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Monenco Limited



Annual Report 1983

- Baymont Engineering Company
- Both Belle Robb Limited
- Canamont Construction Inc.
- Canatom Inc.
- Carlson & Sweatt - Monenco, Inc.
- Hallmark Engineering Ltd.
- Hardy Associates (1978) Ltd.
- Hoyles Niblock Overseas Ltd.
- International Underwater Contractors (Canada) Ltd.
- Kaiser Engineers Power Corporation
- La Société d'Ingénierie Cartier Limitée
- London Monenco Consultants Limited
- Manecon Associates Limited
- Martec Limited
- McCullough Associates, Inc.
- Monenco Asia (Pte.) Ltd.
- Monenco Associates Limited
- Monenco Australia Pty. Ltd.
- Monenco Computing Services Ltd.
- Monenco Consultants Limited
- Monenco Consultants Pacific Ltd.
- Monenco Engineers & Constructors Inc.
- Monenco Inc.
- Monenco Ireland Limited
- Monenco Jamaica Limited
- Monenco Japan Inc.
- Monenco Nigeria Limited
- Monenco Offshore Limited
- Monenco Ontario Limited
- Monenco Pipeline Consultants Limited
- Montreal Engineering Company, Limited
- Montreal Engineering (Eastern) Limited
- Montreal Engineering (Overseas) Limited
- NPM Nuclear Project Managers (Canada) Inc.
- Petro-Metals Recovery Systems Ltd.
- SBR Offshore Limited
- St-Laurent Dredging Inc.
- Saskmont Engineering Company Limited
- Saskmont Engineering Ltd.
- Sertel Ltée
- ShawMont Ltd.
- ShawMont Martec Limited
- ShawMont Newfoundland Limited
- ShawMont Nigeria Limited
- Spectrocan Engineering Inc.
- Staff Corrosion Engineers Ltd.
- Teshmont Consultants Inc.
- Tidal Power Consultants Limited
- Victus Consultants Ltd.
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Highlights 1983

Revenues

Revenues of \$118,248,000 were down significantly from 1982, with profits from continuing operations falling to \$1.00 per share from the \$1.75 earned last year. Write-offs from discontinued operations resulted in a net loss of \$1.53 per share. The dividend was maintained at \$0.90 per share.

Operations

Major ongoing engineering and project management assignments include the Keephills and Atikokan thermal plants in Canada, the Lagos thermal station and Jebba hydroelectric development in Nigeria, the Suralaya steam plant and the Lower Solo River Basin irrigation project in Indonesia, and the Cernavoda nuclear power station in Romania. Transmission line and substation work is being undertaken in Canada, the United States, Egypt, China and Australia. Other noteworthy projects are the Strachan gas plant in Alberta, port facilities in Québec and Nova Scotia, and large-scale CADD conversion assignments for telephone utilities in the southeastern United States.

Acquisitions

In 1983, the company acquired the Humphreys & Glasgow interest in MHG International Ltd. and subsequently established Monenco Engineers & Constructors Inc., an EPC subsidiary with an expanded range of operations.

SERDOQ Ltée was formed with 40% Monenco ownership and was subsequently selected to design, construct, own and operate an organic waste disposal and recycling facility in the Province of Québec.

St-Laurent Dredging Inc. was also formed in 1983, and is currently completing the construction of a cutter suction dredge for use on ongoing and future contracts of Canamont Construction Inc.

Research and Development

Montreal Engineering Company, Limited and Iotech Inc. continued to assemble their pilot-scale bioconversion plant near Ottawa; this new process will produce ethanol, lignin and other chemicals from the cellulose found in biomass. Success of this initial operation will place Monenco in a leading position in the field of biotechnological conversion.

	1983	1982
Operating revenue	\$118,248,000	\$181,369,000
Income from continuing operations	2,914,000	5,098,000
Losses from discontinued operations	7,377,000	—
Net income (loss) for the year	(4,463,000)	5,098,000
Per share		
From continuing operations:		
First quarter	.49	.65
Second quarter	.10	.36
Third quarter	.07	.41
Fourth quarter	.34	.33
	1.00	1.75
Losses from discontinued operations	(2.53)	—
For the year	(1.53)	(1.75)

Quarterly reported earnings have been restated to reflect the separation of losses from discontinued operations and the reallocation of tax provisions between quarters

Dividends paid	2,628,000	2,628,000
Per share	.90	.90
Working capital	23,964,000	29,990,000
Shareholders' equity	35,772,000	42,863,000
Number of shareholders	1,075	1,107
Number of shares traded	545,900	364,200
Number of employees (approximate, including associate companies)	2,700	4,000

Ce rapport est disponible en français.

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Monenco today

Symbolic of Monenco's ongoing progress and consolidation in the 1980's, the company moved its Calgary headquarters to Monenco Place (see photos) in the summer of this year. This new office houses both the principal subsidiary's staff and employees of the newly-formed Monenco Engineers & Constructors Inc. ME&C represents Monenco's first venture into engineer/procure/construct (EPC) work on a worldwide basis.

Other new companies including SERDOQ Ltée, St-Laurent Dredging Company Inc., and NPM Nuclear Project Managers (Canada) Inc. joined the Monenco Group in 1983. This continues the trend which saw International Underwater Contractors (Canada) Ltd., another specialized organization, added to the Group in the previous year.

New technologies such as organic waste management and disposal, biomass conversion, automated mapping/facilities management (AM/FM) and other sophisticated computer applications are fast becoming more important components of Monenco's operations, but the company is still very active in electric power generation and transmission, industrial developments, mining, transportation, industrial and commercial buildings, resources and environmental assignments, and management consulting.

In 1983, Monenco undertook assignments for a number of clients in countries such as Egypt, Senegal, Brunei, the Ivory Coast, and Swaziland for the first time, while ongoing operations continued strongly in established markets including North America, Indonesia, Singapore, Nigeria, Central America, the Caribbean, and Southeast Asia.

With its commitment to developing specialized skills and marketing its expertise aggressively and effectively, Monenco is ready to take advantage of the many opportunities which still exist for the provision of consulting engineering and management services in Canada and abroad.



Power generation

Thermal • Hydroelectric • Nuclear • Generation Planning
• Non-conventional Energy

Despite a reduction in energy demand which has resulted in fewer new generation projects being built in Canada and other industrialized countries, Monenco continues to work both at home and abroad on new installations and extensions to existing ones. The company also undertakes a wide variety of generation planning studies and power development feasibility studies, mainly in developing areas of the world.

Major hydroelectric projects currently in progress include the 540 MW Jebba development in Nigeria (photo 1) and the 128 MW Cat Arm project in Newfoundland (photo 2). Monenco

is also involved in the design and construction of the 40 MW combined generation and irrigation supply project at Dadin Kowa in Nigeria, and its recent and ongoing studies include Basha in Pakistan (2400 MW), Mojolka in Nicaragua (150 MW), and Tumatumari in Guyana (60 MW), for which the company is also providing design services. Unit 4 of the Whitehorse hydroelectric development was commissioned this year; this installation, at a new powerhouse downstream from the original plant, added 20 MW of power to the Yukon Territory's generation system. Work was also completed recently on the 2300 MW LG 3 hydroelectric development at James Bay.

The first four 400 MW units of the Suralaya coal/oil-fired station are currently under construction (photo 3); when completed, the 3000 MW plant will be the largest in Southeast Asia. Another major Monenco assignment, the Egbin phase of the Lagos thermal station in Nigeria, will form part of an over-all development with a capacity of 1320 MW. The company is also providing design and project management services for the 400 MW Atikokan lignite-fired station in Ontario, the 750 MW Sheerness project in Alberta, and the first two 400 MW units of the Keephills thermal plant in Alberta, which will be fuelled by coal from the Highvale mine (see page 7). Other current and recent assignments include a least-cost system expansion scheme for Jamaica, a power supply study for the Ikot-Abasi steel mill in Nigeria, and a number of studies and projects relating to fluidized bed boilers, coal-to-oil conversion, waste heat recovery systems, peat-fired plants, energy management and conservation, and other new thermal technologies.

Nuclear power plant construction activity, while not continuing apace in these years of environmental concern and lower energy demand, still gives Monenco the opportunity to provide the specialized consulting services which this field requires. In 1983, CANDU reactors were commissioned in Korea (Wolsung), Argentina (Cordoba), Quebec (Gentilly 2) and New Brunswick (Point Lepreau), while design and civil works construction are underway at the Cernavoda plant in Romania, one of the few East Bloc countries where the company is active.



Transmission and distribution

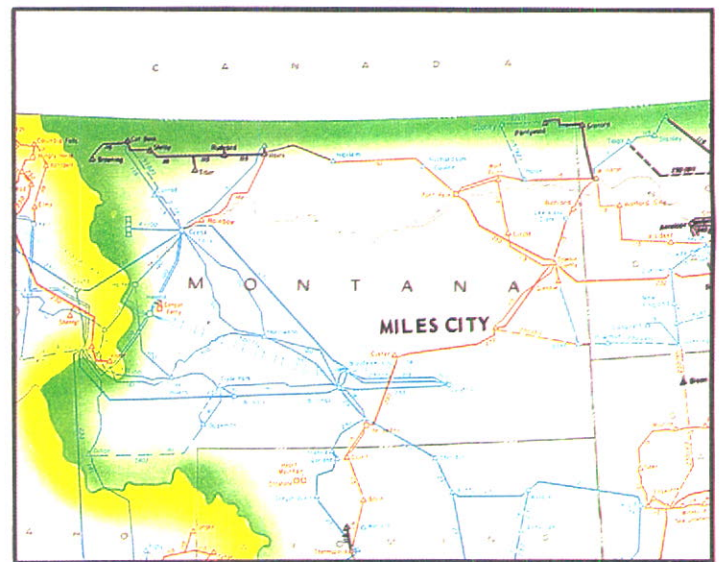
AC and HVDC Transmission • Substations
• Converters • Distribution Systems

Monenco has established itself as a world leader in EHV and HVDC technology, undertaking transmission system study and design work in countries where traditionally, local expertise and political considerations have hindered market penetration by foreign consultants. The company's many recent and ongoing DC transmission line assignments in the United States include the Intermountain Power Project, a ± 500 kV system running from Utah to California; the Salt River Project, another ± 500 kV intertie between Phoenix, Arizona and Mead, Nevada; DC submarine cable and overland transmission system studies in Alaska; and the Miles City HVDC back-to-back converter station in Montana (see map). Monenco's high-voltage systems expertise has also resulted in the award of many contracts in Australia, beginning with the Perth-Pilbara ± 300 kV DC interconnection and Pilbara 220 kV AC line studies in 1981 and continuing with a study of power supply to the Eastern Goldfields, a transmission study of the Karatha-Port Hedland system, and other assignments involving stability and short circuit analyses, load forecasting, and transmission planning and design. This year, Monenco is providing detailed systems and conceptual engineering of the DC converter station, and specifications preparation and bid evaluation services for the transmission line which will form part of the 1200 MW Gezhouba-Shanghai HVDC project in the People's Republic of China.

In addition to the study of the 67 km Juneau-Snettisham submarine cable in Alaska, the company provides ongoing consulting related to the proposed Strait of Belle Isle ± 400 kV DC cable between Labrador and Newfoundland, and was responsible for the recent commissioning of a 132 kV AC cable from Kuala Perlis on peninsular Malaysia to the offshore island of Langkawi.

A new project — Monenco's first assignment to date in Egypt — is the design and construction supervision of the Canadian-financed portion of the Shoubra el-Kheima interconnector scheme in the city of Cairo. This involves two 500 kV substations and seven 220 kV buried distribution cables running for 29 km beneath the streets of the capital. Other major substation projects under construction include those for the Egbin, Sheerness, Keephills and Cat Arm power stations (see page 3), important components of the company's over-all services on these developments.

In Canada, Monenco is responsible for the study, design and implementation of a reconductoring project for three transmission lines to Alcan's aluminum smelter at Jonquière, in the Saguenay region of Québec (see photo). This project will cut down considerably on electrical losses and enable the client to draw more and cheaper power from its generating facilities at Alma.



Industrial Projects

Process Plants • Pulp & Paper and Forest Products • Manufacturing

With the commissioning of the Kitimat anode paste plant in British Columbia (photo 1) and completion of the EPC assignment for the Polysar butyl rubber production facility in Sarnia, Ontario (photo 2), Monenco continues to develop and maintain its reputation as an engineering firm capable of handling all aspects of major industrial developments. Whether working with the client's process design or providing its own, the company can

assume complete responsibility for site investigations and preparation, planning and scheduling, engineering, procurement, inspection and expediting, construction, project management, and start-up. Project management is greatly enhanced by sophisticated computer software systems developed in-house (see page 10).

Forest products plants are an important company specialty. Monenco's involvement in this industry includes oriented strand board (OSB) mills in Georgia, Virginia, Mississippi, and Colorado as well as the Weyerhaeuser plant at Grayling, Michigan, which with an area of 20,500 square meters is the largest of its kind in the world. Particleboard, waferboard, and sawmill facilities have also been studied, designed and built throughout North America and in Chile and Nigeria, including materials handling systems, power supply and distribution systems, water and effluent treatment plants, and other ancillary installations.

Completed in 1981, Pratt & Whitney's aircraft engine plant extension at Longueuil, Quebec (photo 3) is an example of how Monenco can design and complete industrial projects on schedule and within budget without disturbing ongoing manufacturing operations. Other extensions and grass-roots facilities have been designed by company engineers in Alberta, Ontario, and the Atlantic Provinces.

An exciting new prospect, the completion of which will provide strong growth potential in its field, is the Iotech bioconversion plant near Ottawa. This pilot-scale facility will produce ethanol, lignin, and other chemicals from readily available biomass; if the commercial attractiveness of the process is established, Monenco will use its licence rights to market, design and construct such installations worldwide.



Oil and gas developments

Refineries • Pipelines • Drilling Platforms
• Ocean Engineering

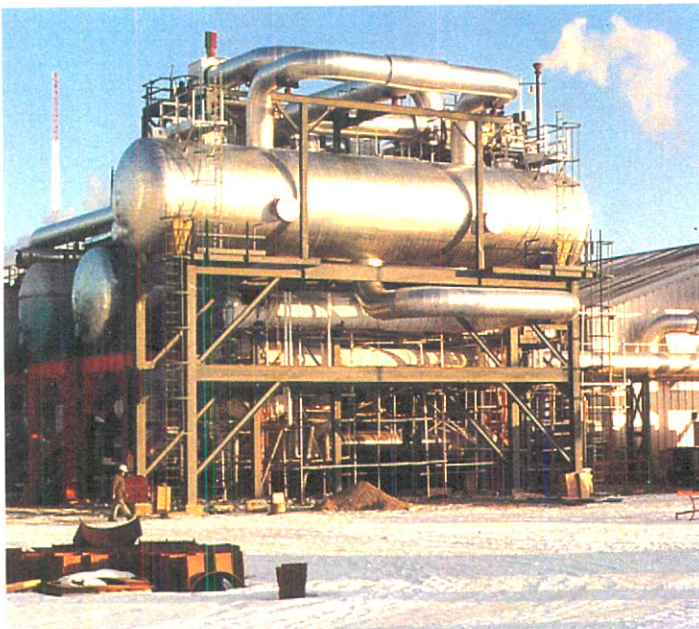
With the completion, suspension or outright cancellation of Canada's western oilsands megaprojects, Monenco's work on such major assignments as the Alsands development, the Syncrude and Suncor tar sands processing plants, and the Canstar heavy oil project came to an end. The company, however, is still active in the petroleum industry, as evidenced by its involvement in numerous study and design assignments in the Beaufort Sea, Hibernia, and the Scotian shelf. These range from undersea pipeline protection and repair studies to comprehensive feasibility studies and environmental impact assessments related to the extraction, processing, and transportation of hydrocarbon resources in the Arctic region.

Engineering, design, and construction services are provided for oil refineries, gas plants, sulphur recovery facilities, and other petrochemical installations across Canada. These include gas plants at Turner Valley and Strachan (photo 1) in Alberta, and a vacuum unit for Petrosar's refining facilities in Corunna, Ontario. Monenco's services on such projects cover process systems, offsite installations, delivery, and site utilities such as electric power, water supply and sewage, and effluent treatment.

Offshore development requires the rapid evolution of both technology and equipment. Monenco participates in a number of state-of-the-art assignments related to ocean engineering, subsea exploration, barge-mounted processing plants, drilling platforms, and LNG and LPG systems. A new service offered by the company involves the use of manned and unmanned submersibles for underwater investigations and engineering work (photo 2).

Another field of activity is the design of drilling rig platforms; one such project is currently underway in the Hibernia fields, where Monenco is working with a Newfoundland contractor for Mobil Oil Canada to design and manage the construction of a concrete bottom-founded production structure. Stress analysis of ocean-going vessels such as oil tankers is another area of Monenco's offshore oil and gas expertise. Environmental studies for such developments are also being undertaken (see page 8).

The company has been or is involved in almost all of Canada's major natural gas pipeline developments, including the Polar Gas Project studies, design of the South Yukon section of the Alaska Highway gas pipeline and the Vancouver Island undersea gas transmission system, studies to carry Sable Island gas from Nova Scotia to the United States, and the Trans-Quebec & Maritimes pipeline project from Montreal to Quebec City, a 300 km system for which Monenco participated in design and construction management services and made extensive use of its computer-based project management systems (the Lake of Two Mountains crossing is shown under construction in photo 3). Oil pipeline projects have also been undertaken in Alberta, Saskatchewan and Algeria.



Mining

Exploration • Planning • Development
• Materials Handling • Reclamation

The Highvale mine near Edmonton, Alberta and the older Whitewood mine across Lake Wabamun, produce over 11.5 million tonnes per annum of thermal coal. Together with the Wabamun, Sundance and Keephills generating stations (total current installed capacity: 3500 MW), they represent one of the largest mining/thermal plant complexes in the world. Monenco's provision of exploration, study, planning, design and development services to TransAlta Utilities Corporation for these properties dates back to 1958, and the company continues to devote considerable effort to these major mining developments. A recent noteworthy project comprises the addition to the Highvale equipment fleet; of a Marion 8750-37A walking dragline (photo 1), which with a 69 m³ bucket and a 130-metre boom is one of the largest constructed in Canada to date. Another involved the extensive coal handling and storage facilities to supply Highvale coal to the Sundance plant (photo 2). In addition, Monenco provides comprehensive environmental and reclamation services for

these two mines (photo 3). The company has also carried out assignments for the new Quintette and proposed Monkman coal mines in British Columbia, and is providing design services for mine service buildings at the Obed Marsh and Vesta coal mines in Alberta.

Overseas mining projects also fall within Monenco's purview. The Bukit Asam Coal Mining and Transportation project, which will fuel the Suralaya steam power plant (see page 3), is one of Indonesia's largest and most advanced coal developments. The company is also providing mine planning and design services in the Central Zone of the Cerrejón coal basin in Colombia, where the newest study is of the Patilla property.

While coal is the mainstay of the company's mining services and experience, metals mining represents another area in which it is involved. Monenco recently completed a design and project management assignment for the Kitsault molybdenum mine near Alice Arm, British Columbia, and has undertaken mine planning, equipment erection, materials handling, power supply and related assignments for the Pine Point lead-zinc mine in the Northwest Territories.

Monenco is Canada's most experienced peat resources consultant: more than thirty assignments have been undertaken in this field in the last eight years, involving resource assessments, mining methods studies, and combustion investigations. These have ranged from peat inventories in Canada, the United States and Senegal to the study of various advanced peat technologies such as dewatering, methanol conversion, wet mining operations and slurry transport.



Environment and water resources

Waste Management • Impact Assessments • Site Clean-ups
• Irrigation • Fisheries

In recent years, both government and industry in North America have become more active in environmental protection. Monenco has responded to the requirement for environmental work, providing a full range of services from pre-development assessments through to plant decommissioning services. Recent assignments have included impact assessments of the proposed Dunvegan and Slave River hydroelectric developments and the Slave River transmission line in Alberta, and thermal stations including Suralaya in Indonesia and the Keephills, Sheerness and other plants in Canada. Fish passage through hydroelectric turbines and spillways has been the subject of several Canada-wide and site-specific studies. For offshore oil installations, Monenco has studied fish and seabird migration patterns and the effect of spills on marine plant and seabird life on the Scotian Shelf.

A comparatively new area of Monenco involvement comprises the management and disposal of toxic organic wastes: the company is currently developing plans and designs for such installations in Alberta, Ontario, and Quebec. Another new area of business for Monenco's environmental group involves the investigation and clean-up of spills and leaks at oil refineries, gas stations and other petrochemical facilities: in 1983, more than a dozen of these assignments were completed in central Canada.

Closing down an industrial operation has become a very sophisticated procedure in environmentally sensitive countries. Decommissioning of chemical and petrochemical plants is another new area of environmental business for Monenco: major Alberta assignments in 1983 included the Turner Valley gas plant site reclamation program; a clean-up program for Inco's closed Exide battery plant; and extensive field sampling, chemical analysis, and groundwater study services related to the preparation of a detailed site clean-up and reclamation plan for the Pin-

cher Creek gas plant (photo 1), expected to be one of the most comprehensive decommissioning programs in Canada. Mine reclamation is another important environmental service offered by the company; Monenco is currently undertaking an extensive reclamation program at the Highvale mine (see photo, page 7).

In the water resources field, particularly in irrigation, the company has amassed a great deal of experience in North America, Africa and Asia. The Lombok Island high-level diversion project includes diversion structures, irrigation canals (photo 3) and all associated works to utilize surplus water from one river system to irrigate sawah crops in another; the development of operations manuals and a comprehensive training program are included in this contract. Another current assignment in Indonesia is the Lower Solo River Basin development project, which involves the study of new storage reservoirs and irrigation schemes and the detailed design of a rehabilitated flood control system serving some 40,000 hectares of agricultural land.



Transportation

- Airports • Marine Terminals • Highways
- Bridges • Rail Systems

Monenco has been involved in aviation development projects for over twenty years, and has witnessed — and is leading the adaptation to — the variety of new technologies and changes in regulation. Sophisticated communications systems, ground-water contamination management, and the use of computers for airport planning, design and cost control are some of the new areas in which Monenco has demonstrated its airport expertise. A breakthrough in the use of CADD (Computer Assisted Design Drafting) was made by Monenco this year in the design work at the Fort McMurray Airport in Alberta (photos 1 and 2), where the entire airport was mapped on a computer graphics file, complete construction drawings generated, and numerous specialty studies carried out entirely on the computer. Studies included

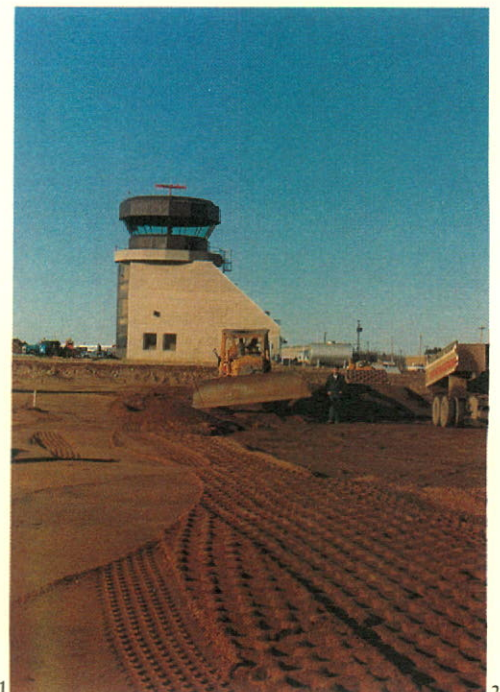
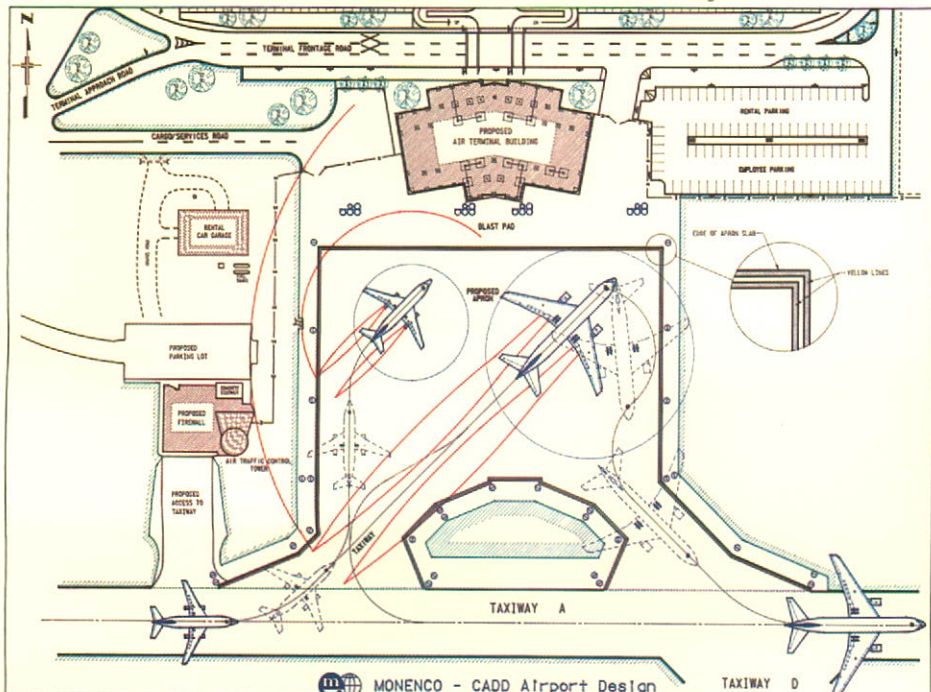
aircraft manoeuvring, blast effect, sewer studies and survey reconciliation; project documentation was stored on the Monenco mainframe computer network for access from any office. Computerized project scheduling of work by Monenco, other consultants and contractors was also undertaken, along with site surveys and construction supervision. Other studies and assignments involve St. Anthony Airport in Newfoundland, Fort St. John Airport in British Columbia, Halifax International Airport, and Mastapha Airport in Swaziland. Another exciting assignment is the Technical Drafting Centre Pilot Project in the Canadian Air Transportation Administration's Toronto office, for which Monenco is providing CADD training services, workstation installation, management assistance and airport software support (see page 10).

Monenco's Airport Facility Management (AFM) system includes a number of software routines which have been developed for specific application to airport projects and management; for example, the BFM system (see page 13) has been customized for air terminal buildings inventory and management and incorporated into the AFM system.

Shipping is the most economical way to transport goods over great distances. Monenco's experience in marine facilities ranges from the provision of electrical engineering services for a roll-on roll-off (Ro-Ro) docking facility in the United States to complete port developments in several countries. A ferry docking facility is now being designed and constructed for CN Marine in North Sydney, Nova Scotia; work is also underway on a harbour and wharf development in Bécancour, Québec, where Monenco's expertise in dredging and building floating caissons is being put to good use. In Indonesia, Monenco is participating in the design and project management of the Tarahan coal terminal in South Sumatra, which is the rail receiving and shiploading facility for coal to fuel the Suralaya thermal plant in West Java, where the company is responsible for the new harbour with its coal and oil unloading, storage, and handling facilities (photo 3).



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Computer applications

Automated Mapping/Facilities Management

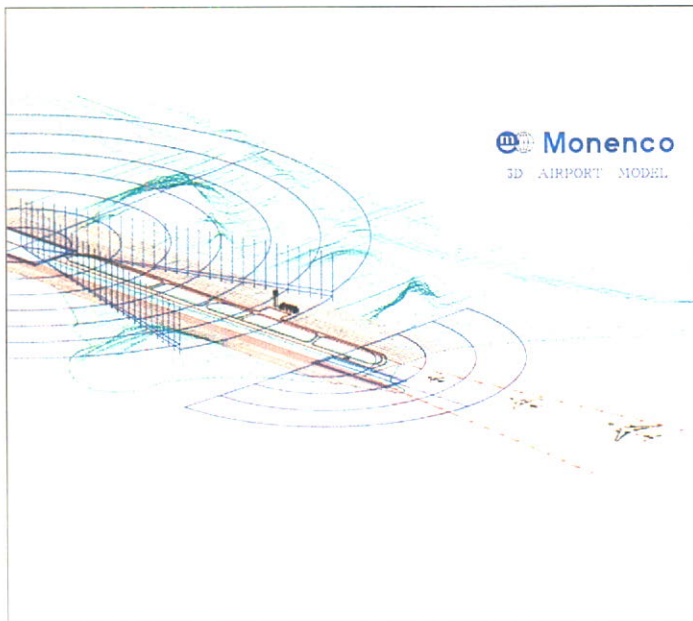
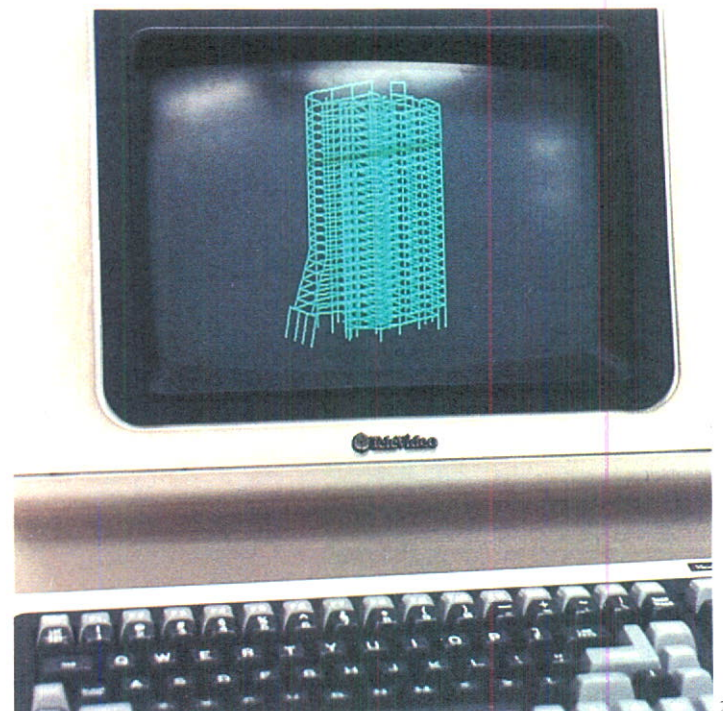
- CADD • Engineering • Project Controls

Monenco introduced computer aided drafting and design (CADD) systems in 1980, and during the planning and detailed engineering of the Polysar butyl rubber plant assignment in Sarnia, Ontario (see page 5), the company used CADD to generate all final engineering drawings. A more recent application of CADD is automated mapping/facilities management (photo 1) (AM/FM), which is being provided to the United Telephone Company: to date, a total of sixteen telephone exchanges are having their plant records digitized using CADD. This procedure ensures accuracy, a common standard, and the ability to rapidly update drawings and records as required. Monenco has recently been awarded a second utility records conversion project, this one from Southern Bell in South Carolina. Since 1978, Monenco has trained more than 250 CADD operators for several clients in Canada, including the Southern Alberta Institute of Technology, Transport Canada and federal and provincial government agencies. As mentioned on page 9, one of Monenco's CADD projects involves training and management assistance for the implementation of CADD systems by the Canadian Air Transportation Administration. Through a workstation linked to Monenco's network, the client can access the customized airport software (see model) which is a part of one of the most sophisticated engineering design and drafting systems in Canada.

Monenco's computer-based project management system (MPMS) is a set of integrated and interactive programs to allow complete control of cost, scheduling and reporting on any project. This system has been developed over several years and has been successfully used on several of the company's major projects, including the Jebba hydroelectric power development in Nigeria. It is adaptable to any size of project and is extremely user-friendly. One of the nineteen integrated MPMS modules is PERT6, a critical path network program which has been enhanced by Monenco for scheduling, reporting and project control. After

years of use on Monenco's engineering assignments, the program has now been converted to run on a variety of smaller computers and has been sold or leased, in joint venture with its original authors, to a number of clients including Abitibi Price, Johnson & Johnson, and the Chase Manhattan Bank in England.

FASST is a engineering software program that analyses stress in virtually any type of structure. This program was developed in-house by Monenco and can be used on a variety of structures such as thermal and hydro power plants, industrial and commercial buildings, transmission towers and offshore platforms. Monenco has used the FASST program on the Lagos thermal station in Nigeria (see page 3) and on the Neptune Orient Lines buildings in Singapore (photo 2 below and photo 2 on page 13). The company has developed dozens of other programs for other civil, mechanical and electrical engineering calculations.



Automated control systems

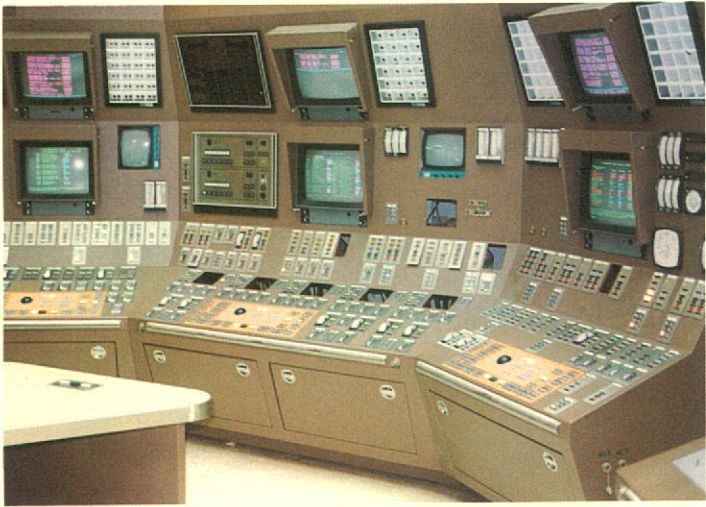
Telecommunications • Process Control Systems • Electric Load Dispatching

Advanced instrumentation and control systems are used by Monenco on its generation plant projects, power transmission and distribution assignments, and industrial assignments. These are applied to remote operating and monitoring systems for power plants, electric power load dispatching, and control of manufacturing processes.

The latest equipment and methodology are used for control, monitoring and remote operations where appropriate. Monenco's recent experience includes the 150 MW extension to Ontario Hydro's Thunder Bay thermal generating plant, where two digital computers control the entire plant including boilers, burners, and turbines, and provide systems for operations monitoring and data logging, storage and retrieval from a central control room (photo 1). Another generating plant control room is at the 540 MW Jebba hydroelectric development in Nigeria.

High levels of power consumption and periodic peaking require sophisticated control and load dispatch systems. Utilities in many countries have made use of Monenco's expertise in supervisory control and data acquisition (SCADA) systems. Such projects have been undertaken in the Dominican Republic, Iran, Iraq, and Jamaica and in Canada for Hydro-Québec and Newfoundland Light & Power Co. Limited (photo 2).

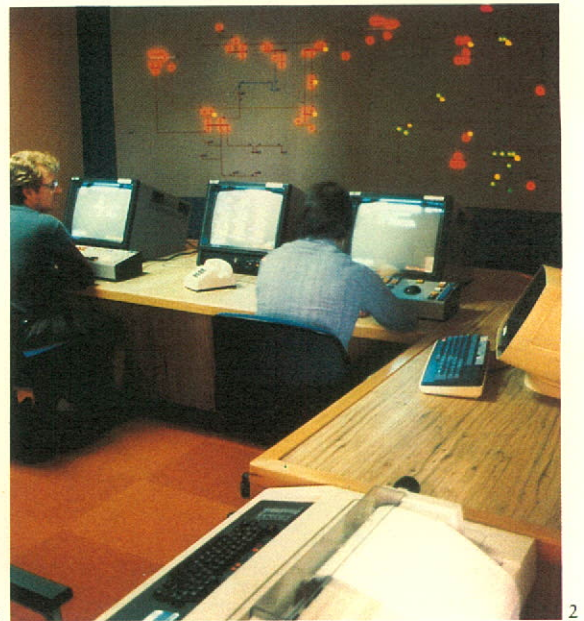
Digital process control systems are used at Polysar's butyl rubber plant in Ontario (photo 3). One computer controls reaction, distillation and services functions, while a second is employed for materials handling and packaging. Methods of automation such as these improve efficiency in industrial systems operations.



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Management consulting

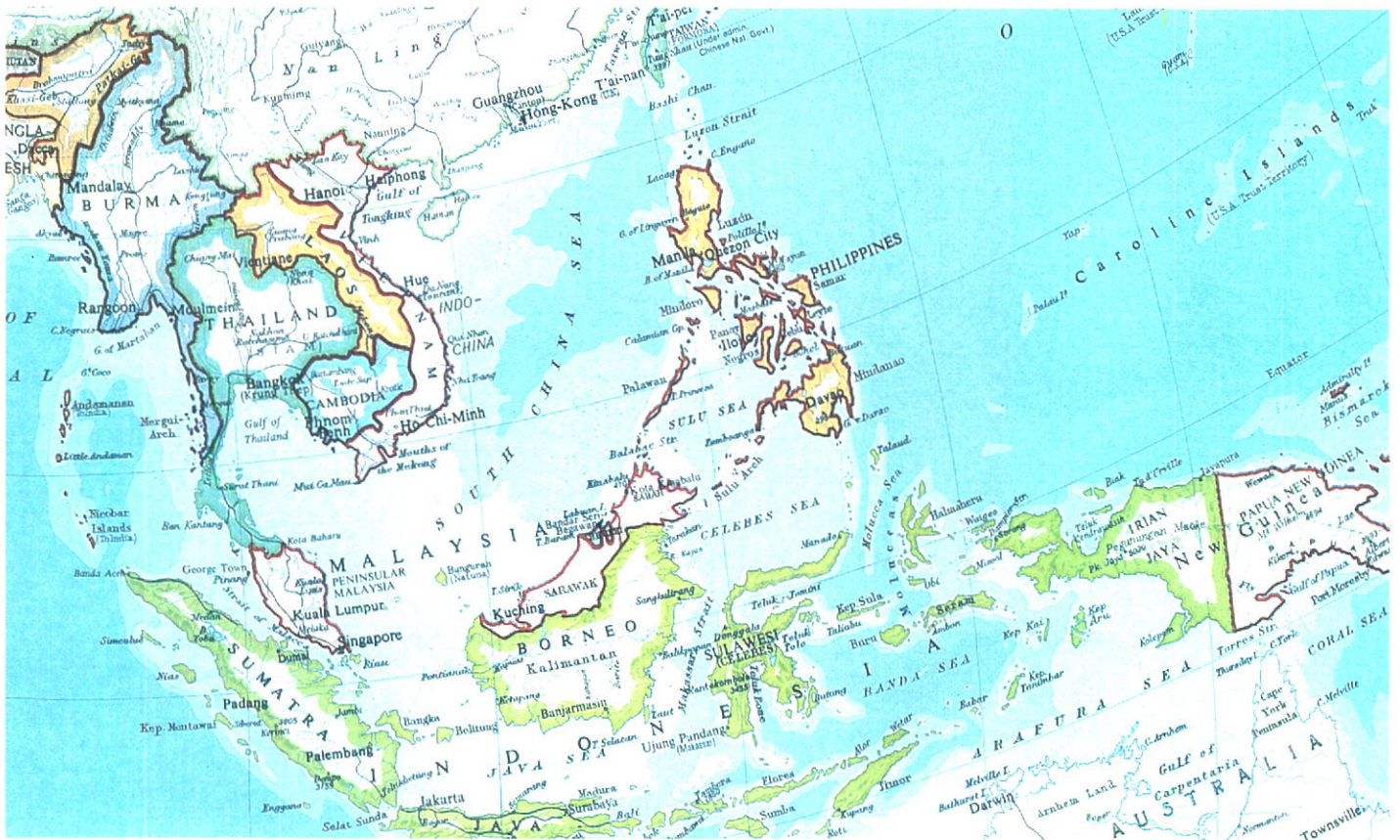
- Economic & Financial Analysis • Utility Operations
- Market Studies

Monenco's management consulting group has always provided economic and financial analysis services as part of the company's involvement in large energy and resource development projects, but in recent years its activities have expanded considerably. The group now undertakes a wide variety of assignments on its own, many of them in traditional areas (market studies, capital project evaluations, financial planning and the like) and others in the comparatively new field of computer systems consulting (see page 10).

Electric utility operations assignments, which the company has been providing in Canada, South and Central America and the Caribbean throughout its history, are an important component of Monenco's management consulting services. Administrative specialists are working together with engineering staff to provide technical, financial, and operational assistance to power utilities in Jamaica, the Cayman Islands, the Dominican Republic, Papua New Guinea, and several Canadian provinces. Some of these contracts are of relatively short duration, while other "evergreen" arrangements date back over half a century. Three such long-term associations are with Maritime Electric Company, Limited, TransAlta Utilities Corporation and Newfoundland Light & Power Co. Limited.

Many other Canadian utilities take advantage of Monenco's decades of engineering and economics experience. The company has undertaken each of B.C. Hydro's last three annual load forecasts; rate and cost allocation studies, valuations, depreciation studies, and related assignments have been carried out for the New Brunswick Electric Power Corporation, Great Lakes Power Corporation, and St. Lawrence Power Company in the last few years.

Governments and international lending agencies also avail themselves of Monenco's management consulting expertise. The Federal Department of Supply and Services recently awarded the company a contract to assess the realistic potential of district heating systems in Canada; overseas assignments include a natural gas pricing study for the Government of Bangladesh and the Asian Development Bank-sponsored ASEAN Coal Development Project, an extensive analysis of the logistics and comparative advantages of different schemes for coal production, importation, transportation, and consumption in and among the five member states of the Association of South East Asian Nations (see map).



Buildings

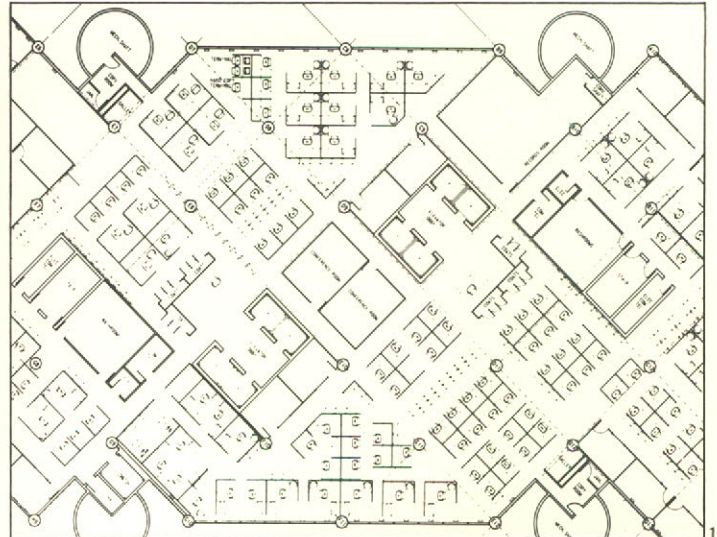
- Office Towers • Institutional Facilities
- Hotels

Monenco provides consulting services ranging from the engineering of heating, ventilating and air conditioning (HVAC) systems through to complete design and project management services for commercial, residential and institutional buildings in Canada and overseas.

BFM, the Building Facility Management system developed by Monenco, was used on the recently completed Calgary headquarters of TransAlta Utilities Corporation. It is a series of customized software and CADD user commands which greatly enhances the creation and modelling of building interiors and

arrangements to facilitate spatial planning and record-keeping (photo 1). An integral part of the system is the linked database which displays a wide range of management, inventory, and accounting information adjacent to the specified displayed graphics file.

Other recent Monenco assignments include the Ferringghi Hotel in Pinang, Malaysia, the Bank Bumi Daya Plaza in Jakarta, Indonesia, and the Neptune Orient Lines Headquarters in Singapore (photo 2) where Monenco used its FASST program (see page 10) for structural stress analysis. In association with an architectural firm, Monenco applied state-of-the-art technology in heat transfer and passive solar heating to the Banff School of Management Centre in Alberta (photo 3).



1984 and beyond

Monenco is changing its organizational structure to meet the market conditions which will emerge in the last half of the 1980's. Senior management has identified several promising areas in which it is planned to concentrate research & development and to intensify marketing activities in the next few years.

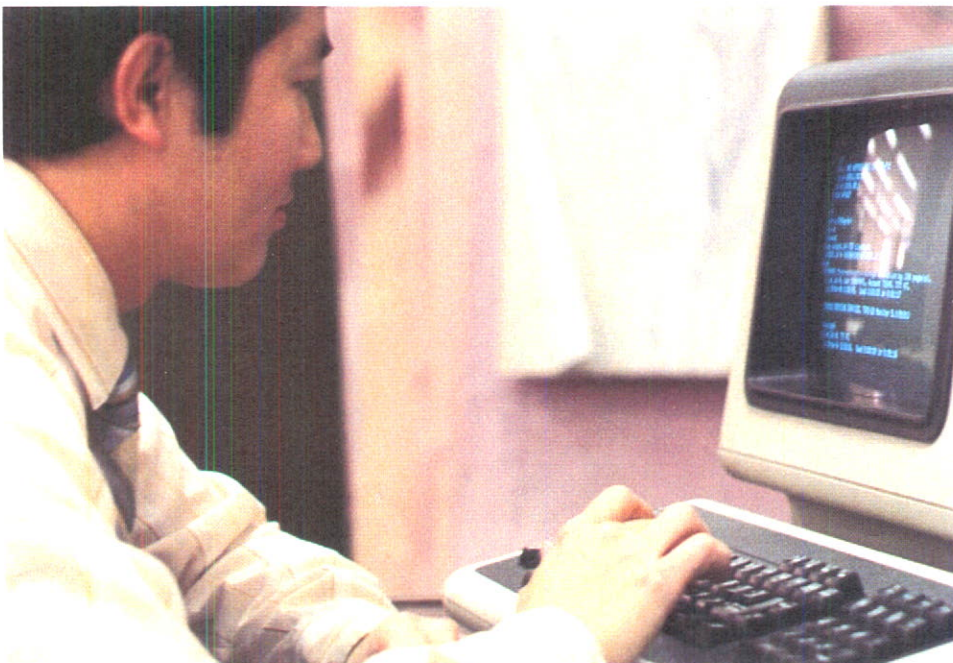
Of central importance is the development of new computer applications for engineering calculations, and the refinement of Monenco's powerful project management systems programs such as PERT6 (photo 1). These programs were once confined to in-house use on consulting assignments, but are now being converted to run on a variety of mini- and microcomputers and packaged for sale to a wide range of clients. Computer aided drafting and design (CADD) is another area where Monenco's advanced hardware and software place it in an excellent position to provide airport design, utility plant records conversion, and related services and to offer training programs and equipment selection and installation assistance, as is the design of automated control systems (see page 11). New directions in this field include the Building Facility Management (BFM) and Airport Facility Management (AFM) systems (see pages 9 and 12) and investigations of the engineering applications of robotics and related disciplines.

Waste management projects such as the major facilities in which Monenco is involved in Alberta, Ontario and Quebec (see page 8) represent another strong growth area for the company. Extensive experience is rapidly being gained by its staff in the field of toxic organic waste collection, management and disposal.

A new comprehensive earth sciences analysis service which combines computer mapping, geostatistics and sampling design, has been developed by Monenco for use in mine planning and reclamation, pipeline, transmission line and road route selection, resource exploration, land use planning, hydrogeological modelling, and environmental monitoring and assessment. Monenco has pioneered the combined use of these computer and environmental engineering applications and has found a ready market for such services in the Canadian west.

Monenco's involvement in Canada's first bioconversion plant, for which a large number of laboratory studies were undertaken (photo 2) and construction will be completed in 1984, holds great promise for future work throughout the world. By the time the Iotech plant is complete, Monenco will have established a solid technological edge over its competitors in the extraction of useful products from wood and other biomass (see page 5).

In a world where there is a considerable slowdown in the development of new massive energy and resources projects, the company is taking considerable care that its base of operations is broadened and its staff acquire the new, specialized skills that are becoming more and more in demand. This means, of course, the Monenco must land a greater number and variety of contracts to sustain its previous levels of activity and revenues, but the means of achieving this goal are within reach and the company's position is strong. Dedicated, talented and imaginative people will ensure that Monenco's bright promise for the future is fulfilled.



Report to shareholders

The last twelve months have been difficult ones for many of Monenco's subsidiaries and associated companies, especially those providing services in the electric utility, oil and gas, and pulp and paper fields. New major capital developments continued to be scarce both in Canada and abroad, and competition for remaining available contracts became extremely fierce, with many of them being awarded under price structures so low that resulting profits were virtually nil or even negative. Under these conditions and despite such measures as early retirements, terminations, reductions in working hours with concomitant decreases in the payroll, and drastic efforts to lower operating expenses, Monenco suffered a 35% decline in revenues to \$118,248,000 and saw its profits from continuing operations fall to \$1.00 per share from the \$1.75 earned in 1982. The regular dividend of \$0.90 per share, however, continued throughout this year.

In view of the continuing operational losses in the sliplining and pipelaying business of McCullough Associates Inc. in Tennessee and in the pulp and paper consulting business of E & B Cowan Ltd. in Montreal, it was decided to close down the McCullough operations and dispose of Monenco's minority shareholding in Cowan. The full cost of completing McCullough's existing contracts and liquidating its operations, both incurred in 1983 and anticipated for 1984, has been provided for in the 1983 accounts; these costs together with Monenco's share of Cowan's operating losses are disclosed separately. These two items amounted to \$2.53 per share and resulted in a net loss for the year of \$1.53 per share. While McCullough Associates has filed a claim in excess of \$3,000,000 with respect to one of its contracts which should go to trial in 1984, the uncertain outcome precludes any recognition of this claim in the 1983 statement of revenues.

The company now derives a larger proportion of its revenues from overseas projects, the longer payment periods for which have resulted in a greater demand for working capital; a major slowdown in payments from Nigeria has had a strong impact in this area. At the same time, Monenco must continue to invest in computer hardware acquisition and software development to

maintain and increase its market share of computer consulting assignments, particularly in North America.

Monenco Place, the new Calgary headquarters at Sixth Avenue and Seventh Street S.W. which the company owns in joint venture with Alpine Management Corporation Ltd., opened in mid-1983. Monenco's staff moved into the lower part of the tower during the year, and rental of the rest of the 28 floors is now substantially complete. Although the rental rates are not as high as had been expected at the beginning of construction, it is anticipated that a positive cash flow will be reached in 1985-86.

Summary of operations

This year's annual report includes an illustrated editorial section which discusses the company's diverse activities and highlights many of its important current assignments. For this reason, only a brief synopsis is included in the Report to Shareholders.

Canadian Projects

Major domestic assignments undertaken in 1983 by the company's principal subsidiary Montreal Engineering Company, Limited and its Canadian associates include the following:

- The Northern Canada Power Commission's 20 MW extension to the Whitehorse Rapids hydroelectric project in the Yukon Territory
- Ongoing mine studies and planning assignments for Denison Mines Limited's Quintette coal property and Petro-Canada's Monkman mine in British Columbia
- Alberta Power Limited's Sheerness thermal station and the first two 400 MW units of TransAlta Utilities Corporation's Keephills thermal plant
- Continuing work at TransAlta's two major coal mines, including the procurement and erection of a 69 m³ walking dragline at Highvale
- Ontario Hydro's 400 MW Atikokan coal-fired generating station
- Newfoundland and Labrador Hydro's 128 MW Cat Arm hydroelectric project.

Of particular interest are the activities of Monenco's marine construction affiliate Canamont Construction Inc., which landed two major contracts this year: an \$18 million port expansion project at Bécancour, Québec and an \$11 million turnkey assignment for CN Marine's new ferry docking facilities in North Sydney, Nova Scotia. Canamont has also formed St-Laurent Dredging Inc. which is currently completing the construction of a 20-inch cutter suction dredge for use on these two assignments and others.



Port extension currently underway at Bécancour, Québec.

U.S.A.

Monenco enjoyed an upswing in its American activities in 1983 which was due primarily to three types of projects. Hallmark Engineering's staff are involved in oriented strand board (OSB) mill developments for Louisiana Pacific Corporation in Colorado and for Georgia Pacific Corporation in Georgia and Arkansas; Teshmont Engineering Inc. is undertaking HVDC systems work for the Salt River Project in Arizona and Nevada and for the Western Area Power Authority's Miles City converter station in Montana; and Baymont Engineering was awarded contracts for the digitization onto CADD systems of manually-drawn telephone plant records. These projects in the southeastern United States — one for United Telephone Company of Florida and the other for Southern Bell — are just the first in what is hoped will be many similar contracts for Monenco, since the company's proprietary software is very well suited to this type of work and a strong market exists for such services worldwide.



Asia

Indonesia continued to supply the lion's share of Monenco's work on this continent in 1983, with ongoing assignments at the Suralaya power station, the Bukit Asam coal mine, the Lower Solo River Basin and Lombok Island water resource projects, and the Bank Bumi Daya Plaza in Jakarta. Other significant new assignments in Asia and the Pacific Rim include:

- The ASEAN Coal Development Project for the Asian Development Bank, a study of coal development, transportation and consumption in Singapore, Malaysia, Indonesia, Thailand and the Philippines
- Transmission line work by Teshmont for the 1000 km Gezhouba-Shanghai HVDC system in the People's Republic of China
- Five separate transmission system studies by Connell Monenco for the State Energy Commission of Western Australia.

Africa

Work continues on the 540 MW Jebba hydroelectric development, the Dadin Kowa Dam, and the Lagos thermal station (with an ultimate capacity of 1320 MW). Some other African countries where Monenco is active are:

- Egypt, where Monenco is providing design and construction supervision services on the Shoubra el-Kheima Interconnector and is involved, along with its American subsidiary Carlson & Sweatt - Monenco, Inc., in the 150 MW Abu Sultan thermal plant
- Senegal, the site of a peat inventory employing satellite tele-detection techniques undertaken by La Société d'Ingénierie Cartier Limitée
- The Ivory Coast, where Cartier is providing utility management and operations training services.

Latin America and the Caribbean

Electric utility planning, operational and engineering services were provided in Jamaica, the Cayman Islands and the Dominican Republic this year, and the Mojolka hydroelectric plant feasibility study for the Instituto Nicaraguense de Energia was completed in early 1984. Work continues on the Malaga Diversion project (part of the expansion of the Santa Isabel and Corani hydro plants) and additional coal mining studies were undertaken for the Cerrejon property's Patilla field in Colombia.

Research

Research & development activity continues with the design and construction of the Iotech pilot project, located near Ottawa, which will be used to optimize the design of a commercial-size bioconversion plant to provide fuel ethanol, lignin and other chemicals from the cellulose found in wood and other biomass. Success of the pilot operation will place Monenco in a leading position in the field of biotechnological wood conversion, able to capitalize on a potentially important market for the design and construction of similar facilities in Canada and abroad.

Egbin oil-fired thermal powerstation stack and unit 2 and 3 boilerhouse under construction near Lagos, Nigeria.

Development

In the spring of 1983, Monenco Limited acquired the Humphreys & Glasgow interest in MHG International Ltd. and subsequently established Monenco Engineers & Constructors Inc., a wholly-owned engineer/procure/construct subsidiary with an expanded range of operations which includes pipelines, oil and gas development, and utilities projects.

In response to a call for tender by the Province of Québec for an industrial waste management and disposal plant, SERDOQ Ltée (with 40% Monenco ownership) was formed and subsequently selected to design, construct, own and operate a facility for the disposal and recycling of organic waste. A prefeasibility study has been completed and discussion with the Québec Department of the Environment are ongoing. Construction could start at the end of 1984, following public hearings and granting of final approval to proceed.

Outlook

With the demand for engineering services for large projects being lower than expected at the start of the decade, Monenco has been positioning itself to meet changing market needs. With the company's current firm backlog and the acquisition of a variety of new contracts for a wide range of studies and smaller projects during the course of the year, it is felt that revenues will stabilize in 1984 and increase steadily thereafter. Monenco's efforts in new high-technology fields such as computer applications, waste management, and bioconversion are evidence of its ability to redeploy resources and to develop and take advantage of its expertise in new and growing lines of business. The dedication of Monenco's staff is encouraging during this difficult period; their knowledge and commitment to the provision of quality services to the company's clients ensures that its traditional standards of excellence are maintained.



J.K. Conrad Mulherin
President and
Chief Executive Officer




Onsite at Jebba.

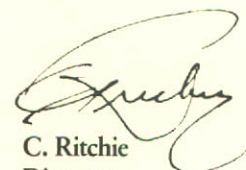
Consolidated Balance Sheet

December 31, 1983

in thousands	1983	1982
Assets		
Cash	\$ 5,733	\$ 6,715
Short term notes, deposits and marketable securities, at the lower of cost and market	7,145	13,116
Accounts receivable	46,441	53,522
Prepaid expenses	1,211	1,448
Current assets	60,530	74,801
Investments (Note 2)	1,412	871
Fixed assets (Note 3)	39,537	32,008
Goodwill	249	1,539
	\$101,728	\$109,219
Liabilities		
Bank Loans	\$ 7,718	\$ 3,943
Accounts payable	11,826	17,104
Income taxes payable	1,915	5,391
Long term debt due within one year	2,474	2,522
Deferred revenue	8,497	6,562
Deferred income taxes	4,136	9,289
Current liabilities	36,566	44,811
Long term debt (Note 4)	25,990	20,290
Deferred income taxes	3,400	1,255
	65,956	66,356
Shareholders' Equity		
Share capital (Note 5)		
Subordinate voting shares	1,662	1,662
Common shares	125	125
Retained earnings	33,985	41,076
	35,772	42,863
	\$101,728	\$109,219

Approved by the Board


 J.K.C. Mulherin
 Director


 C. Ritchie
 Director

Consolidated Statement of Income and Retained Earnings

for the year ended December 31, 1983

in thousands	1983	1982
Revenue from operations	\$118,248	\$181,369
Direct costs	74,612	118,246
Gross margin	43,636	63,123
Operating expenses	41,753	52,653
Income from operations	1,883	10,470
Interest and other income	1,613	2,389
	3,496	12,859
Provision for income taxes	582	7,761
Income from continuing operations	2,914	5,098
Losses from discontinued operations (Note 10)	7,377	—
Net income (loss)	(4,463)	5,098
Retained earnings at beginning of year	41,076	38,606
	36,613	43,704
Dividends paid	2,628	2,628
Retained earnings at end of year	\$ 33,985	\$ 41,076
Earnings (loss) per share		
Continuing operations	\$ 1.00	\$ 1.75
Discontinued operations	\$ (2.53)	\$ —
Net income (loss)	\$ (1.53)	\$ 1.75
Dividends per share on subordinate voting and common shares	\$ 0.90	\$ 0.90

Consolidated Statement of Changes in Financial Position

for the year ended December 31, 1983

in thousands	1983	1982
Source of working capital		
Income from continuing operations	\$ 2,914	\$ 5,098
Charges to income not requiring outlay of working capital:		
Depreciation and amortization	3,452	4,978
Deferred income taxes	2,145	495
Working capital provided by operations	8,511	10,571
Long term debt	5,700	9,067
	14,211	19,638
Application of working capital		
Dividends	2,628	2,628
Purchase of fixed assets	10,610	14,876
Goodwill	—	106
Losses from discontinued operations less goodwill	6,114	—
Other investments	885	565
	20,237	18,175
Increase (decrease) in working capital	(6,026)	1,463
Working capital at beginning of year	29,990	28,527
Working capital at end of year	23,964	29,990

Explanatory Notes to the Consolidated Financial Statements

1. Accounting Policies

a) The accompanying financial statements are prepared in accordance with accounting principles generally accepted in Canada and conform in all material respects with International Accounting Standards.

b) Principles of consolidation

Monenco carries on its business through subsidiary and associated companies. The accounts of the wholly owned subsidiary companies are fully consolidated with those of Monenco. Other companies, which are principally corporate and unincorporated joint ventures established to carry out specific projects or provide specialized services, are consolidated on a proportionate basis in relation to Monenco's interest therein, after eliminating inter-company charges. The Company's share of the assets, liabilities, revenues and expenses of associated companies is as follows:

in thousands	1983	1982
Current assets	\$10,827	\$17,754
Investments at cost	187	208
Fixed assets, at cost less accumulated depreciation of \$1,768 (\$2,041 in 1982)	1,694	2,037
	12,708	19,999
Current liabilities including deferred income taxes	6,218	11,095
Equity	\$ 6,490	\$ 8,904
Revenue from operations after elimination of intercompany transactions	\$30,966	\$62,027
Operating expenses	31,083	58,494
Income (loss) before provision for income taxes	\$ (117)	\$ 3,533

Earnings of foreign subsidiary and associated companies are recorded only to the extent that such earnings can be remitted to Canada.

Goodwill, being the excess of cost of shares in acquired companies over the book value of underlying assets is being amortized on a straight-line basis over 10 years.

c) Revenue determination

Most contracts for consulting and construction services are undertaken on a "cost-plus" basis, where revenues are recognized as services are rendered. When contracts of a lump sum nature are undertaken, they are accounted for on the "percentage-of-completion" basis with revenues being recognized only to the extent of the work completed. Losses, if any, are provided for in full as soon as they become apparent.

d) Income taxes

Income taxes are accounted for on a tax allocation basis.

e) Foreign currency translation

Revenue and expense are translated at the average rates of exchange for the year. Assets and liabilities are translated at the year end rates. Gains and losses from translation have been included in the consolidated statement of income.

f) Fixed assets and depreciation

Fixed assets are stated at cost. Depreciation is provided on the diminishing balance and straight-line methods at rates which are designed to amortize the carrying value of the assets over their estimated useful life.

g) Research, development and proposal costs

Research, development and proposal costs are charged to operations as incurred, except for the costs related to the development or acquisition of proprietary computer programmes which are amortized over their estimated useful life.

2. Investments

Investments include

a) Computer programmes, for which the Company receives royalties, at net amortized value, of \$766,000 (\$314,000 in 1982).

b) Other investments, primarily minority shareholdings in private development and manufacturing companies, at cost.

3. Fixed Assets

in thousands	1983	1982
Buildings, (including construction in progress in 1982)	\$23,976	\$15,315
Furniture and fixtures	6,569	6,685
Machinery and equipment	4,951	6,471
Computer equipment	9,109	7,503
Leasehold improvements	4,604	3,594
	49,209	39,568
Less: accumulated depreciation and amortization	14,884	12,841
	34,325	26,727
Land	5,212	5,281
	\$39,537	\$32,008

Land and buildings amounting to \$28,694,000 (\$19,925,000 in 1982) represent the Company's share of the cost of the Monenco Place office building in Calgary which is owned in an equal joint venture. Interest costs (1983 - \$1,799,000; 1982 - \$1,551,000) were capitalized during the development phase.

Depreciation and amortization

in thousands	1983	1982
Charged to direct costs	\$ 2,199	\$ 3,106
Charged to operating expenses	1,253	1,872
Total expense	\$ 3,452	\$ 4,978

4. Long Term Debt

in thousands	1983	1982
Term bank loans for Monenco Place office building in Calgary with interest approximating bank prime rate:		
Land	\$ 4,000	\$ 5,000
Building, secured by first charge	21,536	13,502
Other, principally loans for the purchase of equipment and obligations under capital leases, with interest rates from 12% - 14.6%	2,928	4,310
	28,464	22,812
Less: Portion included in current liabilities	2,474	2,522
	\$25,990	\$20,290

Estimated repayments of long term debt for each of the four years subsequent to 1984 are:
1985 - \$1,487,000; 1986 - \$1,180,000; 1987 - \$1,103,000 and 1988 - \$27,000

5. Share Capital

a) Authorized and outstanding
At December 31, 1983 and 1982 the share capital was:

	Authorized	Outstanding
Class A and Class B subordinate voting shares of no par value	8,000,000	2,383,802
Class X and Class Y common shares of no par value	2,000,000	536,192
Preferred shares 6% non-cumulative, non-voting, redeemable, without par value	50,000	nil

b) Rights of Subordinate Voting and Common Shares
Class A and Class B shares carry one vote per share and are interchangeable at the shareholder's option. Class X and Class Y shares carry five votes per share and are interchangeable at the shareholder's option. All shares rank equally as to dividends.

Dividends on Class B subordinate voting and Class Y common shares are paid in the form of 6% redeemable preferred shares. During 1983 an aggregate of 76,558 shares were issued, redeemed and returned to treasury for reissue.

6. Contingencies and Commitments

a) A subsidiary company is involved, with the contractor and the manufacturer, in an investigation into the design of a utility plant. Legal proceedings in respect of alleged damages and expenses amounting to \$22 million have been initiated in this matter. Counsel have advised that, in their opinion, such proceedings, if pursued, could be successfully defended.

In the normal conduct of the operations there are other pending claims by and against subsidiary and associated companies. It is the opinion of management, based on advice and information provided by legal counsel, that final determination of these claims will not materially affect the consolidated financial position or results of operations of the Company.

b) Premises utilized by subsidiary and associated companies are occupied under operating leases of various lengths not exceeding eight years duration. Minimum annual rental commitments under these operating leases for the subsequent five years amount to: 1984 - \$7,822,000; 1985 - \$7,552,000; 1986 - \$7,174,000; 1987 - \$6,581,000; 1988 - \$3,577,000.

c) At December 31, 1983 certain subsidiary and associated companies had losses which had accumulated to \$13,653,000 available to be carried forward to reduce their taxable income of future years. Of the total, \$1,180,000 will expire if not used between 1985 and 1990, and \$12,473,000 between 1992 and 1998. The potential tax benefits relating to these losses have not been reflected in the accounts.

7. Segmented Information

a) Industry segments
The Company conducts the predominant part of its business as consulting engineers and project managers.

b) Geographic segments
The geographic segmentation of the Company's business is shown in the table on page 25.

8. Remuneration of Directors and Officers

Direct remuneration paid by the Company and its subsidiaries to its 9 senior officers aggregated \$774,535 in 1983 (\$865,866 in 1982 for 10 officers). In 1983 fees of \$9,100 were paid to the directors of the Company (\$8,200 in 1982).

9. Pension Plans

Most of the Monenco companies have pension plans for their employees. All such plans are fully funded and so maintained on a current basis.

10. Discontinued Operations

In 1983 the company decided to close down a loss-making subsidiary, and effective December 31, 1983, it disposed of its shareholding in an associated company. The losses from discontinued operations include the company's share of the net losses for the year of these entities and provisions for costs to be incurred in 1984. In 1982 these operations had a net loss of \$3,096,000.

Auditors' Report

To the Shareholders of Monenco Limited:

We have examined the consolidated balance sheet of Monenco Limited as at December 31, 1983 and the consolidated statements of income and retained earnings and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the Company as at December 31, 1983 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.

Price Waterhouse
Chartered Accountants
Montreal, Canada, March 29, 1984

Ten Year Summary

Year	Revenue from operations*	Operating income*	Net income*	Operating income per share	Net income per share	Dividend per share	Book value per share	Market price (Valuation day \$3.00)	Operating income as a percentage of revenue
1974	52,617	3,491	3,596	1.20	1.23	.22½	3.79	3½-5½	6.63
1975	72,329	6,000	6,000	2.05	2.05	.30	5.55	4¾-8-1/8	8.30
1976	82,638	5,834	5,834	2.00	2.00	.33¼	7.22	7½-10-3/8	7.06
1977	95,222	5,027	5,027	1.72	1.72	.47½	8.46	6½-9½	5.28
1978	103,574	5,966	6,659	2.04	2.28	.55	10.20	8¼-14	5.76
1979	109,981	5,319	5,319	1.82	1.82	.70	1.31	10-13¾	4.84
1980	127,677	7,387	5,479	2.53	1.88	.70	12.49	11-15½	5.78
1981	176,891	6,405	6,405	2.19	2.19	.85	13.83	12½-18¼	3.62
1982	181,369	5,098	5,098	1.75	1.75	.90	14.68	9-17	2.81
1983	118,248	2,914	(4,463)	1.00	(1.53)	.90	12.25	10½-15½	2.46

*Expressed in thousands of dollars

Per share figures for 1974 and 1975 have been restated to reflect the 1976 2:1 share split

Revenue Segmentation

Geographic Segmentation of Operations

Revenue	1983		1982	
	in thousands	%	in thousands	%
North America				
Canada				
Atlantic Provinces	\$ 8,609	7.3	\$ 11,331	6.3
Central Canada	22,038	18.6	43,892	24.2
Prairies	39,848	33.7	59,000	32.5
British Columbia and Territories	3,291	2.8	8,331	4.6
	73,786	62.4	122,554	67.6
United States	11,039	9.3	28,993	16.0
	84,825	71.7	151,547	83.6
Overseas				
Africa	15,679	13.2	13,437	7.3
Caribbean and Latin America	3,017	2.6	2,302	1.3
Asia	12,866	10.9	13,596	7.5
Europe and Australia	1,861	1.6	487	.3
	33,423	28.3	29,822	16.4
	\$118,248	100.0	\$181,369	100.0
Gross Margin				
North America	\$ 30,898	70.8	\$ 51,796	82.0
Overseas	12,738	29.2	11,327	18.0
	\$ 43,636	100.0	\$ 63,123	100.0
Assets				
North America	\$ 71,390	70.2	\$ 81,102	74.3
Overseas	30,338	29.8	28,117	25.7
	\$101,728	100.0	\$109,219	100.0

Revenue by Type of Service

Revenue	1983		1982	
	in thousands	%	in thousands	%
Energy	\$ 79,763	67.5	\$ 98,180	54.1
Petrochemical	10,303	8.7	25,841	14.2
Industrial	10,374	8.8	17,881	9.8
Resource	10,470	8.8	16,037	9.0
Construction	3,135	2.6	17,011	9.4
Other	4,203	3.6	6,419	3.5
	\$118,248	100.0	\$181,369	100.0

Basis of Classification

Revenue is segregated on the basis of the location of the client. Such services may be performed in the client's geographic area and at any of the Company's offices.

Assets are segregated by physical location except for accounts receivable which are segregated by debtor.

Management's responsibility for financial statements

The financial statements of Monenco Limited have been prepared by Management in accordance with generally accepted

accounting principles currently in use in Canada.

The statements have been approved by the Board of Directors and examined by Price Waterhouse, Chartered Accountants, whose report appears on page 24. Price Waterhouse also examined the financial statements of most of the subsidiary and associated companies which are consolidated with those of Monenco. The statements of other such companies have been examined by other public accountants.

The financial and operating data elsewhere in this report are consistent with the financial statements.

Financial Review

Revenues

Revenues declined throughout the year, though showed signs of stabilization in the fourth quarter.

Revenues by quarter

in thousands	1983	1982
First	\$ 31,787	\$ 51,518
Second	30,682	46,999
Third	27,740	44,306
Fourth	28,089	38,546
	\$118,298	\$181,369

Analyses of revenues by geographic location of client and by nature of services rendered are given on page 25.

Revenues from McCullough Associates and E & B Cowan in 1982 amounted to \$21,053,000. No revenues from these operations are included in 1983 data. This is reflected in the major reductions in revenues from the Industrial and Resource sectors and from Construction.

Energy continued to be the mainstay of the operations, however, the completion of nuclear stations in Quebec, New Brunswick and Korea and thermal stations in Alberta and Ontario brought about a drop in revenues from this source.

Petrochemical revenues similarly fell with the completion of petrochemical plants in Sarnia, Ontario and of the Company's work on the Trans Quebec and Maritime Pipeline when that project was reduced in scope.

In British Columbia the continued depressed state of the forest products industry and completion of an anode paste plant for Alcan caused a significant decline in regional revenues.

Revenues from overseas sources, primarily Nigeria and Indonesia, increased from 1982 reflecting the major efforts in recent years to develop this market to compensate for the dramatic drop in demand in Canada.

Gross Margins and Operating Expenses

Gross margins on Canadian and United States operations showed slight declines in most sectors, reflecting the impact of continued extreme competitiveness throughout the industry. The 1982 figures shown on page 20 include those of McCullough Associates. Elimination of these would show a gross margin of 38.7% on North American consulting services in 1982 compared to 36.4% in 1983.

Margins on overseas operations were maintained at levels comparable to those in 1982.

Major efforts were made to control operating expenses in 1983, with considerable staff reductions in most administrative areas as well as reduced pay and working hours. However, because of fixed costs in certain areas, particularly for premises rentals, and the need to maintain a strong marketing effort, the total expense reduction was not proportionate to the decline in revenues.

Net Income

Interest income fell in 1983 as funds were deployed to finance operations and rates dropped from the peaks reached in 1982. Dividend income on portfolio investments increased in the year offsetting the absence of the gains realized in 1982 on disposal of surplus equipment.

The dividend income from Canadian corporations and a recovery in market valuation in a preferred share portfolio were not subject to income tax. Operating losses on U.S. operations are not eligible for immediate tax relief and no recognition has been given in the accounts of the future benefit of the carry-forward of some \$14,000,000 of operating losses as a shield against taxation of future income.

For 1983, however, this tax penalty was offset by reductions in the effective tax rate from research and development tax credits and settlement of the taxation of a foreign subsidiary.

Discontinued operations

McCullough Associates Inc.'s operations in construction and waste water engineering had been running at a loss in recent years since the curtailment of the environmental protection program in the United States. Work it had undertaken in related fields proved to be unprofitable and the Company has filed a claim for an amount in excess of three million dollars on one contract.

In view of this, the decision was made early in 1983 to terminate these operations. Only one significant project remained underway at December 31, 1983 and the majority of the assets have been sold. Final cessation of operations and realization of the assets is expected in late 1984 and a provision has been made for costs to be incurred.

The depressed pulp and paper industry in North America severely reduced the workload for E & B Cowan Ltd. In view of this, the Company agreed to sell its 30% shareholding to senior staff of Cowan as at December 31, 1983. The Company's share of the 1983 operating loss of Cowan and the loss on sale of the shareholding are included in the provision for loss on discontinued operations.

Segmented Information

The provision of engineering, project management and construction management services accounted for 97% of the Company's revenues.

The proportion of the Company's assets involved in overseas operations increased commensurate with revenues from these sources. The bulk of these assets are in Africa, primarily Nigeria, where the expected slowdown in payments during the 1983 elections was followed by a further, and unexpected, hiatus because of the change of government at the end of the year. This has caused a disproportionate increase in the assets tied up in this area of the world, offsetting an improvement in asset utilization in other areas.

Working Capital

Working capital fell by \$6,000,000 as, although cash flow from operations covered the dividend, funds required for capital investment and debt service exceeded borrowings. Payments under the new Canadian tax rules which further increased the extent to which tax is paid before income is received caused a significant drawdown on the Company's cash resources.

Accounts receivable showed an increase relative to revenues as the proportion of overseas work with extended payment procedures rose and, in particular, payments from Nigeria were delayed.

Short term bank loans have been used to bridge these extended payment periods.

Fixed assets and Long Term Debt

Construction of the Monenco Place office tower in Calgary was substantially completed at year-end. The Company's share of the costs reached \$28.6 million. Final costs are expected to be approximately \$30 million. \$25 million of this is being financed by a term bank loan which is to be repaid from long term financing to be arranged within five years.

Income taxes deferred by the deduction for tax purposes of depreciation and other costs relating to buildings and equipment in excess of those charged to operations are classified as a non current liability.

Share Capital

The Ontario Securities Commission, which establishes the regulations under which listing on the Toronto Stock Exchange is permitted, has required all companies having shares with differing voting rights to adopt a standard terminology. Accordingly, in conjunction with the Company's continuance under the Business Corporations Act of Alberta, the A and B shares were renamed subordinate voting shares instead of common shares and the X and Y special common shares were renamed common shares. The A and B shares continue to carry one vote per share and the X and Y shares five votes per share.

The payment of dividends on the Class B and Class Y shares in the form of redeemable preferred shares was continued throughout 1983.

Monenco Limited

Directors

Robert G. Black, Partner, Black & Company, Calgary
Alastair D. Cameron, Senior Consultant
Montreal Engineering Company, Limited, Montreal
Lawrence A. Carey, Senior Vice-President
Montreal Engineering Company, Limited, Calgary
G. Décarie, President, Canamont Construction Inc.
and Chairman of the Board, La Société d'Ingénierie Cartier
Limitée, Montreal
John S. Foster*, Vice-President
Montreal Engineering Company, Limited, Toronto
Jean-Guy Fredette, Vice-President
Montreal Engineering Company, Limited, Montreal
Robert M. Hardy, Chairman of the Board
Hardy Associates (1978) Limited, Edmonton
Albert W. Howard*, Chairman of the Board
TransAlta Utilities Corporation, Calgary
Bradley T. McManus**, Solicitor, Black & Company, Calgary
J.K. Conrad Mulherin, President & General Manager
Montreal Engineering Company, Limited, Montreal
Graham J. Pollock, President
Monenco Engineers & Constructors Inc., Calgary
Christopher Ritchie, Engineering Consultant, Calgary
G.Neville C. Rivington, Group Vice-President
Montreal Engineering Company, Limited, Montreal
Alastair H. Ross*, President, Allaro Resources Ltd., Calgary
Walter J. Smith, Group Vice-President
Montreal Engineering Company, Limited, Montreal
* Audit Committee Member
** Appointed November, 1983

Officers

J.K. Conrad Mulherin - President and Chief Executive Officer
G. Neville C. Rivington - Senior Vice-President
Walter J. Smith - Senior Vice-President
James S. Denis - Vice-President
Jean-Guy Fredette - Vice-President
Philip C. Veinot - Vice-President
H. Barrie Curtis - Vice-President
Jacques Caron - Vice-President and Secretary
Vincent P. Leahy - Treasurer
Ronald H. Leduc - Comptroller
Marcia McKenzie - Assistant Secretary

Head Office

400 Monenco Place
801 - 6th Avenue, S.W.
Calgary, Alberta

Act of Incorporation

Business Corporations Act (Alberta)

Stock Exchanges

Alberta Stock Exchange
Montreal Stock Exchange
Toronto Stock Exchange

Transfer Agent and Registrar

Montreal Trust
Calgary, Montreal and Toronto

Auditors

Price Waterhouse, Montreal, Canada

Subsidiaries

wholly owned unless otherwise indicated,
with percentage of ownership
Montreal Engineering Company, Limited
Montreal Engineering (Eastern) Limited
Monenco Nigeria Limited (60)
Montreal Engineering (Overseas) Limited
Monenco Asia (Pte.) Ltd. (90)
Monenco Australia Pty. Ltd.
Monenco Computing Services Ltd.
Monenco Consultants Limited
Monenco Consultants Pacific Ltd.
Monenco Engineers & Constructors Inc.
Monenco Inc.
Monenco Ireland Limited
Monenco Jamaica Limited
Monenco Japan Inc.
Monenco Offshore Limited (75)
Monenco Ontario Limited
Monenco Associates Limited
(formerly Monenco Overseas Limited)
Monenco Pipeline Consultants Limited
Baymont Engineering Company
Carlson & Sweatt - Monenco, Inc.
Hallmark Engineering Ltd.
Hoyles Niblock Overseas Ltd.
McCullough Associates, Inc.
Petro-Metals Recovery Systems Ltd.
SBR Offshore Limited (60)
Saskmont Engineering Ltd.
Sertel Ltée (74-1/2)
ShawMont Ltd.
ShawMont Martec Limited (76)
ShawMont Newfoundland Limited
Staff Corrosion Engineers Ltd.
Victus Consultants Ltd.

Associated Companies

(with percentage of ownership)
Both Belle Robb Limited (33-1/3)
Canamont Construction Inc. (40)
Canatom Inc. (33-1/3)
E & B Cowan Ltd. (30) (sold in 1984)
Hardy Associates (1978) Ltd. (20)
International Underwater Contractors (Canada) Ltd. (22)
Kaiser Engineers Power Corporation (20)
La Société d'Ingénierie Cartier Limitée (46)
London Monenco Consultants Limited (50)
Manecon Associates Limited (33-1/3)
Martec Limited (39)
NPM Nuclear Project Managers (Canada) Inc. (22)
St-Laurent Dredging Inc. (40)
Saskmont Engineering Company Limited (49)
ShawMont Nigeria Limited (30)
Spectrocan Engineering Inc. (25)
Teshmont Consultants Inc. (50)
Tidal Power Consultants Limited (45)
Wade Reproduction Services, Inc. (45)

