

THE ARCTIC CHALLENGE

Canada is fully committed to the opening up of Canada's Arctic energy reserves. Although work ranges throughout the Arctic, present activity is found primarily in two areas: the Beaufort Sea and on and near Melville Island.

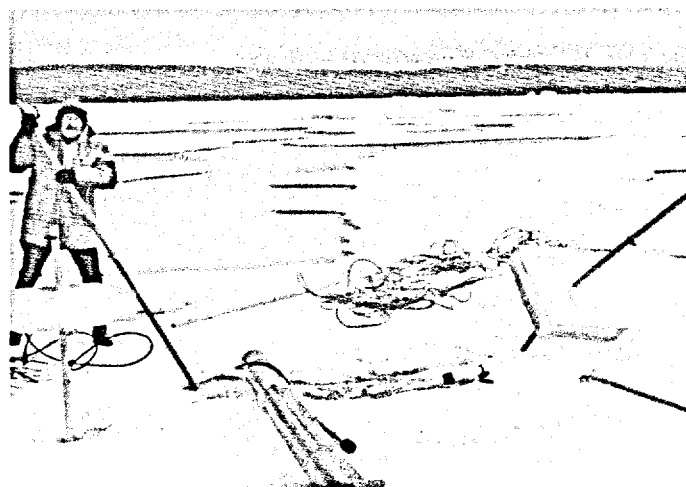
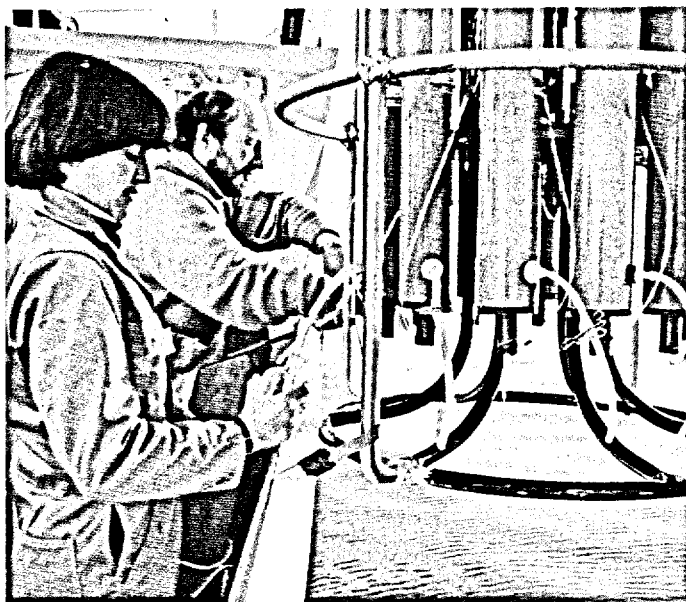
Oil from the Beaufort and gas from Melville and other Arctic islands could be shipped eastward by tanker through the Northwest Passage to markets in Europe or elsewhere. Arctic traffic is already increasing and ice-breaking tankers could begin demonstration voyages as early as 1986.

The possibility of increased numbers of larger ships regularly traversing the Northwest Passage has raised many important environmental questions. No one can yet predict with certainty the effects of a major oil spill or well blow-out in the Arctic. Neither are the effects of tanker traffic on marine mammals or indigenous birds and wildlife fully understood. Scientists still do not know all the variables. They do know that a cold sea has characteristics very different from a warm one. For instance, oil in warm water dissipates quickly, while below a certain temperature it will tend to stay in one mass, more solid than liquid.

The Arctic environment also has a different growth schedule than that of the south, where animal and plant life metabolize far more rapidly and the environment has an extraordinary capacity to replenish itself. If a spill or blow-out were to occur in the far north, the consequences could persist for years. Spilled oil might remain trapped under permanent ice packs and scientists can only guess the possible implications. Other difficult questions have been raised about how to deal with a blow-out on the ocean floor in frigid Arctic waters. Both the Canadian government and the companies concerned are researching these potential problems.

In the early 1960s, one of the world's largest reserves of natural gas was discovered off the north shore of Melville Island. Some experts believe that the field holds over 150 billion cubic metres of the valuable fuel. A consortium, headed by Petro-Canada, is working on plans for an Arctic Pilot Project in which 50 million cubic metres of natural gas from Melville would be transported to European markets over a 20-year period. Once it is proved that natural gas from the Arctic is a practical proposition economic full-scale exploitation could begin.

Plans call for natural gas to be piped under the permafrost from the northern to the southern shores of Melville, a distance of 160 kilometres. There, at Bridport Inlet, a majestic 93-kilometre natural harbour, the gas will be converted to liquid and pumped aboard huge carrier vessels built specifically for this work. Then comes the task of "threading the Arctic needle". These icebreaking super-tankers, 40 metres wide, 375 metres long, each displacing 130 000 tonnes, would journey from Bridport to overseas markets, moving south past Resolute Passage, through Baffin Bay before entering the high seas. Each journey would cover over 5 000 kilometres. The super-carriers would make the voyage 15 times a year — taking 16 days for the return trip in summer and 33 days in winter. Nothing on this scale has ever been attempted in the Arctic or anywhere else.



Rosetta water sampler aboard M.V. Bayfield: Lake Ontario.

Hydrographic launch: Beaufort Sea.

Retrieval of surface current meters from sea ice: Austin Channel, Arctic archipelago.