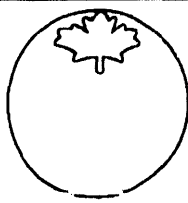


LEGISLATIVE ASSEMBLY OF THE
NORTHWEST TERRITORIES
7TH COUNCIL, 54TH SESSION

TABLED DOCUMENT NO. 3-54

TABLED ON JANUARY 13, 1975



6th Annual Report 1973

panarctic oils ltd

Six-Year Review and the Future

Tabled Document No. 3-54
Filed Jan 13, 1975



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Six Years of Progress

1967
Panarctic 55% Industry and
45% Government
consortium formed and
initially financed for
\$20,000,000.

1968
Gross Arctic Islands holdings
45 million permit acres.
Dome Petroleum Limited
appointed interim operator.
Field geophysical work
commenced. First sealift of
fuel and drilling supplies by
barges.

1969
Extensive geophysical and
field geological work
continues. Two drilling rigs
airlifted into Arctic Islands by
Hercules aircraft. Natural gas
find with first well at Drake
Point on Sabine Peninsula of
Melville Island. Well blows
out of control creating ice
cone 225 feet high. Third
drilling rig contracted and
moved to Hoodoo Dome
structure on Ellet Ringnes
Island.



Ce rapport Annuel de Panarctic existe aussi en Version Française. On peut se le procurer en écrivant à Rapport Annuel Français, Box 190, Calgary.

FRONT COVER

Flare at Panarctic's King Christian No-6 gas well lights the Arctic night. This well with an Open Flow Potential of 410 million cubic feet per day qualifies as one of the largest gas producers in North America.

1970

First killing attempt at Drake Point unsuccessful, but wild well is brought under control by second relief well in September. Seventh exploratory well discovers major gas field on King Christian Island. Blows wild and catches fire October 25th. Relief well drilling begun immediately. Panarctic establishes its own permanent organization to conduct the Company's operations.

1971

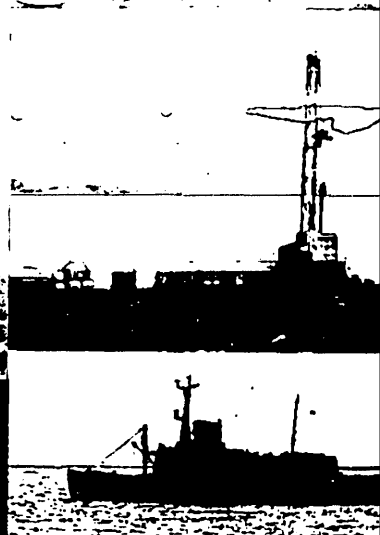
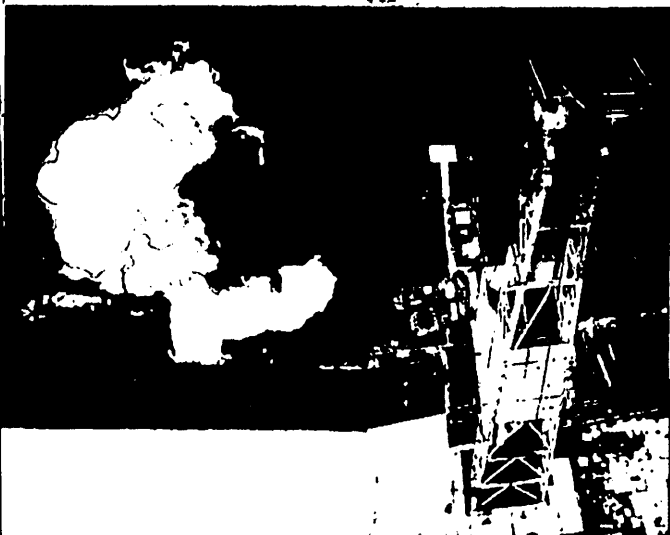
King Christian wild well killed at first attempt January 24th. Absolute Open Flow potential of step-out well tests 410 million cubic feet per day, qualifying as one of the largest gas producers in North America. Special environmental task force formed. Financing arrangement with four U.S. gas companies adds \$75,000,000 to Panarctic exploration budget. Eskimo employment program expanded by company aircraft flights to Baffin Island communities. Third gas discovery at Kristoffer Bay on Ellef Ringnes Island.

1972

First crude oil recovered at Romulus on the Fosheim Peninsula of Ellesmere Island and at Thor Island — both non-commercial. Drake Point field extended 12 miles by two successive step-out wells with up to 265 million cubic feet per day open flow potential. Fourth gas discovery made at Hecla, 30 miles west of Drake Point field. Panarctic capitalization increased to \$101,000,000.

1973

Panarctic joins in forming the Polar Gas Project for developing technology to market Arctic Islands' gas. Fifth major gas field discovered on Thor Island. First ocean ice drilling conducted using small rig to drill four 1,500 foot wells off Ellef Ringnes Island in up to 300 feet of water. Gross land holdings increased to 82 million acres. Sealift from Montreal brings record 43,000 tons of supplies to Arctic bases. Deep test at Drake Point sets new Arctic depth record.



President's Report 1973

With the energy resources industry entering a period of marked change with improved market demand and higher prices for oil and gas, it seems appropriate to review the accomplishments of Panarctic since inception and to take a look at the Company's prospects for the future in the light of this changing situation. Accordingly, the theme of this, the Company's 6th Annual Report is a "Six-Year Review and the Future".

In 1966 and 1967 when the Panarctic joint industry/government concept was being formulated and initial financing was being arranged, high cost exploration of the remote Canadian Arctic Islands could hardly have been justified based on the then available markets and prices for oil and gas. The original participants in Panarctic had to be men of vision with faith in the future to justify investment in this massive and risky undertaking. The Government of Canada undoubtedly was also influenced by the prospects for development of large Canadian energy resources by Canadians and the desirability of reinforcing the Canadian presence in the Arctic.

These combinations of visions and desires for achievement ultimately led in late 1967 to Panarctic being owned and financed 55 percent by nineteen largely Canadian industrial participants and 45 percent by the Government of Canada.

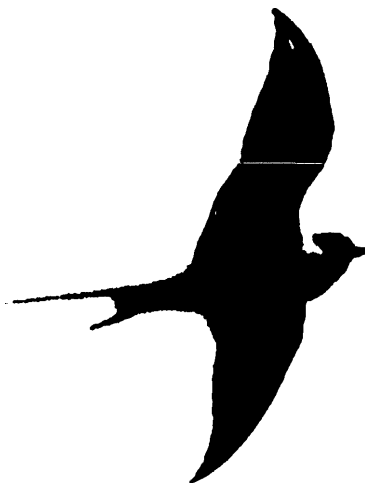
First drilling commenced in 1969 and in five years Panarctic has drilled or caused to be drilled 58 wildcat wells which resulted in five major discoveries of natural gas and several encouraging shows of crude oil. In total over \$200 million has been spent on Panarctic lands. These lands now comprise interests in over 80 million gross acres of Federal mineral rights. Panarctic is presently in the process of financing a further \$25 million. Its 1974 exploration program is budgeted for almost \$58 million.

Encouraged by the large discoveries of natural gas, Panarctic and other major companies have joined in the Polar Gas Project which is developing the technology and other prerequisites for transporting gas from the Arctic Islands to market. Work on this project is proceeding on a major scale geared to coincide with expected development of the required gas reserves.

The Panarctic concept is proving eminently successful. Industry and government are working smoothly in a business enterprise that, certainly in its early stages, could not have been undertaken by industry alone. Panarctic has assembled a highly competent staff in the fields of exploration, operations, land management and treasury. Five of the six discoveries in the Arctic Islands have been made by Panarctic. Panarctic conducts drilling and other field operations at lower cost than any other operator in the Arctic Islands, giving maximum exploration results per dollar expended. Finally, Panarctic's early successes have proved that the Arctic Islands are highly prospective and undoubtedly have a large fossil fuel potential.

With these accomplishments, coupled with improvements in markets and prices for oil and gas, Panarctic can look to the future with considerable confidence.

In the past, all fuels throughout the world have been of a low value in relation to other life needs because of their abun-



dance and low cost of production. For the past 20 years, Western Canadian oil has sold at the well for \$2 to \$3 per barrel, which equates to less than 1¢ a pound. What else can be purchased for 1¢ a pound? Natural gas, the most perfect natural fuel, has been even further underpriced at ¼¢ to ½¢ a pound. These very low priced products are produced and then transported thousands of miles to market at a fraction of a cent per pound. This feat is indeed a credit to the oil and gas industry.

However, oil and gas are no longer easy to find and major new reserves are remote from markets, so that traditional ideas of fuel prices are going to have to be reconsidered and revised upward if adequate supplies are going to be available to provide the requirements of consumers. In my opinion, there will never again be a surplus of energy fuels to create a buyers' market and cause oil and gas to sell at the depressed prices to which today's consumer has become accustomed.

There are limited energy resources in the world that can be produced cheaply. Owners of presently known major oil and gas reserves now recognize the value of their resources and are going to demand proper pricing. New conventional oil and gas reserves, such as the frontier reserves owned by Panarctic, are going to cost more to bring to market. The development of non-conventional sources such as oil sands, oil shales and oil and gas from coal, where plant processing is involved, will be much more costly and much capital investment and construction time will be required to make these new supplies available.

Energy from other sources, where more sophisticated technology yet remains to be developed, can be expected to be even more costly, and available only in the more distant future.

All this means that Panarctic's mineral assets will have markedly increased value throughout future years.

However, at this stage, neither Panarctic nor the industry as a whole has developed enough reserves to permit economic marketing of Arctic oil or gas. Exploration drilling has only scratched the surface, with only one well drilled per 3,000,000 acres compared with one well per 3,500 acres in Alberta. This drilling in the Arctic Islands, although limited, has nonetheless cost over \$300 million.

Vast exploration efforts must be continued, requiring hundreds of millions of dollars, if the oil and gas potential of Canada's Arctic is to be determined and developed. In order to induce efforts of this magnitude by the industry, a proper economic climate must be assured so that one making an investment at a time when reserves may or may not be discovered can expect to profit in proportion to the risk taken when and if commercial reserves are discovered.

I believe that the present uncertainties in the oil and gas industry are only temporary, having been created by precipitous changes in the supply and demand patterns which were already in progress when brought to the forefront by the recent Middle East war. A producing country such as Canada has several interests to consider and satisfy to a greater or lesser extent, and I am confident that as experience is gained, a stable atmosphere will evolve.

Reflecting this confidence in the future, Panarctic is striving to develop the balance of the required threshold reserves of natural gas. It is participating actively in the Polar Gas Project to provide for the marketing of its gas, and it is continuing its exploration for the commercial crude oil which a preponderance of geologic evidence indicates must exist.

During 1973 Panarctic conducted exploration aggressively, obtaining more seismic data than in any previous year and employing six drilling rigs. Others employed three drilling rigs on Panarctic lands. A substantial reserve of natural gas was discovered at Thor Island, and a follow up well to the Hecla gas discovery was completed. Much of the exploration effort in 1973 was conducted on large land areas outside of the Sverdrup Basin in search of new prospects in the older Paleozoic sediments. Much valuable information was obtained and a number of encouraging shows were encountered which will help to direct the 1974 program.

After year end Panarctic had two significant developments which further indicate the existence of both oil and gas over a wide area in the Arctic Islands.

Following three years of preparation and testing the Company successfully drilled the world's first offshore exploration well from an ice platform. The well, drilled in 400 feet of water, confirmed an eight mile extension of the Hecla gas field.

Also in the early part of the year, one hundred miles to the east, a well on Cameron Island produced light gravity oil at 500 barrels per day on an extended test. The well is the first producer of crude oil from a reservoir of Paleozoic age in the Arctic Islands.

It is with deepest regret that I advise of the death of Mr. J. W. McBean, President of Bankeno Mines Limited, who was an original Director of Panarctic and a member of the Executive Committee. He was a staunch supporter of the Company in its formative stages, both from the standpoint of pledging Bankeno's Arctic Islands lands to the project, and getting the initial project financed and organized. The Company will miss his support, his wisdom and his enthusiasm. Shortly after year end his son, Mr. J. C. McBean, now President of Bankeno Mines Limited, replaced his father as a Director.

Since the last Panarctic report three other Directors, also original members of the board, have resigned. They are Mr. F. E.



Chas. R. Hetherington

Burnet, Mr. J. P. Gallagher and Mr. Erwin Jonas. The Company wishes to acknowledge their contribution since inception of the Panarctic project. Replacing them, in order, are Mr. R. J. Armstrong, Vice-President of Cominco Ltd.; Mr. C. S. Dunkley, Senior Vice-President of Dome Petroleum Limited; and Mr. H. G. Gammell, President of Thor Exploration Company Ltd.

During 1973, the number of Directors was increased to twenty, and Messrs. Maurice Riel and Allen B. Sulatycky, both practicing lawyers, were elected Directors. Mr. Riel was subsequently appointed to the Senate of Canada and resigned as a Panarctic Director and has not yet been replaced.

Dr. G. P. Crombie, Vice President Exploration, one of the first employees of the Company, retired. The Company desires to acknowledge the technical and management contributions made by Dr. Crombie. The Company was fortunate in obtaining the services of Mr. Robert A. Meneley, an exploration geologist of world wide experience, who is now Vice President Exploration.

The following report outlines in more detail the Company's progress to date and its plans for the future. You will see from this report that Panarctic personnel are the key to these achievements, and it is desired to commend them all accordingly. I cannot say enough in praise of our technical staff, and of our Arctic based people who live and work for two-thirds of their days in this most remote and hostile area.

Chas. R. Hetherington

APRIL 30, 1974
CALGARY, ALBERTA, CANADA

CHAS. R. HETHERINGTON
PRESIDENT AND CHIEF EXECUTIVE OFFICER

Exploration

Arctic Islands' Geology

The first appreciation of the hydrocarbon potential of the Arctic Islands was provided by surface geological mapping carried out by Government and industry and some of the early exploratory wells were located solely on this basis. All of Panarctic's discoveries, however, have been made on seismically defined prospects and the importance in the exploration program of seismic, guided by surface geology and gravity surveys, cannot be overstated. The development of seismic field techniques permitting the efficient acquisition of high quality seismic data has made serious exploration of the High Arctic possible.

Exploration to date has confirmed that the Arctic Islands contain significant reserves of gas. Five major gas discoveries have been made by Panarctic while one gas discovery has been made off Panarctic lands. In addition, free oil has been recovered on tests from a total of five wells over a broad geographic area including Ellesmere, Thor, Cameron and Melville Islands, from beds ranging in age from Jurassic to Lower Paleozoic. Basin studies of the entire Arctic Islands indicate that major reserves of oil and gas remain to be discovered providing sufficient exploration is carried out. Contrary to early expectations, Arctic exploration has not proven to be easy, but the potential is there and it can be developed.

Stratigraphic Drilling

An example of the type of technical challenges encountered can be found in seismic structure mapping where variations in permafrost thickness complicate interpretation of seismic data. These problems have been attacked in a number of different ways. The most significant and successful contributions to date, however, have been derived from the stratigraphic drilling program carried out in 1973. A total of 14 test holes drilled to a maximum depth of 1700 feet to measure the thickness of the permafrost, and to determine directly the effect of changes in permafrost thickness on seismic velocities in various kinds of rock. Tests were drilled not only onshore and offshore but in both crest and flank positions on structures. This program has allowed the calibration of indirect measuring geophysical techniques which can be utilized elsewhere throughout the Arctic. An extra dividend from the program was direct structural mapping through detailed correlation of shallow stratigraphic markers. In addition, the offshore tests in this program constituted the first phase in the development of offshore drilling techniques for the Arctic Islands.

Exploration Statistics

The bar graphs on page 5 summarize the seismic and drilling statistics. The 1973 seismic program operated by Panarctic was the largest ever. It will, however, be exceeded by the Company's projected program for 1974. Panarctic operated crews acquired 2672 miles of seismic and over 13,000 gravity stations in 1973. In total, 7711 miles of data were added to the



inventory available for interpretation through a combination of *Panarctic programs, trades, participation surveys and the Elfex agreement.* It is significant that one-half of Panarctic's cumulative data base of 16,449 miles of seismic was acquired during 1973

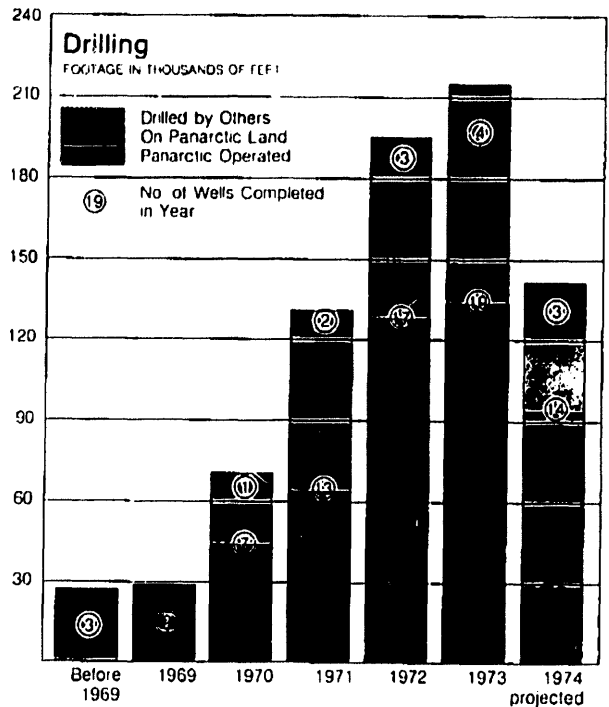
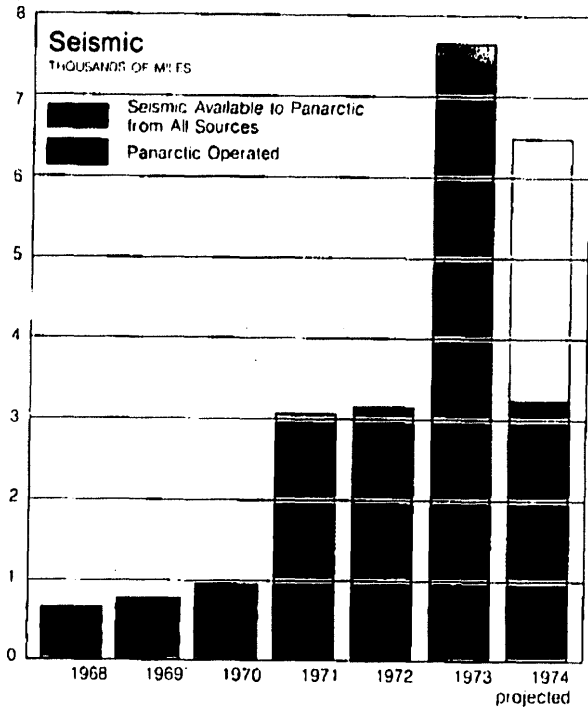
To December 31, 1973, 58 wells had been completed on Panarctic lands and seven wells were drilling at year end. Industry efforts on Panarctic lands resulted in the drilling of 13 wells during the same period and one well was drilling at year end. The estimates of drilling for 1974 show that there will be a decrease in both number of wells and footage drilled.

Panarctic has the information on every well that has been completed in the Arctic Islands. These data, combined for the first time with regional seismic lines between many of the islands, allow a good appreciation of the basic geology of the

Sverdrup Basin from which concepts of both onshore and off-shore exploration plays may be generated to produce an inventory of specific drillable prospects in which reserves may be expected. Although the major discoveries to date have all been gas, geological and geochemical studies and newly discovered oil shows and surface seepages indicate that oil should be present in many areas, and discoveries of both oil and gas can be anticipated in future prospects.

Delineation Wells

In 1973, the Thor H-28 well was drilled as a follow-up to the Thor P-38 test which had recovered oil from the Borden Island sand on the flank of the Thor anticline. The H-28 wellbore was deviated 2720 feet out under the sea and it reached the reservoir 364 feet higher than P-38. The well flowed gas on tests at a maximum rate of 56 million cubic feet per day and it has an



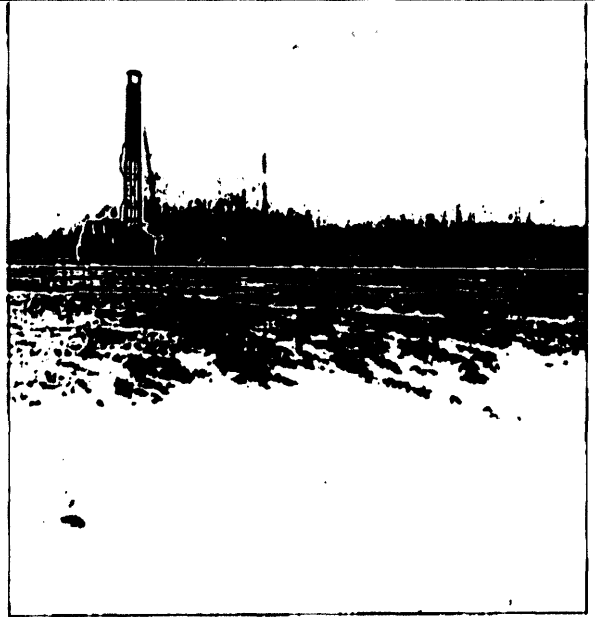
Absolute Open Flow potential of 263 million cubic feet per day. Detailed testing, after the well was cased, established that the oil leg present at Thor P-38 does not underlie the main gas pool.

Hecla I-69, was successfully whipstocked 1930 feet under the ocean and tested the Borden Island sand reservoir well above the gas/water contact on the southern flank of the Hecla anticline. After year end, the Hecla N-52 well was drilled eight miles out to sea on the westerly extension of the Hecla structure confirming that both the structure and the reservoir extend far to the west.

In addition to being a significant delineation test in the Hecla gas field, this well represented a second critical step towards developing techniques for exploration in high-potential offshore areas of the Sverdrup Basin which will become increasingly important in the future exploration of the Arctic Islands.

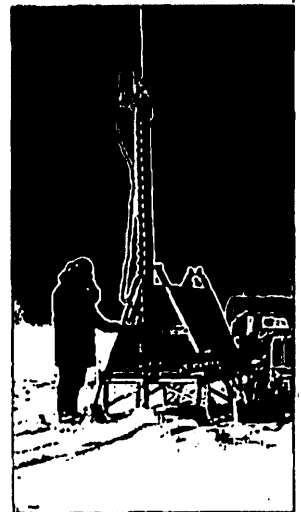
Paleozoic Potential

A number of key exploration wells drilled in the Paleozoic play marked resumption of exploration in an area which had received less attention over the past several years. The most significant tests in 1973 were at Dundas C-80 and Zeus F-11 on Melville Island, which clearly indicated the scale and quality of the prospects in the Paleozoic section. Early in 1974, Bent Horn N-72 on Cameron Island provided the most tangible encouragement to date when a substantial quantity of 45° API oil and salt water were recovered from the Paleozoic section below 10,500 feet. This well was subsequently completed as a 500 barrel per day oil well. Panarctic's understanding of the complex but highly prospective plays in the Paleozoic fold-belt is rapidly increasing. The wells drilled to date, combined with high quality seismic data, permit recognition of additional large wildcat prospects which will be tested in 1974 and ongoing drilling seasons.



(Top) Heavy seismic equipment is required in the hard rock Paleozoic terrain. The development of seismic field techniques, permitting the efficient acquisition of high quality data, has made serious exploration of the High Arctic possible.

(Middle and Right) Highly mobile, light tracked vehicles are used on sea ice seismic survey in the Sverdrup Basin



Stratigraphic drilling allows the direct measurement of permafrost thickness which contributes to greater accuracy in seismic structure mapping.



Operations

Drilling History

Panarctic's Operations Division was organized in 1969 to carry out the drilling program and provide supply, transportation and support for all of the Company's Arctic activities. To the end of 1973, the Company's Operations Division conducted the drilling of a total of 48 wells, about two thirds of all wells drilled in the Arctic Islands. This included 40 wildcat wells, three directional relief wells and five delineation or step-out wells. Of these, Panarctic has cased nine successful gas producers. Two of the step-outs were directional wells deviated under the ocean.

Panarctic's first wildcat, spudded in April 1969, discovered the Drake Point gas field, which later proved to be the largest field in areal extent established in the Arctic Islands. The thickest pay section and the most prolific field, however, is at King Christian. A completed well in this field has been tested on steady production at 188 million cubic feet per day and has an Absolute Open Flow potential of 410 million cubic feet per day.

Panarctic holds the record for the most northerly wells in the world near 80 degrees North latitude, the deepest well in the Arctic (Drake Point D-68 at 17,766 feet) and many other Arctic drilling records. Panarctic and its contractors designed the first Hercules and helicopter-transportable drilling rigs in the Arctic and were the first to aggressively pursue year-round drilling in the Arctic Islands. This initially involved the use of Hercules aircraft to move complete drilling rigs from island to island and later utilized trucks on shorter moves often routing them across the frozen channels between islands. Over the years operating techniques have been developed which allow High Arctic drilling to proceed at efficiencies only slightly reduced from drilling in southern Canada.

Drilling Costs

Despite the efficiency with which the Company carries out its operations, the expense of High Arctic exploration drilling is five to ten times more than in Southern Canada. The principal reason for the higher cost is the logistics of supporting an operation some 2,000 miles by air and 3,500 miles by ship from supply centres. Diesel fuel delivered to an average drilling site costs \$1.25 per gallon and an 80-pound sack of ordinary cement costs over \$15.00. Wages are high and to get good men it is necessary to meet the expense of flying drilling crews to Edmonton every two weeks for a week's leave. Because the supply bases that are accessible by ship are far removed from drilling sites and not accessible by road, the resupply of drilling rigs must be by aircraft.

Despite inflation and spiralling costs of all supplies and services, Panarctic has been able to hold its drilling costs reasonably stable over the past five years. (See Table 1 on page 10.) That this has been possible is due largely to both the experience gained over the years and the economies of scale achieved by operating from three to six rigs. For comparison, most other companies exploring in the Arctic Islands operate only one drilling rig. Drilling costs exclude the three relief wells drilled during 1970 as these costs were covered mainly by insurance.

Company Aircraft Operations

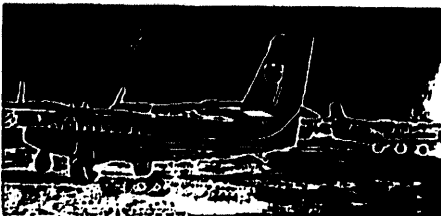
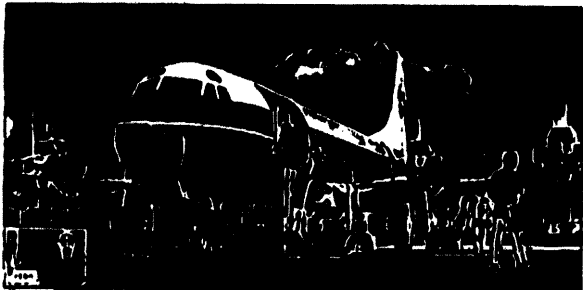
An important factor that keeps Panarctic's drilling and seismic costs below other operators is effective use of company-owned aircraft. One of Panarctic's two Electras is used primarily for crew changes and resupply from Edmonton. The other moves fuel and palletized material from sealift staging bases to drilling sites. Two Twin Otters carry men, light freight and materials to seismic and drilling locations. The key to economical aircraft operation is high utilization. Flying hours have steadily increased over the years. (See Table 2 on page 10.) The projection for 1974 is 5000 hours flying time with the two Electras and another 4,800 hours with the two Twin Otters.

In addition to company-owned aircraft, equipment such as Hercules aircraft and helicopters are chartered for rig moves and special jobs. During peak work periods additional air support is handled by chartered DC-3's and Twin Otters.

Annual Sealift

Another key factor in keeping costs down is the summer sealift resupply in August of each year. The cost of moving freight to the Arctic Islands by ship is about eight cents a pound compared to approximately 40 cents a pound by air. Consequently, for the past six years all fuel, casing, explosives, drilling mud products, cement and other heavy expendables for the succeeding 12 months' drilling and seismic program have been moved in by sealift to staging bases at Rea Point, Eureka and Resolute Bay. Planning for the annual sealift begins in January each year because materials must be ordered and ships chartered in February or March in preparation for an early August sailing date from Montreal. With the expansion of Panarctic's activities the amount of material has increased each year. (See Table 3 on page 10.) Annual requirements have now stabilized in the vicinity of 40,000 tons to support five or six rigs drilling year round and five or six seismic crews working in the Fall and Spring seasons.

An important highlight of Panarctic's 1973 sealift was the moving of Adeco Rig 4 in early September some 70 miles by sea from May Point on Axel Heiberg Island to Eureka on Ellesmere Island. The move was made in three shuttles by the MV "Chesley A. Crosbie" after she had discharged 1,500 tons of drilling supplies brought in from Montreal to southern Ellesmere Island. This is the first time Panarctic had moved a rig by ship from one drilling location to another and substantial savings were achieved.



(Top) Panarctic's Electras fly north to Arctic Islands. These aircraft are used to change rig crews and shuttle fuel and palletized cargo from base camp to drilling sites.

(Middle) Electra preparing to effect crew change at Edmonton.

(Bottom) The Company's two Twin Otters await light cargo at main Rea Pt. base.

Unloading supplies at Rea Pt. In 1973, Panarctic's annual summer sealift delivered 43,000 tons of fuel and materials to the High Arctic.

Eureka Area-Ellesmere Island

Adeco Rig 4 made three unique rig moves during the past year

MOVE NO 1

100 Miles by truck from Halcyon O-16 to May Point H-02, the last 20 miles across the ice of Eureka Sound in May 1973

MOVE NO 2

70 miles by ship using the MV "Chesley A. Crosbie" from May Point H-02 to Eureka and 50 miles by truck from Eureka to Taleman J-34 in September 1973

MOVE NO 3

100 miles by truck from Taleman J-34 to Neil L-05, the last 50 miles across the ice of Canon Fiord and Greely Fiord in February, 1974

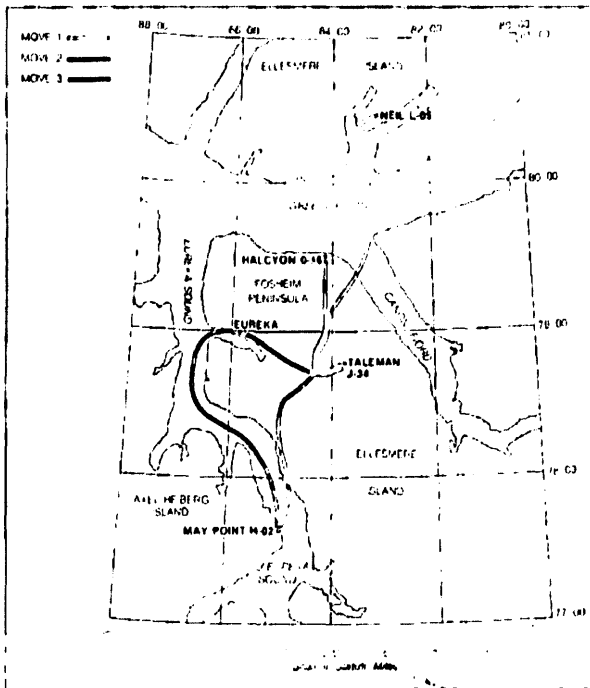


TABLE 1

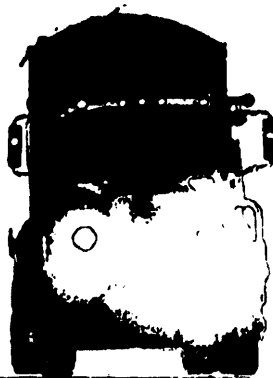
YEAR	FOOTAGE DRILLED	AVERAGE COST PER FOOT
1969	24,000	\$241
1970	40,500	220
1971	63,000	250
1972	128,000	214
1973	134,000	250

TABLE 2

YEAR	TWIN OTTER FLYING HOURS	ELECTRA FLYING HOURS
1968	500	—
1969	1,900	—
1970	2,500	2,200
1971	3,050	1,900
1972	3,900	2,400
1973	4,400	3,400

TABLE 3

YEAR	SHIPS CHARTERED	PANARCTIC TOTAL TONNAGE
1968	2	6,000
1969	4	20,000
1970	2	15,000
1971	3	22,000
1972	5	41,000
1973	5	43,000

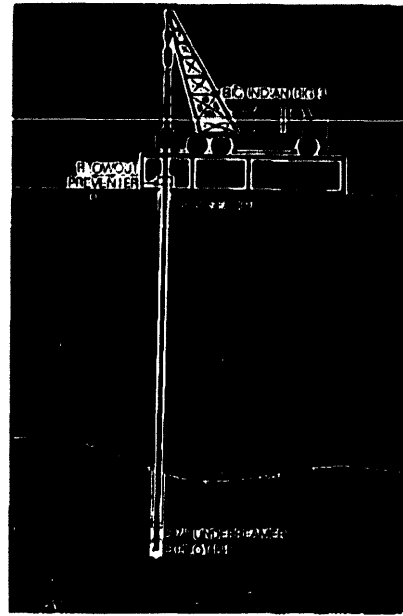


Offshore Drilling

Panarctic has pioneered many technological advances in Arctic operations over the years but probably the most significant came in 1973. This was the adaptation of conventional drilling rigs to offshore work using the strong Arctic Ocean ice as a drilling platform. Data on ice movement, strength and thickness were collected over a period of three years. Drilling then commenced in the Spring of 1973 when a portable 150-ton rig was used to drill four 1,500-foot stratigraphic tests offshore near Ellef Ringnes Island. Natural ocean ice, measuring from six to eight feet thick at this time of year, easily carried the weight of the rig. Wells were located from one to three and one-half miles from shore with the water depth varying from 130 to 290 feet. An ingenious system of spudding the wells with an underreamer, then stripping the surface casing into the hole over the drill pipe to get started, avoided any possibility of not being able to re-enter the hole because of slight horizontal ice movement. Vertical ice movement of one to two feet each day from tidal effects was compensated for by a slip-joint in the surface casing just above the ocean floor.

The second step in the development of this offshore drilling method was taken at the beginning of 1974 when a 500-ton conventional rig was successfully used to drill a delineation well within the Hecla gas field 8 miles out on the ocean ice and in 420 feet of water. To support the rig the ice was thickened by systematically flooding the area with water, letting it freeze and re-flooding. Special safety precautions included the use of a subsea blowout preventor on the ocean floor in addition to the normal surface blowout preventors. The third step will be to use the same 500-ton rig for drilling 6,000-foot wildcats in the Spring of 1975.

The importance of this method is that offshore drilling can be done in the Arctic now for about one-quarter the cost of employing other proposed techniques which cannot be available for another four or five years. Early discovery of the large reserves of natural gas believed to exist offshore in the Arctic Islands is important to Canada. Panarctic's new ability to economically drill offshore can advance the discovery and development of these gas fields.



Offshore
Stratigraphic
Drilling

Land and Administration

Historical Background

The Canadian Arctic Archipelago was thought a prime prospect for fossil fuels long before Panarctic commenced operations. It contains more than three hundred million onshore and offshore acres and is a logical extension of the major sedimentary basin in which the majority of North America's important oil and gas reservoirs are contained.

As early as 1958 a few industry field parties had started to filter into the High Arctic. This initial exploration led to applications for exploratory permits although, at this time, the Government of Canada had no regulations pertaining to the area. These applications had to be tentatively accepted until firm regulations could be formulated and actual exploratory permits issued. This happened in June of 1960 and gave rise to the issuance of many Arctic Island permits to Canadian mining companies as well as small to intermediate oil companies. It was basically this acreage which Panarctic had to earn in order to establish a land inventory of sufficient magnitude to support a meaningful exploratory program.

Original Inventory

The primary land earning agreements, numbering thirty-one in all, were entered into with single companies, groups of companies and individuals. The exploratory permits subject to these agreements had all been issued prior to 1967 so substantial work obligations were required to maintain them in good standing. In total 45,230,461 gross permit acres were involved, from which, assuming all contractual requirements were satisfied, Panarctic could earn varying interests amounting to 34,169,630 net permit acres.

The acquisition cost was high both in terms of dollars and time. The Company had various options which it exercised as dates for election fell due, thereby committing to increased expenditures. Similarly, many of the commitment wells could be combined in satisfying obligations by judicious positioning of wells in order to take maximum advantage of the geographical requirements. Nevertheless twenty-one wells in all had to be drilled and at least \$30 million spent if Panarctic was to achieve the maximum land holding position to which it was entitled as a result of these original agreements.



Subsequent Acquisitions

From the outset it was apparent that if all of the financial options were going to be met and if maximum earning was going to be realized, a number of other events had to be planned to coincide with the overall program. Sufficient additional land would have to be acquired to accommodate future programs and as protection wherever Panarctic recognized prospects. Time would have to be carefully allotted to utilize to the fullest extent the limited work seasons available to evaluate both the increased land inventory and the remainder of the acreage to be earned under the primary agreements. During the period that these earning obligations were being satisfied the permits were becoming older and the work obligations to keep them in good standing were increasing. The earliest of these permits would expire in June of 1975 so this date had to be constantly kept in mind.

Land is the prime asset of an oil and gas exploration company. Concurrently, therefore, plans to increase land holdings were implemented while negotiations were set in motion to satisfy some of the Company's earning and drilling obligations by a series of farmout agreements with newcomers to the Canadian Arctic Islands scene. From inception, the policy of the Company has been to encourage, to as great an extent as possible, increased interest and competition in Arctic Islands' exploration to bring closer the day when fuels from that area can reach the marketplace.

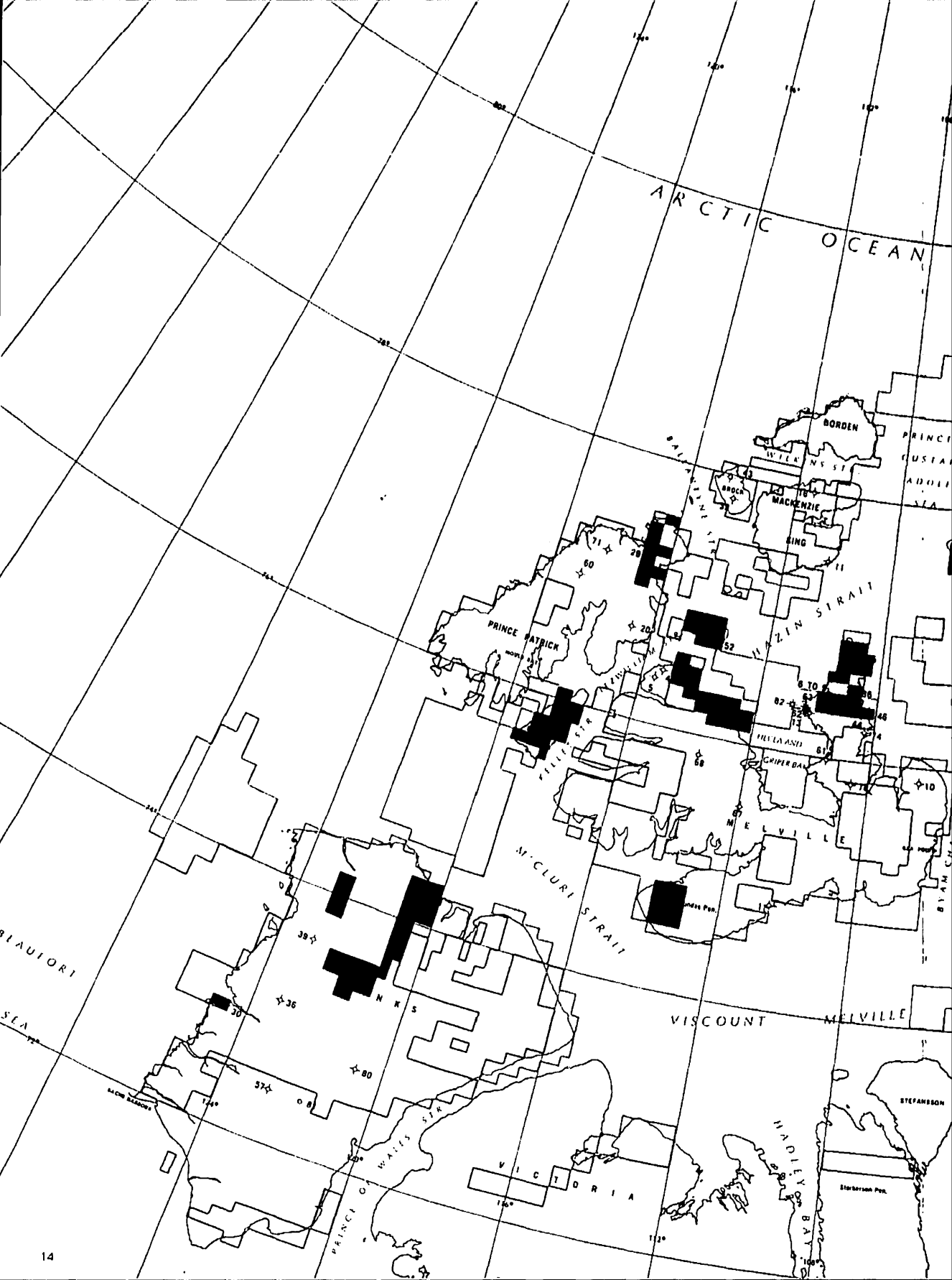
By December 31, 1973, Panarctic's land portfolio had been increased from the original 45 million acres by 35,387,541 gross permit acres. This increase takes into consideration acreage obtained through direct acquisition, by purchase from the Crown and by negotiated farmouts. It also reflects adjustments created through acreage relinquished to some farmers without earning and acquisitions that Panarctic, due to "after acquired" obligations, had to share with specific farmers. The overall effect, when considering Panarctic's gross acreage position at December 31, 1973, is an increase of 81% over the initial acreage inventory.

Farmouts

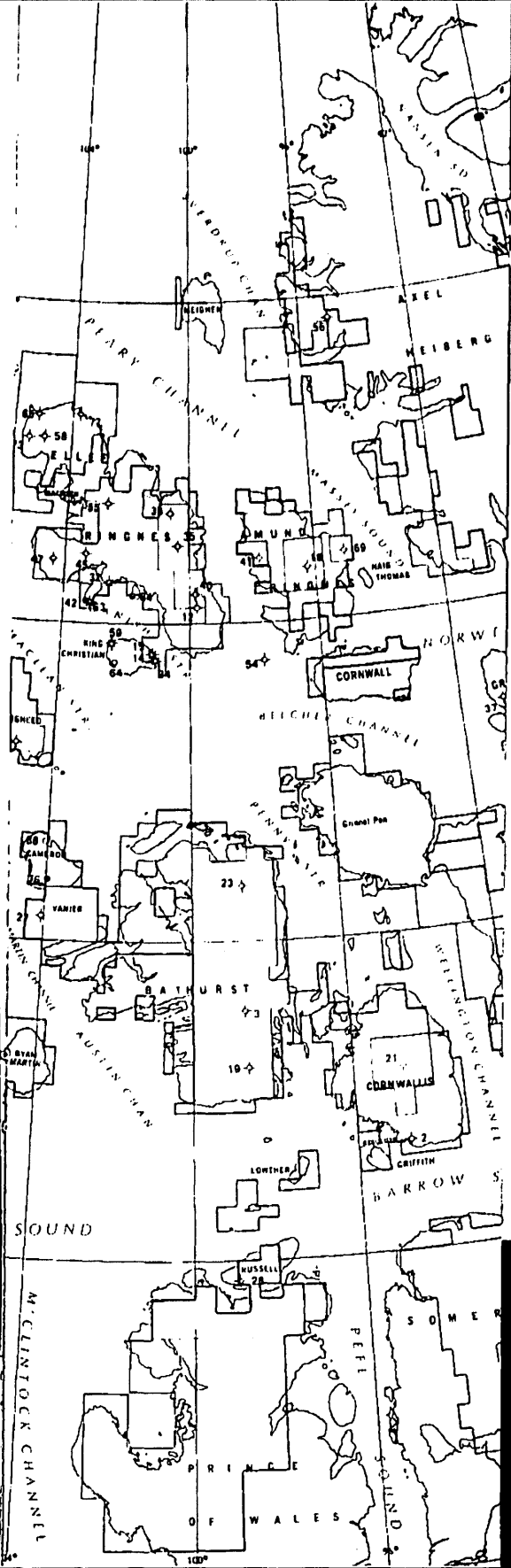
During the initial earning period, that is 1968 to December 31, 1971, the Company negotiated six individual farmout agreements. These were with Sunoco E & P Limited, BP Exploration Canada Limited, Deminex (Canada) Limited, Imperial Oil Limited, Gulf Oil Canada Limited and Total Petroleum (North America) Ltd. et al, to assist in satisfying many of Panarctic's earning obligations. Entering into these farmout agreements not only introduced additional outside capital into Arctic Islands' exploration providing valuable seismic data to assist Panarctic in its regional knowledge of the area, but also resulted in the drilling of twenty exploratory wells of which thirteen were prerequisites to earning lands for Panarctic's own account.



Panarctic employee monitors growth of grasses sown as part of the Company's experimental revegetation project.



Industry Drilling in the Arctic Islands



These first farmout agreements were followed up by a further six agreements with Imperial Oil Limited, Gulf Oil Canada Limited, the Drillarctic Group, Atlantic Richfield Canada Ltd. and Canadian Reserve Oil and Gas Ltd. In this group of farmouts, seismic was required in most cases as well as a commitment to drill four exploratory tests, two of which were earning wells for Panarctic's account

The year 1973 saw a continuation of selective farming out of acreage through agreements negotiated with Canadian Homestead Oils Limited, Norsk Hydro AS, Union Oil Company of Canada Limited, Home Oil Company Limited and Standard Oil Company of British Columbia Limited, in addition to the group of companies who participated in the drilling of the deep test at Drake Point on the Sabine Peninsula of Melville Island. In total, this 1973 farmout program involved additional seismic shooting as well as the drilling of four more wells with continuing options that may in future lead to further exploratory tests.

Since the Company's decision to accelerate its exploration of the Arctic Islands through a continuing farmout program, farmees have earned 3,199,322 net permit acres from the 11,034,158 gross permit acres involved. Panarctic retained

4,053,167 net permit acres in the lands farmed out with the remainder being held by third parties. This program, to the end of 1973, had generated better than 1,700 miles of additional seismic coverage as well as farmee participation in, and/or drilling of twenty-seven exploratory wells, fifteen of which either earned for Panarctic or satisfied Company drilling obligations. More important was the fact that this activity, generated through farmouts, provided additional widespread exploration on Panarctic lands. The total expenditures by these farmees in the conduct of their earning obligations is conservatively estimated to be in excess of \$85 million.

Summary

From inception to December 31, 1973, an aggregate of 1,183,478 unearned gross permit acres has been relinquished by the Company to the original farmors. In all instances these lands were relinquished because the earning obligations were considered too costly in comparison with the adjudged value of the property.

Panarctic is now operating under the terms of various Joint Operating Procedures and considerable joint-account seismic and gravity surveys and drilling have already been conducted under these agreements. Until now the Company has been responsible for the maintenance costs for all of the lands contained in the original farmin agreements, but effective June, 1974 the farmors involved in those agreements will become responsible for their proportionate share of all such costs.



Panarctic's Land Position

Panarctic, from inception, has acquired an interest in 82,033,120 gross permit acres representing a net position of 47,113,518* permit acres, which includes 185,000 permit acres under application to lease.

Since December 31, 1973 Panarctic has relinquished its right to earn a position in 6,454,433 gross acres committed to the company pursuant to the Effex Agreement.

**Subject to 10 percent net profits interest*

Environment

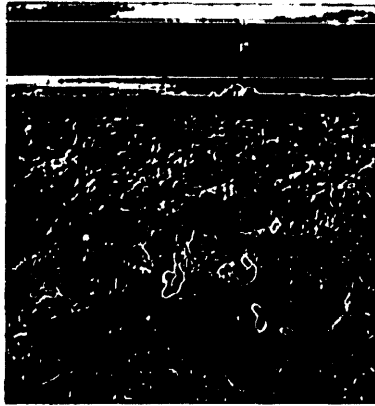
When Panarctic first ventured into the Arctic Islands, terms such as "ecology" and "ecosystem" had not yet become by-words of the Canadian vocabulary. The Company, however, understood that its mandate to search for petroleum resources included the serious responsibility of protecting the Arctic Islands' environment.

The nature of the High Arctic is very different from that of the northern Canadian mainland. This vast land and ice area is, in reality, a frigid desert with only about two and a half inches of precipitation a year. Animal and plant life is relatively sparse and scattered, but from the very beginning, no matter where it has been active, Panarctic has made every effort to minimize any disturbance caused by its operations. The Company endorses the implementation of environmental control standards for exploration work carried out in frontier areas.

Voluntarily, in 1971, Panarctic formed a special environmental task force. The purpose of the task force was to inspect all sites and to ensure that the land was returned, as nearly as possible, to the conditions that existed prior to operations thereon by the Company. Panarctic's sites continue to be cleanly maintained and disturbance to Arctic wildlife is negligible.

An interesting adjunct to this program has been experimental revegetation research. Initial attempts to grow grass in the poor Arctic soil were disappointing, but with sustained effort, success is now being achieved. In 1973 the first measurable results were recorded from 1972 seedings, some varieties of plants growing to a height of six inches. During 1973 introduction of a hydroseeding technique proved very encouraging with some germination taking place prior to the





onset of the winter season. While there is little or no vegetation in the areas where Panarctic operates, this program will be continued with the goal of establishing acceptable revegetation for areas requiring attention in the future.

In addition to its internal research programs, Panarctic cooperates fully with other bodies concerned with the orderly development of the Canadian Arctic regions. The Company has contributed time, facilities and expertise to projects undertaken by Government agencies such as the Arctic Land Use Research Group, Canadian Wildlife and Fisheries Services. In addition, participation in several Arctic Petroleum Operators Association research projects provides data applicable to the areas of operation.

Personnel

As anticipated, an increase in staff occurred following the assumption of responsibility for all operations by Panarctic personnel late in 1970. Despite the acceleration in exploratory activity, however, both administrative and technical requirements were met by the 230 people on staff during 1973. Over half of this number are Arctic-based or directly involved in air transportation in support of the northern operation.

Under the guidance of its executive, Panarctic has created young and vigorous middle management in all departments. This has not only enabled the Company to decrease its requirement for technical consultants, but has assured it of sustained experience and expertise in future years.

Implemented in the early years of Panarctic, the policy of employing northern residents has been actively followed. Most of these workers have been drawn from the native settlements in Arctic Bay and Pond Inlet. These settlements on northern Baffin Island are several hundred miles south of Panarctic worksites and in December, 1971 the Company undertook special weekly airlifts to move these employees to Panarctic jobsites and return, a continuing practice.

The training and upgrading of this segment of the workers at Panarctic sites has progressed with the development of technical skills and language abilities during the past year.

In addition to an increase in northern resident strength amounting to 25%, individuals from this segment of employees now qualify as forklift operators, electricians, mechanics' helpers, carpenters and assistant foremen. One fully qualified radio operator has been drawn from this group.

In its six years Panarctic has come to grips with, and overcome, the problems attendant on pioneering High Arctic petroleum exploration on a massive scale. Safe and efficient operation continued through 1973 with no serious lost-time accidents occurring among Panarctic employees.

(Above) Hardy flowers and grasses add touch of colour to a desolate High Arctic landscape.

(Middle) Crews set 9 1/2 in. casing at Hecla 1-69, a directionally drilled delineation well, which encountered gas at the 4000 ft. level in March 1973.

(Bottom) Chas. R. Hethorington, Panarctic's President, on a tour of the Company's Arctic operations with the Honourable Jean Chrétien, Minister of Indian and Northern Affairs, who holds the Government's shares in Panarctic.

Financial

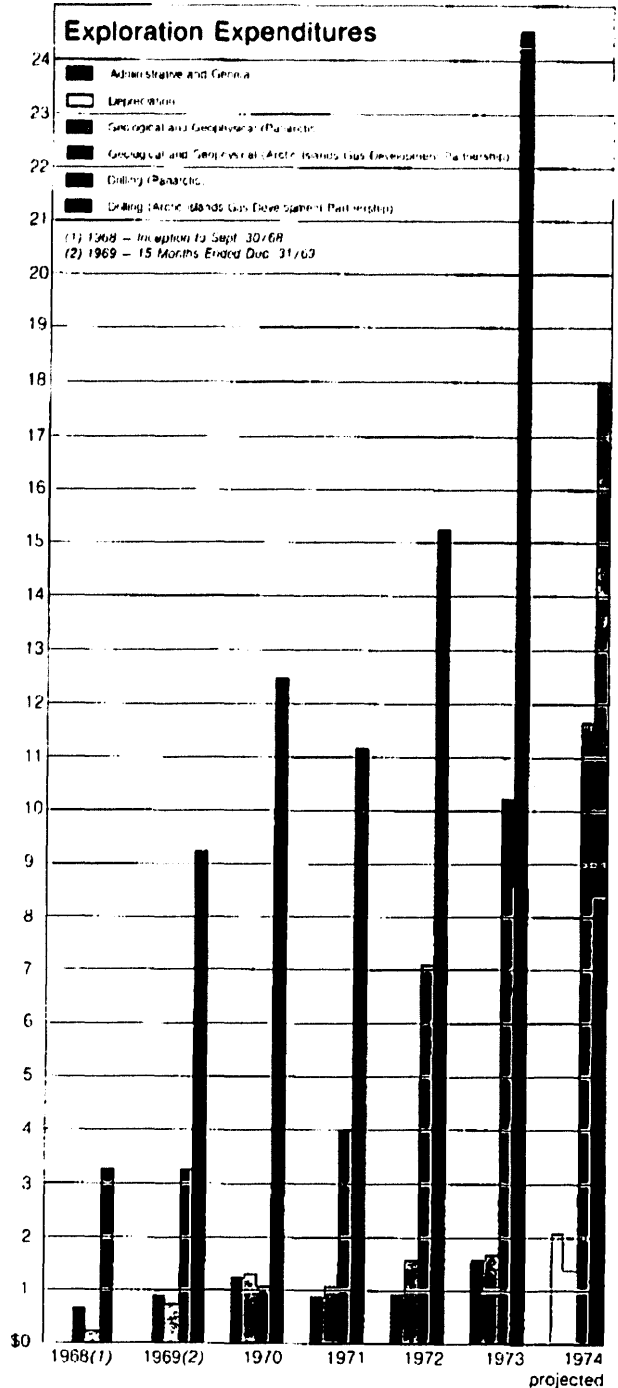
During 1973 a total of \$46,379,000 was expended on exploration and drilling under the direct administration of Panarctic. The Company's shareholder participants provided \$21,229,000 of this amount with the Arctic Islands Gas Development Partnership and joint interest partners providing \$10,867,000 and \$14,283,000 respectively.

In addition, \$5,818,000 provided by The Arctic Islands Gas Development Partnership was expended to earn an interest for the Company in the *Ellex* project.

From inception to the end of the current fiscal year the Company's shareholders have committed a total of \$101,376,000 to the Arctic Islands exploration venture. Of this amount \$9,505,000 has been invested in capital equipment and facilities for support of the program and a further \$7,523,000 on inventories of materials in the Arctic Islands available for future drilling and seismic requirements. The Company's net funds position and the remaining exploration expenditure commitment of its industry shareholder participants represents available funds totalling \$5,402,000 towards 1974 requirements. In addition to direct investment by Panarctic and its shareholders, the group partners in the Arctic Islands Gas Development Partnership comprised of Tenneco Oil & Minerals, Ltd., Columbia Gas Development of Canada Ltd., Texas Eastern Exploration of Canada Ltd. and Norlands Petroleum Limited have invested a cumulative \$31,615,000 against commitments given in 1971 to expend \$50 million on exploration drilling and up to a further \$25 million on delineation drilling to establish the extent of reserves discovered.

Early in 1974 the Company's shareholders approved a further \$25,000,000 increase in capitalization for which an additional 2,000,000 common shares will be issued. Panarctic's industrial shareholders and the Government of Canada have fully subscribed for this capital stock offering which will provide the funds required to continue the exploration program through the first quarter of 1975. Pursuant to a commitment made by the Company in 1966, 25% of this 1974 financing, 500,000 common shares, have been offered, proportionate to their respective land interests, to the parties that farmed out lands to Panarctic in 1966. To the extent that the recipients of this offering elect to subscribe for shares, the number of shares that will be issued to the Company's present shareholders will be reduced.

\$ MILLIONS



Panarctic Oils Ltd.

Balance Sheet

December 31

ASSETS

	1973	1972
Current assets:		
Cash	\$ 16,507	\$ 89,767
Accounts receivable	1,682,589	1,914,642
Note receivable	76,500	—
Due from Panarctic Oil Operators Ltd.	863,286	—
Government of Canada cash investments to be made	3,975,000	12,250,000
Inventory of drilling supplies in the Arctic, at cost including freight	7,523,036	6,360,793
Prepaid insurance and sundry advances	91,008	75,477
	14,227,936	20,690,679
Share purchase note receivable from an officer (Note 1)	250,000	—
Investment in Alexbow Canada Ltd.:		
Shares, at cost	51,000	51,000
Advances	178,612	166,618
	229,612	217,618
Capital assets, at cost:		
Equipment (Note 4)	9,505,953	9,874,459
Less: Accumulated depreciation	4,806,138	4,607,804
	4,699,815	5,266,655
Petroleum and natural gas permits	276,719	276,388
Exploration expenditures (Note 3)	82,995,532	62,309,618
	87,972,066	67,852,661
Other assets:		
Exploration and drilling expenditures to be incurred by Panarctic Syndicate	4,800,000	15,849,946
Advance to Panarctic Syndicate	85,554	79,724
	4,885,554	15,929,670
	\$107,565,168	\$104,690,628

LIABILITIES

	1973	1972
Current liabilities:		
Bank loans (Note 6)	\$ 4,500,000	\$ 2,150,000
Accounts payable and accrued liabilities	1,688,867	1,291,136
Due to Panarctic Oil Operators Ltd.	-	123,191
	6,188,867	3,564,327
 Shareholders' equity:		
Preferred shares—		
Authorized—		
7,600,000 6% non-cumulative redeemable convertible preferred shares of a par value of \$10 each		
Common shares (Note 1)—		
Authorized—		
40,000,000 shares of no par value		
Issued—		
	Number of shares	
For an undertaking by the Government of Canada to make cash investments	15,795,000	45,506,250
For participants' exploration commitments	19,305,000	55,618,750
Other	280,100	251,301
	35,380,100	101,376,301

Approved on Behalf of the Board:

\$107,565,168 \$104,690,628

Jm Taylor

Director

Chas. R. Hetherington

Director

Panarctic Oils Ltd.

Statement of Changes in Financial Position

Year ended December 31

	1973	1972
Source of working capital:		
Issuance of capital stock—		
To the Government of Canada for an undertaking to make cash investments	\$ —	\$11,250,000
To industry participants for exploration commitments	—	13,750,000
Other (Note 1)	250,000	—
Decrease in other assets	11,044,116	—
	11,294,116	25,000,000
Application of working capital:		
Exploration expenditures	20,665,914	17,298,960
Less: Depreciation and other non-cash charges	1,639,341	1,597,991
	19,046,573	15,700,969
Purchase of capital assets (net)	1,072,501	2,885,850
Acquisition of petroleum and natural gas permits	331	169,347
Net increase in other assets	—	925,606
Note receivable (Note 1)	250,000	—
Advances to Alexbow Canada Ltd.	11,984	60,000
	20,381,399	19,741,772
Increase (decrease) in working capital	(9,087,283)	5,258,228
Working capital at beginning of year	17,126,352	11,868,124
Working capital at end of year	\$ 8,039,069	\$17,126,352

Statement of Exploration Expenditures Capitalized

Year ended December 31

	1973	1972	From inception to December 31 1973
Geophysical	\$ 8,649,448	\$ 6,961,002	\$26,430,291
Geological	172,815	128,657	1,075,347
Drilling	8,585,073	7,652,200	42,594,583
Administrative and general	2,338,741	1,796,728	8,362,358
Interest expense	170,572	38,368	506,556
Interest income	(84,264)	(216,108)	(750,837)
Administrative costs recovered	(850,546)	(659,878)	(1,947,899)
Depreciation	1,704,075	1,597,991	6,725,133
	\$20,685,914	\$17,298,960	\$82,995,532

Notes to Financial Statements

December 31, 1973

1. Share capital:

During the year the Company issued 20,000 common shares at \$12.50 to an officer of the Company under the terms of the employees' share incentive plan. The consideration for such shares was the issuance of a non-interest bearing note receivable in the amount of \$250,000 due April 1, 1983.

As at December 31, 1973 20,000 common shares were reserved for issuance under the employees' share incentive plan.

2. Income taxes:

By agreement the Company has undertaken that it will not claim for income tax purposes expenditures which would otherwise be deductible under the Income Tax Act until the aggregate amounts of such expenditures, together with 45% of the Company's non-deductible amounts, is equal to the cash investments made by the Government of Canada. The Company has also undertaken to waive forever all claim to a deduction in respect of such allowable deductions.

3. Exploration expenditures:

The activities of the Company are in the exploratory stage and all expenses less sundry income, have been capitalized; the Company is deemed to have earned no profit and sustained no loss and therefore no statement of profit and loss is submitted.

4. Equipment:

	December 31, 1973			Net
	Cost	Accumulated depreciation	Net book value	book value December 31 1972
Aircraft	\$2,592,300	\$1,255,638	\$1,436,662	\$1,023,058
Storage facilities	1,868,869	970,216	898,653	1,135,034
Camp and portable buildings	1,692,661	936,626	756,035	507,593
Radio and navigational equipment	650,051	379,715	270,336	229,312
Trucks and tracked vehicles	277,184	211,310	65,874	1,454,275
Barge	236,780	221,981	14,799	50,316
Furniture and office equipment	244,720	56,244	188,476	116,164
Leasehold improvements	198,282	63,999	134,283	105,297
Other equipment	1,645,106	710,409	934,697	645,606
	\$9,505,953	\$4,806,138	\$4,699,815	\$5,266,655

5. Statutory information:

During 1973 there were twenty-one directors including one past director, and nine officers (as defined by the Canada Corporations Act) of whom three were also directors. No directors' fees were paid in 1973 or 1972. Officers'

remuneration for 1973 and 1972 amounted to \$192,887 and \$160,640 respectively.

6. Bank loans:

The bank loans bear interest at the prime bank rate. Of the total loans outstanding at December 31, 1973, \$500,000 is secured by an assignment of monies receivable from the Government of Canada, the remaining \$4,000,000 is unsecured.

7. Subsequent events:

Subsequent to December 31, 1973 the Company issued promissory notes, guaranteed by the Company's bankers, in the amount of \$10,000,000 to the Federal Government as required under the Arctic Waters Pollution Prevention Act.

Early in 1974 the shareholders approved a \$25,000,000 increase in capitalization for which an additional 2,000,000 common shares of the Company will be issued. These shares were fully subscribed on or before March 11, 1974.

Auditors' Report

To the Shareholders of
Panarctic Oils Ltd.

We have examined the balance sheet of Panarctic Oils Ltd. as at December 31, 1973 and the statements of exploration expenditures capitalized and changes in financial position for the year then ended. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion these financial statements present fairly the financial position of the Company as at December 31, 1973 and the results of its operations and the changes in its financial position for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

As explained in Note 3 to the financial statements the Company's activities are still in the exploratory stage and all expenses, less income, have been capitalized from inception to December 31, 1973. The Company is deemed to have realized no profit and sustained no loss to December 31, 1973 and therefore no profit or loss account is submitted.

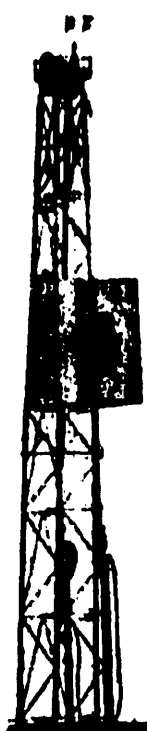
MARCH 29 1974
CA. GARY ALBERTA

James W. Watkinson & Co.
CHARTERED ACCOUNTANTS

Summary of Shareholders

as at December 31, 1973

	Common Shares
Ashland Oil Canada Ltd.	332,953
Bankeno Mines Limited	792,835
Barber Oil Northern, Inc.	1,585,622
Bow Valley Industries Ltd.	792,834
Campbell Red Lake Mines Limited	142,702
Canadian Industrial Gas & Oil Ltd.	237,838
Conventures Ltd. & Conick Petroleums Ltd.	142,726
Cominco Ltd.	3,171,225
E. Connelly	39,648
Dome Mines Limited	285,409
Dome Petroleum Limited	1,427,095
Giant Mascot Mines Limited	1,585,622
Noranda Mines Limited	1,585,622
PanCanadian Petroleum Limited	3,171,225
Sigma Mines (Quebec) Limited	47,591
The International Nickel Company of Canada Limited	1,585,602
Thor Exploration Company Ltd.	1,585,622
Westburne Petroleum & Minerals Ltd.	792,829
Government of Canada	15,795,040
Other	280,060
	<u>35,380,100</u>



Panarctic Oils Ltd.

Incorporated May 27, 1966, by Federal Letters Patent

HEAD OFFICE
703-6th Avenue S.W., Calgary, Alberta

OFFICERS

Chairman of the Board
JOHN M. TAYLOR
President
PanCanadian Petroleum Limited

Vice-Chairman
JOHN A. MacDONALD
Deputy Minister
Department of Public Works

*President
and Chief Executive Officer*
CHAS R. HETHERINGTON
Panarctic Oils Ltd

Vice-President — Exploration
R. A. MENELEY
Panarctic Oils Ltd.

Vice-President — Operations
H. J. STRAIN
Panarctic Oils Ltd

*Vice-President — Land and
Administration*
R. G. S. CURRIE
Panarctic Oils Ltd.

Treasurer and Comptroller
J. G. ARMSTRONG
Panarctic Oils Ltd.

Secretary
F. R. MATTHEWS, O.C.
MacKimmie Matthews

DIRECTORS

as at April 1, 1974

R. J. ARMSTRONG
Vice-President
Cominco Ltd.
Vancouver, B.C.

J. AUSTIN, O.C.
Deputy Minister
Department of Energy,
Mines and Resources
Ottawa, Ontario

R. W. CAMPBELL
Chairman of the Board
PanCanadian Petroleum Limited
Calgary, Alberta

R. B. CARLETON
Chairman of the Board
Giant Mascot Mines Limited
Vancouver, B.C.

C. S. DUNKLEY
Senior Vice-President
Dome Petroleum Limited
Calgary, Alberta

H. G. GAMMELL
President
Thor Exploration Company Ltd.
Calgary, Alberta

*CHAS. R. HETHERINGTON
President and
Chief Executive Officer
Panarctic Oils Ltd.
Calgary, Alberta

C. MARKS HINTON
President
Barber Oil Corporation
Houston, Texas

A. DIGBY HUNT
Assistant Deputy Minister
Department of Indian and Northern
Affairs
Ottawa, Ontario

*JOHN A. MacDONALD
Deputy Minister
Department of Public Works
Ottawa, Ontario

MARKKOOSIE
Arctic Aircraft Pilot
Resolute Bay, N.W.T.

J. C. McBEAN
President
Bankeno Mines Limited
Toronto, Ontario

*D.C. McGAVIN, O.C.
General Solicitor and Secretary
The International Nickel Company of
Canada, Limited
Toronto, Ontario

H. BASIL ROBINSON
Deputy Minister
Department of Indian and Northern
Affairs
Ottawa, Ontario

S. M. ROTHMAN
Vice-President
Cominco Ltd.
Vancouver, B.C.

W. S. ROW
Chairman of the Board
Noranda Mines Limited
Toronto, Ontario

*D. K. SEAMAN
President
Bow Valley Industries Ltd.
Calgary, Alberta

A. B. SULATYCKY
Parlee, Irving, Henning, Mustard &
Rodney
Edmonton, Alberta

*JOHN M. TAYLOR
President
PanCanadian Petroleum Limited
Calgary, Alberta

*Members of the Executive Committee
of the Board of Directors