of the cargo of supply ships that will travel through the window this

summer. And when they get there they will bring with them another challenge — unloading. The dock at the site has yet to be built.

The ships' cargos will be unloaded onto flat bed barges, then ferried to shore. Although simple in theory, the exercise will be complicated by the shortness of the window.

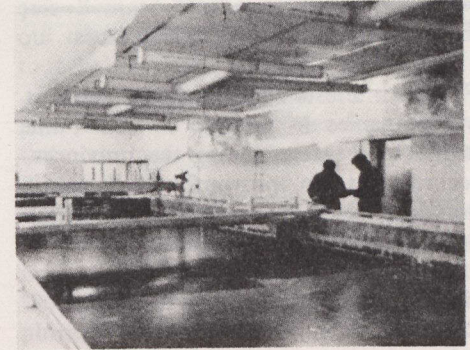
The window will also be watched closely by those who will operate the mine. Only once during the year will they

The mine, which is being developed for Cominco by Bechtel Canada, will produce two metals, zinc and lead, with an estimated reserve for both of 23 million metric tons with an annual production of 208,000 metric tons of combined zinc and lead concentrate. The project is the second Arctic mine that Bechtel Canada is developing for Cominco, the first was in Greenland in the early 1970s.

get the chance to send their production to market. Their year's work, some 200,000 metric tons of zinc and lead concentrate, will be stockpiled in a giant on-site warehouse.

Accommodation

The accommodation building for Polaris will be built in sections, under the cover of a huge shell. A shell the size of a gymnasium will be used to protect the construction crew from the harsh Arctic winter. As construction progresses the shell, built on tracks, will move to become



Various simulated Arctic ice conditions created at Arctec Canada's Kanata, Ontario laboratory enabled engineers to test the design for Polaris' dock facility.

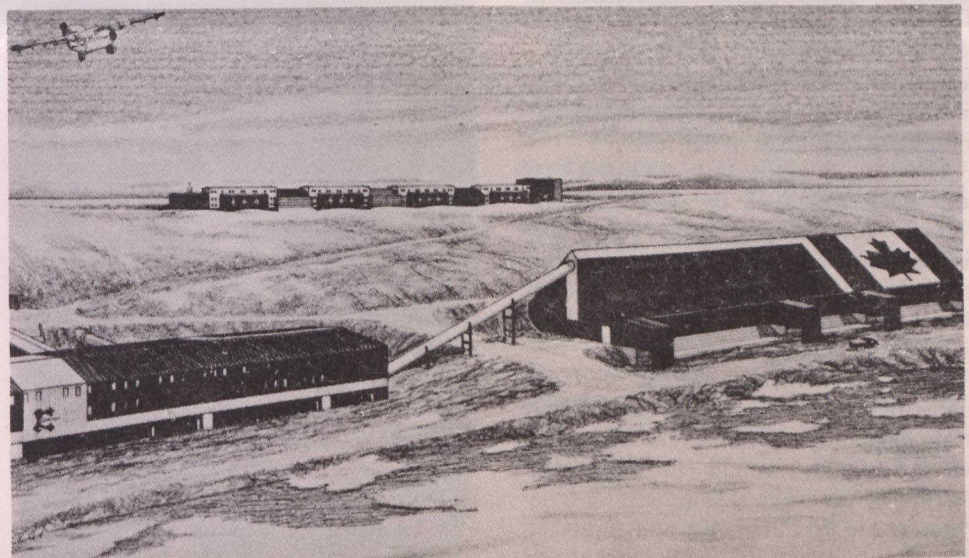
shelter for each successive section. Then when the building, which will include sleeping accommodation for 240, a large dining area, recreation hall, health centre, swimming pool and administration offices, is completed the shell will become a gymnasium.

Plant towed to site

A barge being built in Lauzon, Quebec at Davie Shipbuilding's yards will measure 400 feet by 100 feet, almost the size of a football field, and will be used to carry the Polaris project's processing plant consisting of concentrator, power house, warehouse, change house, shops and operating offices to the mine site.

The whole unit, barge and plant, will be ready for towing to the site in the summer of 1981.

Once there the barge will be permanently fixed on a prepared earth bottom and become the plant's "foundation".



An artist's conception of Polaris showing processing plant (barge) warehouse and the accommodation building in the background.