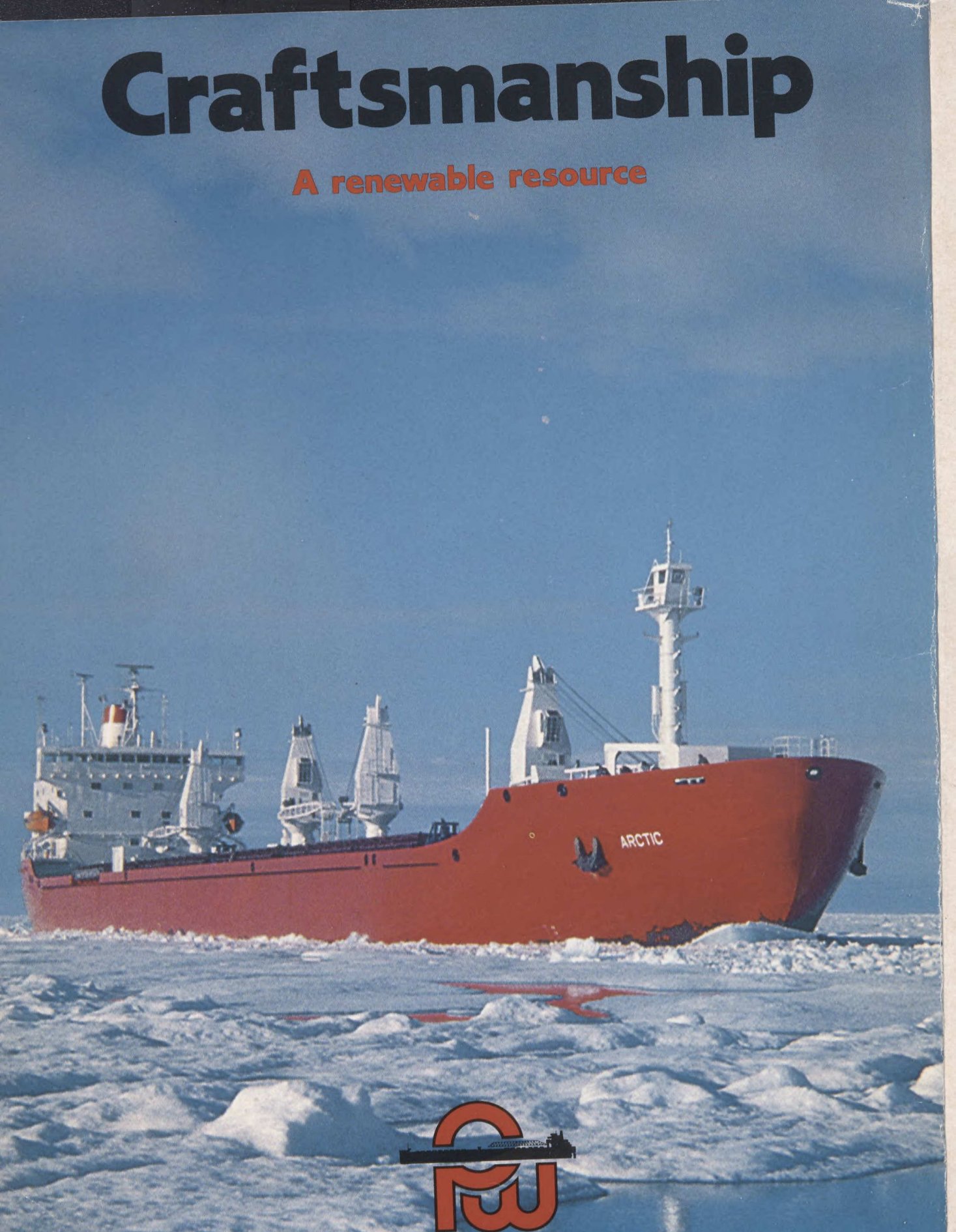
# Canadian

# Ocean Industries Directory

# Craftsmanship

## A renewable resource

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For further information call:

Ocean Industries Division
Department of Industry, Trade and Commerce
Government of Canada
235 Queen Street
Ottawa, Canada

Phone (613) 995-3201 Ext. 309
Telex 053-4124

# Canadian Ocean Industries Directory



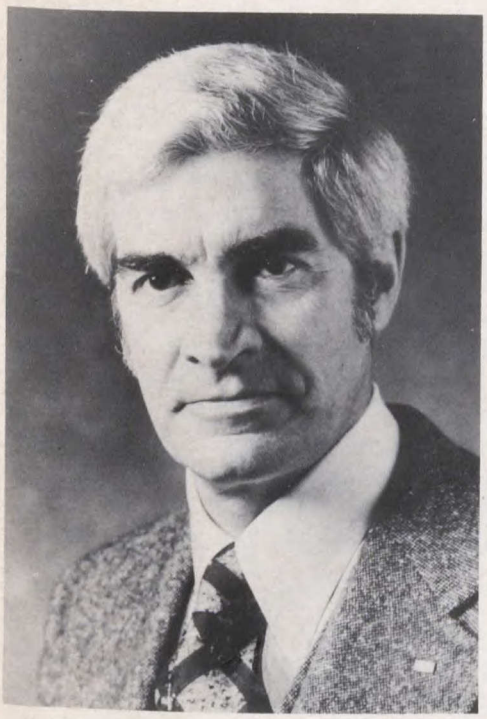
The resources of the world's oceans can only be made available safely and economically if products and services of the most advanced technology and highest quality are available. The Canadian Oceans Industry is rapidly developing its capability to respond to the challenges of the present and the future. We urge you to examine its capability and we are sure that you will be favorably impressed.

This directory outlines the capabilities of more than 225 companies which provide equipment and services to ocean industries worldwide.

Full details are provided for contacting these companies, together with the addresses of Canada's trade offices which are staffed by specialists to assist you.

You will find an alphabetical listing of companies on page four and a list of products and services on page seven. Company profiles start on page eleven and Canadian trade offices worldwide commence on page one sixty one.

# CANADIAN EXPERTISE IN OCEAN INDUSTRIES TECHNOLOGY



As the association in Canada for those companies which manufacture equipment or provide scientific or engineering services for all ocean related activities utilizing advanced technology the Canadian Ocean Industries Association welcomes the publication of this new directory of Canada's offshore capabilities in supplying goods and services for domestic and international markets.

The Ocean Industry Consultative Task Force of 1978 recommended in its report to the federal Department of Industry, Trade and Commerce that IT&C assist industry leaders who were at that time considering forming a trade association for this industry sector. The report said:

> "The rapid growth of the industry in the past decade has resulted in the emergence of numerous small specialist firms each providing their own product or service. Their small size, geographic distribution and inevitable concentration on survival and growth has tended to limit communication. The Ocean Industries Division of the Department of Industry, Trade and Commerce has provided an invaluable service in acting as a focal point and clearing house for the industry . . . but the establishment of an industry trade association actively supported by the member companies would help to draw the industry together, provide common services and give the industry a common voice."

The Department of Industry, Trade and Commerce (now the Department of Regional Industrial Expansion) acted on that recommendation and encouraged the formation of our association by a nucleus of six companies in 1980; we now number in the 30's and are aiming for the 50's as an early objective.

Another way in which IT&C assisted the industry was with the publication over a number of years of several directories which listed companies involved in ocean related work.

This directory, the newest to be published by the Department, on a co-publishing basis with the publishers of Oilweek Magazine, will be greatly welcomed because of its particular concentration in serving as a marketing tool for Canada's growing number of firms which have developed and are continuing to develop Canada's capability in the offshore oil and gas exploration industry.

The formation of our association and the appearance of this new specialized directory are parallel developments which bespeak the healthy growth of our proven ability to supply goods and services for ocean activity throughout the world, and through this pioneering Canadian spirit in far-off fields, our emerging ability to do the same for the promising oil and gas activity off our own shores.

John B. Stirling
President

# ALPHABETICAL COMPANY LISTING


AWSM Enterprises Ltd. **12**
Aanderaa Instruments Ltd. **11**
Acres Consulting Services Ltd. **12**
Acres Santa Fe Inc. **13**
Albery, Pullerits, Dickson and Associates Ltd. **14**
Robert Allan Ltd. **16**
Allied Shipbuilders Ltd. **17**
Ancient Mariner Industries Ltd. **14**
A & P Appledore Canada Ltd. **17**
Applied Microsystems Ltd. **18**
Arctec Canada **160**
Arctic Laboratories Ltd. **18**
Arctic Sciences Ltd. **19**
Armstrong Monitoring Corporation **19**
ATCO Structures Ltd. **20**
Atlantic Bridge Co. Ltd. **21**
Atlantic Marine and Diving Co. Ltd. **20**
Atlantic Towing Limited **21**
B.C. Research **22**
Balder Offshore Canada Inc. **26**
Barber Industries **26**
Barringer Research Ltd. **22**
Peter Bawden Drilling Ltd. **24**
Beak Consultants Ltd. **28**
Beaver Dredging Co. Ltd. **24**
Bedford Institute of Oceanology **26**
Bel-Aire Shipyard Ltd. **28**
Bell Aerospace Canada Textron Ltd. **29**
Bombardier Inc. **29**
Bow Valley Offshore Drilling Ltd. **30**
Bos Kalis Westminster **27**
Bristol Aerospace Ltd. **31**
John Brooke Associates **31**
Burrard Iron Works Ltd. **33**
Burrard Yarrows Corporation **32**
CCTF, a division of EMco Ltd. **33**
C-Core **36**
C-E Natco Ltd. **34**
CN Rail **34**
C-Tech Ltd. **36**
Canada Cement Lafarge Ltd. **38**
Canada Wire and Cable Co. Ltd. **37**
Canadian Fracmaster Ltd. **37**
Canadian Marconi Company **40**
Canadian Offshore Group **38**
Canadian Offshore Resources Exposition **40**
Canadian Shipbuilding and Engineering Ltd. **42**
Canadian Stone Marine Ltd. **41**
Canadian Strata Drill Ltd. **40**
Canadian Underwater Training Centre **42**
Can-Dive Services Ltd. **46**
Canflex Manufacturing Inc. **46**
CanOcean Resources Ltd. **44**
Cansim Simulators **47**
Canvil Ltd. **47**
Cape Breton Development Corporation **49 & 159**
Cape Breton Offshore Trade Association **48**
Caproco Corrosion Prevention Ltd. **44**
Caraquet Marine **48**
Carr & Donald & Associates **50**
Carrying Industries of Alberta Ltd. **50**
Cis-Can Sales (Western) Ltd. **52**
K. W. Colwell Enterprises Ltd. **54**
ComCo, The Steel Pipe Company **50**
Concord Group **59**
Cooper Energy Services Ltd. **52**
Corrosion Service Company Ltd. **54**
Cowley Consultants Ltd. **56**
Crosbie Offshore Services Limited **56**
D.G. Instruments Ltd. **62**
The Dalcor Group **56**
Davie Shipbuilding Ltd. **57**
De Havilland Aircraft of Canada Ltd. **58**
Delaval Turbine Canada **60**
Delta Projects Ltd. **59**
Dobrocky Seatech Ltd. **58**
Dominion Bridge-Sulzer Inc. **57**
Dominion Oilfields Supply Co. Ltd. **62**
Dreco Energy Services Ltd. **63**
Dunlop Industrial Ltd. **64**
Duracel Inc. **60**
Dynamic Water Conditioning Inc. **64**
EBA Engineering Consultants Ltd. **66**
EDR Management **160**
EPI Resources Ltd. **65**
Eastern Canada Towing Ltd. **65**
Falcon Engineering (1981) Ltd. **66**
Farr International (1979) Ltd. **68**

Fathom Oceanology Ltd. **68**
Fenco Consultants Ltd. **70**
Fentronics Limited **71**
Ferguson Industries Ltd. **71**
Fish International Canada Ltd. **70**
Fleet Industries **72**
Gander Development Corp. **74**
Gearmatic Co. **76**
Genstar Marine **72**
Geocon Offshore Inc. **75**
Geomarine Associates Ltd. **75**
Geonautics Limited **76**
Geoterrex Ltd. **77**
German and Milne Inc. **77**
Global Thermoelectric Power Systems Ltd. **78**
B. F. Goodrich Canada Ltd. **78**
Golder Associates **80**
Greening Donald Co. Ltd. **80**
Guildline Instruments Ltd. **82**
HMW Industries Ltd. **83**
Port of Halifax **85**
Halifax Industries Ltd.
(Dartmouth Marine Slips) **84**
Halifax Industries Ltd. (Halifax Shipyard) **82**
Hardy Associates **83**
Peter S. Hatfield Ltd. **84**
Hawker Siddeley Canada Inc.
(Trenton Works Division) **84**
John T. Hepburn Ltd. **86**
Hermes Electronics Limited **86**
Huntec ('70) Ltd. **87**
Hycon Corporation **88**
Hydraulic Systems **88**
International Submarine Engineering Ltd. **89**
Instrumar Ltd. **92**
Inter-Can 83 **93**
Internav Ltd. **94**
IRD Mechanalysis Ltd. **89**
ITT Barton Instruments **90**
ITT Blackburn Canada **90**
ITT Canada **168 IBC**
ITT Cannon Electric Canada Ltd. **91 & 167**
ITT Fluid Products Canada Ltd. **91**
ITT Grinnell **92**
J. L. Electron Ltd. **94**
JMR Instruments Canada Ltd. **96**
Jacques/McClelland Geosciences Inc. **95**
Jenkins Canada **95**
George Kelk Ltd. **97**
Kim Rig Manufacturing **96**
J. Kobelt Manufacturing Ltd. **159**
Lantec Industries Ltd. **97**
Lavalin Services Inc. **98**
Lips N. V. Canada **Inc. 98**
Lister Bolt and Chain Ltd. **100**
Log/Mate Ltd. **101**
Lummus Canada Inc. **102**
Lunenberg Foundry & Engineering Limited **100**
MAK Performance Communications Ltd. **102**
MPB Technologies Inc. **103**
MacLaren Plansearch Inc. **104**
McElhanney Surveying
and Engineering Ltd. **103**
McQuest Marine Sciences Ltd. **105**
Maloney Steel Ltd. **104**
Mar-Del Components Ltd. **106**
Marinav Corporation **107**
Marine Equipment Ltd. **111**
Marine Industries Ltd. **108**
Maritime Industries Ltd. **108**
Marsh Engineering Ltd. **106**
Marshall Macklin Monaghan
Gas and Process/Ltd. **110**
Martec Ltd. **110**
Marystown Shipyard Ltd. **112**
I. H. Mather and Son Ltd. **113**
Mesotech Systems Ltd. **113**
Morris International Trading Ltd. **113**
M.S.E. Engineering Systems Ltd. **112**
Mustang Sportswear Inc. **114**
Narwhal Marine Ltd. **115**
Government of Newfoundland **74**
Nordco Ltd. **115**
Norris Warming Canada Ltd. **114**
Norseman Shelters Ltd. **117**
Northern Rig Lites Ltd. **159**
Northwest Hydrographic Surveys Ltd. **116**
Nova Scotia
Research Foundation Corporation **116**
Nova Scotia Department of Development **119**
Novatech Designs Ltd. **118**
Offshore Photography Services **118**
Oil Mop Pollution Control Ltd. **120**
Okanagan Helicopters Ltd. **118**
Olympic Ironworks Limited **121**
Orion Electronics **120**
Polcon Corp. **122**
Porta-Test Systems Ltd. **123**

Port Weller Dry Docks **IFC**
Pratt & Whitney Aircraft of Canada Ltd. **122**
Prime Mover Controls Ltd. **123**
Pullmaster Winch Corporation **124**
Reed Tubular **125**
Remotec Remote Applications Ltd. **126**
Robb Engineering **126**
Rolls-Royce (Canada) Ltd. **124**
Rust-Oleum (Canada) Ltd. **127**
Saint John Shipbuilding and Drydock Co. Ltd. **128**
Sandisle Structures Ltd. **127**
Scan Marine Inc. **128**
Scotian Crewing and Supply Services Ltd. **132**
Seaconsult Ltd. **129**
Seaconsult Marine Research Ltd. **130**
Seabase Ltd. **135**
Seaforth Fednav Inc. **130**
Seaken Oceanography Ltd. **134**
Seaspan International Ltd. **133**
Seatec Canada Ltd. **134**
Sefel Geophysical Ltd. **133**
Shaw Pipe Protection Ltd. **135**
Seagold Industries Corporation **132**
Shawinigan Consultants Inc. **135**
Sheltech Canada **137**
Shirley Air Services Ltd. **136**
Sico Inc. **138**
Simmons Group of Companies, The **139**
Sonotek Ltd. **138**
Spilsbury Communications Ltd. **139**
Sprung Instant Structures Ltd. **140**
Stearns-Roger Ltd. **140**
Steel-Flo, a division of Vada Industries Ltd. **142**
Stevenson Hluchan Associates Ltd. **143**
SubOceans Marine Canada Ltd. **144**
Sulzer Canada Inc. **142**
Surfline Engineering Ltd. **138**
Swan Wooster Engineering Co. Ltd. **144**
Syprotec Inc. **159**
Talbot, Jackson and Associates Ltd. **145**
Techman Engineering Ltd. **144**
Techwest Enterprises Ltd. **150**
Telecommander Instruments Ltd. **148**
Teleflex (Canada) Ltd. **145**
Terra-Geoterrex **150**
Territorial Group of Companies, The **146**
Timberland Equipment Ltd. **147**
Totco Canada Ltd. **147**
Trimac Ltd. **151**
Tri-Ocean Engineering Ltd. **148**
Turbo Chemicals **151**
Vancouver Shipyards Co. Ltd. **153**
Veltom Industries Ltd. **151**
Versatile Vickers Systems Inc. **153**
Versatile Vickers Inc. **154**
Vican Pump Company of Canada Ltd. **154**
Viceroy Fluid Power **155**
Wagner Engineering Ltd. **156**
Wagner Industrial **156**
Walsh Inc. **155**
Whitman, Benn and Associates Ltd. **157**
Willowglen Systems Ltd. **157**
Wilson Machine Co. Ltd. **157**
Wire Rope Industries Ltd. **158**
Woodward Clyde Consultants **158**

# PRODUCT AND SERVICE LISTING

## Ship/Rig Builders


Allied Shipbuilders Ltd. **17**
Peter Bawden Drilling Ltd. **24**
Bel-Aire Shipyard Ltd. **28**
Bell Aerospace Canada Textron **29**
Burrard Yarrows Corporation **32**
Canadian Shipbuilding and Engineering Ltd. **42**
Caraquet Marine Industries Ltd. **48**
Davie Shipbuilding Ltd. **57**
Ferguson Industries Ltd. **71**
Halifax Industries **82 & 84**
International Submarine Engineering **89**
Kin Rig Manufacturing **96**
Lavalin Services Inc. **98**
Marine Industries Ltd. **108**
Marystown Shipyard Ltd. **112**
Olympic Ironworks Ltd. **121**
Saint John Shipbuilding and Drydock Co. Ltd. **128**
Simmons Group of Companies **139**
Vancouver Shipyards Co. Ltd. **153**
Versatile Vickers Inc. **154**


## Ship/Rig Component Manufacturers


AWSM Enterprises Ltd. **12**
Ancient Mariner Industries Ltd. **14**
ATCO Structures Ltd. **20**
Atlantic Bridge Co. Ltd. **21**
Bombardier Inc. **29**
Burrard Iron Works Ltd. **33**
CCTF, a Division of Emco Ltd. **33**
Canada Wire and Cable Co. Ltd. **37**
Canadian Shipbuilding and Engineering Ltd. **42**
Canadian Stone Marine Ltd. **41**
Canflex Manufacturing Inc. **46**
Carrying Industries of Alberta Ltd. **50**
Cooper Energy Services Ltd. **50**
Corrosion Service Company Ltd. **54**
D.G. Instruments Ltd. **62**
Delaval Turbine Canada Ltd. **60**
Dominion Bridge-Sulzer Inc. **57**
Dreco Ltd. **63**
Dunlop Industrial Ltd. **64**
Dynamic Water Conditioning Inc. **64**
Gearmatic Co. **76**
B.F. Goodrich Canada Ltd. **78**
Greening Donald Co. Ltd. **80**
HMW Industries Ltd. **83**
Halifax Industries Ltd. **82, 84**
Hawker Siddeley Canada Inc. Trenton Works **84**
John T. Hepburn Ltd. **86**
Hydraulic Systems **88**
ITT Cannon Electric Canada **91**
J. Kobelt Manufacturing Co. Ltd. **91**
Lantec Industries Ltd. **97**
Lavalin Services Inc. **98**
Lips N.V. Canada Inc. **98**
Lister Bolt And Chain Ltd. **100**
Lunenberg Foundry and Engineering Ltd. **100**
MPB Technologies Inc. **103**
Marine Equipment Ltd. **111**
Maritime Industries Ltd. **108**
Marsh Engineering Ltd. **106**
Northern Rig Lites Ltd. **106**
Norris Warming Canada Ltd. **114**
Polcon Corp. **122**
Pratt and Whitney Aircraft of Canada Ltd. **122**
Prime Mover Controls Ltd. **123**
Pullmaster Winch Corporation **124**
Robb Engineering **126**
Rolls-Royce (Canada) Ltd. **124**
Rust-Oleum (Canada) Ltd. **127**
Sico Inc. **138**
Sprung Instant Structures Ltd. **140**
Sulzer Canada Inc. **142**
Techwest Enterprises Ltd. **150**
Teleflex (Canada) Ltd. **145**
Timberland Equipment Ltd. **147**
Vican Pump Company of Canada Ltd. **154**
Wagner Engineering Ltd. **156**
Wilson Machine Co. Ltd. **157**
Wire Rope Industries Ltd. **158**


## Ocean Scientific Equipment Companies


Aanderaa Instruments Ltd. **11**
Applied Microsystems Ltd. **18**
Arctic Sciences Ltd. **19**
Barringer Research Ltd. **22**
Bristol Aerospace Ltd. **31**
C-Tech Ltd. **36**
D. G. Instruments Ltd. **62**
Fathom Oceanology Ltd. **68**
Fleet Industries **72**
Geomarine Associates Ltd. **75**

Geonautics Ltd. **76**
Geoterrex Ltd. **77**
Guildline Instruments Ltd. **82**
Hermes Electronics Ltd. **86**
Huntec ('70) Ltd. **87**
Instrumar Ltd. **92**
J. L. Electron Ltd. **94**
JMR Instruments Canada Ltd. **96**
George Kelk Ltd. **97**
MPB Technologies Inc. **103**
Mar-Del Components Ltd. **106**
Marinav Corporation **107**
Mesotech Systems Ltd. **113**
M. S. E. Engineering Systems Ltd. **112**
Nova Scotia Research
Foundation Corporation **116**
Orion Electronics Ltd. **120**
Seaken Oceanography Ltd. **134**
Seagold Industries Corporation **132**
Sonotek Ltd. **138**
Surfline Engineering Ltd. **138**
Telecommander Instruments Ltd. **148**

## Drilling System/ Component Manufacturers

Alert Manufacturing Ltd. **14**
Armstrong Monitoring Corporation **19**
Atlantic Bridge Co. Ltd. **21**
Barber Industries **26**
Peter Bawden Drilling Ltd. **24**
Canada Cement Lafarge Ltd. **38**
Canada Wire and Cable Co. Ltd. **37**
Canadian Strata Drill Ltd. **40**
Cansim Simulators Ltd. **47**
Canvil Ltd. **47**
Caproco Corrosion Prevention Ltd. **44**
Carrying Industries of Alberta Ltd. **50**
K. W. Colwell Enterprises Ltd. **54**
Concord Group **59**
Comco, The Steel Pipe Company **50**
Cowley Consultants Ltd. **56**
Delaval Turbine Canada Ltd. **60**
Dominion Bridge-Sulzer Inc. **57**
Dominion Oilfields Supply Co. Ltd. **62**
Dunlop Industrial Ltd. **62**
Dynamic Water Conditioning Inc. **64**
Falcon Engineering (1981) Ltd. **66**
Farr International (1979) Ltd. **68**
Gearmatic Co. **76**
Global Thermoelectric Power Systems Ltd. **78**
B. F. Goodrich Canada Ltd. **78**
Greening Donald Co. Ltd. **80**
Hawker Siddeley Canada Inc. **84**
John T. Hepburn Ltd. **86**
ITT Cannon Electric Canada **91**
Log/Mate Ltd. **101**
Mustang Sportswear Inc. **114**
Norseman Shelters Ltd. **117**
Northern Rig Lites Ltd. **159**
Olympic Ironworks Ltd. **121**
Reed Tubular **125**
Rolls-Royce (Canada) Ltd. **124**
Rust-Oleum (Canada) Ltd. **127**
Sico Inc. **138**
Simmons Group of Companies **139**
Spring Instant Structures Ltd. **140**
Sulzer Canada Inc. **142**
Surfline Engineering Ltd.
Techwest Enterprises Ltd. **150**
Territorial Group **146**
Totco Canada Ltd. **147**
Turbo Chemicals **151**
Vican Pump Company of Canada Ltd. **154**
Viceroy Fluid Power **155**
Wagner Industrial **156**
Wire Rope Industries Ltd. **158**

## Drilling Companies

Bow Valley Offshore Drilling Ltd. **30**
Simmons Group of Companies **139**
Trimac Ltd. **151**

## Transportation Companies

Atlantic Bridge Co. Ltd. **21**
Atlantic Towing Ltd. **21**
Balder Offshore Canada Ltd. **26**
CN Rail **34**
Crosbie Offshore Services Ltd. **56**
De Havilland Aircraft of Canada Ltd. **58**
Eastern Canada Towing **65**
Gander Development Corporation **74**
Genstar Marine **72**
Port of Halifax **85**
I. H. Mather and Son Ltd. **113**
Okanagan Helicopters Ltd. **118**
Scotia Crewing and Supply Services Ltd. **132**
Seabase Ltd. **135**
Seaforth Fednav Inc. **130**
Seaspan International Ltd. **133**
Shirley Air Services Ltd. **136**
Simmons Group of Companies **139**
Trimac Ltd. **151**

## Management Companies and Management Consultants


Acres Consulting Ltd. **12**
Acres Sante Fe Inc. **13**
Albery, Pullerits, Dickson and Associates Ltd. **14**
A & P Appledore Canada Ltd. **17**
Canadian Offshore Group **38**
Carr and Donald & Associates **50**
The Dalcor Group **56**
EPI Resources Ltd. **65**
Lavalin Services Inc. **98**
Lummus Canada Inc. **102**
Marshall Macklin Monaghan Gas and Process Ltd. **110**
Tri-Ocean Engineering Ltd. 148


## Consultants — Scientific


Arctic Laboratories Ltd. **18**
Arctic Sciences Ltd. 19
B.C. Research **22**
Centre for Cold Ocean Resource Engineering **36**
The Dalcor Group **56**
Dobrocky Seatech Ltd. **58**
EBA Engineering Consultants Ltd. **66**
EPI Resources Ltd. **65**
Fence Consultants Ltd. **70**
Geocon Offshore Inc. **75**
Golder Associates **80**
Jacques/McClelland Geosciences Ltd. **95**
Lavalin Services Inc. **98**
MacLaren Plansearch Inc. **104**
Martec Ltd. **110**
Nordco Ltd. **115**
Scan Marine Inc. **128**
Seaconsult Ltd. **129**
Seaconsult Marine Research Ltd. **130**
Seaken Oceanography Ltd. **134**
Woodward Clyde Consultants **158**


## Consulting/Engineering — Marine Facilities


Acres Consulting Services Ltd. **12**
Acres Santa Fe Inc. **13**
Albery, Pullerits, Dickson and Associates Ltd. **14**
Robert Allan Ltd. **16**
A & P Appledore Canada Ltd. **17**
Arctic Sciences Ltd. **19**
B.C. Research **22**
Beaver Dredging Co. Ltd. **24**
Bos Kalis Westminster **27**
John Brooke Associates **31**
Centre for Cold Ocean Resources Engineering **36**
Canadian Stone Marine Ltd. **41**
CanOcean Resources Ltd. **44**
Carr & Donald & Associates **50**
Corrosion Service Company Ltd. **57**
The Dalcor Group **56**
EBA Engineering Consultants Ltd. **66**
EPI Resources Ltd. **65**
Falcon Engineering (1981) Ltd. **66**
Fathom Oceanology Ltd. **68**
Fenco Consultants Ltd. **70**
Geocan Offshore Inc. **75**
German and Milne Inc. **77**
Golder Associates **80**
Peter S. Hatfield Ltd. **84**
Jacques/McClelland Geoscience Inc. **95**
Lavalin Services Inc. **98**
MacLaren Plansearch Inc. **104**
Marshall Macklin Monaghan Gas and Process Ltd. **110**
Martec Ltd. **110**
Nordco Ltd. **115**
Sandisle Structures Ltd. **127**
Scan Marine Inc. **128**
Seaconsult Ltd. **129**
Seaconsult Marine Research Ltd. **130**
Stevenson Hluchan Associates Ltd. **143**
Surfline Engineering Ltd. **138**
Swan Wooster Engineering Co. Ltd. **144**
Talbot, Jackson and Associates Ltd. **145**
Techman Engineering Ltd. **144**
Tri-Ocean Engineering Ltd. **148**
Versatile Vickers Systems Inc. **153**
Whitman, Benn and Associates Ltd. **157**
Woodward Clyde Consultants **158**


## Consulting/Engineering — Oil


Acres Consulting Services Ltd. **12**
Acres Santa Fe Inc. **13**
Albery, Pullerits, Dickson and Associates Ltd. **14**
A & P Appledore Canada Ltd. **17**
Barber Industries **26**
Peter Bawden Drilling Ltd. **24**
CanOcean Resources Ltd. **44**

Delta Projects Ltd. **59**
Fenco Consultants Ltd. **70**
Geocan Offshore Inc. **75**
Golder Associates **80**
Peter S. Hatfield Ltd. **84**
Lavalin Services Inc. **98**
Marshall Macklin Monaghan
Gas and Process Ltd. **110**
Martec Ltd. **110**
Nordco Ltd. **115**
Seaconsult Ltd. **129**
Seaconsult Marine Research Ltd. **130**
Stevenson Hluchan Associates Ltd. **143**
Swan Wooster Engineering Ltd. **144**
Talbot, Jackson and Associates Ltd. **145**
Techman Engineering Ltd. **144**
Tri-Ocean Engineering Ltd. **148**
Woodward Clyde Consultants **158**

## Consulting/Engineering — Environment

Acres Consulting Services Ltd. **12**
Acres Sante Fe Inc. **13**
Arctic Laboratories Ltd. **18**
Arctic Sciences Ltd. **19**
Beak Consultants Ltd. **28**
Centre for Cold Oceans
Resource Engineering **36**
Dobrocky Seatech Ltd. **58**
Geocon Offshore Inc. **75**
Lavalin Services Inc. **98**
MacLaren Plansearch Inc. **104**
Martec Engineering **110**
Seaconsult Marine Research Ltd. **130**
Seaconsult Ltd. **129**
Stevenson Hluchan Associates Ltd. **143**
Techman Engineering Ltd. **144**
Woodward Clyde Consultants **158**

## Oil Pollution Clean-up Companies

Marine Equipment Ltd. **111**
Morris International Trading Ltd. **113**
Oil Mop Pollution Control Ltd. **120**

## Ocean Surveys

Arctic Laboratories Ltd. **18**
Arctic Sciences Ltd. **19**
Bedford Institute of Oceanography **26**
Can-Dive Services Ltd. **46**
Dobrocky Seatech Ltd. **58**
EBA Engineering Consultants Ltd. **66**
Geomarine Associates Ltd. **75**
Geonautics Ltd. **76**
Geoterrex Ltd. **77**
MacLaren Plansearch Inc. **104**
McElhanney Surveying and Engineering Ltd. **103**
McQuest Marine Sciences Ltd. **105**
Marinav Corporation **107**
Marshall Macklin Monaghan
Gas and Process Ltd. **110**
Martec Ltd. **110**
Nordco Ltd. **115**
Northwest Hydrographic Surveys Ltd. **116**
Remotec Remote Applications Ltd. **126**
Sefel Geophysical Ltd. **133**
Sheltech Canada **137**
Trimac Ltd. **151**
Whitman Benn
and Associates Ltd. **157**
Woodward Clyde Consultants **158**

## Communications and Navigation

Canadian Marconi Company **40**
Canadian Offshore Group **38**
Fentronics Ltd. **71**
Internav Ltd. **94**
JMR Instruments Canada Ltd. **96**
Mar-Del Components Ltd. **106**
Marinav Corporation **107**
Novatech Designs Ltd. **118**
Sheltech Canada **137**
Spilsbury Communications Ltd. **139**

## Construction Companies — Marine Facilities

Atlantic Marine and Diving Co. Ltd. **20**
Beaver Dredging Co. Ltd. **24**
Bos Kalis Westminster **27**
Seatec Canada Ltd. **134**
SubOceans Marine Canada Ltd. **144**

## Diving Service Companies

Atlantic Marine and Diving Co. Ltd. **20**
Can-Dive Services Ltd. **46**
Canadian Underwater Training Centre **42**
International Submarine Engineering Ltd. **89**
Narwhal Marine Ltd. **115**
Seatec Canada Ltd. **134**
SubOceans Marine Canada Ltd. **144**

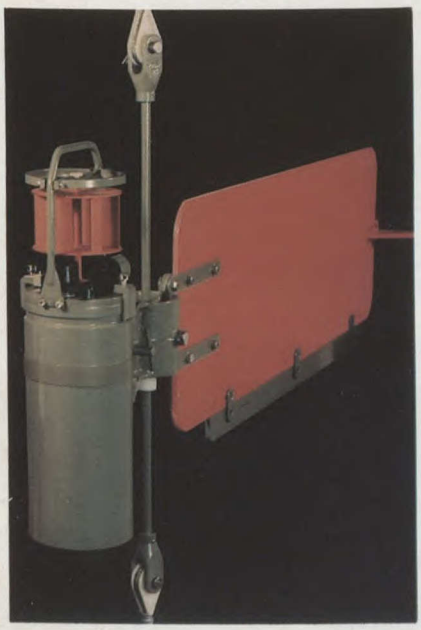
# AANDERAA INSTRUMENTS LTD.

**560 Alpha Street**
**Victoria, B.C.**
**V8Z 1B2**
**Phone: (604) 386-7783**
**Telex: 049-7390**
**Contact: Mrs. Gail Gabel, managing director**

Aanderaa Instruments Ltd. is a manufacturer of oceanographic, meteorlogical and ancillary equipment and provides a sales and service centre for Aanderaa Instruments, Norway.

The company maintains an extensive spare parts inventory and calibration laboratory facility in Victoria, and a broad range of data translation services are available.

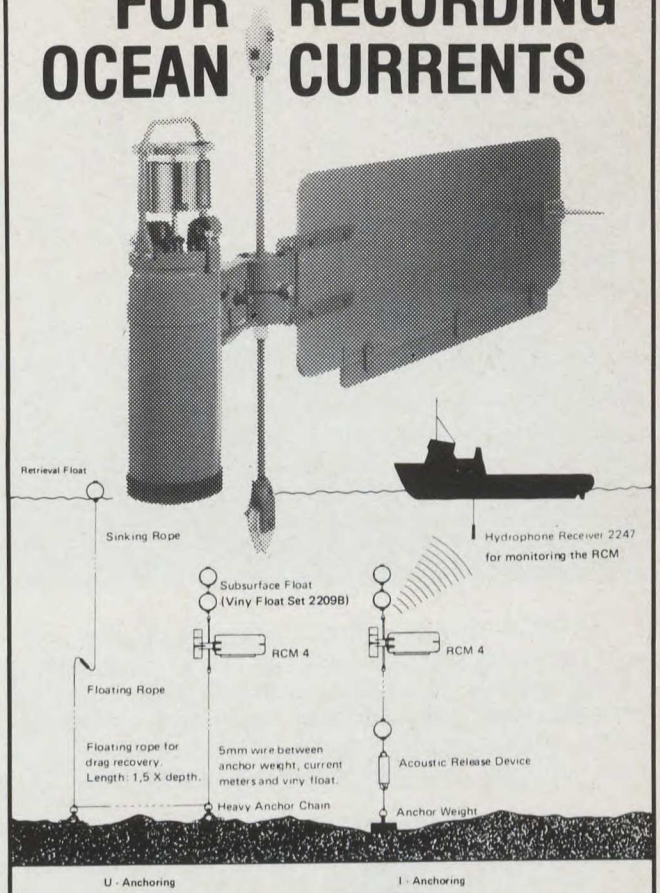
The RCM-4, a recording current meter, and the WLR-5, a water level recorder, have been adopted for use by many of the world's most prestigious oceanographic organizations, oil companies, universities and consulting companies. There are currently in excess of 7,000 Aanderaa recording current meters in operation throughout the world.



The Aanderaa name has become synonymous with quality instrumentation and the Canadian corporation has an excellent reputation in the industry for its reliability and strong customer support. The company currently maintains a world-wide market and has a customer base that continues to increase steadily in both the public and private sectors.

## World-wide proven reliability

# FOR RECORDING OCEAN CURRENTS




## RECORDING CURRENT METER MODEL 4

**A simple, self contained unit for recording speed, direction and temperature of ocean currents. Pressure and conductivity sensors optional.**

Accuracy is essential when recording data on ocean currents, and the Aanderaa RCM 4 and 5 have proven their reliability. Over 7,000 of these instruments are in use world-wide.

The RCM 4 works at any depth to 2,000 meters. The high pressure version, RCM 5, will operate to a maximum depth of 6,000 meters.

For a demonstration of this simple, effective unit, just call or write. Aanderaa maintains an extensive inventory of spare parts as well as service and calibration facilities conveniently in Canada.

**AANDERAA INSTRUMENTS LTD.**

560 Alpha St., Victoria, B.C. V8Z 1B2
Telephone (604) 386-7783 Telex: 049-7390
**Data collecting instruments for land, sea and air**

# AWSM ENTERPRISES LTD.

**3905 Leman Blvd.**
**St. Vincent de Paul**
**Laval, Que.**
**H7E 4V7**
**Phone: (514) 661-9140**
**Telex: 05-25624**
**Contact: Raymond B. Dery,**
**president**
**Jean Brunet,**
**sales manager**


AWSM Enterprises is engaged in manufacturing shipbuilding equipment, machine parts, sheet metal and platework. Design and engineering is available to meet the specifications of all governing agencies and it has full quality control systems to CSAZ 299.3, MIL-I-45208, DND 1015 and DOT.

Specialties include bollards, single or double light and heavy duty towing bracket and cruciform towing bollards, cleats fabricated and plate fairleads. Multi roller fairleads 3-4-5-6 rolls, roller guide, single, double or triple plate or channel base mounted, pedestal roller conical and base.

Hatches W.T. with coaming or flush with deck preloads, fans hatches, escape all size with dogs drop bolts or quick acting spring loaded mechanism, oil hatches swing cover with ullage sight glass and wipers. Door W.T. with dogs or quick acting mechanism operable from both side. Metallic furniture and other cabin components.

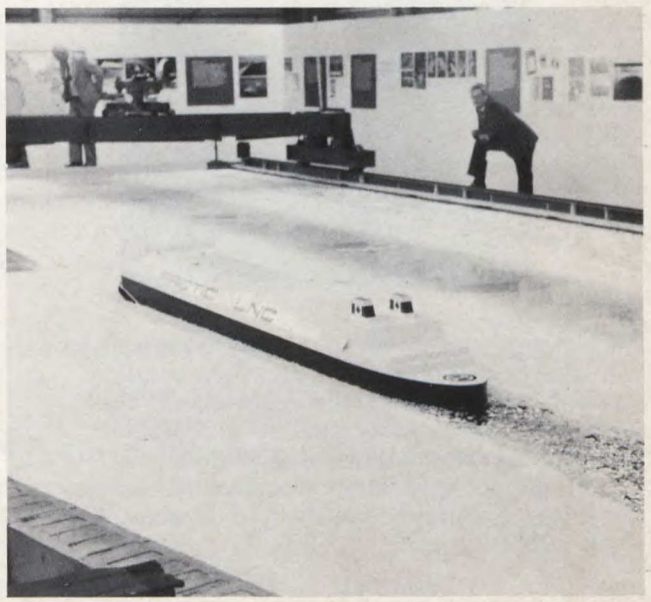
# ACRES CONSULTING SERVICES LTD.

**480 University Avenue**
**Toronto, Ont.**
**M5G 1V2**
**Phone: (416) 595-2000**
**Telex: 06-217815**
**Contact: D. B. Sampson**
**R. G. Tanner**

Acres Consulting Services Ltd. is a wholly staff owned Canadian company with offices across Canada and throughout the USA. The company has been providing worldwide services for marine projects of all kinds since its inception in 1924. Services include economic and shipping analyses, conceptual planning, feasibility studies, site investigations, design and construction supervision and overall project management.

Acres laboratories have facilities for model testing of complex hydraulic systems, testing for wave action and tidal currents, model studies of navigation channels and ice modelling to study the effects of ice on marine and hydraulic structures. Full computer services are available on an in-house basis.

The company has performed an economic analysis for the port of Oshawa, a British Columbia ferry study, designed and supervised the construction of three floating ports in the Amazon River and studied, designed and supervised construction of dry dock and shipyard expansions in Saint John, Vancouver and the Caribbean.



# ACRES SANTA FE INC.

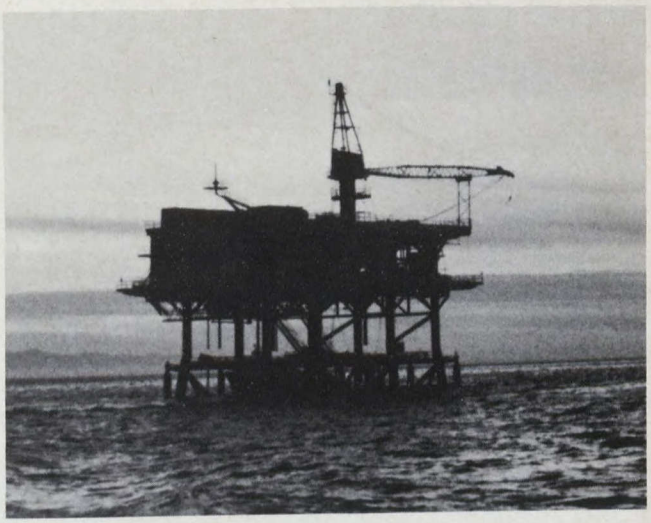
**10201 Southport Rd. S.W.**
**Calgary, Alta.**
**T2W 4X9**
**Phone: (403) 253-9161**
**Telex: 03-825582**
**Contact: J. S. Parke**
**A. B. Cammaert**

Acres Santa Fe Inc. is a Canadian company providing consulting services for Canadian offshore oil and gas development.

The company is backed by the expertise of Acres Consulting Services Ltd. and Santa Fe International, and provides engineering and management services for the offshore industry based on the world-wide and Canadian offshore experience of Santa Fe and Acres.

Acres Santa Fe provides management services covering all phases of project planning, cost control and monitoring and construction.

Laboratory facilities are available for hydraulic, ice and thermal modelling and environmental and geotechnical studies. Complete computer services are provided in-house.



The company has undertaken many world-wide projects, including supplying planning and scheduling specialists for the Beaufort Sea development, designing mooring facilities for supply vessels in McKinley Bay and analyses of semi-submersible rigs for Arctic conditions.

## ALERT MANUFACTURING LTD.

**1475 East Georgia St.**
**Vancouver, B.C.**
**V5L 2A9**

**Phone: (604) 253-6322**

**Contact: David Smith,**
**general manager**
**William Lowe,**
**president**

Alert Manufacturing Inc. has introduced a one-size-fits-all metalized plastic suit specifically designed for hypothermia prevention. The Alert Emergency Cold Weather Survival Suit consists of a hooded jacket and pants with self-adhesive strips down the front of the jacket, and around the neck, wrists, waist and ankles, sealing in the critical heat-loss areas of the body. The metalized finish of the plastic reflects back body heat and the plastic material reduces convective heat loss.

Hypothermia prevention, plus high visibility and mobility afforded by the Alert Emergency Cold Weather Survival Suit make it a virtual necessity for anyone who might be exposed to cold, wet, or other harsh weather conditions, be it for occupation, or rescue purposes.

The Alert Emergency Cold Weather Survival Suit is packaged in a plastic pouch measuring about 7″ × 9″ × 1″, and weighs in total only about six ounces.

## ALBERY, PULLERITS, DICKSON AND ASSOCIATES LTD.

**29 Gervais Drive**
**Don Mills, Ont.**
**M3C 1Y9**

**Phone: (416) 446-1425**
**Telex: 06-966717**

**Contact: Bruce Forrest,**
**vice-president**

With extensive experience in marine and offshore technology, Albery, Pullerits, Dickson and Associates Ltd. (APD) offers comprehensive consulting engineering and project management services on a worldwide basis in the economic, technical and construction aspects of marine, Arctic and offshore projects.

APD has been closely involved in the planning, design and construction of docks, harbors, port facilities, marine terminals and other related operations, and has undertaken numerous studies and projects for the oil and gas industry, many related to offshore development in the Beaufort Sea and Arctic Islands.

Recently, the firm completed the design of a steel caisson-retained artificial island for the Beaufort Sea, the design was a result of research undertaken jointly with the client. Extensive involvement in fabrication, towing and setting in place will follow.

At present, the firm is undertaking the design and construction supervision of the expansion of the St. John's dockyard.

## ANCIENT MARINER INDUSTRIES LTD.

**15 East Second Ave.**
**Vancouver, B.C.**
**V5T 1B3**

**Phone: (604) 872-86.**
**Telex: 04-54222**

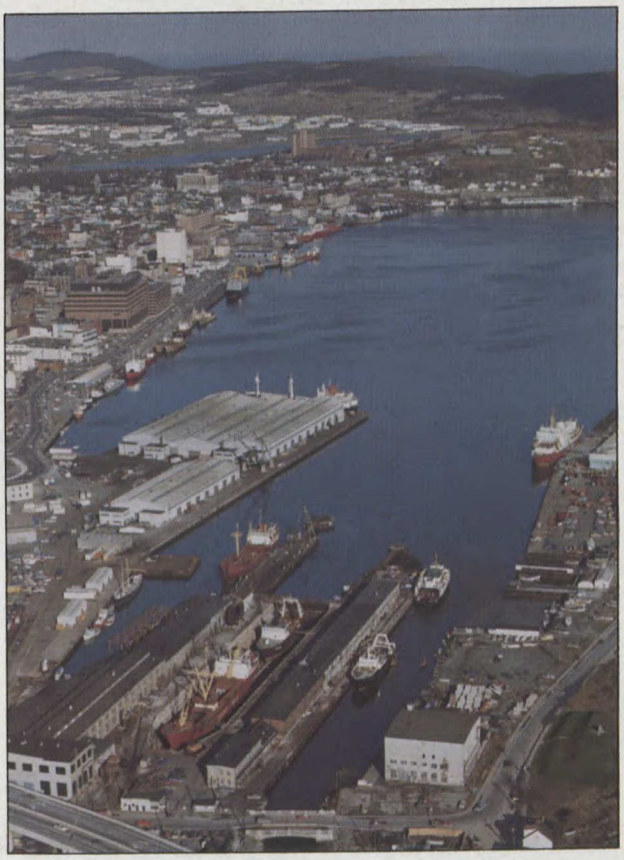
**Contact: Ross Taylor,**
**manager, Industrial Division**

Ancient Mariner Industries Ltd. manufactures different converted products made of industrial fabrics and rope, which include marine covers, tank liners, specialized tarps and oil booms, as well as helicopter nets, rope ladders and other related products.

The company also manufactures an industrial flotation vest that has become a standard in the marine industry and is used extensively by workers in offshore oil fields. The vests are MOT approved and are designed for comfort as well as durability.


**Caisson-Retained Sand Island**
This facility represents a breakthrough in off-shore technology . . . the result of many years of joint development and research with the client.

**Point Tupper Oil Terminal Wharf**
Erected in 100 feet of water and designed to berth tankers of 326,000 dwt, loading and off-loading 100,000 barrels of oil per hour. Equipped with the most up-to-date oil handling equipment.



**Newfoundland Dock Yard**
Expansion of this facility to include a ship-lift, three repair berths, a side transfer facility and a tie-up pier is presently under way as a joint venture project.

ALBERY, PULLERITS, DICKSON & ASSOCIATES
CONSULTING ENGINEERS
29 Gervais Drive-Don Mills, Ontario M3C 1Y9
Telex: 06-966717 Tel: (416) 446-1425
Toronto • Fredericton • Yellowknife • Cornerbrook • Sudbury

APD

# ROBERT ALLAN LTD.

**1496 West 72 Ave.**
**Vancouver, B.C.**
**V6P 3E2**
**Phone: (604) 266-6285**
**Telex: 04-55435**
**Contact: R. G. Allan, president**
**H. F. Muhlert, general manager**

Robert Allan Ltd. is a design consultancy organization which has been serving the marine communities of Canada and many other countries for over 50 years.

The company provides complete ship design, marine consultancy and marine engineering services to ship owners and shipyards alike, with a particular emphasis on those aspects of marine work where requirements are of an unusual or innovative nature.

Other services offered include shipyard construction supervision, scheduling and quality control, preparation of detailed working drawings, transportation economic analyses, special studies, marine consultancy to the legal profession and model and full-scale testing programs.

Vessel types designed by Robert Allan Ltd. cover a broad range, with special emphasis on the unusual. Recent designs include a 4,500 hp quadruple screw Arctic tug with an extremely shallow draft, a 15,000 hp Arctic Class 4 supply vessel, under construction for the 1983 season, a 2,500 hp harbor tug with azimuthing propellers, a catamaran-hulled seismic drilling barge and several hydrographic survey launches.

# ALLIED SHIPBUILDERS LTD.

**1870 Harbor Road**
**North Vancouver, B.C.**
**V7H 1A1**

**Phone: (604) 929-2365**
**Telex: 04-352612**

**Contact: T. A. McLaren,**
**president and general manager**
**J. D. McLaren,**
**shipyard manager**

Allied Shipbuilders Ltd., established in 1948, is a compact yard building to original designs or customer requirements.

Facilities at the yard, located at the mouth of Seymour Creek, include a 122 m building berth with 60 tonne and 35 tonne crane capacity. Shops are equipped for the prefabrication of steelwork and piping, and include a joiner shop, machine ship and electrical shop. Two floating drydocks, of 750 tonne and 250 tonne capacity, provide adequate facilities for ship repairs, maintenance and modifications.

Vessels constructed by the shipyard include tugs, barges, fishing vessels, ferries and river and lake crafts. The yard is also involved in the fabrication of vessels for use in the offshore oil industry, and to date, had placed 21 vessels in operation, most in the Beaufort Sea and MacKenzie River area. Currently under construction are two 6,000 hp anchor handling tugs, destined for use in the Beaufort by Arctic Transportation Ltd. The yard is capable of turning out up to 10 vessels per year.

# A & P APPLEDORE CANADA LTD.

**103, 9203 Macleod Trail South**
**Calgary, Alta.**
**T2H 0M2**

**Phone: (403) 252-4312**
**Telex: 03-821925**

**Contact: Mervyn Hargroves,**
**president**
**Anthony Manchinu,**
**manager**

A & P Appledore, with offices in Calgary and Halifax, offers management, design engineering and consultancy services to shipyards, shipping companies, oil companies and others to assist them in maximizing the use of Canadian facilities and skills.

The company has earned a reputation as one of the world's leading companies in the field of shipyard development, and has taken part in major shipyard projects in South Korea, Singapore, Peru, Argentina and Venezuela. The South Korea experience included participation in the development of the Hyundai Shipyard, recognized as the pace-setter in world shipbuilding and the largest in the world.

In Canada, the company has worked in 15 shipyards, for Canadian oil and gas and shipping companies, as well as for the federal and a number of provincial governments.

A & P Appledore's strength lies in a group of highly-qualified individuals whose combined experience covers all technical and commercial aspects of shipyard operation for both new building and ship repair work. The company also maintains close links with various organizations, including agents and engineering consultants in a number of foreign countries.

# ARCTIC LABORATORIES LTD.

**Box 2630**
**Inuvik, N.W.T.**
**X0E 0T0**
**Phone: (403) 979-3595**
**Telex: 034-44521**
**Contact: David J. Thomas**
**Paul Erickson**

Arctic Laboratories Ltd. maintains a well-equipped analytical laboratory in Inuvik, capable of carrying out a wide range of analyses from routine tests of water quality to sophisticated examinations for a number of trace pollutants.

The company provides a variety of services in chemical, physical and biological oceanography, and is able to provide an interdisciplinary approach to problem solution, a necessity in many oceanographic applications. The company offers a full range of services from identification of problem sources, study design and implementation through to data analysis and interpretation. The firm also maintains a wide range of field equipment in support of the services if offers, and is therefore able to conduct independent surveys throughout the Arctic region through all seasons.

The chemical oceanographic section of Arctic Laboratories provides some of the best commercially available expertise in Canada, and has carried out a number of studies for the National Research Council. The physical oceanographic section carries out a number of studies relating to current and wave parameters, and has undertaken a full physical oceanographic study of the southeast section of the Beaufort Sea.

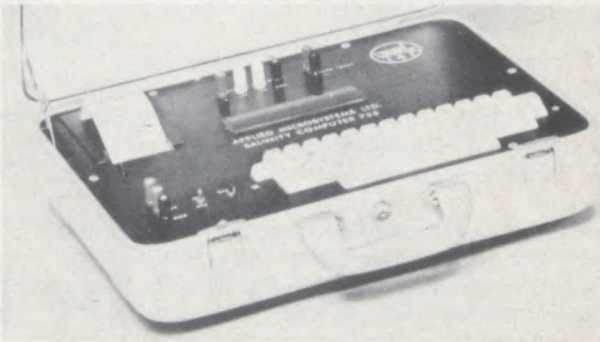
# APPLIED MICROSYSTEMS LTD.

**2035 Mills Road**
**Sidney, B.C.**
**V8L 3S1**
**Phone: (604) 656-0771**
**Telex: 049-7181**
**Contact: Lawrence Lambert,**
**president**
**Gail Brown,**
**office manager**

Applied Microsystems is an electronics engineering company specializing in the research, design and manufacture of specialized oceanographic and geophysical instrumentation. The company occupies its own 743 $m^2$ building which houses both an R&D facility and a large production area.

The standard products include instruments for measuring and recording ocean tides, waves, currents, temperatures and salinities. As the majority of these products pertain to the physical oceanographer, Applied Microsystems maintains several precise secondary transfer standards for the calibration of temperature, pressure and salinity. Other special facilities include a pressure testing tank, seawater circulator and several hot and cold environmental chambers. Instrument calibration and test data and customer field data can be processed on in-house computing facilities.

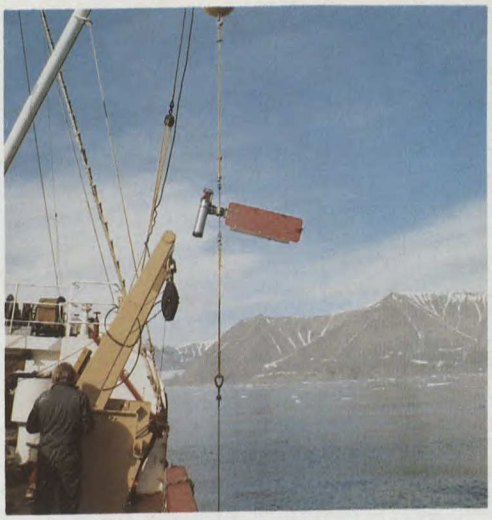
The core staff of the company includes electronics engineers and technicians, specializing in the design and development of unique measurement and control circuitry.



Applied Microsystems has sales agencies in Canada, the USA, England, Norway, Japan, India, Germany, France and Australia.

# ARCTIC SCIENCES LTD.

**1986 Mills Road, R.R. #2**
**Sidney, B.C.**
**V8L 3S1**
**Phone: (604) 656-0177**
**Telex: 049-7282**
**Contact: D. B. Fissel,**
**head oceanographer**
**J. R. Marko,**
**director remote sensing**



Arctic Sciences Ltd., specializes in consulting, rental and data processing/analysis services pertaining to the physical marine environment. Its clients are associated with resource-based industries and federal and other government agencies which require information for operational, design and impact assessment purposes.

Although the larger portion of its research programs have been carried out north of 60°N, Arctic Sciences maintains a substantial and growing level of activity in more temperate waters. Completed projects include literature reviews, experimental and equipment designs and fabrications, instrument installation and recoveries, data processing and analyses and the production of sophisticated oil spill and impact models. Company participation in a project may begin at the earliest conceptual stages and carry through to the production of final technical reports and/or environmental impact statements. Surface-based and remote-sensing techniques are often used in conjunction to enhance the quantity and quality of information obtained on the marine, sea ice and atmospheric environmental components. Rentals may be arranged on both short and long-term basis for standard oceanographic and meteorological data gathering systems and accessories.

Arctic Sciences has compiled a distinguished record of data and equipment recovery under the most rigorous operating conditions. This record reflects both the experience and care of its staff and the wisdom of maintaining contact with the state-of-the-art technologies in instrument design, deployment and corrosion protection. The recent acquisition of a Digital Equipment Corp. PDP 11/24 minicomputer has greatly reduced turnaround times for data processing and analysis and has expanded capabilities for more extensive and complex modelling efforts.

# ARMSTRONG MONITORING CORPORATION

**215 Colonnade Road South**
**Nepean, Ont.**
**K2E 7k3**
**Phone: (613) 225-0120**
**Telex: 05-34895**
**Contact: Lawrence J. Armstrong,**
**president**

Armstrong Monitoring, with a complete line of gas detectors and gas monitoring systems, currently exports directly to four major foreign markets, and a number of others through the USA.

The corporation manufactures gas detectors and monitoring systems for toxic and combustible gases associated with offshore and onshore petrochemical and industrial industries.

The company is a Canadian operation with its total manufacturing facilities in Canada and its head office in Nepean.

Armstrong is exporting 10 distinct products — four portable monitoring units and six permanent or fixed systems. Two of the portable units are designed for pocket use and detect the presence of toxic or combustible gases. One of the pocket units also checks for oxygen deficiency.

The other two portable units are monitors as well as detectors, and provide readings in lel or ppm. Both also have variable alarm settings with visual and audio alarms and are powered by 110 volts AC or internal rechargeable batteries.

Armstrong Monitoring can also supply racks, rack cabinets, calibration kits and spare parts and service.

# ATCO STRUCTURES LTD.

**5115 Crowchild Trail SW**
**Calgary, Alta.**
**T3E 1T9**
**Phone: (403) 246-6200**
**Telex: 038-22852**
**Contact: W. Kmet**
**S. Wong**

ATCO pioneered the concept of heavy-duty transportable workforce structures for industrial development in the early 1950's, and since then, the company has grown rapidly as the search for energy spreads to the remote frontiers of the world. In addition to maintaining the world's largest fleet of transportable buildings for sale in Canada, the United States and Australia, ATCO has a total of one million square feet of production space. In a recent year, the output of these factories is estimated to have been enough to provide living space for 100,000 workers and storage space for all necessary equipment.

ATCO and its many world-wide subsidiaries, is finding a growing need for its buildings as community, institutional and commercial structures as well as workforce housing. Major contracts for supply of such structures as schools, hospitals and offices are being received from the rapidly expanding countries of the Middle East, North Africa, Asia and South America.

ATCO maintains 60 sales and service offices around the world — throughout Canada, the USA, Australia and in Europe and Saudi Arabia. Repair parts and service are available for all ATCO products as well as those of many of ATCO's competitors.

# ATLANTIC MARINE AND DIVING CO. LTD.

**500 Beaverbrook Court**
**Fredericton, N.B.**
**E3B 5X4**
**Phone: (506) 455-3720**
**Telex: 014-46208**
**Contact: John McFadzen,**
**general manager**
**Ernest McFadzen,**
**president**

Formed in 1970, Atlantic Marine and Diving is a privately owned, 100% Canadian company. When founded, the intention was to provide a company capable of handling all aspects of underwater services, particularly for the eastern Canadian ocean industry. These services included, but were not limited to, diving, installation, inspection and design of specialized underwater machinery.

In more than 10 years the company has taken part in many east coast projects, including the inspection of a 21 kilometre power line linking Prince Edward Island to New Brunswick in the summer of 1977.

Besides providing inspection services, Atlantic Marine and Diving is equipped to carry out pipeline trenching operations, installation of underwater pipelines, concrete repairs to dams, piling repairs, underwater core sampling operations, drilling and blasting, power cable installation, dredging and video inspection.

The company owns and operates a fleet of marine construction equipment that is, by and large, highway transportable.

# ATLANTIC BRIDGE CO. LTD.

**P.O. Box 1120**
**Lunenburg, Nova Scotia**
**B0J 2C0**
**Phone: (902) 634-8821**
**Telex: 019-21654**
**Contact: D A. Eisenhauer**
**M. A. Eisenhauer**

Abco has been involved in the petroleum industry since the advent of offshore exploration on the east coast of Canada in 1970. The Abco group now has seven divisions with activities ranging from manufacturing fibreglass products to shipbuilding and land development.

The divisions are Abco Offshore Services Ltd., headquartered in St. John's, Newfoundland, an associate company formed to marshall the various areas of expertise of all Abco divisions into a comprehensive package.

Abco has experience in straightening drill pipes, collars and kelleys and the inspection of magnaflux and magnaglow and hobbing equipment for the remanufacture of tool string pipe.

Abco Offshore Services Ltd. has a joint venture agreement with Tidewater Marine Services of New Orleans, Louisiana, owner of one of the world's largest fleet of supply boats, to act as Tidewater's sole agent for supply vessels in Eastern Canada. Short to long term charters are available as well as individual job contracts, Abco Manufacturing is one of the largest centralized metal fabrication and machining facilities in Nova Scotia.

Production ranges from manufacturing catwalks and platforms for oil refineries to installing and servicing diesel generating plants up to 3,000 HP. Dartmouth Machine, a division, introduced one of the first patented emergency release mechanisms for drilling rigs at sea. This "Weakline" design allowed rigs to release from the ocean floor without assistance from supply ships when threatened with icebergs.

Abco Plastics is one of Canada's largest exporters of FRP pipe with the principal market in the area of corrosion and abrasion resistant piping and spray systems for flue gas desulfurization at large thermal generating plants.

# ATLANTIC TOWING LIMITED

**33 Hanover Street**
**Saint John, N.B.**
**E2L 3G1**
**Phone: (506) 652-3540**
**Telex: 014-47518**
**Contact: Rio St. Amand,**
**general manager**
**Cecil S. Brownell,**
**operations manager**

Atlantic Towing, with its fleet of ocean tugs ranging to 7,200 BHP is foremost in its ability to provide towing and barging services in Canada's remote regions. With the development of petroleum and mineral resources along Canada's east coast and high Arctic, the challenge to provide sophisticated marine transport services has never been greater. Atlantic Towing has acquired a definite expertise in fulfilling the demand for marine services created by Canada's offshore resources development. Experience from operations along the coast of Labrador, throughout the Davis Strait and north to Melville Island has established a keen awareness of hazards these environments present.

Operating an extensive fleet of ocean, coastal and harbour tugs, Atlantic Towing has served the marine transport needs of eastern Canada and the United States for nearly three decades. The ability to meet numerous marine services reflects Atlantic Towing's diversity. In addition to towing services, we provide petroleum and asphalt barging, deck load transport, salvage and dredging operations.

Atlantic Towing is headquartered in the ice-free harbour of Saint John, N.B. with a branch office in Halifax, N.S. From Canada's east coast, Atlantic Towing's fleet has convenient access to all major North Atlantic shipping routes, including the Arctic, Caribbean and coastal Europe.

Responding to industry demand, Atlantic Towing has, by way of its flexibility to accommodate change, developed a leading industry profile. With our primary objective of fulfilling the diverse marine transport needs of our clients, we welcome the challenge of the future and invite you to share a portion of that challenge with us.

# B.C. RESEARCH

3650 Wesbrook Mall
Vancouver, B.C.
V6S 2I2
Phone: (604) 224-4331
Telex: 04-507748
Contact: G. N. Stensgaard,
manager, Ocean Engineering Centre
George Roddan,
research officer

B.C. Research is the technical operation of a non-profit independent society, the British Columbia Research Council. B.C. Research conducts research, development and other technical work under contract to sponsors, both in industry and government.

The Ocean Engineering Centre offers ship model testing and related services to both Canadian and foreign naval architects and ship builders. Dozens of commercial test contracts have been successfully completed on vessels ranging from fishing boats to offshore drilling rigs.

Housed in spacious quarters are a towing tank 67 m × 3.6 m × 2.4 m deep, a shallow water basin of the same dimensions and a manoeuvering basin 30 m × 27 m × 2.4 m deep. A manned towing carriage with a top speed of 4.85 m/s serves both the towing basin and the shallow water basin. The towing carriage is fully instrumented to measure forces, moments and accelerations, and is equipped with manual and computerized data acquisition systems. The manoeuvering basin is equipped with overhead cameras for recording definitive manoeuvers by remote-controlled models.

Typical model test programs include resistance tests, wake surveys, sea-keeping tests, flow-visualization and towed directional-stability tests. Full-scale extrapolations from model data are done quickly and efficiently on an in-house mini-computer.

# BARRINGER RESEARCH LTD.

304 Carlingview Drive
Rexdale, Ont.
M9W 5G2
Phone: (416) 675-3870
Telex: 06-989183
Contact: Gaetan Aube,
commercial product sales
J. H. Davies,
vice-president

Now in its twenty-first year of operation, Barringer Research is an acknowledged leader in the research and development of instrumentation for the earth sciences.

In parallel with its extensive R&D activities, the company expanded into manufacturing and selling the end products of its research and has now acquired an established and versatile line of commercially available instrumentation. One important part of the company's commercial products is the line of proton precession magnetometry systems. Indeed, Barringer Research was a pioneer in the initial development of proton precession magnetometers and has been manufacturing such systems since the early 1960s.

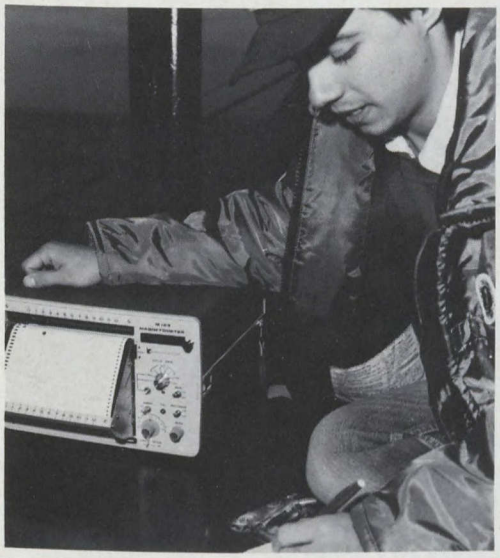
The model M123-1 recording magnetometer is a good example of the state-of-the-art of this field. The M123-1 is a one-gamma sensitivity proton precession instrument which features portability, ease of operation and requires a low capital expenditure.

The marine systems, SM123-1 shallow marine and DM123-1 deep marine oceanographic systems, have a wide range of applications including mineral and petroleum exploration, geological and geophysical surveys and search, salvage and treasure-hunting.

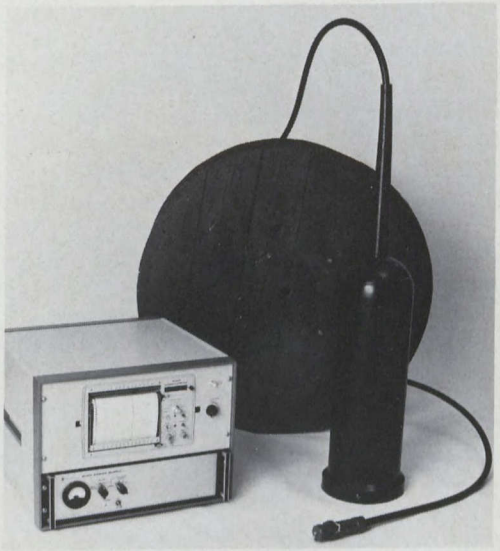
# BARRINGER MARINE MAGNETOMETERS

## HAVEN'T YOU DONE WITHOUT ONE LONG ENOUGH?

TWO MAGNETOMETER SYSTEMS ARE AVAILABLE FOR MARINE APPLICATIONS



**SHALLOW MARINE MODEL SM123**



**DEEP MARINE MODEL DM123**

### SYSTEMS FEATURES

- One gamma accuracy and sensitivity
- Worldwide range capabilities
- Wide selection of cycling rates and chart speeds
- HP 7155B chart recorder
- BCD output
- Power requirements. 12 to 30 V DC
- Non-directional, noise-cancelling, toroidal sensors
- Low-overall system cost

### TYPICAL APPLICATIONS

- Search and salvage
- Treasure hunting
- Pipeline and cable detection and location
- Well head recovery
- Pre-excavation surveys
- Geophysical and hydrographic exploration
- Oceanographic and archeological research

UNITS AVAILABLE FOR SALE AND/OR RENTAL

*THE BARRINGER GROUP*

304 CARLINGVIEW DRIVE
REXDALE, ONT. M9W 5G2
TEL: (416) 675-3870
TELEX: 06-989183

1626 COLE BLVD. SUITE 120
GOLDEN, COLO. 80401
TEL: (303) 232-8811
TELEX: 00-45810

# PETER BAWDEN DRILLING LTD.

**2750 - 400 - 4th Ave. S.W.**
**Calgary, Alta.**
**T2P 0J4**
**Phone: (403) 265-1511**
**Telex: 038-22694**
**Contact: Ron Parsons,**
**contract manager**

Peter Bawden Drilling has grown, since it was established in 1952, to a full capability international drilling contractor with some 1,600 employees and 50 land and fixed platform drilling rigs, with offices in Houston, Dyce, Scotland, Singapore, California and Guatemala. Bawden teams have fulfilled the drilling project management and engineering needs of many major operators.

The company has led the way offshore mobilizing men and drilling rigs in Australia's Bass Strait, the Java Sea, Persian Gulf, Pacific Ocean and the North Sea. Bawden can quickly mobilize state of the art rigs manned by capable crews and backed by an experienced management team. It has the ability to provide labor, maintenance and training assistance anywhere in the world and can not only export technical expertise, but also develop human resources in any host country in which it drills.

Bawden is ready to take on a wide range of construction projects from conventional rig platforms to slant rigs to mammoth semisubmersibles. It maintains the full engineering capability to design drilling packages, including conventional, slant or heli transportable land/platform rigs and its worldwide team carries the "know how" needed to evaluate any type and class of offshore drilling and logistical support systems.

# BEAVER DREDGING CO. LTD.

**200, 145 King Street West**
**Toronto, Ont.**
**M5H 1J8**
**Phone: (416) 368-1135**
**Telex: 06-218418**

Beaver Dredging was established in Canada in 1957 when it undertook a major reclamation project for the expansion program of the Steel Company of Canada. Since then, the company has worked in the Upper St. Lawrence River in hard materials and offshore Saint John, N.B., for harbor construction and improvement, with the majority of its work being concentrated in Canada's offshore industry.

The company is the world's pioneer contractor in the development of offshore vessels and techniques for the construction of artificial islands used in the exploration of oil and gas in the Canadian Arctic. The concept and design of these islands was developed by the company's marine engineers in co-operation with Canadian clients, and since 1975, Beaver has constructed a series of island platforms, including Issungnak, 26 km offshore Tuktoyaktuk, in the Beaufort Sea.

Beaver is also heavily involved in sea bottom excavations, sea bedrock trenching, submarine pipeline installation, soil investigations and hydrographic surveys and feasibility studies.

Beaver is associated with the Royal Boskalis Westminster group of companies, and has access to a global technology and expertise base.


BAWDEN DRILLING
Drillers to the World.
When you build a worldwide reputation, you build it on performance. Since 1952, Bawden has come through with flying colors. Our international team has successfully taken on the toughest climates and conditions in countries around the world. Offshore and onshore.
If we're not flying your colors, call us today.
BAWDEN
Peter Bawden Drilling Ltd.
P. O. Box 5900
Edmonton, Alberta, Canada T6C 4G5
(403) 955-8861
Telex: (037) 3672
Calgary, Alberta • Houston, Texas • Dyce, Aberdeen, Scotland • Mount Sophia, Singapore • Garden Grove, California • Ciudad de Guatemala, Guatemala
BAWDEN

# BEDFORD INSTITUTE OF OCEANOGRAPHY

**P.O. Box 1006**
**Dartmouth, N.S.**
**B2Y 4A2**
**Phone: (902) 426-3681**
**Telex: 01-931552**
**Contact: Clive Mason**
**R. Gilbert**

The Bedford Institute of Oceanography (BIO), established in 1962, conducts oceanographic studies and hydrographic surveys in marine environments that range from the continental shelves of eastern Canada to the eastern Arctic and from the Gulf of St. Lawrence to the deep ocean.

A joint effort of three federal government departments, including fisheries and oceans, energy, mines and resources and environment, BIO provides an extensive series of data bases and in-house expertise for companies which are working, or contemplating working, in any of Canada's east coast waters or in the Arctic.

The largest single program at the BIO involves the charting of all navigable waters off the east coast in the Arctic regions. Over 350 navigational charts are on file and the institute is constantly monitoring tides, tidal currents and water levels to update the maps.

In addition, the BIO is currently conducting long-term research to determine the course of future resource and environmental management. This research, and the information it generates, will also form the basis for future governmental decisions related to technological, environmental, resource and political issues pertaining to the marine environment.

# BARBER INDUSTRIES

**P.O. Box 5280, Station A**
**Calgary, Alta.**
**T2H 2P3**
**Phone: (403) 279-7511**
**Telex: 038-25721**
**Contact: Hugh Hunter,**
**sales supervisor**
**D. J. Eastcott,**
**vice-president marketing**

Barber Industries operates one of the largest metal fabricating and machining facilities in western Canada with plants in Calgary and Edmonton. It offers a complete design, engineering and fabrication service to the petroleum, petrochemical, exploration and mining industries.

Barber was founded in 1939, expanded in 1945 and again in 1978, when it moved to its current head office and manufacturing location in Calgary.

In 1966 it diversified into mining products with the manufacture of rotary deck bushing, blade stabilizers and floating cushion subs. In 1979 it started manufacturing the Dual 12/24 rotary water well drilling rig.

Barber manufactures a complete line of well-heads to 10,000 psi, sulphur handling systems, helicopter refueling systems for drilling platforms and remote land sites, compressor packages, aircraft support equipment and production control equipment.

Barber's policy of diversification and continued expansion have been bold steps, but it is backed by years of experience and engineering and manufacturing expertise.

# BALDER OFFSHORE CANADA INC.

**P.O. Box 3550 South**
**Halifax, N.S.**
**B3J 3J3**
**Phone: (902) 429-5680**
**Telex: 019-21771**
**Contact: Harry I. Mathers,**
**president**
**Louis M. Homes,**
**vice president**

Balder Offshore Canada is a Canadian company engaged in chartering offshore supply vessels to the oil industry. It has four 1,650 ton supply and diving support vessels with 5,480 bhp, four 8,000 bhp anchor handling tugs/supply boats and two barges.

# Total Project Capability

## Advanced Offshore Activities

**Beaver Dredging Company Ltd**
Dredging and land reclamation. Submarine pipeline covering and stabilisation. Iceberg scour protection. Rig ballasting. Arctic islands. Sea bottom excavations and overburden removal. Related submarine surveys and site investigations.

**Westminster Land & Marine Pipelines Ltd**
Submarine pipe laying and burial. S.P.M. installation. Estuary and river pipeline crossings. Shore approach pipeline/cable installation. Effluent outfalls. Feasibility and design studies. Underwater rock trenching.

**Pe Ben Pipelines (1979) Ltd***
Cross-country pipelines. Compressor station pipelines. Dehydration plant pipelines. Meterruns. Tankfarm pipelines.

*An Associate Company

**Associated Companies:**
Hydronamic bv Osiris-Cesco bv
Marine Structure Consultants (MSC) bv
HVA Holland Agro Industries bv Petrogas bv

# Beaver Dredging Company Ltd

York Centre, 145 King Street West, Toronto, Canada, M5H 1J8
Tel: (416) 368 1135 Telex: 06-218418

Royal Boskalis Westminster nv
International Divisions: Dredging—Offshore and Pipeline—Construction—Engineering

# BEL-AIRE SHIPYARD LTD.

**1667 Columbia Street**
**North Vancouver, B.C.**
**V7J 1A5**
**Phone: (604) 985-8781**
**Telex: 043-52678**
**Contact: George Forbes,**
**general manager**
**Elijah Horner,**
**operations manager**

Bel-Aire Shipyard is a medium-sized shipbuilding company strategically located in the ice-free waters of Vancouver Harbor, one of the leading ports on the Pacific coast of North America.

Bel-Aire has diversified skills and experience which enable it to service and supply the requirements of the offshore exploration, drilling and research industries. A number of vessels, some of sophisticated construction, have been supplied to companies engaged in these activities in several areas of the world.

Bel-Aire lists among its contracts the construction of offshore service vessels, ranging in size from 55 metres in length with 2,250 bhp propulsion to 70 metres in length with 6,000 bhp propulsion to 70 metres in length with 6,000 bhp propulsion. These vessels were destined for use in waters offshore the United States, Great Britain, Brazil and Canada.

The company is also involved in the construction of seismic research vessels designed for shallow water and Arctic conditions, deep sea tugs for towing and placement of platforms in the North Sea, and drill ship supply vessels specially strengthened for work in the Arctic and capable of landing on beaches and unloading via a hinged ramp.

In addition to new construction, Bel-Aire is also equipped to carry out minor ship repairs or major conversions.

# BEAK CONSULTANTS LTD.

**Suite 120, 10751 Shellbridge Way**
**Richmond, B.C.**
**V6X 2W8**
**Phone: (604) 273-1601**
**Telex: 04-357721**
**Contact: Noel Boston,**
**Gary Nieminen**

Beak Consultants Ltd. is a multi-disciplinary environmental consulting firm which has provided service to industry and government since 1955.

Initially, Beak specialized in aquatic biology and chemistry, but the need for integrating the expertise of a broad range of professional disciplines became apparent as environmental and resource management problems increased in complexity and importance.

In 1962, the company expanded to include biologists and engineers in the fields of air and water pollution detection, analysis and treatment. These services have been applied to the pulp and paper, mining, chemical, petroleum and food processing industries, to name but a few. In 1970, Beak expanded again to include expertise in such fields as renewable resource planning, energy research and oceanography, and facilities now include a full range of analytical laboratories, computer facilities, survey boats and field equipment.

Regional offices have been established throughout Canada, and through Beak's association with the Sandwell group, outlets have been set up throughout the world. To date, Beak and other members of the Sandwell group of companies have completed over 3,500 studies in Canada and 75 other countries.

# BELL AEROSPACE CANADA TEXTRON
## A division of Textron Canada Ltd.

**P.O. Box 160**
**Grand Bend, Ont.**
**N0M 1T0**

**Phone: (519) 238-2333**
**Telex: 064-7268**

**Contact: John B. Timbrell, managing director**
**James G. Mills, marketing director**

A unique high-speed cargo amphibious carrier is now in quantity production at Bell Aerospace Canada Textron headquarters at Grand Bend, Ont.

Known as the LACV-30 (Lighter, Air-Cushioned Vehicle, 30 short ton payload), the craft was developed jointly by the Canadian government and Bell Aerospace, and is being produced for the US Army Mobility Equipment Research and Development Command.

On water, the craft can travel at speeds of up to 100 km/h, and is equally capable of travel over land, snow, ice, marshes, swamps and low brush. On its cushion of air, it can easily ride over 1.5 m obstacles, and can operate safely and efficiently in waves of up to 2.5 m.

With a payload capacity of 26.8 tonnes (30 tons), the vehicle is capable of carrying both wheeled and tracked vehicles, engineering equipment and barrels. The craft can be used to land cargo at 70% of the world's beaches, compared to the 17% currently accessible by conventional cargo craft, and because it can unload on land, water-damaged cargoes can be eliminated.

The LACV-30 is nearly 25 m long and 13 m wide, and has a normal cruising speed of about 75 km/h. The craft can be carried on open deck supply vessels, and can be offloaded in minutes.

# BOMBARDIER INC.

**Rail and Diesel Products Division**
**1505 Dickson Street**
**Montreal, Que.**
**H1N 2H7**

**Phone: (514) 253-7333**
**Telex: 05-828841**

**Contact: Bruno Beauchamp**

Bombardier Inc. is one of the three major North American locomotive manufacturers, and is known throughout the world for its locomotive designs and construction.

Since 1948, Bombardier has produced some 3,000 diesel locomotives, 30% of which have been for delivery overseas. Besides producing diesel locomotives for the railways of the world, Bombardier has the capability to build and service diesel engines for marine and power generation applications. For example, the Model 251 marine diesel has a proven track record of durability and versatility in sea-going, on-shore and other specialized applications, and has been used successfully to power icebreakers, tugs, ferries, dredges, floating cranes and oil rigs.

The company provides technical liason for all its products and maintains service representatives throughout North and South America, as well as in Africa, Europe, Asia and Australia.

# BOW VALLEY OFFSHORE DRILLING LTD.

1600, 321 - 6 Ave. SW
Calgary, Alta.
T2P 2V8
Phone: (403) 231-1341
Telex: 03-824684
Contact: H. W. Popoff,
vice-president
K. J. Smallwood,
manager

Bow Valley Offshore Drilling Ltd. owns and operates one semi-submersible drilling vessel, the Bow Drill 1, and is currently building two more semi-submersible drilling vessels. One is the AKER H3.2 design being built in New Brunswick and the second will be an Enhanced Pacesetter design to be built in Norway.

All three vessels will be classified to operate worldwide in water depths of up to 460 m. These vessels are ideally suited to working in rough seas such as the North Sea and the eastern Canadian waters and all the vessels have a drilling capacity of 7 600 m.

Bow Valley has gained experience as an offshore operator in the North Sea where it successfully operated the Odin Drill for a period of four years. Early in 1981 the company decided to re-enter the offshore drilling industry and purchased the Bredford Dolphin which was subsequently renamed the Bow Drill 1. This vessel has operated in the Irish Sea and off the coast of Spain. Bow Drill 1 is currently drilling off the east coast of Nova Scotia for a consortium headed by Petro-Canada.

# BRISTOL AEROSPACE LTD.

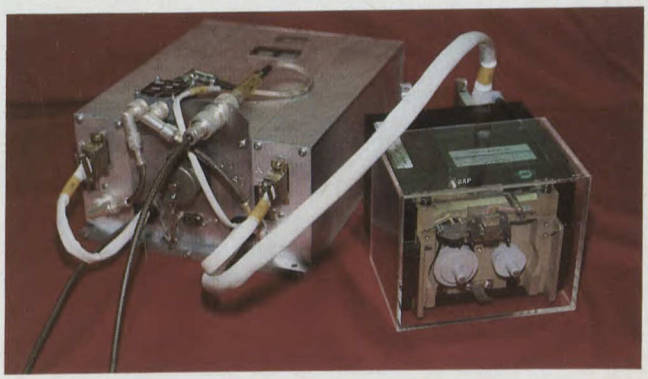
**P.O. Box 874**
**Winnipeg, Man.**
**R3C 2S4**
**Phone: (204) 775-8331**
**Telex: 07-57774**

Bristol Aerospace staff of 1,450 people combine the skill, craftsmanship and years of experience required to produce a variety of products on which the company has built a world wide reputation. Skilled technicians, supported by a dedicated engineering staff and a quality assurance group, form a team the produces a range of sophisticated products.

Bristol's objectives are simple: to provide customers around the world with quality products produced in a cost effective manner, delivered on schedule, and meet their specific requirements.

For 15 years, Bristol Aerospace has been involved in the development, fabrication and flying of instrumented payloads on its' own Black Brant rockets. From this experience grew the capability to provide both satellite and ground based data systems and components with outstanding reliability under severe environmental conditions.

Bristol Aerospace has a team of some 20 electrical engineers experienced in the development of micro-processor based data collection systems. Using proven building blocks for data acquisition, data processing, telemetry and data storage, Bristol engineers can readily configure an instrument package with the special software and interfaces to meet the wide variety of ocean and land applications. The final systems are built and tested by technicians, who are trained in and work to NASA standards.



A rugged, low power, automatic weather station is now being supplied to Canada's atmospheric environment service. This system has electromagnetic interference (EMI) protection and would be suitable for use on a drilling ship or drilling rig, or at any remote, unattended site that is located close to potential EMI.

# JOHN BROOKE ASSOCIATES

**24 Flamingo Drive**
**Halifax, N.S.**
**Phone: (902) 443-2932**
**Contact: John Brooke**

John Brooke Associates offers the conceptual design and development of unique mechanisms to suit difficult environments. These include complete drawings, specifications and personnel guidance of manufacture. The assembly and/or review of feasibility studies and other advisory services in ocean engineering, including the selection and use of related shipborne equipment and management of large projects, is also undertaken.

The principal has many years experience associated with the fields of civil, aeronautical and nuclear engineering and spent 18 years at an institute of oceanography carrying out a variety of projects, including the development of new and unique oceanographic tools to management of large development programs with industry.

The emphasis is on the application of practical mechanical design and engineering to the research, development, construction and testing of new equipment and instrumentation for ocean work.

Experienced associates in other fields of ocean science and engineering are available to research, investigate and design other related ocean work such as physical and chemical oceanography, together with experts in acoustic and electronic devices.

# BURRARD YARROWS CORPORATION

**P.O. Box 86099**
**North Vancouver, B.C.**
**V7L 4J6**
**Phone: (604) 687-8636**
**Contact: Jack McCaugherty**

Burrard Yarrows, the largest shipbuilder and ship repairer on Canada's west coast, has played a key role in recent years in Arctic exploration and transportation.

With two shipyards, the corporation has handled many contracts to build and convert ships for offshore exploration in the Arctic, and is capable of building vessels up to 150 m long. The shipyards, located in Victoria and in Vancouver, have undertaken a variety of ship conversions, including the outfitting of a drill ship and the lengthening of a geophysical vessel, and both are actively involved in the construction of ice-class vessels.

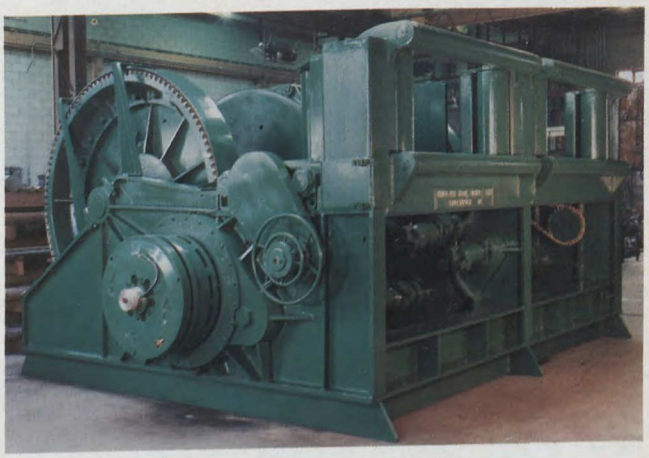
The Vancouver yard is well-placed to service vessels using the busy ports of the British Columbia coast and has available drydocking facilities of up to 36 000 tonnes lift.

The Victoria yard is well-positioned to service vessels entering or leaving the USA ports of Seattle and Tacoma, and makes use of the government graving dock adjacent to the yard.

Industrial engineering work, including heavy steel fabrication is also undertaken by both yards, which have a full range of machine shop facilities and provide expertise suitable for the building of offshore production equipment modules.

# BURRARD IRON WORKS LTD.

220 Alexander Street
Vancouver, B.C.
V6A 1C1
Phone: (604) 684-2491
Telex: 04-508574
Contact: R. M. Brown,
sales manager
D. G. Alexander,
office manager



Burrard's heavy-duty winches meet the strenuous requirements of all-weather, deep sea towing, and its horizontal and vertical anchor windlasses, mooring capstans and towing winches are custom-designed to meet international standards as well as customers' specifications. Special features may be incorporated or dimensional limitations accommodated with little or no additional cost while still maintaining delivery schedules.

Towing winches (single or multi-drum) range in size from models that store 300 m of 25 mm wire to those stowing 1 110 m of 76 mm wire. Multi-drum models are side by side or waterfall, with a choice of drives — hydraulic, electric or diesel.

Horizontal anchor windlasses or vertical anchor capstans can be supplied for use with stud link anchor chains ranging from 19 mm to 100 mm in diameter with hydraulic or electric drives.

Mooring capstans with gearboxes above or below deck, with hydraulic or electric drives, range in size from 30 cm to 91 cm diameter warping barrels. Single or double drum mooring winches in various sizes can be supplied with manual or automatic controls.

# CCTF, A DIVISION OF EMCO LTD.

23 Buckingham Street
Toronto, Ont.
M8Y 2W2
Phone: (416) 252-5432
Telex: 06-984534
Contact: Peter Seybold,
vice-president and general manager
John Wynn,
assistant general manager

CCTF, formerly Canadian Clyde Tube Forgings Ltd., is the largest supplier of welding fittings and flanges to Canadian industry.

The newly-expanded machine shop operation in Toronto provides CCTF with the capability to machine butt weld fittings and flanges up to 1.06 m in diameter. Multi-spindle automatic bar machines have recently been installed to machine high pressure fittings from bar stock up to 6.35 cm in diameter. A separate section of the machine shop is devoted to the production of small quantities of custom-designed fittings and flanges from either carbon steel, stainless steel or a wide range of alloys.

The full line of CCTF products can be grouped into four divisions, including carbon steel fittings and flanges, forged steel fittings for high pressure applications, stainless steel fittings and flanges and malleable and cast iron fittings.

CCTF has supplied materials for numerous critical piping projects both in Canada and around the world. Its products serve a wide range of industries, including shipbuilding and offshore drilling rigs.

# CN RAIL

**P.O. Box 8100**
**Montreal, Que. H3C 3N4**
**Phone: (514) 877-0211**
**Telex: 02-25256**
**Contact: John Sturgess,**
**vice-president, marketing**
**Don Poirier,**
**general sales manager, overseas markets**

Canadian National operates a comprehensive transportation network which includes one of North America's largest railway systems. CN Rail, the largest operating division of the company, has 35 000 km of mainline between the Atlantic and Pacific coasts, connects directly south into key USA markets and has the best access to the resource-rich northern reaches of Canada.

CN Rail has years of experience in handling the shipment of high-technology equipment and loads of unusual shape or dimension. The railway provides a complete dimensional load service, including pre-shipment consultation and advice. Where necessary, computer line clearance is provided, and relocation of signalling and other equipment can be accomplished to permit the passage of non-typical loads.

Where the final stage of shipment is by water, CN Rail can deliver goods to dockside at major Canadian ports, whether on the Great Lakes, on the St. Lawrence Seaway or on either coast.

Additionally, CN operates a coast-to-coast trucking network and delivers equipment and supplies for resource exploration and extraction which are moved into the north on barge trains via the MacKenzie River system.


# C-E NATCO LTD.

**9423 Shepard Road SE**
**Calgary, Alta.**
**T2H 2H3**
**Phone: (403) 252-8841**
**Telex: 038-21548**
**Contact: Jack C. Williams,**
**president and general manager**
**W. G. (Bill) Child,**
**sales manager**

From its headquarters in Calgary, C-E Natco Ltd. directs the design and fabrication of pressure vessel systems, from gas wellheads and line heaters to complete glycol dehydration systems and turnkey installations of complex processing systems, including start-up, onstream performance evaluations and technical support services.

Natco's oil and gas production processing systems are now in service in all major production areas of Canada.

When customers order particular systems from Natco, the company carries through for the complete project, handling project definition, initial engineering, cost evaluation, fabrication, testing and packaging for shipment. Natco's commitment to the project carries on even after the system is delivered, with on site services, including inspection and testing, provided whenever and wherever the customer desires.

Through its affiliate company, C-E Natco Combustion Engineering Inc., in Tulsa, Oklahoma, Natco can arrange for complete production and processing services and systems for installation anywhere in the world.

# C-CORE

**Centre for Cold Ocean Resource Engineering**
**Memorial University,**
**St. John's, Newfoundland**
**A1B 3X5**
**Phone: (709) 737-8351**
**Telex: 016-4794**
**Contact: D. M. Granville,**
**administrator**

The Centre for Cold Ocean Resources Engineering (C-CORE) was established at Memorial University of Newfoundland in St. John's in 1975. Its initial funding was provided by the Devonian Group of charitable foundations of Calgary. Ongoing funding now comes from governments and industry.

The Centre's mandate is to undertake research that will assist the safe and orderly development of Canada's resources in cold and ice frequented oceans. C-CORE's main concentration of research is on ice, its properties, detection and behaviour and on seabed engineering.

# C-TECH LTD.

**1150 Montreal Road**
**Cornwall, Ont.**
**K6H 5S2**
**Phone: (613) 933-7970**
**Telex: 05-811538**
**Contact: H. M. Johnson,**
**president**
**A. F. Sayegh,**
**contract manager**

C-Tech has been involved for more than a decade in the design and manufacture of over 25 different types of electronic scanners used in sonar equipment of the NATO navies. C-Tech's capabilities include the manufacture of a variety of multi-element cylindrical and planar array transducers, with all the physical, functional, environmental and reliability characteristics essential for use by the Canadian, USA, Netherlands, Belgium and England navies. These transducer capabilities extend beyond the military to encompass designs for use by other government and commercial organizatons.

C-Tech was the first to use electronic scanning and color displays in its line of Omni sonars. Although the major application of C-Tech's commercial sonar has been in the commercial fishing industry, the sonars are suitable for other marine and offshore industries and have been used by many foreign navies.

C-Tech has been an active participant in the USA department of defence standard electronic module (SEM) program since 1971, as a user, designer and manufacturer. C-Tech is a qualified supplier of a broad range of standard SEMs, as well as a manufacturer of special SEMs to fulfill customer requirements.

# CANADA WIRE AND CABLE CO. LTD.

**250 Ferrand Drive**
**Don Mills, Ont.**
**M3C 3J4**
**Phone: (416) 424-5000**
**Telex: 06-219556**
**Contact: R. J. Smith,**
**vice-president, export**

Canada Wire and Cable Co. Ltd. is a Canadian-owned manufacturer, operating plants across Canada and participating with foreign partners in affiliated companies throughout the world. It is a member of the Noranda group of companies and is involved, either directly or through its subsidiaries and associates, in the manufacture of wire and cable, plastic products, optical fibres, medical instruments, transformers, lighting and other products.

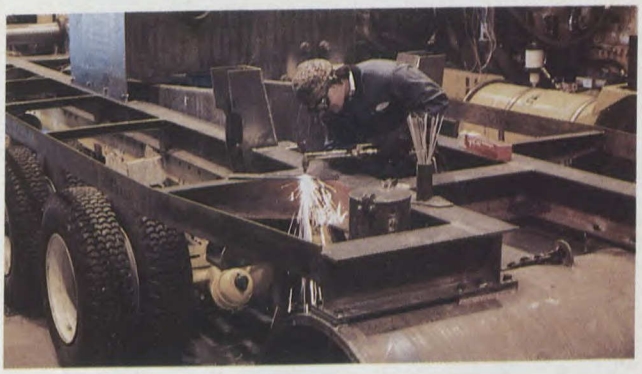
The company is a major supplier of wire and cable products to electrical utilities and the telecommunications, electrical manufacturing, mining, transportation and building industries.

At its plant facilities in Toronto, Montreal, Fergus (Ont.), Winnipeg, Weyburn (Sask.), New Westminster, Orangeville (Ont.) and Quebec City, the company has facilities for rod production, wire drawing, stranding and bunching, insulating and jacketing, and accessory production and is capable of carrying out a full range of physical and electrical testing.

The company also provides facilities and service for the outside installation of power cables, complete development laboratories, field engineering assistance and an engineering department for design assistance and computer back-up.

# CANADIAN FRACMASTER LTD.

**700, 703 6 Ave. SW**
**Calgary, Alta.**
**T2P 0T9**
**Phone: (403) 264-8700**
**Telex: 03-827967**
**Contact: Bill Salahub**
**Jim Engel**



Canadian Fracmaster Ltd. is one of Canada's most successful well stimulation servicing companies, and now, through the combined efforts of management, engineering, research and development, manufacturing and domestic service departments, the wholly Canadian-owned company is ready for an aggressive push into export markets for equipment, technology and services.

Canadian Fracmaster's fabrication plant for manufacturing custom-designed well stimulation equipment is one of the largest in Canada, and is capable of manufacturing virtually any required piece of well stimulation equipment, including blending and pumping units, cementing equipment, coiled tubing units and bulk silos. The extensive laboratory facilities in Calgary keep the firm in touch with changing trends in technology, and it is able to provide solutions to new industry challenges.

In addition to its full fleet of well stimulation equipment, available on a 24-hour call basis, Canadian Fracmaster also employs a full complement of in-field service operators and supervisors, also on an around-the-clock standby basis. Formal training sessions under controlled and actual conditions keep these operators abreast of the current industry technology.

# CANADIAN OFFSHORE GROUP

**100, 620 67 Ave. SW**
**Calgary, Alta.**
**T2V 0M2**
**Phone: (403) 255-4466**
**Telex: 03-824568**
**Contact: J. F. Watson**
**B. Fisher**

The Canadian Offshore Group, a division of Canadian Offshore Holdings Ltd., specializes in trade development and access to international markets for the technology, products, services and expertise offered by its client companies.

Buyer and seller enjoy the benefits of the successful associated marketing program developed by the Canadian Offshore Group. Established overseas and Canadian representative offices ensure the customer receives the services of professional trade personnel and rapid communications from the Canadian Offshore System. A few of the products the Canadian Offshore Group markets are oil and gas exploration equipment, process equipment, contract services, construction products and equipment and chemicals.

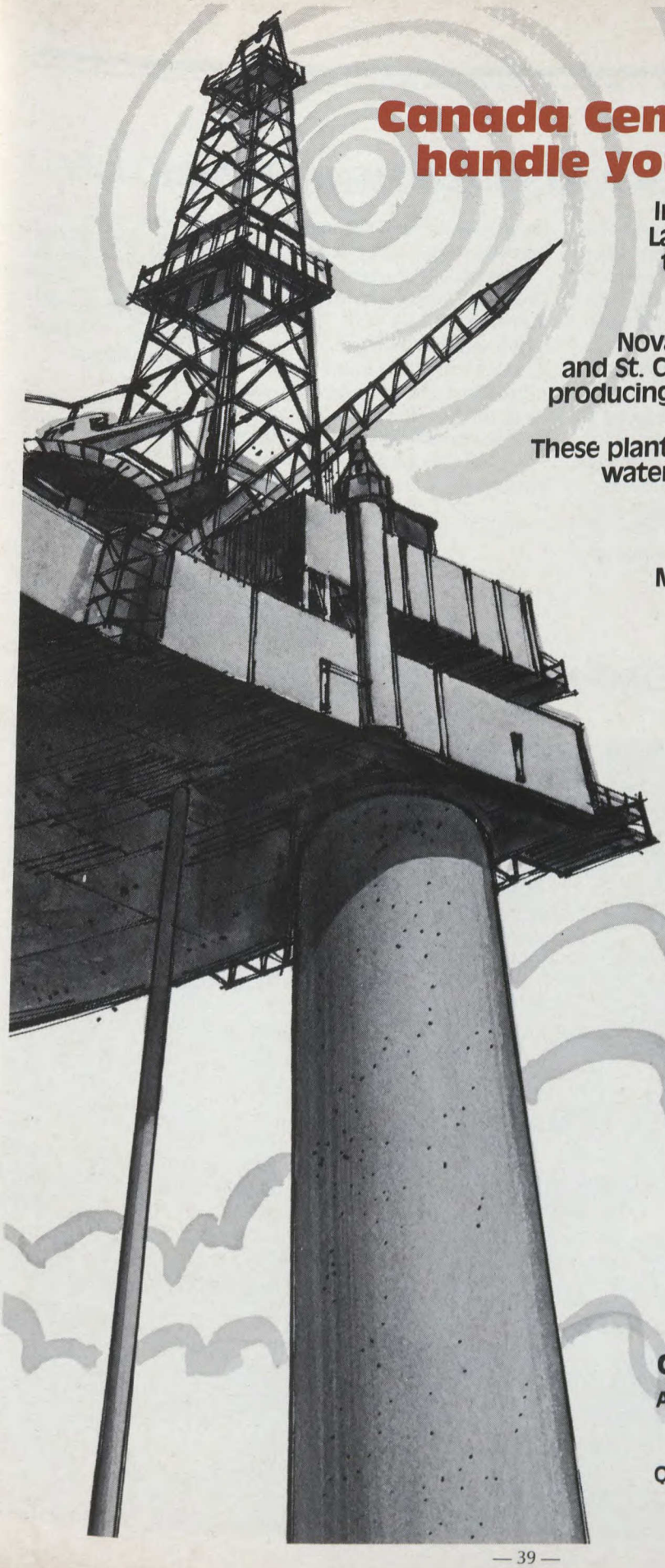
Through its subsidiary company, Canadian Offshore Safety Systems Ltd., it manufactures specialized communications systems for the oil and gas industry. The systems are designed for use in hazardous locations and severe climate conditions, and feature advanced technology, applicable to both the onshore and offshore industries.

Fire and gas detection and suppression systems are available for most oil and gas exploration, production and process locations.

# CANADA CEMENT LAFARGE LTD.

**625 President Kennedy, Suite 1401,**
**Montreal, Que.**
**H3A 1K7**
**Phone: (514) 849-5621**
**Telex: 05-24581**

Canada Cement Lafarge can supply all your well cementing requirements from plants in Quebec and Nova Scotia. The plants are modern and efficient and the cements meet the latest API requirements. Information may also be obtained from the office in Halifax, 500, 2000 Barrington St., Halifax, N.S. B3J 3K1, phone (902) 425-3250, TWX: (610)-271-4400, or the Moncton office, 6008, 770 Main St., Moncton, N.B., E1C 1E7, phone (506) 382-3331, TWX: (610) 238-4462.



# Across Canada, Canada Cement Lafarge can handle your requirements.

In Western Canada, Canada Cement Lafarge has been producing various types of oil-well cement for the oil industry since the early 1930's.

In Eastern Canada, our Brookfield, Nova Scotia, Havelock, New Brunswick and St. Constant, Quebec plants have been producing cements for the oil-well industry since 1971.

These plants, because of their access to deep water port facilities, can readily handle your offshore requirements.

For further information, please contact either our Halifax, Moncton or Montreal sales offices.

**Canada Cement Lafarge Ltd.**

**Atlantic Region:**
Halifax — (902) 425-3424
Moncton — (506) 382-3331

**Quebec Region:**
Montreal — (514) 849-5621

# CANADIAN OFFSHORE RESOURCES EXPOSITION CORE

**36 Butterick Road**
**Toronto, Ont.**
**M8W 3Z8**
**Phone: (416) 252-7791**
**Contact: James E. Myles**

The second Canadian Offshore Resources Exposition will be held at the Ocean terminals on the Halifax, Nova Scotia waterfront on September 15 - 17, 1982 with a total area of 225,000 square feet of indoor and outdoor display space and a heliport, plus docking for waterborne exhibits.

This show is devoted to all aspects of offshore exploration and development and the initial exposition in 1981 attracted more than 465 exhibitors and more than 5,000 attendance.

A technical conference will be held at the Technical University of Nova Scotia on each morning of the show. The conference, organized by Oilweek Magazine, will feature keynote speakers on such subjects as drilling procedures, education and training, supply offshore operations and the impact of offshore operations in the North Sea of shore based economics.

CORE will likely be held on a biennial basis in the future with the next exposition in 1984.

# CANADIAN MARCONI COMPANY

**2442 Trenton Ave.**
**Montreal, Que.**
**H3P 1Y9**
**Phone: (514) 341-7630**
**Telex: 05-827822**
**TWX 610-421-3564**
**Contact: Lionel Leveille,**
**manager manufacturing and support group**
**Ken Kivenko, vice president components division**

Canadian Marconi specializes in airborne navigation systems including Doppler, automatic omega, vertical instrument displays, GPS Navstar, status display, flight advisory computers and digital avionics. Marine and land VHF and UHF communications equipment, portable, mobile and fixed HF single side band transceivers, marine radio telephones and marine radar.

Electronic components include PCB's, thin, thick and hybrid microcircuits magnetic devices, illuminated panels, displays and power supplies, Custom machining, sheet metal fabrication, finishing processes and injection moulding of plastics are also undertaken.

# CANADIAN STRATA DRILL LTD.

**200, 918 - 6 Ave. SW**
**Calgary, Alta.**
**T2P 0V5**
**Phone: (403) 261-2063**
**Telex: 03-821409**
**Contact: Roger P. Hoffort,**
**president**
**Ken M. Schmidt,**
**general manager**

Canadian Strata Drill Ltd. KD Series drill bits are designed and manufactured in Calgary using the polycrystalline diamond compacts developed by the General Electric Company. The KD Series type bit is most applicable to running in soft and medium hard formations, including shale, chalks, clays, marls, limes, sandstone, salts, anhydrites and dolomite. The bits are manufactured with a design using interchangeable nozzles which allow any hydraulic velocity that may be desired, and because of their unique design, the KD Series bits are unlike any other currently on the market.

The bits are available in sizes ranging from three to 36 inches, and can be ordered from existing stock or manufactured to customer specifications. The bits are shipped F.O.B. Calgary to any domestic or international point, and service representatives are available world-wide to assist with running the bits.

# CANADIAN STONE MARINE LTD.

**420 - 9 Avenue**
**Iberville, Que.**
**J2X 1K3**

**Phone: (514) 347-3789**
**Telex: 05-831556**

**Contact: F. G. W. Neale,**
**executive president**
**J. C. McLoughlin,**
**general manager**

Established in 1967, Canadian Stone Marine Ltd. has developed its capability to manufacture marine propellers, from design to completion, in sizes up to 22.5 tonnes and 6.5 metres in diameter. This capability includes manufacturing propellors of all types and sizes from common designs and allows for fabrication of custom propellors using a wide variety of alloys.

In addition to manufacturing new propellors, Canadian Stone Marine provides comprehensive repair services for all types and makes of marine propellors. It is associated with the Stone Manganese Marine group of companies, manufacturers worldwide of marine propellors.

The company has also been engaged for the last four years, in the business of general bronze castings including gate valves, butterfly valves and castings for controllable pitch propellors.

Canadian Stone Marine's foundry is equipped with two oil-fired reverbatory furnaces, which together can provide up to 36 tonnes of bronze. Four crucible furnaces augment the main furnaces.

In addition to its manufacturing services, Canadian Stone Marine also provides destructive and non-destructive testing services and offers consulting and metallurgical advice.

# CANADIAN SHIPBUILDING AND ENGINEERING LTD.

**Collingwood, Ont.**
**L9Y 3Z6**
**Phone: 705 445-4040**
**Telex: 0687-5545**
**Contact: James Elder, president**
**Jacques Regnaud, vice president marketing**

Canadian Shipbuilding & Engineering, a vital arm of the CSL Group Inc., is upgrading its production capability into the mega project field.

The program includes module shipbuilding for offshore rigs and equipment, gearing and directing its ultra-modern computerized design technology in manufacturing components for offshore and inland petroleum industry work, as well as the construction of ice-strengthened anchor-handling tug/supply vessels, dredgers and similar type ships.

Collingwood Shipyards is 75 miles north of Toronto. In its 100-year history it has constructed more than 200 vessels, including trawlers, warships, passenger vessels and its renowned Seaway-size bulk carriers and self-unloaders.

Collingwood has a work force of more than 1,000 and a full complement of naval architects and marine and electrical engineers to handle all phases of design work, electrical and mechanical engineering using modern computer techniques, and computerized production control.

Port Arthur Shipbuilding at Thunder Bay is one of Canada's principle marine repair and conversion facilities. Portship provides new construction of a wide variety of vessels, lengthening or converting ships, general engineering services for major projects for petroleum marine, mining, pulp and paper, and allied industries, and the building, repair and overhaul of heavy machinery and equipment, including its involvement in the Syncrude oil sands project.

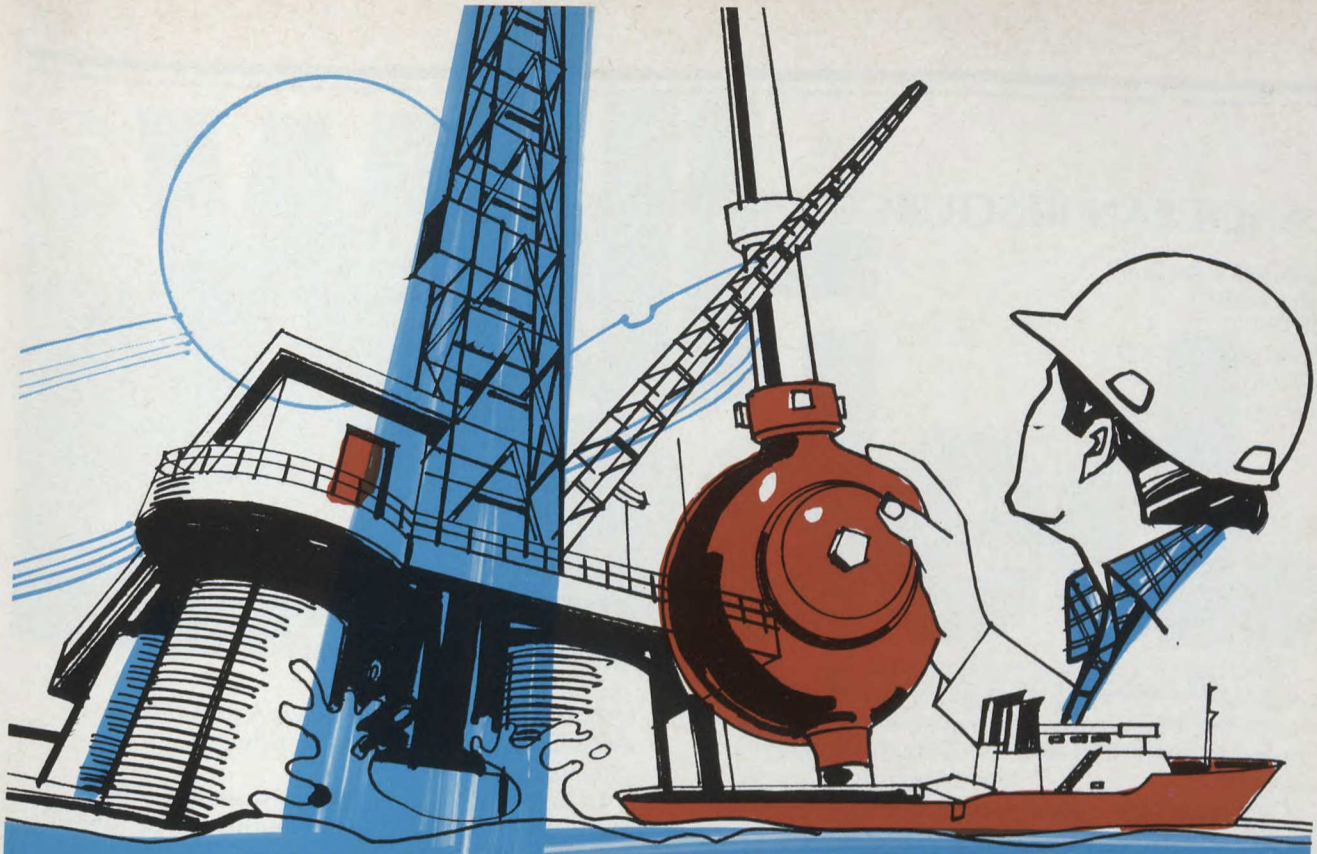
# CANADIAN UNDERWATER TRAINING CENTRE

**417A Queen's Quay West**
**Toronto, Ont.**
**M5V 1A2**
**Phone: (416) 363-7018**
**Contact: Valentine Pavuls, managing director**
**Jules Fortin, training director**

An explosive growth in requirements for trained commercial divers has taken place in the international field of professional diving over the past 10 years, attributable mainly to the growth of the offshore oil industry. Divers are currently in demand in such areas as the North Sea, the Middle East, the South Pacific, South and Central America, the Gulf of Mexico and the east coasts of the USA and Canada, not to mention Canada's Arctic.

Because of this explosion in demand, many Canadian divers have had to go to foreign schools for commercial training, an event that fostered the growth of the Canadian Underwater Training Centre, a privately funded school supported by the diving industry and professional educators.

The centre is located in the Toronto Harbor, and offers training in state-of-the-art equipment and techniques. Facilities include a self-contained training ship, complete with classrooms, diving tanks and decompression and recompression facilities. Instruction is offered in English and French, and successful graduates receive a certificate of completion.



# ONSIDE WITH OFFSHORE CANADA THE MEGA PROJECT OF THE DECADE!

We are the builders of an important part of the great Canadian vision—the abundance of oil and natural gas deposits to satisfy an energy-conscious world. We turn steel into countless shapes and sizes, into modules and components under rigid computerized design specifications, geared to exacting schedule demands.

We have the production capabilities to build the mega project ice-strengthened support and supply ships because we have the tested experience, the proven performance, the reliability and product quality of a 100 years... We are easy to meet, tough to beat. Try us!

CANSHIP

**CANADIAN SHIPBUILDING & ENGINEERING LIMITED**
Collingwood, Ont. L9Y-3Z6, Telephone: (705) 445-4040, Telex: 0687-5545
Collingwood Shipyards, Port Arthur Shipbuilding

# CANOCEAN RESOURCES LTD.

**#500, 926 5 Ave. S.W.**
**Calgary, Alta.**
**T2P 0N7**
**Phone: (403) 265-6913**
**Telex: 03-827839**
**Contact: Y. M. Maurette,**
**general manager, sales Canada**
**E. G. Rees,**
**sales manager, offshore**


CanOcean, a subsidiary of Husky Oil Operations Ltd. and a member of the NOVA group of companies, is a Canadian company specializing in onshore and offshore oil and gas field developments.

CanOcean is currently engaged in or has provided the following services: feasibility studies, design engineering, special engineering services, applied research and development and project support.

CanOcean is an established leader in designs for deep water production systems, with particular emphasis on Canadian and USA frontier areas. Major oil companies and governments have relied on CanOcean's experience to provide effective practical solutions to the challenges of offshore oil and gas recovery.

CanOcean's onshore engineering capability is enhanced by the resources of affiliated oil and pipeline companies, and it is able to draw on the technical resources of the NOVA group to assemble project teams of world-class capabilities.

To better serve the needs of specific sections of the world-wide oil and gas industry, CanOcean has established a presence in the major oil centres of the world.

# CAPROCO CORROSION PREVENTION LTD.

**P.O. Box 5858, Station L**
**Edmonton, Alta.**
**T6C 4G3**
**Phone: (403) 468-2878**
**Telex: 037-42787**
**Contact: J. R. Davis, sales manager**
**J. P. Crevolin,**
**manager, Canadian operations**

Caproco, a recognized leader in the field of complete corrosion prevention, has kept pace with the rapid technological advances in the field of corrosion prevention by continually up-dating technical know-how to better serve its customers. Research, compiled by Caproco and major suppliers, is continually field-tested and incorporated in engineering recommendations only when the research has proven effective.

With an experienced group of estimators and designers, Caproco assures its customers of knowledgeable interpretation of their specifications, coupled with a thorough understanding of the requirements of the job. These experts are assisted by the most modern equipment and combined, they are able to perform the largest and most complicated projects anywhere in the world.

Caproco has branch offices throughout western Canada, as well as in the Middle East.

# Well-rounded.

Applied Research and Product Development. Engineering services. Project Support services. Marine services. Manufacturing.

If it involves oil recovery, transportation or processing, on land or sea, CanOcean can put together a highly-qualified, interdisciplinary team to handle the job.

For more than a decade, we've been planning, designing and servicing subsea early production systems around the world. This experience, coupled with our expanding expertise into traditional land-based technology, has helped make us a valuable resource.

A member of the NOVA group of companies, and a subsidiary of Husky Oil, we have offices and service bases around the world. And a lot of hard-working, experienced people ready to put their well-rounded talents to work for you.

**CanOcean Resources Ltd.**

A subsidiary of Husky Oil Operations Ltd./a member of the NOVA group of companies. Sales offices in New Westminster, British Columbia (Head Office); Houston, Texas; Calgary, Alberta; Ottawa, Ontario; St. John's, Newfoundland; London (UK).

**CANOCEAN CAN.**

# CANFLEX MANUFACTURING INC.

**1408 Charlotte Road**
**North Vancouver, B.C.**
**V7J 1H2**
**Phone: (604) 986-5321**
**Telex: 04-352867**
**Contact: Ray Paols**

Canflex specializes in the production of underwater lifting balloons and the related rigging and webbing.

Canflex Lifting Balloons are used internationally in both the salvage and pipeline industries, and, when used in the inverted mode, for static proof testing on cranes and heavy lift devices. Capacities vary from 50 kg to 25 000 kg per balloon and are used in series to provide lift buoyancy up to 1 000 tonnes. Through the use of CABCO (continuous automatic buoyancy control) Canflex provides versatility in controlling both ascent and descent rates and allows for underwater heavy lifts controlled by the diver.

Special fabrics have been developed by major factories working in conjunction with Canflex to ensure materials performance provides an ultimate level in safety factors and wear resistance. These materials provide a rated working load with a minimum of 5 to 1 safety margin.

Engineering and design assistance is provided to Canflex customers for custom valving, manifold and lift attachments for specific jobs.

Inventory is maintained in the U.S.A., Norway and Canada with excellent air freight connections for emergency situations. In addition, Canflex provides both factory overhaul and parts supply for economical repairs.

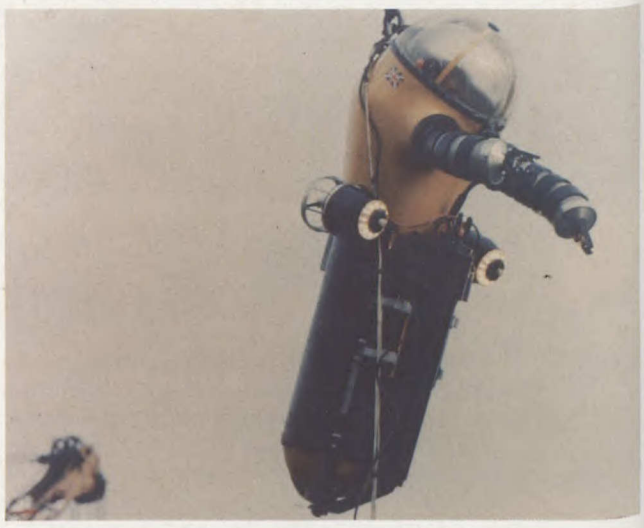
# CAN-DIVE SERVICES LTD.

**1367 Crown Street**
**North Vancouver, B.C.**
**V7J 1G4**
**Phone: (604) 987-4913**
**Telex: 04-352566**
**Contact: Phil Nuytten, president**
**David Porter, offshore manager**

Can-Dive Services Ltd. is a Canadian company with offices in North Vancouver, Mississauga, St. John's, Halifax and Tuktoyaktuk, and since 1969 has been associated with two other major diving firms in Oceaneering International Inc., the world's largest independent diving contractor.

Can-Dive is recognized as the leader in Arctic diving operations, and has completed 4,500 Arctic dive exposures in the last five years. The company is currently operating six bounce/saturation dive systems in Canada, and has a large inventory of bounce and saturation dive equipment.

In addition, the company has extensive experience in one-atmosphere dive systems, and in 1978 completed a world record working dive of 876 metres for Chevron Standard Ltd. off the coast of Nova Scotia using the bell Ocean Arms I. Can-Dive also offers one-atmosphere diving suits, and has performed dives up to 275 m through Arctic ice for Panarctic Oils Ltd.



The company also provides a full range of submersible services, including construction dives, non-destructive testing, welding, blasting, television operations and photography and oceanographic survey services. The company has operated extensively throughout the world, and has performed services in Spain, Panama, Haiti, Brazil, Chile, Great Britain and the United States.

# CANSIM SIMULATORS LTD.

**Suite 610**
**75 Albert Street,**
**Ottawa, Ont.**
**K1P 5E7**

**Phone: (613) 238-2648**
**Telex: 053-3314 OTTAREP RNL**
**Contact: George M. Robertson**
**W. Roland Davis**

Cansim Simulators Ltd. offers a wide range of simulators to train personnel in various aspects of the oil and gas industry, with special emphasis on drilling and process control.

The modern approach is to give people operating experience by training on a computer-based simulator which behaves like the real plant.

The hands-on experience that trainees have obtained from using a simulator has been found to be more meaningful and has made a deeper impression than the most explicit classroom explanations. In addition, simulator training has boosted their confidence and their belief in their ability to deal with all work situations.

The advantages of training people on a simulator rather than on the real plant are obvious in terms of economy and safety, but what is not widely realized is that the quality of training is also superior.

For example, on a simulator it is possible to confront personnel with equipment malfunctions and emergencies that could never be rehearsed on the real equipment and which only the most experienced workers might have encountered. Thus, years of operational experience can be distilled into a short period of time.

The advanced digital drilling simulator, for example, has been designed to fulfill the training requirements of drillers, well-control engineers and drilling supervisors.

To train production platform personnel, Cansim Simulators offers process control simulators. Such simulators are designed to provide initial and continuation training. In addition, they may be used to develop the most efficient commissioning procedure for the platform and to investigate proposed maintenance planning schedules.

# CANVIL LTD.

**P.O. Box 40**
**Simcoe, Ont.**
**N3Y 4K9**

**Phone: (519) 426-4551**
**Telex: 061-81172**
**Contact: K. E. Shewell,**
**president**
**K. V. Nielsen,**
**vice-president, marketing**

Canvil Ltd. is a leading Canadian manufacturer of forged steel pipe fittings, oil country tubing and casing couplings and forged steel valves.

The company's forged steel fittings are available in a complete range of sizes from 3.17 mm to 101.6 mm and in pressure classes of 907 kg, 1 360 kg and 2 721 kg.

Oil country tubing and casing couplings are manufactured to API specifications, and the tubing couplings are available in sizes from 38.1 mm to 114.3 mm. Casing couplings are available in sizes ranging from 114.3 mm to 339.73 mm and in all material grades.

Canvil Ltd. also carries and fabricates a complete line of forged steel gate, globe and check valves in sizes ranging from 6.35 mm to 50.8 mm. Threaded, socket weld and flanged end connections are all available.

Canvil's manufacturing and head office facilities are located in Simcoe, Ont. with a divisional office in Edmonton. Subsidiary companies are located in Acton Vale, Que. (Canvil Inc.) and Hamilton, Ont. (Smart Turner Ltd.).

# CAPE BRETON OFFSHORE TRADE ASSOCIATION

**P.O. Box 250**
**Sydney, N.S.**
**B1P 6H4**
**Phone: (902) 564-6981**

The Cape Breton Offshore Trade Association, formed in 1980, is the first and most active offshore trade association in Atlantic Canada. It is an association of independent companies working together to provide a full line of services to the petroleum industry developing off the east coast of Canada.

The association's full-time membership is from the eastern part of Nova Scotia and industrial Cape Breton and associate membership is available to companies outside the general geographic area.

CBOTA not only assists member firms in pursuing opportunities related to the offshore oil industry, but can also provide companies in the market for supplies and services with information on members and their services, potential joint venture partners and statistical information on the Atlantic area.

The CBOTA office in Sydney provides an information centre on offshore related activities and serves as a catalyst to help coordinate and facilitate the expanded involvement of local companies in the activities of the oil industry.

Representatives from CBOTA attend as many international trade shows as possible, promoting the Cape Breton area to exhibitors and other interested parties and gathering specific information or initiating specific contacts on behalf of its members.

# CARAQUET MARINE

**P.O. Box 610**
**Caraquet, N.B.**
**E0B 1K0**
**Phone: (506) 727-3339**
**Telex: 014-24554**
**Contact: Alie LeBouthillier, president**
**J. Romeo Robichaud, general manager**

Caraquet Marine, founded in 1969, specializes in the construction, repair and refitting of steel vessels, including barges, crew boats, ferries, steel and aluminum fishing vessels, oceanographic vessels, patrol craft, supply vessels and tugs.

The yard can accommodate ships up to 46 m in length with up to 544 310 kg displacement. The yard is served by a 544 310 kg marine railway and a 360 000 kg transfer system. The enclosed building area is 1 337 $m^2$, allowing work on a year-round basis. Lifting capabilities include two overhead cranes in the building area, each with a capacity of 6 800 kg. Local marine cranes are also available when required and are capable of lifting up to 45 000 kg. For quick haul-out services, Caraquet Marine is also equipped with a 136 000 kg marine travel lift.

A labor force of 70 tradesmen is supported by professionally trained naval architects and marine consultants available locally. Modern machine shop facilities nearby allow the company to perform the most stringent requirements in the shortest possible time.

The company has been introduced to the international marketplace with the recent construction of a fisheries training vessel for El Salvador in Central America, while on the domestic scene, it has recently completed a research vessel for the Canadian government.

# Cape Breton?
# If you have to work, why live anywhere else!

## Companies move to Cape Breton for many reasons, here are 3 excellent ones:

### 1. Canso Superport is the closest port to the venture oil and gas plays.

Located at the western entrance to Cape Breton, the Strait of Canso is one of the best deep-water ports on the Atlantic Seaboard, capable of harbouring the largest crude carriers in the world. The adjacent town of Port Hawkesbury is an industrial centre, already the focus of major energy projects.

### 2. Sydport Industrial Park is located at the water-front on Sydney Harbour in the heart of Eastern Canada's coal and steel industries.

The park has 250 acres of serviced land with another 350 acres ready for immediate large-scale development. The area with a large, stable workforce is ideal for the requirements of the offshore service and supply industry.

### 3. Cape Breton offers a quality lifestyle that is envious in the world today.

Industry flourishes and yet the residents enjoy a unique opportunity to live their lives as they wish; with time for family activities, time to sail, golf, fish and ski with friends. Time to savour golden sunsets or walk along any one of hundreds of uncrowded beaches. Cape Bretoners believe in working hard, and also living well and they've been doing both for years.

***Cape Breton - the ideal place to live and work!***

For more information contact us today.

CAPE BRETON DEVELOPMENT CORPORATION

Offshore Petroleum Unit
P.O. Box 1750
Sydney, Nova Scotia
Canada B1P 6T7
Telephone: (902) 539-6300
Telex: 019-35290

## CARRYING INDUSTRIES OF ALBERTA LTD.

**2115 - 91 Ave.**
**Edmonton, Alta.**
**T2P 1L1**
**Phone: (403) 464-3013**
**Telex: 037-41638**
**Contact: Dan Beith, general manager**
**Wayne Wulter, sales manager**

Carrying Industries Ltd. is a wholly Canadian-owned manufacturer and designer of high quality safety and material handling equipment. The 15-year old company has branch offices in Ontario, Calgary, Edmonton and Vancouver.

Products manufactured by Carrying which would be of interest to companies involved in offshore activity include: construction and derrick safety belts and lanyards and the new Floater belt; safety harnesses and hardware; fall-safe shock absorbing devices; retractable life lines and descent control systems; nylon slings; complete line of Crosby and Componalift wire rope fittings; rope and rope products; cargo winches, load binders, web straps; cargo and safety nets; and leather pouches, belts and harnesses.

## COMCO, THE STEEL PIPE COMPANY

**P.O. Box 5558, Station L**
**Edmonton, Alberta**
**T6C 4E9**
**Phone: (403) 467-7711**
**Telex: 037-3527**
**Contact: S. M. Elder, manager, export sales**

One of the largest distributors in Canada, emphasizing service and product at competitive levels.

Comco supplys piping requirements for flow lines, modules and pipelines, processing, distribution systems, mining, refineries and petrochemical plants.

Yards are located in Edmonton, Calgary, and Vancouver for offshore and export shipments.

Large inventories include: heavy wall seamless from ½"-24", welded from ½"-60", grades from regular carbon to low temperature and sour service. Complete range of carbon flanges and fittings, including high pressure ANSI, and API. Specifications to ASTM, ASME, ANSI, CSA, API and AWWA.

Overseas and domestic mill inspection is provided by our employees and agents for assurance of quality manufacturing.

The export division represents many of the better known Canadian manufacturers of oilfield and industrial equipment.

## CARR & DONALD & ASSOCIATES

**55 Yonge Street, #305**
**Toronto, Ont.**
**M5E 1J4**
**Phone: (416) 363-7294**
**Telex: 065-24393**
**Contact: Joseph Carr, principal**
**W. S. Donald, principal**

A wholly-Canadian owned company operating throughout Canada and overseas since 1965. It specializes in the design and construction management of docks and marine works, together with bulk materials handling systems generally connected with terminals for cargo transfer from vessel to dock, or rail road to storage to vessel.

The company has been responsible for many recent Arctic dock designs and studies and most notably for the Nanisivik Mines dock, and bulk material handling system located at the northern end of Baffin Island, for which the Canadian Consulting Engineering magazine made an award of merit in 1977. The company is presently engaged in dock design and bulk material handling work on five Arctic Islands and four east coast locations.

# COMCO

## THE STEEL PIPE SUPPLY COMPANY


# *Leading the way in steel pipe and fittings supply and service*

**Comco Distributors Ltd.**

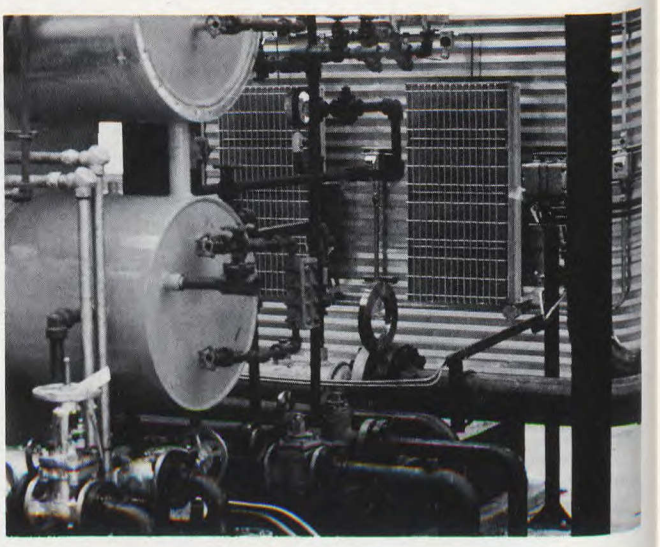
**EDMONTON**
57 AVENUE AND 17TH STREET
PO BOX 5558 STATION L
ALBERTA T6C 4E9
TELEPHONE (403) 467-7711
TELEX 037 3527

**CALGARY**
5320 1A STREET SE
ALBERTA T2H 1J2
TELEPHONE (403) 264-8582
TELEX 03 822892

**VANCOUVER**
4591 TILLICUM STREET
PO BOX 80069 BURNABY
BRITISH COLUMBIA V5H 3X1
TELEPHONE (604) 437-9761
TELEX 04 354751

# CIS-CAN SALES (WESTERN) LTD.

**3880 74 Ave.**
**Edmonton, Alta.**
**T6B 2P7**
**Phone: (403) 466-3178**
**Contact: Alan C. Kirby,**
**president**
**Allan T. Thompson,**
**sales**



Cis-Can Sales (Western) Ltd. is an Alberta-based company which has been serving the petroleum industry for over 20 years.

Cis-Can is the sole manufacturer of the Cata-Dyne explosion proof, infra-red gas heater, a heater widely accepted in the oil and gas industry. The heaters carry Canadian Gas Association approval for use in hazardous areas such as wellhead shelters, meter stations, compressor facilities and small to medium sized gas plants. The key component in the heater, the catalytic pad, is patented in Canada, the USA, Great Britain and France, and the heater is currently being exported to markets in the northwest United States and Alaska.

In addition, Cis-Can has developed a new method of heating small instrumentation enclosures containing scientific apparatus, computer components and similar devices. The system incorporates a small catalytic heater, is compact and can operate in remote areas unattended for months at a time.

# COOPER ENERGY SERVICES LTD.

**6889 Rexwood Road**
**Mississauga, Ontario**
**L4V 1R2**
**Phone: (416) 678-2030**
**Telex: 069-68746**
**Contact: R. W. Thompson**
**president**
**D. P. Gall**
**sales manager, eastern Canada**

Cooper Energy Services produces power and compression machinery for various segments of the oil, natural gas and power generation industries around the world in a range of systems from 7 kw to 22,700 kw. Notable installations for offshore oil and gas production are in Venezuela's Lake Maracaibo, the North Sea, South China Sea, and the Indian Ocean.

In 1960, Cooper introduced a new concept for mechanical drive power using the world's first industrial gas turbine incorporating a modified aircraft jet engine as the hot gas generator. Cooper-Bessemer gas turbine Coberra systems are approaching almost three million installed kilowatts and have surpassed seven million operating hours and are available from 12,081 kw to 22,700 kw.

In addition, over 1,000 Cooper-Bessemer single and multi-stage pipeline and barrel centrifugal compressors have been installed in the natural gas industry.

To complement the rotating products, Cooper also offers a wide range of integral and separable compressors for the oil and gas industry. The integral engine-compressors are marketed under the Cooper-Bessemer and Ajax tradenames. The gas Ajax high-pressure plunger pumps are specifically designed for continuous heavy duty applications. Typical applications include offshore oil transfer systems and salt water disposal.

The En-Tronic controls group is engaged in providing complete control systems for the full line of power and compression productions. En-Tronic controls employ various combinations of four basic methods of control: pneumatic, electric, solid state electronics and microprocessors.

# CORROSION SERVICE COMPANY LTD.

**10 Price Street,**
**Toronto, Ont.**
**M4W 1Z6**

**Phone: (416) 964-2230**
**Telex: 062-17705**

**Contact: D. D. Downing,**
**vice-president, marketing**
**R. H. (Bob) McDonald,**
**sales division**

Corrosion Service Co. was incorporated in 1950 as the first company in Canada to specialize in prevention and control of corrosion. The company is organized into two divisions, engineering and sales.

The engineering division has a support staff of professional engineers complemented by certified engineering technologists and technicians. All employees have specialized training and have completed related courses to provide a comprehensive background of experience. A functional blend of professional engineers, technicians and technologists ensures versatility, flexibility and high calibre performance. The division offers a complete corrosion engineering service to owners, consultants, government agencies and contractors.

Engineering and design services are available for corrosion studies, materials selection and cathodic protection. Installation of cathodic protection systems, inspections and ongoing maintenance services are also available. One area of specialized service to the marine industry is underwater inspection of dock piling to determine corrosion rates. The company's experience with cathodic protection applications in the marine industry includes; docks, wharves and piers, ships (internal and external), drilling platforms, bridge piling, offshore pipelines and buoys.

The sales division supplies protective coating systems, cathodic protection materials and other products related to corrosion mitigation. Carboline systems are used to provide long term protection for drill rigs, platforms, support vessels and land based facilities such as docks and storage facilities.

Cathodic protection materials for the offshore industry include impressed current rectifiers and anodes of all types, with an emphasis on aluminum, zinc and magnesium.

# K. W. COLWELL ENTERPRISES LTD.

**P.O. Box 2382,**
**Acadia Street,**
**Dartmouth, Nova Scotia**
**B2W 3Y4**

**Phone: (902) 463-0060**

**Contact: Keith Colwell,**
**president**
**Sean O'Grady,**
**production manager**

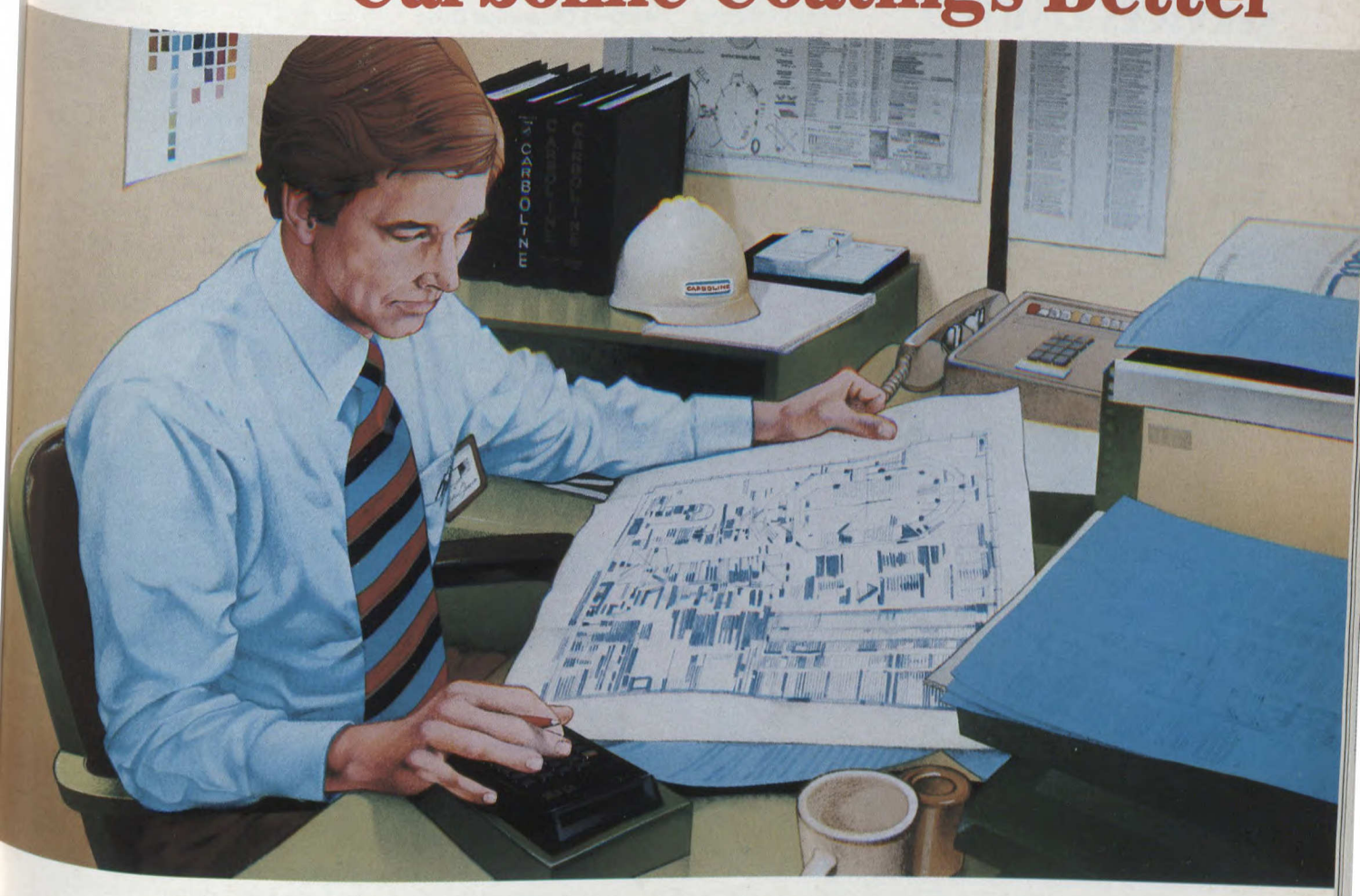
Colwell Enterprises Ltd. provides both a line of products for the petroleum industry, and custom manufacturing and design for specialized projects.

Colwell Enterprises Ltd. was established in 1975 and employs two full time engineers, supported by technologists and a drafting office. The manufacturing facility includes several standard engine lathes, milling machines, drill presses, a complete welding shop, sand blasting, and painting facility. There has also been a CNC machining capability added to the manufacturing division. The combination and variety of equipment provide a solid base under which manufacturing can be conducted.

The Corrosive Fluid Detector is a simple mechanical device used to identify leaking corrosive materials in confined areas such as under the insulation which covers a pipe line or other insulated part. The detector provides excellent protection against flange stud corrosion through early warning long before a leak can cause a hazardous line rupture. It can also be a useful tool assisting with the never-ending problem of energy conservation and environmental protection.

The services offered are completely backed by the team of competent design engineers through to experienced shop personnel. A common source from engineering to hardware.

# One Element That Makes Carboline Coatings Better




The human element. It can mean the difference between solving a problem and creating one.

Because we realize how difficult it can be to analyze specific corrosion prevention needs, our Sales Representatives get involved right in the beginning stages of a job. They provide helpful experience writing specifications, outlining support data, solving application problems that may be unique to your particular industry, and generally delivering the expert service you need to solve tough corrosion problems.

And our sales staff doesn't just provide help before a job begins. They can also be there in the critical stages of application providing the know-how that will make Carboline coatings work to your best advantage in the years ahead.

So when you've got a tough corrosion problem that requires the kind of services you can't get from just a can of paint, just call us. At Corrosion Service the human element is something you can depend on.

**CORROSION SERVICE**
**COMPANY LIMITED**

10 Price Street, Toronto, Ontario M4W 1Z6
(416) 964-2230
Branches Across Canada

# CROSBIE OFFSHORE SERVICES LIMITED

**P.O. Box 1420, Stn. C**
**St. John's, Newfoundland**
**A1C 5N8**
**Phone: (709) 739-1100**
**Telex: 016-4690**
**Contact: R. A. Spellacy, president**
**Charlie Puglisevich executive vice-president**

Crosbie Offshore Services was the first major Newfoundland enterprise to participate in Canadian east coast offshore oil and gas exploration, and as the coordinating agency for a consortium of associated companies, it provides the largest single Newfoundland offshore services operation.

For the oil industry, it means "one-stop" shopping for personnel engaged in exploration and development off Canada east coast. Major oil companies, offshore contractors and ancillary services have used the operation extensively in transportation, supplies, labor contracting, catering, port facilities, equipment and storage, accommodations and purchasing.

Crosbie's fleet of offshore services and supply vessels has been the life-line for offshore rigs working under contract to Mobil Oil on the Grand Bands where the historic Hibernia discovery awaits development. The Crosbie OSA fleet of service and supply vessels include ocean tugs from 5,000 to 13,000 hp, pipecarriers, anchor handling craft and other specialized ships. Experienced crews handle tough assignments from tending an oil rig in rough North Atlantic waters to towing icebergs.

The catering division provides complete catering services including food supply, preparation and service, as well as complete housekeeping services. Highly trained personnel ensure quality in food handling, menu variety and efficiency.

Key personnel bring to their clientele an extensive background in offshore service expertise.

# COWLEY CONSULTANTS LTD.

**4480 - 5 Chesswood Drive**
**Downsview, Ont.**
**Phone (416) 635-1678**
**Contact: J. James Cowley**

Cowley Consultants was established in 1960 as a design and development facility for new products. Technology has been developed for storing and handling gases which has resulted in 12 new products, ranging from breathing apparatus, welding equipment, beacons and scubas. Cowley is also manufacturing gauges and regulators.

An input reader system has also been designed which enables computers to process information derived from pencil marks on ordinary paper, rather than special cards.

A prototype system for handling liquid waste recyling at a reduced cost has also been developed.

# THE DALCOR GROUP

**1500, 1100 Melville Street**
**Vancouver, B.C.**
**V6E 4A6**
**Phone: (604) 688-7704**
**Telex: 04-352848**
**Contact: Carl F. Hunter**
**Robert G. Clarke**

The Dalcor group is a management engineering and economics consulting firm with head office in Vancouver and branches in Calgary, Edmonton and Ottawa.

In the field of ocean industry, the company provides consulting services in project planning, organization and control systems for large or complex projects; development planning for manufacture, management and marketing of new products; industrial benefits development and policy, procurement planning including materials, equipment and manpower skills inventories and risk analysis of projects and operations.

In addition, the company can provide the necessary expertise to carry out a number of other services, from market research for manufacturing subocean equipment to port operation studies and logistics and route simulation modelling.

The consulting staff has performed these and other services in the USA, Great Britain, Indonesia, Africa, New Zealand, Australia, and Latin America, as well as in virtually every frontier area of Canada.

# DAVIE SHIPBUILDING LTD.

**P.O. Box 130**
**Levis, Quebec**
**Phone: (418) 837-5841**
**Telex: 051-2254**
**Contact: Louis Rochette,**
**chairman and chief executive officer**
**Maurice Provencher,**
**executive vice president, administration**

With the acceleration of the offshore exploration worldwide, there now exists an active need for the Canadian shipbuilding industry to participate, and Davie Shipbuilding Ltd. is doing precisely this.

Always an industrial innovator, it was natural for Davie — Canada's first and largest shipbuilder — to respond positively to this expanding offshore industry's needs. Davie's production record has included some 700 ships of every description and massive units for a variety of industries. From cyclotron magnetic sections to polyethylene reactors for chemical plants. Davie has built units for the heavy industry for many foreign countries.

Davie's plant opposite Quebec City employs over 2,000 people and its prime location gives it ideal access for shipment to the entire seaboard region, the Arctic and Europe.

Since 1978, Davie has contracted jackup drilling rigs for U.S., Brazilian and Mexican clients and is currently building two basic Marathon LeTourneau designs: the 82-SD-C and the 116-C.

The Marathon LeTourneau licence has enabled Davie to become the Canadian leader in platform construction and a recognized world supplier of jackups.

Recent acquisition of Davie Shipbuilding by Dome Petroleum Ltd. points to the potential importance of Davie's involvement in the future of Canadian and world's offshore exploration and production.

Davie is presently looking at the possibility of building semi-submersible drilling platforms under licence. In response to burgeoning needs, Davie will certainly become a prime contractor with the right mix of capabilities, the future development of the whole industry demand.

# DOMINION BRIDGE-SULZER INC.

**P.O. Box 555**
**Lachine, Que.**
**H8S 2B1**
**Phone: (514) 636-8588**
**Telex: 05-821583**
**Contact: R. L. Grassby,**
**vice president, administration & planning**
**L. T. Assimes,**
**vice president, business development**

Dominion Bridge-Sulzer, with some 1,600 employees, is engaged in the manufacture of heavy mechanical equipment for the petrochemical industry, mining, and power generation, including nuclear components, pressure vessels, waste heat boilers and incinerators.

It also manufactures large structural components including offshore rig sections, bridge and building sections and integrated barge mounted facilities, together with bulk and container shiploading and handling equipment.

It also fabricates hydraulic turbines, gates, penstocks, valves and pumps and is involved in Canada's first tidal power project in the Bay of Fundy.

# DE HAVILLAND AIRCRAFT OF CANADA LTD.

Garratt Boulevard
Downsview, Ont.
M3K 1Y5
Phone: (416) 633-7310
Telex: 06-22128
Contact: John Timmins,
vice-president marketing and sales.


Since World War II, De Havilland Canada has developed a long line of STOL (short take-off and landing) airplanes culminating in the turbo-prop twin-engined Twin Otter, the Buffalo/Transporter and the four-engined DASH-7.

The DASH-7, the first truly-commercial STOL aircraft produced in Canada, is now in service in 11 countries, where it serves national airlines and several oil exploration companies.

The slow-flying, steep gradient approach for operation into small airfields and the runway stubs of large airports necessitates excellent control and safety at low speeds in restricted spaces, and it is just these features that has made the DASH-7 one of the most widely used commercial aircraft in Canada.

Together with Seaforth Maritime Ltd. of Aberdeen, Scotland, De Havilland has developed a "floating runway" which takes perfect advantage of the DASH-7s cargo-carrying and STOL abilities. Termed the STOLport, the floating runway will be anchored to serve several production and drilling platforms. The concept will originally be put in place in the North Sea, but is equally applicable to the east coast of Canada or any other offshore energy development. When in use, the STOLport will serve as a "jumping-off point" to the platforms in the area, with the DASH-7 being utilized to ferry cargo and personnel to the STOLport, while helicopters will be used for the flight from STOLport to rig.

# DOBROCKY SEATECH LTD.

9865 West Saanich Road
Box 6500
Sidney, B.C.
V8L 4M7
Phone: (604) 656-0111
Telex: 04-97487
Contact: John J. Dobrocky,
president
Andrew L. Wood,
manager

Dobrocky Seatech Ltd. and its associated company, Dobrocky Seatech (Nfld.) Ltd. are consulting companies offering services in physical oceanography, engineering, marine geosciences, hydrography, marine biology and environmental chemistry.

The company, with over 50 scientists, engineers and other professionals on staff, is well-equipped to carry out ocean current and tidal measurements for offshore oil exploration, studies for engineering port sites and marine pipelines, ice motion studies and submarine cable and pipeline surveys.

The company has access to three support vessels, as well as extensive laboratory facilities and electronics equipment. It also has a large inventory of field data collection instruments and hardware.

Through the years, Dobrocky Seatech has gained extensive experience in the Pacific, the Atlantic, the Arctic and the Antarctic, and surveys and scientific studies can be done with minimum local support or by supplying senior level experts to work with local companies or governmental agencies.

# DELTA PROJECTS LTD.

P.O. Box 5244, Station A
Calgary, Alta.
T2H 2N7
Phone: (403) 259-0411
Telex: 038-22509
Contact: A. B. Coady,
president
K. L. McCrae,
vice president, business development

Delta Projects has designed and constructed more than $1 billion of capital projects since it was founded in 1966. Prominent among these projects are gas processing plants, heavy oil recovery and refineries and upgraders.

On the international scene, Delta's high technology has been applied in two diverse offshore environments. In the North Sea it was responsible for the topsides of a major oil production platform, modification and optimization of several other topside facilities and floating production system studies on two prospects.

In the Gulf of Mexico it designed and fabricated numerous topsides and deck sections and is currently designing tower mounted topsides for 1,000 foot water depth installation.

Delta projects is currently expanding its operations through the establishment of a Canadian, east coast fabrication facility from which to export a wide range of modules, deck selections and installed floating production systems.

The recent development of the DELSEP $C0_2$ removal membrane system by Delta will dramatically reduce the weight associated with gas treatment topsides facilities. This process is commercially available for any world wide application.

# DELAVAL TURBINE CANADA LTD.

**P.O. Box 850**
**Maple, Ontario**
**L0J 1E0**
**Phone: (416) 832-2741**
**Telex: 06-964520**
**Contact: Julius Toth,**
**sales manager components**

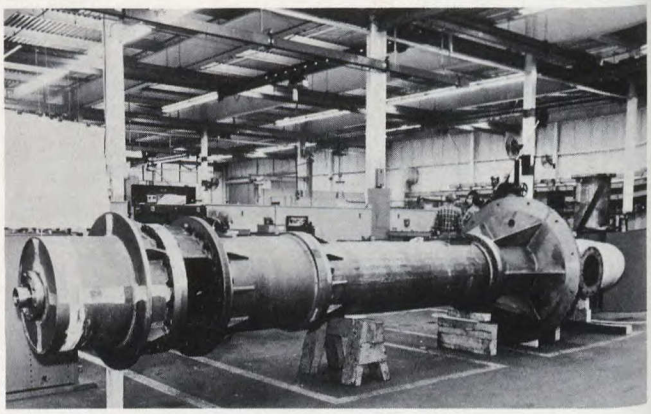
Increasing worldwide demand for highly sophisticated, special purpose machinery has been partly met by Delaval Turbine Canada Ltd.'s major manufacturing facility at Maple, Ontario. Delaval Turbine's established reputation has been based on the design and manufacturing of a wide variety of pumps and compressors for both onshore and offshore industries.

The Imo pump division of Transamerica Delaval has introduced the VUP vertical model of its two-screw GTS pump. This unit is also partially manufactured at the Maple plant.

The VUP pump is designed basically for space saving installation into cargo unloading situations on fuel oil barges and tankers. Other vertical or horizontal arrangements can be used to handle marine pumping applications such as ballast, stripping and transfer.

One main feature of this pump is its capability to run dry. This allows it to be used for stripping tanks. The screws are externally supported so the pump can handle any fluid viscosity from sea-water to 4,500,000 SSU heavy oils.

The GTS pump has capacity ranges to 8000 USGPM (30,000 l). Discharge pressures up to 400



psig, (2750 Kpa) suction lifts to 26 in. Hg. (8.7 m $H_2O$). Allowable pumping temperature is up to 600° F (315° C).

Delaval Turbine Canada Ltd., a Transamerica Delaval Company has 15 operating divisions at 18 manufacturing locations world-wide. The company makes a line of industrial products including compressor, steam condensors, connectors, controls, diesel engines, fasteners, filters, forgings, gearing, pumps, sensor, turbines and valves.

# DURACELL INC.

**2333 North Sheridan Way**
**Mississauga, Ont.**
**L5K 1A7**
**Phone: (416) 823-4410**
**Telex: 06-982253**
**Contacts: D. R. Guy,**
**vice president marketing**
**C. T. Wright,**
**product manager**

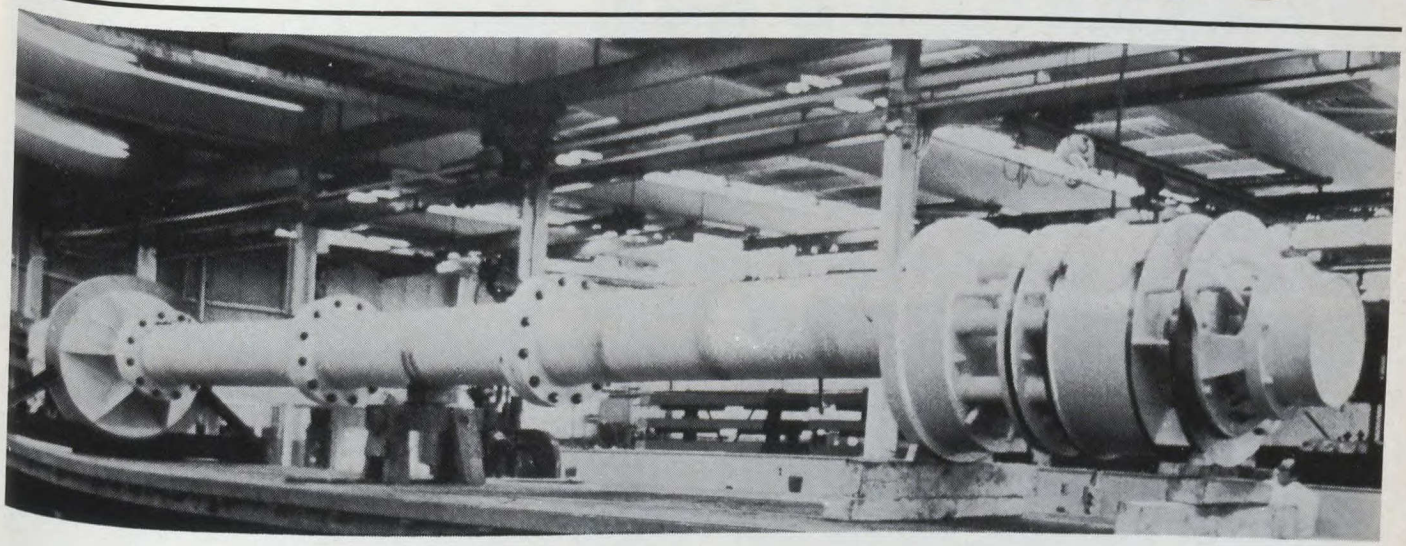
Duracell is Canada's leader in primary battery technology with headquarters and research and development facilities in Mississauga, Ontario. Duracell designs and manufactures a full range of military and special application batteries utilizing both alkaline and lithium chemical systems.

Recent innovative designs include battery packs for oceanographic application where temperature extremes are found.

Duracell also offers a full range of consumer products including, Duracell alkaline batteries, Durabeam lighting products, Mallory, general purpose, heavy duty, rechargeable batteries, Power Sonic rechargeable gel batteries, and Duratape audio products.

Duracell latest innovation is the introduction of Mallory Industrial Products which include a full line of batteries and lighting products for industrial use.

# SERIES GTS GEARED TWIN SCREW PUMPS



This vertically mounted screw pump is preferable for unloading tankers, barges, strip cargo tanks and can be run dry without damage.

SPECIFICATIONS OF GTS PUMPS FROM DELAVAL

FLOW RATES: 100-8000 US gpm ($\Delta P = 0$)
PRESSURES: to 300 psig
SUCTION: from 28" Hg lift to 100 psia
VISCOSITIES: to 4,500,000 SSU
TEMPERATURES: to 600°F

Delaval Turbine Canada Ltd. also makes

## GEMS® TANK LEVEL INDICATING SYSTEMS

for industrial and marine applications

**Delaval Turbine**
A Transamerica Company

Delaval Turbine Canada Ltd.
Unit No. 1, 6845 Rexwood Road
Mississauga, Ontario, Canada
L4V 1R2
Phone (416) 678-6141
Telex 06-968851

Delaval Turbine Canada Ltd.
1515 Mazurette St. W.
Montreal, Quebec, Canada
H4N 1G8
Phone (514) 384-8927
Telex 05-826686

Delaval Turbine Canada Ltd.
14, 5918 5th Street S.E.
Calgary, Alberta, Canada
T2H 1Z4
Phone (403) 253-7491
Telex 03-821739

# D. G. INSTRUMENTS LTD.

**308 Legget Drive**
**Kanata, Ont.**
**K2K 1Y6**
**Phone: (613) 592-3141**
**Contact: J. Dale**
**A. G. Craig**

D. G. Instruments Ltd., a division of General Signal Ltd., is an engineering development and manufacturing company providing instrumentation and electronics for scientific, aeronautical and marine applications. Marine products include shipboard radar displays, ships' RPM measurement systems and microprocessor based Hy-Nav navigation systems. Extensive R & D has been conducted on a wind measurement device and an Arctic tide gauge using all solid state memory.

The DGI Hy-Nav is a fully automatic navigator and data logger in a single unit. Fully automated navigation and data logging is available for operators of small motor launches.

The Hy-Nav system accepts inputs from Trisponder, Miniranger or similar positioning equipment, keyboard selected by the operator. Corresponding software instructions are factory programmed into the microprocessor. The correct input for each system is simply selected by entering a two digit code.

The Hy-Nav hydrographic navigation system is self-contained and fully waterproof with covers in place. An advanced version of Hy-Nav is intended for longer range navigation using inputs from Loran C and a satellite navigator.

The ultrasonic wind measurement device has been designed for use in severe environments including driving rain and icing conditions. Accuracy is maintained at all wind speeds from zero to 150 mph.

An Arctic tide gauge is intended to record tidal data unattended at hourly intervals for up to one year. The tide gauge employs an all solid state memory and uses no magnetic tapes or moving parts of any kind. Data is retrieved by interface to a standard computer system.

These representative products are typical of the company's capability to design, develop and manufacture high technology instrumentation. Manufacturing facilities located in Kanata, Ont. are quality approved from the Canadian departments of transports, national defence, etc. to produced products to the latest government and military standards.

# DOMINION OILFIELDS SUPPLY CO. LTD.

**5819 2nd St. S.W.**
**Calgary, Alta.**
**T2H 0H3**
**Phone: (403) 255-3303**
**Telex: 038-22624**
**Contact: Al Schreiner,**
**president**
**Don Pelchat,**
**quotations manager**

Dominion Oilfields Supply Company offers a wide range of production and drilling equipment for export to the U.S.A. and overseas. These capital goods and spare parts are shipped from both our Calgary and Houston warehouses.

Dominion handles all export documentation, insurance and crating to ensure safe and reliable delivery to the end user.

Dominion has had several years experience exporting to: Algeria, Australia, Dominican Republic, Kuwait, Guyana, Singapore, Scotland, Iran, Iraq, Libya, Zaire, Belgium, Brazil, Philippines and the United Arab Emirates.

# OFFSHORE RIG TECHNOLOGY

**Dreco technology provides the best rig package for your ultra-deep drilling requirements.**

Dreco provides the technology our customers require. For 25,000 ft. and deeper we are building a variety of rigs, masts, and substructures. Our ultra-deep rig packages consists of a 1,250 ton block, 40 ft. rig floor and a 3,125,000 lb. gross nominal capacity mast.

Dreco drilling machinery includes the dependable line of Superior drawworks, from the 300 to the new 4,000 hp model, triplex pumps to 2,000 hp, plus all other major machinery items. We can deliver the machinery our customers need for the job.

Dretech builds a wide range of Eddy-Current Brakes specifically designed for heavier loads. Our biggest brake will efficiently permit lowering a 2,500,000 lb. hook load at a rate of 30 ft. per minute.

***We Make it Happen!***

DRECO

**Dreco Ltd.**

3666 - 93 Street
Edmonton, Alberta T6E 5N3
Ph. (403) 468-1550 Telex 037-2243

**Offices and plants located at:**

Edmonton, Nisku and Calgary, Alberta / Houston, San Antonio, Longview, Odessa and Rosenburg, Texas / New Iberia and Lafayette, Louisiana / McComb, Mississippi / Casper, Wyoming / Ogden, Utah / Anchorage, Alaska.

# DUNLOP INDUSTRIAL LTD.

**11 Curity Avenue**
**Toronto, Ont.**
**M4B 1X5**
**Phone: (416) 755-7785**
**Telex: 06-963581**
**Contact: D. E. Kellie,**
**vice-president**
**K. E. Wilson,**
**executive secretary**

Dunlop Industrial Ltd. is involved in the manufacture of nearly 200 products designed expressly for the offshore industry.

The wholly-Canadian company draws full support and technological assistance from associated Dunlop companies throughout the world, and has access to experience and background in offshore applications in the North Sea, the Middle East, Africa, South East Asia and the United States. The world-wide facilities and experiences are backed by the company's research centre located in Ontario.

Dunlop's line of safety products and rig supplies service nearly every sector of the offshore oil industry, from exploration and production to pipelines and underwater applications.

At its production facilities in southwest Ontario, Dunlop manufactures storage linings, reservoirs and containers, while at eight strategic locations throughout Canada, the company offers marine safety services.

Dunlop manufactures hose for oil industry applications, and has hoses specially designed for the supply of water, diesel fuel, mud, barites and chemicals. Dock hose is also available for ship-to-shore discharge or loading of crude and refined oils, and the self-floating hose is used on mono-buoy service for loading and discharging VLCC's offshore.

# DYNAMIC WATER CONDITIONING INC.

**24, 566 Cardero St.**
**Vancouver, B.C.**
**V6G 2W6**
**Phone: (604) 688-7221**
**Telex: 04-53143**
**Contact: John O. Richmond,**
**president**
**Frederik S. Sverre,**
**vice president**

The Dynamic magnetic water conditioner is made of the finest materials and is engineered and designed to give maximum performance. They are used extensively worldwide in ships' boilers, engine cooling, evaporators, fresh water distribution and air conditioning.

All metal surfaces in contact with the water are stainless steel and brass and the special magnet is completely sealed against water contact. The conditioners carry a five year guarantee and are the only magnetic type which can be adjusted manually without any part being disassembled.

Hard water is treated by a very strong magnetic field, greater than 8,000 Gauss Strength, which prevents the naturally dissolved from forming scale. It does not always operate efficiently in water high in sulphates. Chemical additives, salt or electricity are not required.

By magnetizing the water, precipitation results in the calcium bicarbonate crystallizing into calcium carbonate in solution, at which time carbon dioxide is released. In addition, the free carbon dioxide attacks and releases the old carbonate scale, allowing the calcium carbonate crystals to flow freely through the piping system without scaling.

# EPI RESOURCES LTD.

610 - 800 - 6th Ave. S.W.
Calgary, Alta.
T2P 0T8
Phone: (403) 269-5307
Telex: 03-825827
Contacts: Norman W. Miller, president
W. James Cooke, chairman

EPI Resources was formed to meet the demands of providing both technical and financial advisory support to industry and government in the planning and development of new energy ventures. The Calgary-based company specializes in oil and gas project management, engineering economics, onshore/offshore drilling and production testing operations and field development planning. EPI has also developed advanced analytical models for simulating and evaluating the economics and business risks of undertaking investments in energy related projects.

The experience offered by EPI Resources covers the following areas of activity:

onshore and offshore development project evaluations including engineering analysis, project scheduling, capital cost estimating and financial planning.

Unique analytical techniques utilizing sophisticated computer simulation models for comprehensive engineering-economic analysis of oil and gas investment opportunities.

Project engineering for onshore/offshore drilling operations, operations supervision and production testing systems engineering, natural gas development and transportation economics, development and analysis of exploration agreement terms, company and property evaluations including reserves appraisals and evaluation of production performance and design, development and marketing of computer software systems.

# EBA ENGINEERING CONSULTANTS LTD.

**14535 - 118 Avenue**
**Edmonton, Alta.**
**T5L 2M7**
**Phone: (403) 451-2121**
**Telex: 037-2981**
**Contact: D. W. Hayley,**
**vice-president**

EBA Engineering Consultants Ltd. has provided geotechnical consulting services in western Canada and the Arctic for 15 years. The Arctic and Offshore Group has made significant contributions to the development and design of the structures for Arctic waters. EBA has been active in the Canadian Beaufort Sea since 1972 and recently applied expertise gained over the past decade to projects in Alaskan waters.

Geotechnical investigations and designs have been completed for various offshore structures such as artificial islands, docks, harbour facilities and pipelines. A wide range of specialized equipment and techniques have been used to conduct site investigations from both winter ice cover and vessels during open water season. Information gathered has included subsurface stratigraphy, soil properties (including permafrost) and delineation of borrow materials.

The company also provides extensive analytical services, application of numerical techniques to stress and deformation problems; transient thermal models, stability under ice, wave, or earthquake loading; and soil structure interaction.

Incorporated in 1966, EBA operates from offices in Edmonton, Calgary and Vancouver. The company also maintains an active practice in providing geotechnical, hydrological and materials testing engineering consulting services for industrial plant sites, coal and oil sand mines, dams, tunnels and commercial developments.

# FALCON ENGINEERING (1981) LTD.

**202, 8704 - 51 Avenue**
**Edmonton, Alta.**
**T6E 5E8**
**Phone: (403) 468-3093**
**Contact: Murray G. Brown,**
**president**
**Michael T. Yuen,**
**vice president**

Falcon Engineering is a well established, multi-discipline, Canadian company with the capacity and experience to execute major projects onshore or offshore in the oil and gas industry. We have assembled an engineering and design staff built on professionalism, experience, skill, flexibility, responsiveness, and the ability to deliver a quality project on time and within budget.

The steadily expanding technical and management resources can provide high quality services tailored to the specific requirements of any project. Innovative and flexible approach enables Falcon to offer a full range of services from operating in liaison with a client's staff to assuming total responsibility for conception and implementation of a program.

Falcon sphere of operation now extends into international markets as well as across Canada. Services available range over a broad base of structural, and mechanical engineering.

Falcon Engineering is an established leader in the design of specialized equipment handling systems for on or offshore drilling facilities including pipe handling and laydown machines, B.O.P. and x-mas Tree bridge cranes, B.O.P. handling skids and trolleys as well as man lift elevators. These and other products are offered on a design only or design build turnkey basis.

Falcon Engineering can provide a project support team to assist in the preparation of specifications and bid documents, project scheduling, cost control, quality control, purchasing expediting, and project start-up and commissioning.

# THE WAY A COMPANY MEETS CHALLENGE SAYS A LOT.

OFFSHORE

ONSHORE

ARCTIC

DRILLING

PRODUCTION

- PROJECT SCHEDULING
- BUDGET COSTING
- EXPEDITING
- CONSTRUCTION SUPERVISION
- INVENTORIES, EVALUATIONS
- HANDLING SYSTEMS
- DRAW WORKS DESIGN
- DERRICK DESIGN
- STRUCTURAL ANALYSIS
- FEASABILITY STUDIES

## MEETING CHALLENGES TODAY FOR TOMORROW ...

# FALCON ENGINEERING

CONSULTING ENGINEERS

202, 8704 - 51 AVENUE, EDMONTON, ALBERTA T6E 5E8 TELEPHONE: (403) 468-3093

# FATHOM OCEANOLOGY LTD.

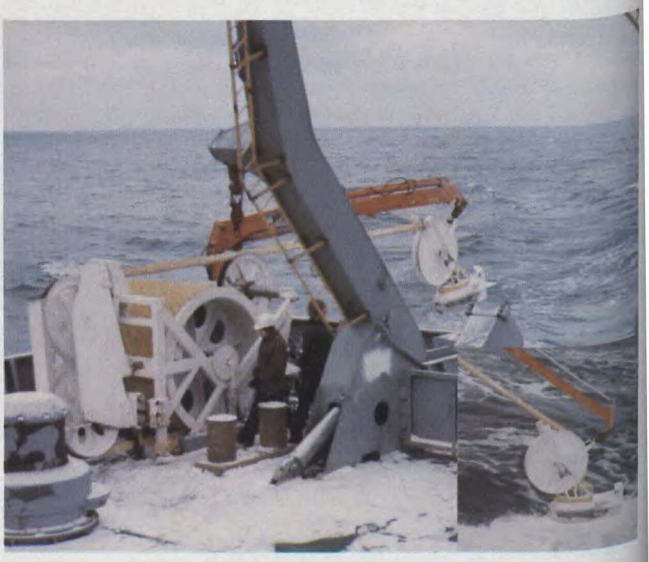
**863 Rangeview Rd.**
**Port Credit, Ont.**
**L5E 1H1**
**Phone: (416) 274-1551**
**Telex: 06-960226**
**Contact: Les Truxa,**
**marketing analyst**

With a wide range of international clients, Fathom's purpose is to exploit opportunities in the ocean engineering field through the design, development and manufacture of specialized equipment for shipborne services and offshore structures.

Fathom's key to success has been its ability to incorporate an understanding of the marine environment with the mechanics and hydrodynamics of moving objects through oceans, or, in other words, reducing drag.

The cornerstone of the company's product line is its variable depth towing system. It has been successfully applied to uses as diverse as naval defence and basic oceanography.

Since space is at a premium on any ship, Fathom has learned the art of packaging on-board equipment under the most rigorous requirements. Systems have been built to fit under helicopter decks, between decks and on small vessels such as hovercraft. The company's commercial packages benefit from this experience with military requirements and offer many other unique features.



Fathom is continuing to solve problems in depth through its development of CASCAN, a new, lightweight riser buoyancy system.

# FARR INTERNATIONAL (1979) LTD.

**16665 113 Avenue**
**Edmonton, Alta.**
**T5M 2X2**
**Phone: 403 483-3363**
**Telex: 03-73094**
**Contact: Bruce Day,**
**vice president**
**Dave Graves,**
**general manager**

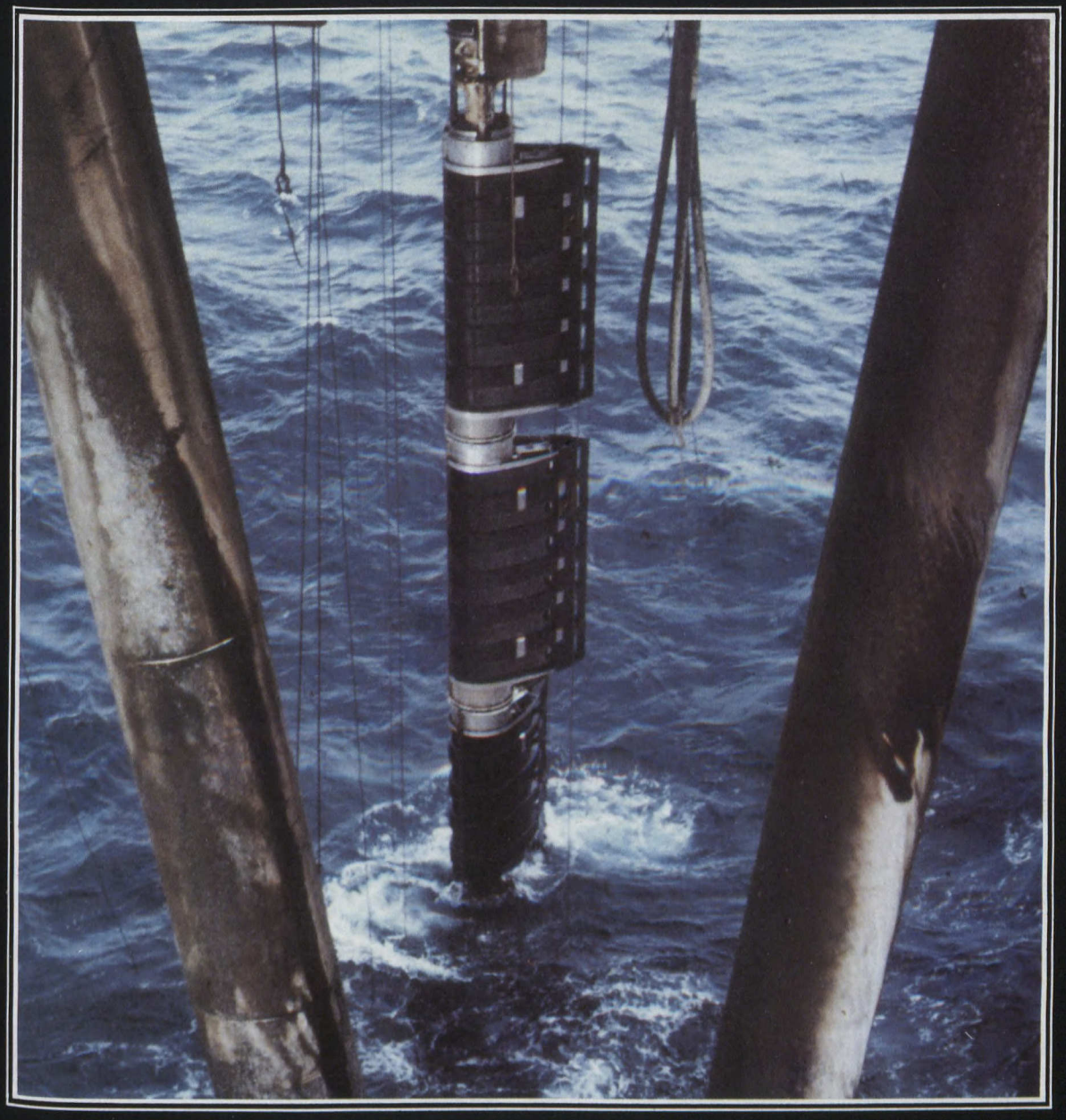
Farr Oil Tool Ltd. was established as a casing crew service in 1964 and expanded rapidly across western Canada and problems with his crews' purchased tongs led Garth Farr to the decision to make his own although developing and manufacturing a reliable hydraulic power tong was not easy, the line was ready by 1976 when Farr International Co. Ltd. was established.

Today Farr manufactures a complete line of high-torque hydraulic power tongs. The Farr 31 inch tong is the world's largest hydraulic power tong. This massive tong is capable of providing over 80,000 foot pounds of torque and was specifically designed for running extra-large diameter surface casing in ultra-deep wells. The tong measures 100 inches long, 66 inches wide and 37 inches high and weighs 6,900 pounds. It proved its mettle in the ultra-severe North Sea environment.

All tongs in the Farr line are manufactured in Edmonton, Alberta, from the finest heat-treated steel. Heavy duty gear trains ensure sturdy performance. When running different sizes of casing and tubing, jaws on Farr tongs can be quickly changed simply by removing two pins and changing out the jaws.

In the past 10 years the oil industry has seen a tremendous advance in the quality of power tongs. Because of the increased drilling of deeper, higher pressure wells, the make-up of leak-proof connections in the casing string has become more critical than ever. Farr has met this challenge. Farr tongs are technically designed to accurately make up even special two-step threads, and to consistently achieve the higher torques required for the final make-up of leak-proof connections. Even the heavy-walled joints used in high pressure wells are securely gripped and torqued by Farr tongs.

# SOLVING PROBLEMS IN DEPTH



*PIPESTREAM™ FAIRINGS SWINGING INTO LINE WITH THE OCEAN CURRENT IN THE AMAZON DELTA.*

For information on Fathom's Marine Riser products, PIPESTREAM™ fairings, STARSTRAKE™ vortex shedding suppressors, CASCAN™ buoyancy systems, contact:

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SOLVING PROBLEMS IN DEPTH

FATHOM OCEANOLOGY LIMITED
863 Rangeview Road
Mississauga, Ontario, Canada
L5E 1H1
Tel: (416) 274-1551
Telex: 06-960226

# FENCO CONSULTANTS LTD.

**33 Yonge Street**
**Toronto, Ont.**
**M5E 1E7**
**Phone: (416) 361-4722**
**Telex: 06-23765**
**Contact: J. N. Galli, president**
**K. Poulsen, vice-president**

Fenco Consultants Ltd, an industrial, civil and marine engineering division of Lavalin Services Inc., has been engaged in ocean industries research and engineering for over 30 years.

Fenco's operations have included the development of systems, structures and facilities to provide economical and reliable commercial solutions to the problems associated with offshore explorations and extraction of oil and gas in the Arctic and other Canadian waters.

Fenco designed the world's first floating ice drilling platform, and the company's approach to the ice problem has resulted in a complete system of tests for analyzing the effect of ice on structures and vessels.

Fenco's extensive domestic and international experience in research, engineering and system planning has included large scale marine structures and installations, including ports, harbors, terminals, shipyards, drilling platforms and islands. The company is currently involved with the proposed Strait of Belle Island 400 kv DC submarine cable crossing.


# FISH INTERNATIONAL CANADA LTD.

**100, 6 Heritage Drive SE**
**Calgary, Alta.**
**T2H 2B8**
**Phone: (403) 252-1101**
**Telex: 03-821748**
**Contact: E. D. Wiwchar, president**
**C. D. Annable, vice-president**

From its Calgary base, Fish International Canada Ltd. provides total engineering, procurement and construction services for the oil, gas and petrochemical industries. Fish has particular expertise in gas processing, including compression, dehydration, treating, sulphur recovery and cryogenic recovery of liquid products such as ethane, propane and butane. Modular design for processing units has been utilized on several projects and has special significance for offshore platform applications.

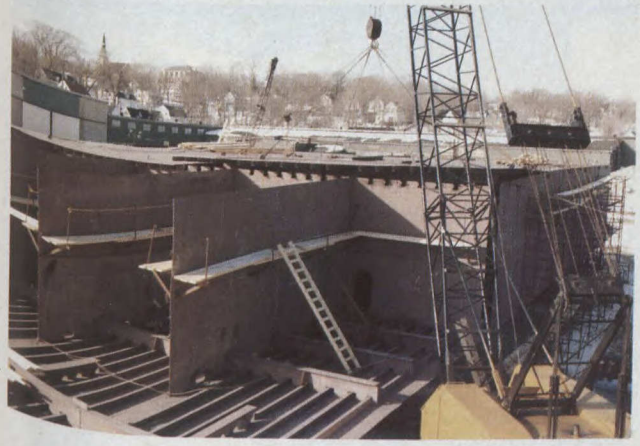
Fish International has completed gas processing projects ranging in size from 10 mmcf/d to 2,000 mmcf/d. Gas compression projects have ranged in size from 1,000 bhp gas engine driven units to 33,500 bhp gas turbine driven units. The Fish group has completed seven of the 10 largest cryogenic gas processing plants in North and South America.

As well as having in-house capability for modular design, Fish International, through its affiliate Fish Engineering and Construction Inc. of Houston, Texas, has access to specialized expertise in the area of design and construction of offshore platform production modules.

# FERGUSON INDUSTRIES LTD.

74 Front St.
Pictou, N.S.
B0K 1H0
Phone: 902 485-4313
Telex: 019-36535
Contact: D. H. McKeough
J. B. Ferguson

Ferguson Industries is chiefly engaged in steel shipbuilding, ship repairing and heavy fabricated industrial products. Associated with Ferguson's are Sydney Engineering and Dry Dock Co. Ltd. in Sydney, engaged in steel ship construction, mine equipment and heavy industrial products, and Oxford Industries Ltd. in Oxford, engaged in the manufacture of forest product machinery, fish processing equipment, conveyors and industrial products. Total employment in the three plants is 500.



Ferguson Industries is a fully integrated and well established steel shipbuilding company engaged in the construction of all classes of vessels up to 90 metres in length. Recent construction includes offshore supply, patrol, research vessels, trawlers, tugs and barges. Drydocking is carried out on a 2,000 ton marine railway drydock with a large side transfer facility, which enables the construction of large pontoons or modules up to 1,200 tons. The shipyard is also provided with a conventional building berth for the construction of vessels up to 90 metres.

# FENTRONICS LIMITED

P.O. Box 85,
Port Hawkesbury, N.S.
Phones: (902) 625-1736
Telex: 019-37522
Contact: Fen MacIntosh
Ralph Atwood

Fentronics Ltd. is an electronics, electrical and navigational company serving the Canadian oil industry for over 10 years.

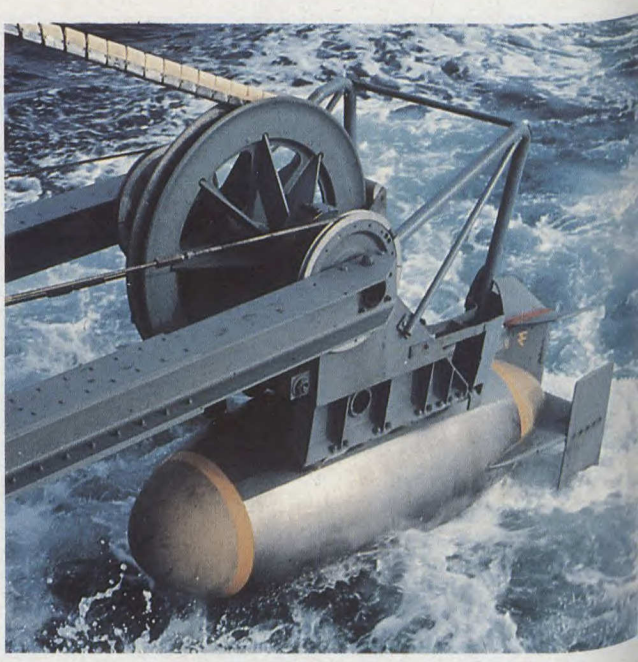
Some of its activities include installation and/or servicing of radar, communications and navigational equipment. Installation and servicing of remote switch alarm systems is also carried out.

Associated with McElhanney Surveying and Engineering Ltd., the company provides rig positioning site surveys, hydrographic surveys, Argo, Sat/Nav and Mini Ranger positioning throughout the Canadian oil patch, including the Arctic.

Founded in 1969, now employing 15 people, the company is also agent for Sperry Marine Systems and Spilsbury Communications Ltd.

# FLEET INDUSTRIES

**P.O. Box 400**
**Fort Erie, Ont.**
**L2A 5N3**
**Phone: (416) 871-2100**
**Telex: 061-5165**
**Contact: J. O'Brien,**
**director of marketing**



Fleet is primarily involved in the manufacture of aircraft structures, control surfaces, and composite structures including satellite and metal bonding for the major aerospace companies.

Design and manufacture of a complete line of underwater hull mounted sonar dome systems and over the stern variable depth towed systems are also offered by Fleet. The hull mounted systems are available in various configurations and sizes; fixed to the hull, retractable into the hull, or fixed dome and payload retachable into the hull.

The variable depth towed system — consisting of a winch, a launching, towing and recovery boom, faired towing cable and towed body vehicle, operating controls and power drive system — are available for small and large ships. Each system is designed for the specific class of ship upon which it will be installed.

# GENSTAR MARINE

**10 Pemberton Avenue**
**North Vancouver, B.C.**
**V7P 2R1**
**Phone: (604) 988-3111**
**Telex: 04-352817**
**Contact: S. O. Stokke,**
**vice-president**

With a fleet strength totalling 300 ocean-going barges and 70 tugboats of up to 9,000 hp, Genstar Marine has the ability to handle virtually any project around the world. Its fleet of ocean-going submersible barges is one of the largest and most modern in the world, with seven barges rated for a capacity of 17,000 DWT.

Specializing in the worldwide transport of drilling rigs, dredges and construction equipment, Genstar Marine has equipment available to handle the movement of 12,000 DWT jack-up rigs over distances of up to 15,000 miles. A recent contract involved moving the jack-up rig "Interocean II" from a shipyard in Japan to Mexico, a voyage that covered 15,000 miles and took 77 days. The roll-on/roll-off or float-on/float-off concept employed in the ocean-going barges, as well as the vessels' shallow draft make them ideal for transport to remote locations.

Genstar Marine also played an important part in the development of the North Sea oil fields, providing tugs for anchor handling in pipeline operations as well as barge transportation for supplying drilling and production platforms. Genstar has been contracted for work on the North Slope, in the Beaufort Sea, offshore the east coast of Canada and in the Gulf of Mexico. It has extensive ship building and repair facilities in Vancouver.

# GENSTAR Marine

*Seaspan International Ltd.*
*10 Pemberton Avenue*
*North Vancouver, B.C.*
*Canada V7P 2R1*
*Tel: (604) 988-3111*
*Telex: 04-352817 GENMAR VCR*
*Cable-Seaspan*

HEAVY-LIFT AND MODULAR CARGO DEMAND GENSTAR'S SPECIALIZED HANDLING and innovative equipment. Genstar utilizes mammoth 122 × 31 meter (400 × 100 ft.) ocean-going barges with more than 15,000 metric tons of cargo capacity and 3,437 square meters of usable deck space. We have seven (7) units trading worldwide.

Genstar is engaged in heavy hauling throughout the world. A recent contract called for the transport of 39 pressure vessels from Japan to Saudi Arabia for a desalinization project in Al Jubayl. In three tows Genstar transported the huge vessels, many measuring 58 × 9 meters (190 × 30 feet) and weighing over 700 metric tons, plus related equipment over the 10,619 kilometers (6,600 miles).

Fully equipped to handle the big ones, Genstar Marine arranges turn-key transports including ocean towage.

With large open decks and with automated controlled ballasting, Genstar's ocean-going vessels provide one of the safest and most efficient methods available for transporting jack-up drill rigs and heavy-lift cargo such as construction equipment, massive processing plants, pressure vessels, heavy-lift modules and offshore jackets.

## GANDER DEVELOPMENT CORPORATION

**P.O. Box 472**
**Gander, Newfoundland,**
**A1V 1W8**
**Phone: (709) 651-2992**
**Telex: 016-43512**
**Contact: David Hallett, executive director**
**Terry Fudge, development officer**

The Gander Development Corporation was established in 1975 to study and promote new economic opportunities for Gander in relation to its International Airport.

The corporation is actively marketing the airport because of its strategic location and consequent potential, especially in terms of services to the east coast oil and gas play and to the international transportation sector.

The airport is Canada's easternmost international airport which is in juxtaposition with the Atlantic Shelf's hydrocarbon exploration activity. Another major contributing factor for Gander's increasing importance is its advantage of being the closest North American international airport to European markets and situated at midpoint on air routes between Europe and Central North America and between Central and South America and Eastern Europe. This latter point has resulted in Gander attracting an increasing volume of international air traffic making refueling and servicing stops.

The airport has the capacity to absorb dramatic increases in traffic. The final phase of an expansion and renovation project by Transport Canada will be completed in 1982. In addition, an ultra-modern computer oriented air traffic control centre was opened in 1981.

# GEOCON OFFSHORE INC.

14 Haas Road
Toronto, Ont.
M9W 3A2
Phone: (416) 743-3031
Telex: 06-989367
Contact: M. A. J. Matich,
president
R. B. German,
division manager

The marine operations division of Geocon Offshore Inc., a division of Lavalin Services Inc., has provided a full range of marine geotechnical engineering and related services to clients in Canada and internationally since the early 1950s.

Geocon Offshore offers comprehensive services in fields of soil mechanics and foundation engineering, marine geology, environmental control, construction supervision, ocean mining and laboratory testing. It is one of the few organizations that owns and operates drilling, sampling and testing equipment either adapted to or designed for overwater and submarine work.

The company also provides investigations and exploration services on a contract basis to other engineering firms and to contractors and owners. Marine investigations are routinely carried out with equipment ranging from grab samplers and gravity or piston corers through vibrocorers and lightweight conventional drills, adapted for both overwater and submerged operations, to a motion-compensated deep water drilling system equipped to drill and sample overburden and bedrock to depths of 600 metres below the drill deck.

Geocon's combination of engineering, drilling and marine experience has enabled it to complete assignments in all areas of the world, from the Beaufort Sea and the Arctic Islands to the Azores and the Niger River.

# GEOMARINE ASSOCIATES LTD.

5112 Prince Street
Halifax, N.S.
B3J 2L4
Phone: (902) 422-6482
Telex: 019-23514
Contact: Alan Ruffman,
president
John Stewart,
vice-president

Geomarine Associates Ltd. is a company of 30 professional and technical employees with a number of year's experience in marine geophysical, geological and hydrographic projects.

The employees include marine geologists and geophysicists skilled in the interpretation of geophysical data and marine operations, electronics engineers and technicians with experience in the design and operation of geophysical equipment and marine operations and acoustics and surveying engineering experts.

Geomarine has had extensive international exposure, including conducting well-site surveys off the coast of Uruguay and offshore Greenland, carrying out seismic interpretations in Guatemala and archeological surveys off the coast of the Netherlands.

Within Canada, Geomarine has been employed by a number of exploration companies, including Shell, Dome, Esso and Chevron, and has conducted marine geophysical and well-site surveys off the east coast and in the Arctic Islands and Beaufort Sea. The company has also conducted pipeline and submarine power cable route surveys for oil companies and major utility companies.

# GEONAUTICS LIMITED

**P.O. Box 8145**
**St. John's, Newfoundland**
**A1B 3M9**
**Phone: (709) 364-6015**
**Telex: 016-4596**
**Contact: Frank Smith,**
**chief executive officer**
**David I. Ross,**
**secretary/treasurer**

Geonautics Ltd. is a consortium of Canadian companies providing integrated marine geophysical and geotechnical survey and interpretation service related to offshore engineering and development projects. The company is supported by technical specialists in geophysicists, geology, navigation, hydrography and engineering from its three participating companies NORDCO Ltd., Huntec '70 Ltd. and Marinav Corp. These companies provide a resources base of 200 experts in marine services. The head office is in St. John's, Newfoundland and world wide representation is provided through offices of its members in Canada, USA, United Kingdom and S.E. Asia.

Studies of the seafloor and near surface sub-bottom to depths of 1 000 metres sub-seafloor provide the main focus of the company's activities. To carry out these studies, Geonautics maintains an extensive inventory of marine geophysical and geological tools from high resolution multi-channel seismic systems to remotely operated seafloor vibrocoring units.

Equipment is acquired or developed to meeting the changing needs of the offshore industry. In particular, survey systems are selected to meet the most stringent requirements for resolution and quality. New technology and methods are developed within member companies to maintain state-of-the-art services provided by Geonautics.

Project management, data interpretation and report preparation are essential aspects of services provided. Staff are skilled in all aspects of seismic interpretation, hydrographic and sidescan sonor analysis and specialized cartographic staff are available for all aspects of chart preparation.

# GEARMATIC CO.

**7400 132nd St.**
**Surrey, B.C.**
**V3T 4X4**
**Phone: (604) 596-7111**
**Contact: Gerry Graaf,**
**general sales manager**
**Allan Pickering,**
**marketing manager**

Gearmatic Co. hydraulic planetary winches, hoists, drives and mechanical winches are found in a wide range of applications — offshore exploration, oil and gas pipeline, dock installation, fishing, construction, dredging, mining, logging and general manufacturing. Gearmatic hydraulic products are used wherever customers demand trouble free operations under rigorous climatic and working conditions.

The modular design of Gearmatic products provides an off-the-shelf selection of components to be assembled in a wide variety of combinations to meet application requirements. Gearmatic's hydraulic planetary winches and hoists have automatic safety brakes, and a wide selection of cable drum configurations are available together with gear ratios and hydraulic motors (medium and high pressure ranges). High speed reverse, free fall and two speed are optional features.

The company's years of experience in the field of hydraulics and planetary gearing spawned a six-speed transmission primarily designed for the oil exploration industry in wireline logging. It features power shifting, good speed control, free spool, universal mounting, compact design and a speed range of 600 to one.

# GEOTERREX LTD.

**2060 Walkley Road**
**Ottawa, Ont.**
**K1G 3P5**
**Phone: (613) 731-9571**
**Telex: 053-3502**
**Contact: Art Rattew, president**

Geoterrex is a Canadian geophysical service company operating on a world-wide basis. Technical export capability is demonstrated by earnings which show that 80% of 1981 revenue was from outside of Canda.

Geoterrex was formed in 1966 to provide high quality geophysical services to the petroleum and mining industry. The firm provides a wide range of geophysical capability including high resolution marine seismic, seafloor sediment sampling and photography, marine gravity, high resolution aeromagnetic surveys and mining exploration services, airborne and ground.

At Geoterrex the key operating emphasis is on interpretation. A staff of over 200 employees including 80 professional geophysicists and engineers, provides important control on all phases of projects from initial planning to final interpretation. In-house capabilities include aircraft operating services; electronics operating, maintenance and manufacture of source equipment; digital data processing and map production; photographic laboratory; and data interpretation using computer and graphics products.

The services of Geoterrex are complemented

by one of its founded companies, Terra Surveys Ltd., one of Canada's largest international resource development engineering companies offering a complete complement of photogrammetric engineering studies, geodetic and engineering surveys, route location, path testing and topographic mapping from aerial photography and other remote sensor systems.

# GERMAN AND MILNE INC.

**4999 St. Catherine St. W., Suite 300**
**Montreal, Que.**
**H3Z 1T3**
**Phone: (514) 487-0701**
**Telex: 05-268812**
**Contact: J. G. German, president**
**C. J. Klop, vice-president and general manager**

German and Milne Inc. is a wholly independent Canadian company, which has been providing professional architectural, engineering, construction supervision and related services to the shipping industry for the past 60 years.

The company specializes in commercial ships and floating equipment of all kinds, having over 1,300 designs to its credit, of which well over 400 have been built and put into service.

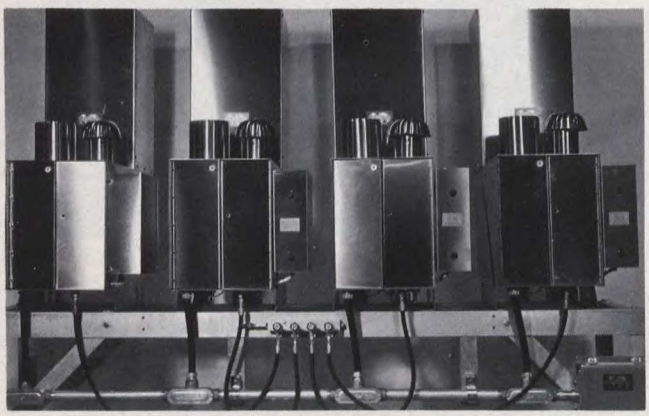
The company is particularly well-known for its designs of ice-capable vessels, including major icebreakers, icebreaking ferries, cargo vessels, work boats, tugs, offshore support icebreakers and supply ships. The list includes well-known research vessels, hydrographic survey and oceanographic ships. An icebreaking subsea cable repair ship and several dredging vessels are further testimony to the versatility of German and Milne.

Recently, the company has completed the design of two Arctic Class 4 support icebreakers with anchor handling and supply features, and is nearing completion of a contract design of a major Arctic Class 8 icebreaker.

German and Milne maintains its head office in Montreal and has a branch office in Ottawa.

# GLOBAL THERMOELECTRIC POWER SYSTEMS LTD.

**P.O. Box 90**
**Bassano, Alta.**
**T0J 0B0**
**Phone: (403) 472-3512**
**Telex: 03-848141**
**Contact: Donald Peterson, president**
**Larry Helgerson, sales/marketing manager**



Global Thermoelectric is a privately-held Canadian company engaged in the manufacture, marketing and development of highly reliable thermoelectric power systems providing from 10 to 1,000 watts of AC power to remote, unattended stations.

With over half of its sales tagged for export markets, Global is an experienced international operator, capable of shipping by land, sea or air and of handling the necessary document requirements for free and third world countries to ensure speedy, undamaged delivery at remote sites.

As power system suppliers, Global emphasizes customized remote power systems which meet the unique needs of clients in the demanding environments found in the deserts of the Middle East or the frozen wastelands of the Arctic. Customers are guaranteed remote power systems which reliably and properly supply power to their specific electrical and/or electronic loads.

In addition to its manufacturing capabilities, Global also maintains a fully-staffed research and development arm at its Bassano plant and head office and provides full support services to its clients, either through telephone or telex consultations, or by way of an in-person visit by a factory technician.

# B.F. GOODRICH CANADA LTD.

**409 Weber St. W.**
**Kitchener, Ont.**
**N2G 4J5**
**Phone: (519) 742-3641**
**Telex: 069-55442**
**Contact: W. Doug Maass, engineered products**
**Brian C. Mitchell, engineered products**

B.F. Goodrich Canada Ltd. exports a wide variety of rubber products related to resource exploration throughout the world. Marine fenders, dredging hose, V-belts and steam hose are just a few of the world mandate product line of BFG Canada.

The Kitchener, Ont. based rubber and plastic producer ships direct to such markets as countries of the Pacific Rim, the Middle East and the North Atlantic. BFG Canada's famous "Flex-Arctic" hose was especially developed for climate conditions in Canada's far north. Rubber craftsmen in BFG's technically advanced central plant recently built dock fenders for Iceland and for drilling rigs off the coast of Malaysia.

Servicing Canadian products in world market locations is routine for these Canadian engineers and technicians. Service and installation teams have been active in such diverse locations as Cuba, Chile and Turkey.

During 1981, Canadian-built products from BFG Canada were shipped to more than 30 countries for service in every climate and geological condition. Sophisticated R. & D. programs, hi-tech engineering and the most exacting customer requirements and standards are available for every product exported to world markets.

Backed by "hands-on" engineering and technical management, skilled craftsmen (many of whom are second and third generation rubber tradesmen) and modern production equipment and laboratories, BFG Canada products for hydrocarbon development and exploration in the world's oceans are fast becoming an international standard.

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If your business is well completion or maintenance of well production, don't be without our comprehensive new source book.

You'll find descriptions and specifications for our full range of hoses including BFGoodrich Rotary Drilling and Vibrator Hose, Blowout Preventer Hose and Steam Handling Hose; also BFGoodrich V-Belts and Sheet Rubber products.

For your copy, write Engineered Products Group, B.F.Goodrich Canada Inc., 409 Weber Street West, Kitchener, Ontario N2G 4J5.

**BFGoodrich**

# GREENING DONALD CO. LTD.

**P.O. Box 430**
**Hamilton, Ont.**
**L8N 3J3**
**Phone: (416) 528-5971**
**Telex: 061-8601**
**Contact: Steve Wood,**
**manager rope products**
**Mike Crawford,**
**manager perforated products**

Greening Donald Co. Ltd. is the oldest continually operating wire rope manufacturer in the western hemisphere.

Wire rope, including rope assemblies, is our most important offshore product line. Greening Donald can manufacture a wide range of anchor ropes. Our European associate company is capable of supplying the largest diameters and longest lengths in the world.

Besides wire rope, the company makes a complete line of woven screens, perforated and fabricated metal products and stainless steel wire, all of which are used in the offshore industry.

Realizing technical knowledge is essential, Greening Donald has specialized in application engineering. Our technical staff has conducted studies on semi-submersible rigs, drill ships, and pipe-laying barges analyzing critical wire rope installations. Special attention has been given to riser tensioner ropes, which are possibly subjected to more types of loading than any other wire rope application.


A completely new concept in rope design — plastic impregnated steel rope manufactured by Greening Donald and sold under the trade name P.F.V. (Plastic Filled Valley) has produced phenomenal results (as much as 400 percent longer life) in the mining and logging industries and is presently being tested on oil exploration installations. The company is confident there will be a number of successful applications for this product on offshore equipment.

The company's other offshore product lines are stainless steel shale shaker screens, oil well measuring lines, and perforated non-slip grating.

We presently sell products to more than 40 countries around the world

# GOLDER ASSOCIATES

**#600, 170 Attwell Drive**
**Rexdale, Ont.**
**M9W 5Z5**
**Phone: (416) 675-7341**
**Telex: 06-989582**
**Contact: V. Milligan,**
**chairman**
**J. L. Seychuk,**
**president**

Golder Associates is a Canadian company providing comprehensive world-wide consulting services in geotechnical and mining engineering to the energy, offshore, mining and civil engineering industries.

A total staff of more than 50 operates from 27 permanent offices throughout Canada, the USA, Great Britain and Australasia.

The company has been actively involved with marine projects for more than two decades, largely associated with the geo-engineering investigation and design aspects of nearshore structures such as docks, harbours and marine terminals. More recently, the firm has undertaken significant projects in the major offshore energy fields.

In the Beaufort Sea, Golder is involved in the detailed design analysis for a mobile, bottom-founded, deep drilling caisson for operation in 40 m of water. Services provided by the company include the planning and implementation of foundation investigations, definition of foundation and core fill requirements, prediction of soil structure interaction under dynamic and cyclic loading and of horizontal and vertical deformations under static, impact and pulsating loading for both permafrost and non-frozen sea bottom conditions.

The company has also been involved in developments in the North Sea (Ninian Field) and the Gulf of Suez.

# Golder Associates

CONSULTING GEOTECHNICAL AND MINING ENGINEERS

Through two decades, Golder Associates has developed a reputation for technical excellence in the provision of comprehensive consulting services in geotechnical and mining engineering to the energy, offshore, mining and civil engineering industries, including:

- ☐ proven geotechnical design capability for mobile offshore structures and artificial islands.
- ☐ planning and implementation of geotechnical exploration programmes.
- ☐ interpretation of specialized in situ testing programmes and seismic surveys.
- ☐ permafrost engineering.
- ☐ advanced analytical methods for static and dynamic loading conditions.


3151 Wharton Way, Mississauga, Ontario, Canada, L4X 2B6
Telephone (416) 625-0094 - Telex No. 06-961136

7017 Farrell Road S.E., Calgary, Alberta, Canada, T2H 0T3
Telephone (403) 259-3413 - Telex No. 03-822539

54 Moorbridge Road, Maidenhead, Berkshire, England, SL6 8BN
Telephone (0628) 71731 - Telex No. 847881


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Sydney
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Brisbane
Canberra
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# GUILDLINE INSTRUMENTS LTD.

**Marine Sciences Division,**
**P.O. Box 99**
**Smith Falls, Ont.**
**K7A 4S9**
**Phone: (613) 283-3000**
**Telex: 053-3028**
**Contact: Ellis Ashworth,**
**vice president marketing**
**Pierre S. Lemoyne,**
**manager Marine Sciences division**

Guildline's international acclaim is based on meticulous research, painstaking development and manufacturing to precise specifications . . . from such an operation has come unique instrumentation such as the 'Autosal' laboratory salinometer, the analog, precision digital and portable CTD profiling systems and the "Batfish" programmable towed body; the most versatile tethered general purpose instrumentation platform commercially available.

Guildline's Model 8400 Autosal laboratory salinometer features a high precision, controlled temperature bath and heat exchanger that maintains the sample at a precisely defined temperature during analysis to avoid the need for temperature compensation. The principle of continuous sample flow provides a marked improvement in speed and convenience over conventional types which require several discrete samples for flushing and measurement.

The series 8800 Batfish is readily adaptable to an expanding range of instrument payloads. Towed by an electromechanical cable, the body responds to control signals from the ship which may be a constant depth command or a programmed hybrid (e.g. sawtooth) profile at depths to 400 metres and speeds from five to 14 knots. In addition to the conventional CTD instrument package, a fluorimeter for dye and chlorophyll studies has been successfully adapted and an electronic zooplankton counter is under development.

Representing the fourth generation of development in precision, in-situ profiling systems, the Model 8705 Digital CTD System offers features never before available including pre-calibrated exchangeable plug-in sensors; probe electronics which are independent of sensor calibration and permit sensor replacement at sea without opening the pressure case; data record/playback with a low cost audio cassette recorder, automatic error flag and a system check every cycle; versatile adaptation to vertical or towed body profiling. Reliability, ease of maintenance, simplicity of operation and compatibility with conventional equipment underline the technical excellence of Guildline products.

The newest addition to the product line is the Model 8770 Portable CSTD System which consists of a probe, deck unit and winch for 24V DC operation. Each piece can be on and off loaded by one man. The system is designed for use from small boats and has been used in boats less than 7m in coastal waters. The maximum operating depth is 1,000 m. The system is microprocessor based and measures temperature, conductivity, pressure, pH and dissolved oxygen. Salinity and dissolved oxygen are calculated in real time and displayed with the other variables on the deck unit.

# HALIFAX INDUSTRIES LTD.

**Halifax Shipyard**
**P.O. Box 1477,**
**Halifax, N.S.**
**B3K 5H7**
**Phone: (902) 423-9271**
**Telex: 019-23539**
**Contact: P. J. McGavney,**
**general manager**

Located in the deep water, ice-free harbour of Halifax, Nova Scotia, Halifax Shipyard is involved in the repair, construction and sub contract fabrication of vessels for both commercial shipping and the offshore industry.

A total of seven semisubmersible drilling rigs were built at Halifax Shipyard between 1968 and 1976. These were the Sedco H, I, J, Sedneth 701, Stadrill, Sedco 704 and the dynamically positioned Sedco 709, which is still today one of the most sophisticated semisubmersible drill rigs to be constructed. In addition to the rigs, a dynamically positioning drillship, the Sedco 471, was constructed by Halifax Shipyard in 1977.

In the past two years, Halifax Shipyard has undergone substantial infrastructure improvements and upgrading of steel fabrication capability.

Halifax Shipyard is increasing its involvement in the offshore industry and is ideally situated to offer both repair and fabrication services to the expanding exploration activity off Canada's east coast and northern areas.

# HMW INDUSTRIES LTD.

P.O. Box 8595, Postal Station A
Halifax, N.S.
B3K 5M3
Phone: (902) 469-7760
Telex: 019-31467
Contact: David Oulton,
president
Les Torok,
vice-president, sales

HMW Industries Ltd. (formerly, Halifax Metalworkers Ltd.) is a Maritime-owned company experienced, versatile and innovative in metal fabricating, construction, machining and manufacturing. From modest beginnings in the early sixties, it expanded to three locations — two in Dartmouth and one in Truro — and has about 200 full time employees. Machine shop facilities are among the largest in Atlantic Canada and the marine division has grown to meet the needs of the burgeoning offshore industries.

For the fisheries, we provide equipment that ranges from deck machinery to Kort propulsion nozzles to stern gear. We fabricate steel, build components and modify, repair and maintain offshore exploration rigs. We're particularly proud of our record in custom machining and specialized equipment manufacturing.

A demonstration of our flexibility is development of the "Sea Horse" system. We are presently marketing the "Sea Horse" automated long line fishing system to the commercial fishing industry. This system provides a low cost energy efficient alternative to traditional methods. Capable of handling mono and multi-filament ground and bait liner.

Construction services include erection (and demolition) of a wide range of structures, as well as maintenance and repair. The small job division does made-to-measure fabrication and mobile-on-site welding, burning and fitting on a 24-hour basis. The steel service centre maintains a full range of ferrous and non-ferrous metals and shapes.

# PETER S. HATFIELD LTD.

**1230 - 355 Burrard Street**
**Vancouver, B.C.**
**V6C 2G8**
**Phone: (604) 683-4441**
**Telex: 04-54262**
**Contact: Peter S. Hatfield, president**
**Gordon A. Passmore, senior naval architect**

Peter S. Hatfield Ltd. is involved in design and are marine consultants to projects related to the marine environment, including transportation, ocean engineering, resource exploration and extraction activities and the fishing industry.

The company has an extensive track record in handling conceptual, preliminary and contract level designs and conversions of existing equipment as well as in investigations, studies and reports concerning structures, propulsion, stability, traffic and cargo flow patterns. Additionally, it is involved in the preparation of cost estimates and operational aspects of all types of marine equipment.

The company's design work includes tug and supply boats, covering the entire range of size and power, for use in harbors, coastal regions, the open sea and in Arctic conditions. Barge designs include several specially reinforced vessels for Arctic operations on the Alaska North Slope. The fleet is equipped to carry all types of cargo including bulk chemicals, distillates and heavy oil.

# HALIFAX INDUSTRIES LTD.

**Dartmouth Marine Slips**
**P.O. Box 380,**
**Dartmouth, N.S.**
**B2Y 3Y5**
**Phone: (902) 469-4311**
**Telex: 019-22607**
**Contact: J. Graham, general manager**

Conveniently located in Halifax harbour, Dartmouth Marine Slips has been providing repair services to vessels up to 3,000 tons for well over 100 years. Recently, there has been increased involvement and experience in the repair and conversion of offshore supply vessels. Five marine railways provide flexibility and no wait service.

In addition to the marine railways, Dartmouth Marine Slips has substantial alongside berth space and also a fully mobile repair capability.

# HAWKER SIDDELEY CANADA INC.

**P.O. Box 130**
**Trenton, N.S.**
**B0K 1X0**
**Phone: (902) 752-1541**
**Telex: 019-36510**
**Contact: R. C. Frost, director of marketing**
**Patrick M. Cooke, manager export marketing**

Trenton Works Division, Hawker Siddeley Canada Inc., is one of the largest industrial enterprises in eastern Canada. In addition to design and manufacture of freight cars, Trenton Works offers a wide range of industrial products, including open-die forgings, pressure vessels and specialized tubular structures. General fabrication in steel and aluminum, heat treatment services and machine shop work are also carried out.

The largest open-die hydraulic forging press in Canada, with a capacity of 7,000 tons, gives Trenton the capability to forge ingots in weights up to 100 tons. Extensive machine shop facilities provide complete finishing services for most open-die forgings in carbon and alloy steels. Marine shafting, turbine and generator shafts and forged products for the power and marine industries are among the forged components Trenton can rough machine or completely finish to customer requirements.

Welding operators are trained and procedures in place to meet ABS, CWB, AAR and ASME pressure vessel welding specifications.With these skills and facilities, Trenton can provide complete services in supplying large fabricated and machined components to a customer's design or a design prepared with the assistance of its experienced engineering staff. Products in this category have included offshore drilling vessel caissons and tubular members, pressure vessels, marine buoys, and custom fabrication and overhaul.

# WORKING IN THE OFFSHORE OIL INDUSTRY DOESN'T MEAN YOU'RE DESTINED TO LIVE IN THE BOONDOCKS

Victor Yampolsky, Music Director, Atlantic Symphony Orchestra

Close to the remote sites, close to the concert hall, welcome to the Port of Halifax.

Here are the theatres, the universities, the head offices. Here are the international connections via air and sea. Here are the facilities for an offshore supply base, the pier sites, the service industries, the trained professionals.

As the curtain rises on the East Coast discovery, the Port of Halifax steps into the spotlight.

**PORT OF HALIFAX**
Canada's Atlantic Port

Suite 900, Cogswell Tower, Halifax, Nova Scotia, Canada, B3J 3K1, (902) 429-1400

# HERMES ELECTRONICS LIMITED

**P.O. Box 1005**
**40 Atlantic Street**
**Dartmouth, N.S.**
**B2Y 4A1**
**Phone: (902) 466-7491**
**Telex: 019-21744**
**Contact: Ray Walker,**
**product manager**
**David Rankin,**
**manager-market planning and development**

Hermes Electronics has been a world leader in ocean data system design, fabrication and development for over 20 years. These products are respected by government, research institutes and industry as the standard for cost effective, reliable, automatic data acquisition systems in severe environments, and are used in such fields as oil and gas exploration, development and production, pollution control, fisheries, meteorology, ice research, oceanography and climatology.

The products have been used to track ice floes and icebergs, monitor flow of oil slicks, increase reliability of weather production in the North and South Atlantic and Pacific oceans, provide wide ranging and specific site weather data and knowledge of ocean temperature and currents to those involved in climatology.

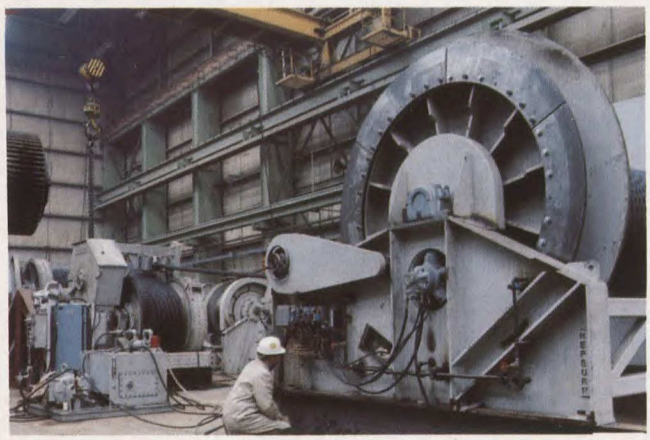
Hermes' systems comprise a variety of moored and drifting platforms, meteorological and oceanographic sensors, power supplies, data processors, HF, VHF, or UHF communications and shore stations for data dissemination. The product line consists of drogued and undrogued drifting buoys, air deployed drifting buoys and ice beacons, 2.5 and 10 metre moored buoys, automatic weather stations and the associated electronics and communications systems.

Teams of engineering staff will ensure proper installation and functioning of Ocean Data Systems and provide training programs in product operation and maintenance.

Over 300 people are employed in Hermes' 150,000 sq. ft. plant which also houses environmental test facilities including a 150,000 gallon hydroacoustic centre.

# JOHN T. HEPBURN LTD.

**914 Dupont St.**
**Toronto, Ont.**
**M6H 1Z2**
**Phone: (416) 671-2200**
**Telex: 06-968793**
**Contact: A. D. Booth,**
**technical rep., marine sales**
**J. Gayton,**
**general sales manager, mechanical division**



Many years of design and manufacturing experience in the marine and offshore fields have established John T. Hepburn Ltd. as an internationally recognized producer of reliable deck and drill rig machinery, including cranes, winches, windlasses and other marine equipment as well as equipment built on a custom basis to customer designs.

The company has designed specialized mooring equipment for use on production platforms in the North Sea, wire rope and chain winches for use in mooring offshore drilling rigs and drum anchor winches in use under demanding Arctic conditions.

Additionally, John T. Hepburn designs and manufactures BOP handling cranes which are used singly or in tandem to position and service BOP stacks on drill rigs. The company has also developed carrier systems for use in conjunction with the cranes, and has designed and built chain-tensioning units to provide an alternative to conventional anchor windlasses or winches.

Under active development is a commercial application dry emergency personnel evacuation for use on drilling and production platforms.

## HUNTEC ('70) LTD.

25 Howden Road, Unit 8
Scarborough, Ont.
M1R 5A6
Phone: (416) 571-8055
Telex: 06-963640
Contact: David Tulett,
sales manager

Huntec ('70) is a wholly Canadian-owned company which manufactures, sells and leases internationally, geoscientific instruments for mineral exploration, and marine survey equipment for engineering and geological studies of the sea floor.

Marine products include the Hydrosonde Deep-Towed Seismic (DTS) profiling system, and an extensive line of support products. The DTS consists of a towed fish containing a pressure compensated "boomer" source, hydrophones and a motion sensor package; and shipborne instrumentation to provide sub-bottom profiling capability with automatic towfish motion compensation. Tow depths from 20 to 300 metres are available.

The DTS produces high quality graphic records, and output data may be simultaneously recorded on magnetic tape. Penetration varies with sediment type to about 100 metres, with layer resolution of 15 centimetres. Huntec has facilities for digitizing and computer-processing taped data, using reflectivity, coherency and sonogram techniques.

DTS systems are also available with integral side-scan sonar as well as sub-bottom profiling, to provide a complete seabed mapping capability. DTS accessories include handling systems (cranes, cable winches), a 10 element hydrophone streamer, and the microprocessor-based Acoustic Reflectivity Unit (ARU).

Hydrosonde systems are available for purchase or lease world-wide and Huntec will provide trained operators, and interpretation services. The Huntec marine contracting division offers contract survey services, using DTS systems and a variety of other seabed mapping equipment.

# HYDROSONDE

## deep-towed seismic system

delivers: **Performance**

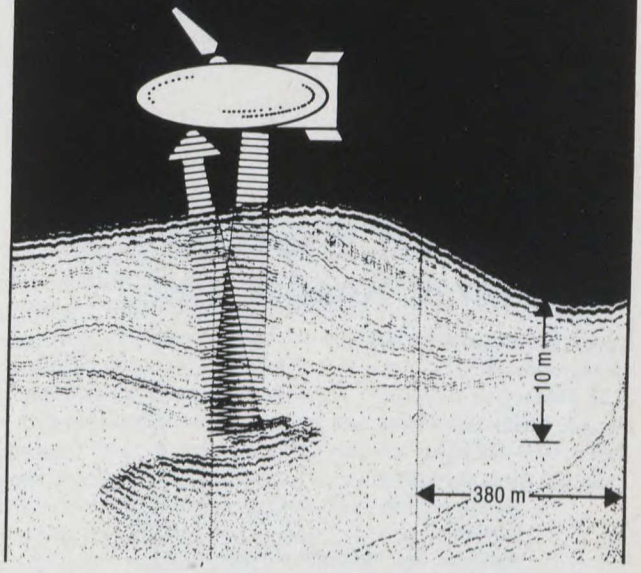
- Operation in Beaufort State 7
- Survey Speed to 6 knots
- **Effective** motion compensation derived from depth, acceleration, pitch, and roll sensors ensures record quality

### Data

- 0.25m resolution capability
- better penetration from unique high resolution pulse
- System precision enables digital processing of seabed echoes

### Reliabilty

- Proven in 4 years operations on east coast North America, Arctic and North Sea conditions
- Continuous 24 hour operation




The Huntec Deep Towed Seismic System is a high resolution seismic data acquisition system. Towed underwater and producing a unique motion-compensated, pressure-compensated output, it delivers precise information on surficial seabed geology. Deep-Tow is available for purchase or on a contract basis worldwide.

huntec ('70) LIMITED

25 Howden Road, Scarborough, Ontario, Canada M1R 5A6
Phone: (416) 751-8055
Telex: 06-963640
Cable: HUNTOR, TORONTO

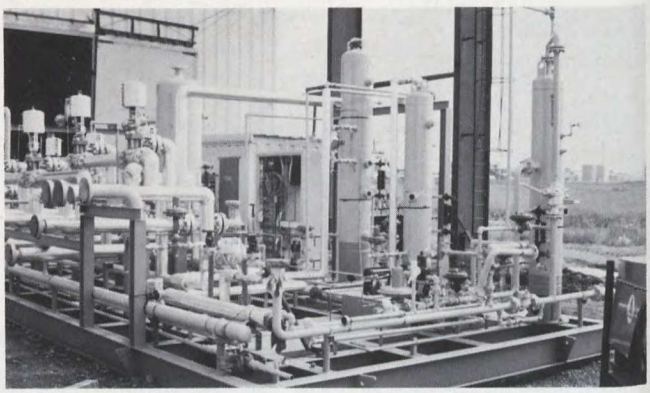
**Let Huntec deliver your data...**

# HYCON CORPORATION

**225, 5008 86 Street**
**Edmonton, Alta.**
**T6E 5S2**
**Phone: (403) 468-2439**
**Telex: 03-73637**
**Contact: Janice Hall,**
**sales representative**

Hycon Corporation supplies process equipment to the petroleum, natural gas and petrochemical industries. Products are designed and built with superior engineering, workmanship and quality by experienced people who understand the needs of the oil, gas and process industries. All Hycon manufactured products are designed to meet the specific needs of its customers.

Hycon utilizes both licensed process technologies and designs which have been developed in-house. For this reason, Hycon packaged plants are able to meet a wide variety of process applications including: glycol dehydrators, indirect and direct fired heaters, dry desiccant dehydrators, dry desiccant units for hydrocarbon recovery and dew point control, refrigeration systems for hydrocarbon recovery and dew point control, fractionation equipment, de-ethanizers, depropanizers and stabilizers, amine sweetening facilities, molecular sieve



dehydration systems, molecular sieve sweetening systems, oil & gas separators and metering stations, pressure vessels, absorbers, distillation towers, scrubbers, pulsation bottles and many more.

# HYDRAULIC SYSTEMS
## Division of Anadac Ltd.

**Suite 102, 11 Morris Drive**
**Dartmouth, N.S.**
**B3B 1M2**
**Phone: (902) 463-3630**
**Telex: 019-315567**
**Contact: K. E. Russell,**
**vice president**
**R. Morin,**
**manager engineering contract sales**

Hydraulic Systems provides one source responsibility for design, engineering, manufacture, installation and service of custom hydraulic machinery, deck machinery, power packages, systems and controls for industrial and marine applications.

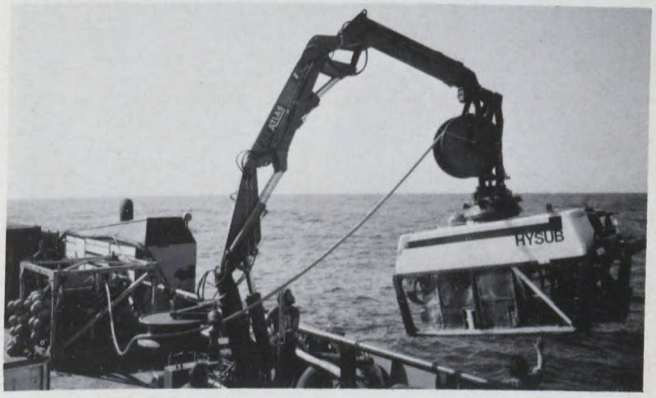
In addition it distributes a broad range of fluid power components and accessories, including Pull Master and Lantec hydraulic winches and HMF hydraulic marine cranes and truck self loaders.

# INTERNATIONAL SUBMARINE ENGINEERING LTD.

2601 Murray Street
Port Moody, B.C.
V3H 1X1
Phone: (604) 931-2408
Telex: 04-353554
Contact: James R. McFarlane,
president

International Submarine Engineering Ltd. (ISE) is the designer and builder of underwater work vehicles which have been used primarily by the offshore petroleum industry. ISE has designed, built and delivered more than 50 vehicles, ranging in size from the three-foot long DART to the 2,038 kg, 3 m long HYSUB.

Other vehicle types offered are the remote controlled TREC MK11, the manned and remote controlled vehicle WRANGLER and the autonomous vehicle ARCS. Diving depths for these units range from 365 m to 914 m, and the larger vehicles are equipped with remote manipulators, of which ISE has delivered 60.

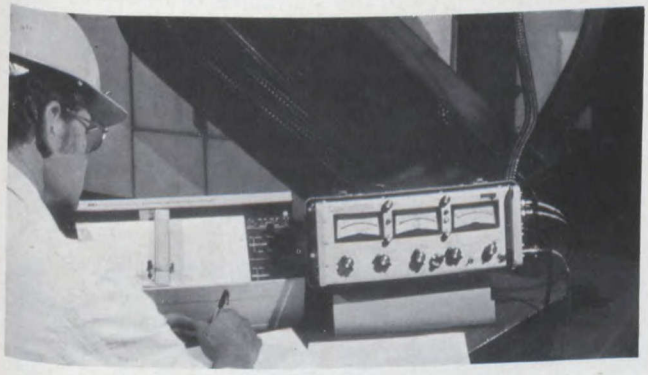



The full line of vehicles can be used for a variety of applications, including inspection, surveying and recovery, as well as for accident investigations.

Associated companies have developed ocean mapping systems, radio remote controls and data handling systems.

# IRD MECHANALYSIS LTD.

333 Barton Street East
Stoney Creek, Ont. L8E 2L1
Phone: (416) 662-7577
Telex: 061-8453
Contact: Kenneth Jarrett,
vice-president and general manager
Keith Braithwait,
sales manager



At its Stoney Creek manufacturing plant, IRD Mechanalysis manufacturers and services three product lines of machinery analysis equipment.

The company provides portable instruments for examining on-line machinery condition by means of vibration analysis and noise measurement and analysis. IRD Mechanalysis sells and services this equipment throughout the world, and has staff available for training client personnel in its use.

Additional products include machine monitors for the protection of critical machinery such as pumps, fans, compressors, electric motors, generators and turbines. These monitors utilize the vibration, temperature, speed and other parameters of the particular piece of machinery to monitor performance, comparing test results to a "base-line signature" of the machinery under examination. IRD also provides dynamic balancing machines, both on-site and in-house, for use in machinery overhaul to ensure smooth running of critical equipment.

IRD Mechanalysis maintains service and sales outlets throughout Canada and the USA, as well as in Belgium, Australia, England and India.

# ITT BLACKBURN CANADA

**2317 46th Avenue,**
**Lachine, Quebec**
**H8T 3C9**
**Phone: 514 636-9101**
**Telex: 05-822581**
**Contact: Louis Morin,**
**general manager**
**Gerry Gariepy,**
**sales manager**

Blackburn Canada sells and distributes electrical components designed and manufactured both in Canada and by its parent company in the United States.

The Blackburn product line ranges from electrical connectors and switchgears to grounding hardware and lighting for hazardous industrial environments.

Blackburn's principal Canadian users include the electrical and telephone utilities, the biggest single customer, commercial and industrial builders, original equipment manufacturers of electrical equipment, and residential builders.

# ITT BARTON INSTRUMENTS

**3840 11A St. N.E.**
**Calgary, Alta.**
**T2E 6M6**
**Phone: (403) 276-8164**
**Telex: 038-21526**
**Contact: George M. Orza,**
**general manager**

Barton Canada is engaged in the design, manufacture and sale of process instruments. The company provides mechanical, electromechanical and electronic instrumentation which sense, monitor, compute, record and control various conditions of liquids and gases in the process industry. This instrumentation is used to measure such process variables as flow, level, static pressure, differential pressure, temperature and other physical and chemical properties of fluids.

Barton has available for export; flow, pressure and temperature recorders, recording and indicating controllers, switches and indicators (Panel, NEMA IV and explosion proof), level indicators, switches and controllers, positive displacement liquid meters, constrained vortex liquid meters and microprocessor based flow totalizers.

All products are manufactured to the Canadian Standards Association (CSA) Quality Program Z299. Electrical/electronic instrumentation is manufactured to applicable CSA standards for the environment that the instrument is destined for, i.e. panel board, weatherproof, hazardous areas. Additionally where the severity of the application is such, the product can be manufactured to meet the standards of the National Association of Corrosion Engineers (NACE).

Barton excels in the designing and production of "specialized" instrumentation for customers whose measurement requirements call for high reliability and accuracy under harsh environments (including extreme temperature, pressure, corrosive or radiation conditions).

# ITT CANNON ELECTRIC CANADA

a Division of ITT Industries of Canada Ltd.
4 Cannon Court,
Whitby, Ont.
L1N 5V8

Phone: (416) 668-8881
Telex: 06-981357

Contact: Bruce Vallillee,
marketing manager
Robert Jervis,
manager, energy products

ITT Cannon Electric has worldwide marketing responsibility and engineering design cognizance for the following products. It has progressed from standard firewall electrical connector types to the latest state of the art in electrical and electronic connectors, cable harnesses and interconnect devices for hostile environments.

Products include battery power connectors; geophysical-seismic connectors; high pressure /high temperature connectors for downhole drilling instrument packages; sonar-underwater tow connectors; MSK-CAKE firewall connectors; — FRF/FVF firewall connectors; explosion containment connectors; navy shipboard front release connectors; navy high shock, high density front release shipboard connectors.

# ITT FLUID PRODUCTS CANADA LTD.

55 Royal Road
Guelph, Ont.
N1H 1T1

Phone: (519) 821-1900
Telex: 06-956538

Contact: Bick Bickert,
general manager
Thomas Lemieux,
marketing manager

ITT Fluid Products Canada manufactures, assembles and distributes pumps, control valves, heat transfer equipment, residential combustion controls and solenoid valves.

Its principal customers are in the building, metal processing, pulp and paper, power, chemical and energy related industries, and one of the company's most important, and timely, areas of activity is the manufacture of valves and controls used in the oil and gas industry.

As a member of the world-wide ITT group of companies, ITT Fluid Products Canada Ltd. has full access to world-wide expertise and marketing systems. The extensive product line includes condensate pumps, rotary and vacuum pumps, swimming pool and spa pumps, industrial control valves and actuators, residential and industrial oil or gas-fired heating valves and controls.

# ITT GRINNELL

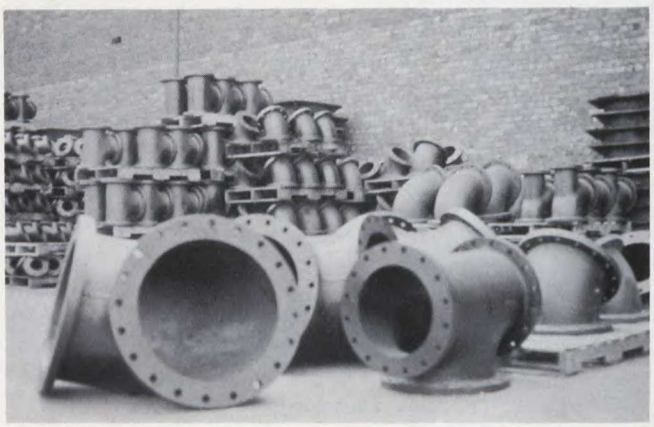
**10 North Queen Street**
**Toronto, Ont.**
**M8Z 1C4**
**Phone: (416) 252-3312**
**Telex: 06-967792**
**Contact: Jack Lewis,**
**marketing director**
**Lorne Smiley,**
**special sales representative**

ITT Grinnell is part of the ITT group of companies. In Canada, the company operates five manufacturing plants that produce a wide variety of products ranging from cast-iron sprinkler fittings to nuclear-specific diaphragm valves and pipe hangers for Candu nuclear systems.

At its plant in Brighton, Ont., ITT Grinnell manufactures a range of valves including diaphragm valves and a butterfly valve designed in Canada and sold throughout North America. The Fabri-valve plant, in Welland, Ont., manufactures fabricated knife-gate valves for a wide variety of uses, while the Toronto foundry manufactures cast iron threaded and flanged fittings for sprinkler and waterworks projects.

ITT Grinnell's Mississauga, Ont. plant manufactures a complete range of hardware and engineered pipe hangers for utilities and general piping projects, while L & R Gear, a subsidiary of ITT Grinnell, manufactures gear operators for valves from its Toronto plant. L & R Gear is a major supplier to Grinnell's world-wide operations.

Approximately 10% of the company's total Canadian product is manufactured specifically for export.



# INSTRUMAR LTD.

**Memorial Campus**
**St. John's, Nfld.**
**A1B 3X5**
**Phone: (709) 726-8460**
**Telex: 016-4794**
**Contact: Alastair Allan,**
**president**
**Kenneth Butt,**
**vice-president**

Instrumar Ltd. designs and manufactures precision instrumentation for research and engineering operations in the northern marine environment.

The company, which entered business in 1980, has electronic and mechanical design engineers on staff with extensive experience in the development and operation of ice and cold ocean instrumentation. Equipment designed by the company has been used in remote locations from the Chukchi Sea off Alaska to the Grand Banks off Newfoundland by the oil and gas industry, universities and research organizations and government departments in Canada and the USA.

The company maintains a lab and shop facilitites on the campus of Memorial University of Newfoundland, a location which ensures close contact with research and development personnel at the Centre for Cold Ocean Resources Engineering.

Products manufactured include instruments measure ice strain, temperature, thickness, movement and tracking, and can be adapted to glacial ice. They are normally intended for the study of sea ice. The company also provides ice coring tools, chisels and associated equipment.

# INTER-CAN 83

#200, 5829 - 97 Street
Edmonton, Alta.
T2E 3J2
Phone: (403) 437-2191
Telex: 037-2375
Contact: Pat Atkinson

Inter-Can 83 is Canada's foremost onshore and offshore petroleum exhibition and conference, and will be held at the grounds of Edmonton's Northlands Park from September 13 to 16, 1983. Show organisers expect the new site of Inter-Can, the luxurious Agricom Trade Centre, will have most of its 1 300 $m^2$ sold out. And together with the 7 400 $m^2$ square feet of outside space, it will house more than 500 companies exhibiting their products and services from Canada and 'round the world.

Over 24,000 key industry personnel, both executive and operations, intended Inter-Can 81 (the show is held every two years) and 25 countries were represented by official trade delegations and business representatives. More than $175 million worth of international business was carried out during the four day show.

Attendance at Inter-Can 83 will be more than 30,000, and work is already underway on the part of the Alberta and federal government to invite official and business delegations from worldwide.

In addition, the Canadian Offshore Drilling and Downhole Technology Conference (CODD) will be held at the same time at the Hotel Macdonald, and is expected to draw some 400 delegates. Topics will include key areas of Canada's offshore exploration and development; the Beaufort Sea, High Arctic and eastcoast offshore, with special guest technologists and engineers from Prudhoe Bay, Alaska, to discuss downhole developments in that state's offshore industry.

# INTERNAV LTD.

**P.O. Box 1261**
**Sydney, N.S.**
**B1P 6J9**
**Phone: (613) 839-5563**
**Telex: 019-35126**
**Contact: John Currie,**
**president**
**Robert Janes,**
**engineering manager**

Internav Ltd., is a Canadian company specializing in Loran C radio navigation equipment. The company manufactures a wide range of microprocessor-based Loran C receivers and accessories at its Sydney plant for offshore exploration and hydrography, commercial shipping, the fishing industry and the recreational boating market.

The Internav 404 has been described as the world's most accurate Loran C receiver. Designed for high precision survey and signal monitoring, the LC404 is capable of operation in either the conventional hyperbolic mode or, with the addition of an external frequency standard, in range/range mode. The 404 has two data ports, an RS232 port for data logging and a communications port through which the receiver can be completely controlled and interrogated for information. This receiver has met the demanding requirements of the Department of Transport, the St. Lawrence Seaway Authority, the Canadian Hydrographic Service, and several offshore survey companies.

The Internav LC360 Navigation System is widely used by merchant shipping, commercial fishermen, and government and private vessels. It has been selected as the standard Loran C system by the Canadian Coast Guard.

In mid 1982, the company will introduce an airborne Loran C navigation system, which will provide full area navigation capabilities over routes with up to 200 waypoints, and will offer a number of unique features.

Internav's research and development activity includes work on specialized Loran C applications, including range/range and dual chain operations, signal monitoring studies, remote tracking, and data analysis. An engineering group provides contract field operations services to customers in data collection, systems support, and equipment operations.

# J. L. ELECTRON LTD.

**137 St. Germain West**
**Rimouski, Que.**
**G5L 4B6**
**Phone: (418) 724-6811**
**Contact: Yves Maurais,**
**vice president marketing**

Established in 1973 to contract research & development for oceanographic and marine institutes, J. L. Electron became a manufacturing company specializing in data acquisition and transmission systems. Because it is a very young company, directed by a very young team and because we believe that today's work is tomorrow's achievement, our product development has been planned as if "the future is right now".

Doing business with J. L. Electron is doing business with professionals. Engineers, oceanographic specialists, programmers, analysts and technicians have been selected among Canada's best. They have made us a leader in oceanographic data processing equipment.

In the past, J. L. Electron has concentrated its work mainly in Canada, with projects for the National Institute of Oceanographic Research and the Marine Institute of Quebec. The company is ready and looking forward to increase its activities on the international market.

J. L. Electron products line centres on data acquisition and transmission buoys allowing the probes (sonar, radar, physical and chemical sensors) to operate above as well as below the water level in very severe conditions, a programmable automatic releaser allowing

acquisition and analysis of water samples at 64 different predetermined depths and an electronic Xenon flasher. Radar simulator and satellite navigator simulator are among the other specialized products manufactured for oceanographic and marine uses. J. L. Electron Ltd. also owns a computer manufacturing department and a data processing specialist team.

# JACQUES/McCLELLAND GEOSCIENCES INC.

1046 Barrington St.
Halifax, N.S.
B3H 2R1
Phone: (902) 423-6325
Telex: 019-21745
Contact: Hector J. Jacques,
president
Bramlette McClelland,
director


Jacques/McClelland Geosciences Inc. was formed in 1980 to provide a full range of geotechnical, geological and geophysical services for foundation and earth structure investigations. The services provided are in support of onshore and offshore petroleum and petrochemical developments in Canada.

The company is able to draw from the resources of over 850 engineers, technicians, management personnel and administrative staff members of Jacques, Whitford and Associates Ltd. and McClelland Engineers Inc.

Jacques, Whitford and Associates was incorporated in Nova Scotia in 1972. The group has a trained Canadian staff of over 100 engineers, technicians and management and administrative personnel.

McClelland Engineers was incorporated in 1955 succeeding the Greer & McClelland partnership founded in 1946. The McClelland group has fully-staffed operating offices in North America, the United Kingdom, Saudi Arabia, the United Arab Emirates and Singapore. McClelland personnel have received worldwide recognition for their innovative contributions within the fields of earth sciences. The group has performed over 3,500 marine site investigations worldwide.



# JENKINS CANADA INC.

170 St. Joseph Blvd.,
Montreal, Que.
H8S 2L6
Phone: (514) 637-5871
Telex: 05-821674
Contact: J. J. Buchanan,
vice president
Mrs. H. Caspar,
export sales administrator

Jenkins Canada Inc. manufactures bronze, cast steel, stainless steel, forged steel valves in gate, globe, angle, needle, check, butterfly and ball types.

# JMR INSTRUMENTS CANADA LTD.

**#8, 6320 11 Street S.E.**
**Calgary, Alta.**
**T2H 2L7**
**Phone: (403) 255-6667**
**Telex: 03-825895**
**Contact: J. Douglas Moore, president**
**G. Ian McMillan, sales manager**

JMR Canada established operations in Calgary in 1979 as a wholly-owned subsidiary of JMR Instruments Inc. of Los Angeles, Ca., a leader in the field of doppler satellite technology.

It has utilized this technology base and a production sharing arrangement with its parent to establish independent manufacturing of doppler positioning systems and microprocessor based integrated marine systems in Canada.

The flagship of the JMR line of products is the JMR-1, the first commercially-available doppler receiver for land survey applications, and more than 400 units are now in service. The JMR-1 is capable of determining relative position in three dimensions within 30 cm over distances of up to 300 km. The technique is useable anywhere on the earth's surface and is insensitive to weather conditions. This had led to universal acceptance and use in such applications as military mapping, offshore rig positioning, mapping control in remote areas, Arctic ice movement studies and seismic surveys. The resource exploration industry is now an extensive user of the doppler technique.

Besides the doppler positioning instruments, JMR also manufactures and services a range of components and instruments for integrated marine navigation and data acquisition.

# KIN RIG MANUFACTURING

**Penthouse 2,**
**7015 Macleod Trail South**
**Calgary, Alta.**
**T2H 2K6**
**Phone: (403) 259-4165**
**Telex: 03-8211**
**Contact: P. A. Beauchamp, president**
**L. E. Tomlin, vice president**

Kin Rig Manufacturing is committed to service and its staff bring more than 50 years' experience to the design and construction of service rigs and related equipment for customer requirements around the world.

Flexible, mobile and easy to set up, the custom designed equipment is manufactured in western Canada and fast turnaround on your custom order is guaranteed.

Kin Rig service rigs assure operators maximum durability and flexibility, meeting API specifications with carriers designed to meet the most stringent highway requirements. Rig packages include complete electrical equipment, dog house or combination buildings, BOP and accumulator, service tools, hand tools, power swivel, servicing pump and tank unit, mud pump and tank unit, travelling blocks, power tongs, adjustable working platform and substructures.

The 2632-69 model is a 6,000 - 8,000 foot unit with a 69 foot rigid mast (140,000# API rated capacity). The S200 double drum drawworks has external clutches on both drums to ensure maximum access for service.

The 2838-98, with 10,000 foot capacity, has a 98 foot telescoping mast to accommodate either 4 or 6 line stringup and is equipped with S300 double drum drawworks with either water retarding brake system of splash cooled brakes.

# GEORGE KELK LTD.

**48 Lesmill Road,**
**Don Mills, Ont.**
**M3B 2T5**
**Phone: (416) 445-5850**
**Telex: 06-966670**
**Contact: J. D. Whincup,**
**manager, marketing services**

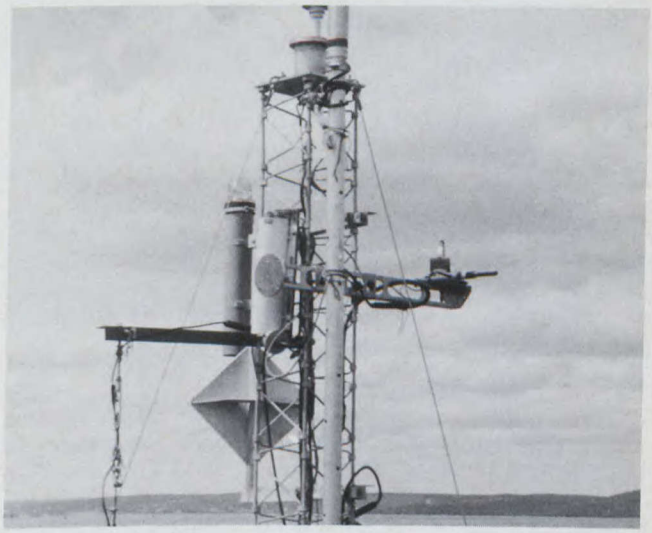
Strong construction and simple, versatile electronics are built-in features of each Zwarts water and wave guage from George Kelk Ltd.

The operating principal is simple and accurate. The electrical tone signal responds faithfully to wave induced level changes and can be recorded locally or telemetred without loss of accuracy. By adding an electrical filter, the average water level can also be easily obtained.

The staff portion of rugged aluminum or copper pipe is designed to be mounted in a semi-submerged position on any vertical structure. Aluminum is lighter and less expensive, however, for installation in warm sea water where marine growth and corrosion are potential problems, the copper model is preferable.

The Zwarts P116, measures fresh and sea water waves up to 98 feet peak-to-peak amplitude. Features include substantially infinite resolution, negligible hysteresis and zero drift, faithful small wave response, permanent calibration, low power consumption for long battery life, straightforward mounting and digital output. It has slots along the staff for instant water level equalization within and without the measuring staff. The fact that there are no moving parts means it is free from the shortcomings of other surface-sensing gauges,

Also available is the period-to-voltage converter that adapts the tone signal for paper chart recording, or for direct observation of wave action or water level on its built-in meter.



Since its introduction in 1974, the system has found use in 11 countries, as well as offshore on platforms in the North Sea and the Red Sea.

Kelk's network of representatives in 26 countries acts as a contact point for information, new installations or spares worldwide.

# LANTEC INDUSTRIES LTD.

**5827 Production Way**
**Langley, B.C.**
**V3A 4N5**
**Phone: (604) 530-0737**
**Telex: 04-365585**
**Contact: John Morfitt,**
**president**
**Al McIntyre,**
**vice-president, marketing**

Lantec Industries Ltd. has been involved in the design and manufacture of hydraulically driven planetary winches for 17 years, and is capable of designing and building winches to meet customer specifications.

Lantec utilizes basic proven components, its own expertise and the latest in manufacturing techniques and machinery to provide a winch that will get just about any job done. Winches built by Lantec are used in the oil and gas industries, by construction companies and in several dredging, mining and logging operations.

Versatility is achieved through a wide range of options available for the Lantec winch, including various cable drums to provide the required cable storage capacity. Free spooling, fairleads level winds and grooved drums are available to ensure adherence to exact performance specifications. Lantec winches have been used under various climatic conditions, from the Arctic to the equator.

# LAVALIN SERVICES INC.

**Lavalin Centre**
**909 5 Ave. S.W.**
**Calgary, Alta.**
**T2P 3G5**
**Phone: (403) 237-6500**
**Telex: 03-827910**
**Contact: Arthur R. Smith, president**
**R. A. Collie, vice-president**

Lavalin is a Canadian engineering, procurement, scientific and construction company, with over 6,500 personnel located in 23 offices from St. John's to Vancouver. Lavalin also maintains six permanent offices overseas.

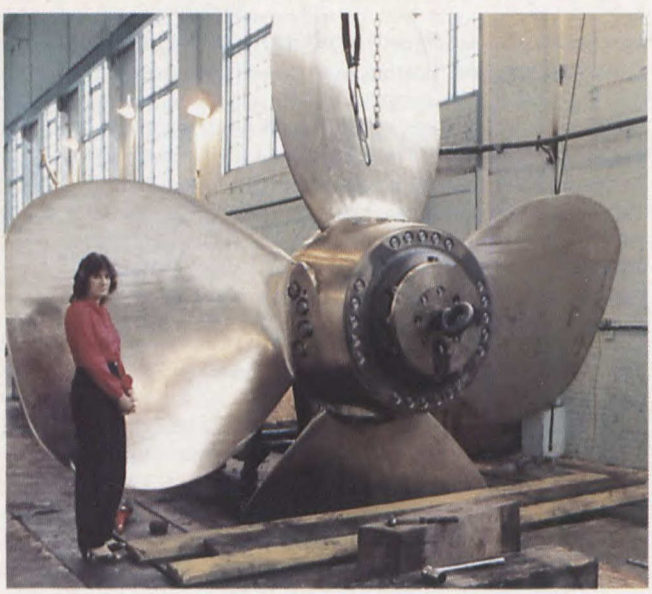
Through these offices, a diversified range of services is available to industry and government in Canada and elsewhere. These services range from preliminary project studies and evaluations to complete engineering, procurement and construction execution of very large petroleum and chemical projects. Much of Lavalin's expertise relates to the ocean industries.

The operating divisions cover every engineering discipline and a wide variety of scientific activities from ice research to terrestrial and oceanographic environmental studies. This pool of expertise is supplemented by economists, planners, sociologists, market researchers and many other professionals.

The company, in partnership with three other Canadian companies, is also involved in the fabrication and construction of offshore structures and is co-owner and operator of Port Atlantis at Bay Roberts, Nfld. This facility, presently to operate from an interim location, is designed to provide complete marine base facilities for vessels servicing offshore activities on Canada's east coast.

# LIPS N.V. CANADA INC.

**757 Lajoie Avenue**
**Dorval, Que.**
**H9P 1G7**
**Phone: (514) 636-8665**
**Telex: 05-822832**
**Contact: P. Ernsting, general manager**
**Theo Vink, production manager**



Lips N.V. Canada Inc. is a wholly-owned subsidiary of the world-wide LIPS group of companies, and can offer its products in Canada, USA, Mexico and the Caribbean, or in any other part of the world on special request.

As a leading manufacturer of C.P. propeller systems, transverse thrusters and azimuthing thrusters, as well as a complete line of associated products including stern tubes, seal housings, stern tube bearings, stern glands, bulkhead glands and other specialized control systems, Lips equipment has been chosen for the largest Canadian icebreaking ships, and smaller offshore supply and service vessels. Ships with Lips equipment are currently operating from the Beaufort Sea to the Gulf of Mexico and the Caribbean.

Service and technical assistance for any of the Lips systems can be provided throughout North America and around the world.

# Lavalin

**Exploration activities of Oil Companies are shifting Offshore. In this area, The Lavalin Group of Companies has provided engineering for platforms made of built-up ice in the Arctic Archipelago and, in temperate waters, has designed and supervised construction of Marine Terminals and has carried out numerous studies of Ocean and Ice Environment and of Northern Design Criteria.**

### Offshore Engineering and Ice Technology

- Design Criteria, in Particular Ice Effects
- Research and Testing
- Structural Analysis including Dynamics with Ice Algorithm
- Conceptual Designs
- Full Engineering
- Fabrication and Erection
- Project Management
- Construction Management
- Supervision, Inspection and Monitoring
- Onshore Arctic Engineering
- Research in Frozen Materials
- Ice Technology in Southern Latitudes including River Ice Problems
- Instrument Development for Field and Laboratory Measurements

Marine Work, Oceanography and Installations are areas of expertise of several Lavalin Divisions – Please call or write for more detailed information.

**Head Office**
**CALGARY** – 909 - 5th Ave. S.W. Calgary, Alberta T2P 3G5

**The Lavalin Group includes:**
**FENCO • GEOCON • GLOBAL • PETROTECH • SHAWINIGAN • PARTEC • EARL & WRIGHT-LAVALIN • MacLAREN • EBASTEC**

# LUNENBERG FOUNDRY & ENGINEERING LIMITED
# LUNENBERG MARINE RAILWAY CO. LTD.

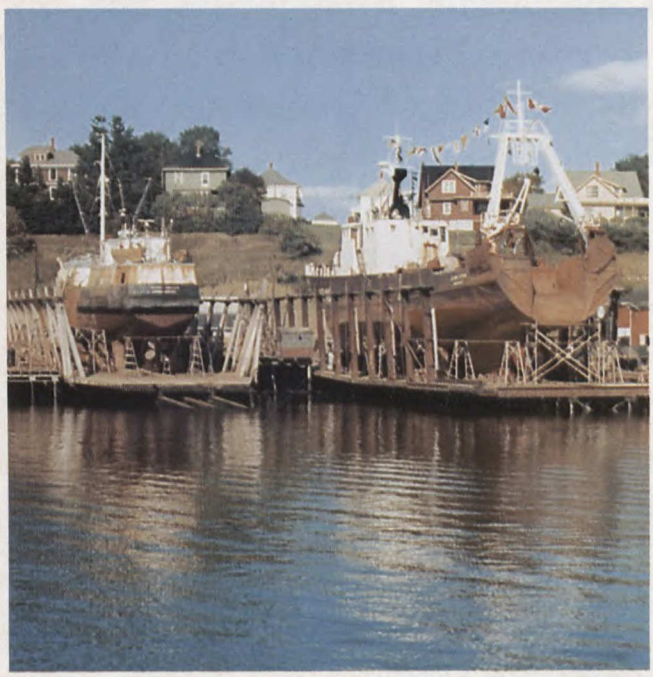
**P.O. Box 1240**
**Lunenberg, N.S.**
**B0J 2C0**
**Phone: (902) 634-8827**
**Telex: 019-21509**
**Contact: J. J. Kinley,**
**president**
**E. E. Eisenhauer,**
**general manager**

The foundry company, as the name implies, includes a metal casting operation of iron and non-ferrous products for use in ocean industries. Started in 1891, the company was a general purpose foundry and has over the years, manufactured a variety of items in cast iron, ranging from stoves and ranges, marine hoists, hardware, marine engines, propellers and associated propulsion equipment. The advantageous location on the Lunenberg waterfront made it a logical development to become increasingly engaged in manufacturing custom built machinery for the marine and fishing industries. The company was a leader in installation of engines in the Nova Scotia fleet in the twenties and thirties, the first stage in the transition from the days of sail. Since then the company has been continually engaged in manufacture and installation of equipment for the modernization of both offshore and inshore fleet.

During the wartime years, the company was almost completely engaged in naval refitting. At present it refits ships of the Navy, Coast Guard and Merchant Marine, and is engaged in steel ship building, having constructed a variety of barges, work boats and fishing boats ranging from 35 to 65 feet LOA.

The primary export has been ship repair work on ships of foreign registry, notably American and French with an occasional refit of Carribean, British or German registry. The company also exports catalogue items and custom built items of marine equipment to the United States and the Carribean.

Drydocking facilities consist of three marine railway drydocks of 1 600 tonnes capacity, 1,000 tons and 450 tons.



# LISTER BOLT AND CHAIN LTD.

**1771 Savage Road,**
**Richmond, B.C.**
**V6V 1R1**
**Phone: 604 273-5411**
**Telex: 04-355637**
**Contact: W. V. Stobbart,**
**vice president**
**L. W. Tysoh,**
**manager marketing**

Lister Bolt and Chain manufactures large diameter (19-50 mm) open link mooring and stud link anchor chains in carbon alloy and stainless steel and large diameter bolts (16.50 mm) in carbon alloy and stainless steel.

# LOG/MATE LTD.

**Second floor, Britannia Bldg.**
**703 - 6 Ave. SW**
**Calgary, Alta.**
**T2P 0T9**

**Phone: (403) 262-9066**

**Contact: E. R. (Ross) Crain, president**
**D. W. (Dave) Curwen, vice-president**

Log/Mate Ltd. has developed a computer system for analyzing well logs to provide an oil company or government agency with the ability to determine oil or gas reserves in every zone in every well.

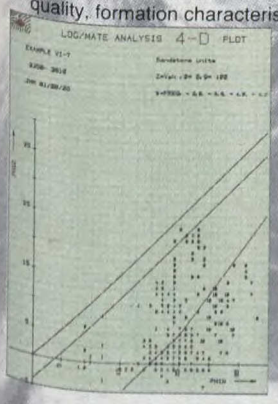
Incorporated into the system is the ability to create a data file at the time the analysis is made, so that the data and answers can be retrieved, listed, mapped and reanalyzed at any time.

Available for export around the world, the Log/Mate system is based on Hewlett-Packard computers, which are available through a world-wide marketing and maintenance organization. The software for the system is supplied from Log/Mate's Calgary headquarters, and training, updating and consulting is available from Log/Mate through a phone call or a visit to the user's location. In the past four years, Log/Mate has installed 30 systems in three countries.

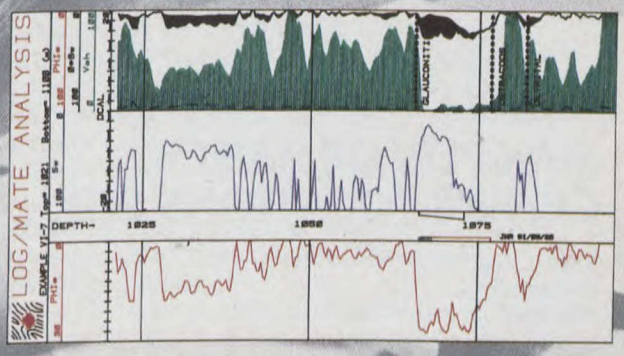
## LOG/MATE "PLUS" SOFTWARE

### Basic System:

- data entry from digitizer, keyboard, tape drive, or remote data file.
- data edit (re-scale, depth shift, point edit, custom function, invasion, hole size correction).
- entry and edit of pool and well history, well constants, interpretation constants, and computation run stream.
- permanent data storage on disc or remote data file, with our unique LOG/MATE "PLUS" well data handler.
- neat, titled, printer results with user defined formats.
- porosity and hydrocarbon volume accumulations, with or without cutoffs, detail or summary listings, by well, by pool, by project, stored on disc.
- metric or english units (both can be output, regardless of input format).
- many different log analysis methods, with user defined options that can create over 500 different analysis models — choices depend on data quality, formation characteristics, and hole conditions.
- "4-D" crossplot, with X, Y, Z and W axes and scales defined by the user — while well over 150,000 different plots are possible, only a few are usually desirable.
- versatile and highly selective plotting of results or input data or both, in eight colours, on pre-gridded tracing paper or clear mylar, with personalized corporate logo and presentation style, plus computer aided drafting of annotation and well history data.
- core data or mud log data input, edit, averaging, printout and plotting (can be plotted directly onto log analysis results).
- reservoir summaries sorted by zone, pool, project, and cutoff level.
- fast turnaround (typically 2 hours in-house analysis time for one zone less than 300 feet thick). Less time per zone can be spent for multi-well or multi-zone projects. Time depends on log quality and type, availability of other data, and prior commitments.
- 24 systems installed in oil companies, government agencies, research institutes, and consulting firms in the first 4 years of use.








### The LOG/MATE "PLUS" Concept

- friendly, flexible, portable, modifiable, interactive software solutions to your reservoir analysis problems.
- easy to use, easy to understand results.
- reasonably priced hardware package.
- for lease, purchase or custom work.
- many interpretation models, all fully shale corrected.
- training, software support, program updates, and custom program development.
- state of the art well history/well data file handler.

**LOG/MATE "PLUS"** is not just a data processing system — a high degree of professional and technical interpretation at all stages of calculation is a must. The interpretation is only as good as the people who do it — we insist on it in our office, and we'll help you achieve it in your office by providing the necessary training.

## LOG/MATE LIMITED

EXPLORATION CONSULTANTS

**2ND FLOOR, BRITANNIA BUILDING**
**703 - 6TH AVENUE S.W.**
**CALGARY, ALBERTA T2P 0T9**
**PHONE: (403) 262-9066 (24 HR.)**
**(403) 264-1556 (8 A.M.-4 P.M.)**

# LUMMUS CANADA INC.

**255 Consumers Road**
**Willowdale, Ont.**
**M2J 4H4**
**Phone: (416) 493-4123**
**Telex: 06-966712**
**Contact: Barry Bower,**
**manager, international business development**
**Keith Salmon,**
**vice-president, sales**

With engineering centres in Calgary and Toronto, Lummus Canada Inc. provides a full scope of services to the process industries. These services include design, engineering, procurement, construction and related project management for resource development and process plants. The principal industries served by the company are the petroleum, petrochemical and chemical industries.

In addition to its own resources, Lummus can draw on the world-wide resources of the CE Lummus group of companies. Together with CE Crest, an associated company which provides engineering services to the oil and gas production industries, Lummus was responsible for the top-side facilities on the Ninian field central production and drilling platform in the North Sea.

The platform's facilities are dual drilling, production, gas compression, water-injection, gas transfer or flaring, each of which operate simultaneously, a crude oil transfer system to the Shetland Islands and a complete system for intra- and inter-platform communications. In addition, the two companies provided total deck and support services, including helicopter servicing areas and full-service living accommodations for the crew of the platform.

# MAK PERFORMANCE COMMUNICATIONS LTD.

**2127 1 Ave. N.W.**
**Calgary, Alta.**
**T2N 0B6**
**Phone: (403) 283-7193**
**Telex: 038-25727**
**Contact: Martin Keeley**
**Dorinda Wong**

MAK Performance Communications provides complete editorial coverage of the Canadian oil patch, with strong emphasis on Canada's offshore developments, for a variety of overseas oil and gas industry publications. President Martin Keeley is editor of Offshore Canada, published monthly from Aberdeen, and the company provides news features and stories for the following publications: Offshore Journal and Drilling Contractor (Houston, Texas); Noroil Group (Stavanger, Norway); Offshore Oil International (Aberdeen, Scotland); the London Financial Times; Enhanced Recovery Week and Synfuels Week (Washington, D.C.); Petroleum Economist (London); and North East Oil Reporter (Colombus, Ohio). Within the Canadian domestic scene, MAK provides features and stories on the energy industry for Canadian Business, Energy Magazine, Drilling Canada, Oilweek, and Alberta Inc. The company also provides editorial services for the industry, with clients including Gulf Canada Resources, Esso Resources, Syncrude Canada and Anglo Energy Ltd.

MAK represents the organising group behind the bi-ennial Canadian Offshore Drilling and Downhole Technology Conference (CODD) held in conjunction with the Inter-Can trade show in Edmonton, Alberta. The next conference is September 12-14, 1983 at the Hotel MacDonald.

# MPB TECHNOLOGIES INC.

P.O. Box 160
Ste. Anne de Bellevue, Que.
H9X 3L5
Phone: (514) 457-2035
Contact: Morrel P. Bachynski,
president
S. Y. K. Tam,
director electromagnetics

MPB Technologies manufacturers high power 150 kw light sources for ships and towers, sea ice radars for detection and thickness measurements, radar, lidar and laser systems, data acquisition and digital display systems, video systems for training and oil spill detection equipment.

The company also carries out research and development on radars, lasers, plasma arcs, advanced diagnostic instruments, defence electronics and communication systems. It is a key member of Canadian national Tokamak fusion project and undertakes consulting work on scientific and technical problems, including remote sensing of sea ice, sea ice detection and oil spill detection.

# McELHANNEY SURVEYING AND ENGINEERING LTD.

1166 Alberni Street
Vancouver, B.C.
V6E 1A5
Phone: (604) 683-8521
Telex: 04-51474
Contact: D. B. Thomson,
vice-president, marine and geodetic services
W. H. Morton,
vice-president, marketing

Canadian-owned McElhanney Surveying and Engineering Ltd. provides professional services through some 500 experienced personnel working in five technical areas: land surveys, engineering, petroleum surveys, mapping and most recently, marine and geodetic services. It is one of the largest private surveying and mapping organizations in Canada.

Predominantly a land survey operation since its founding in 1910, the company diversified into hydrographic surveying and charting in 1970. Its marine and geodetic capabilities have been expanding ever since.

Some 100 division staff, backed by the latest equipment and technology carry out hydrographic surveys, geophysical services, navigation and positioning services, geodetic surveys, environmental data services, satellite surveys and systems development on land and water, from the Arctic to the equator.

A comprehensive multi-disciplinary and integrated range of services to hundreds of private and public sector clients in Canada and in over 45 countries around the world has established McElhanney's international reputation. The company continues to actively pursue its policy of seeking opportunities in the global marketplace.

# MALONEY STEEL LTD.

**8825 Shepard Road, S.E.**
**P.O. Box 5069, Station A**
**Calgary, Alta.**
**T2H 1X1**
**Phone: (403) 279-5541**
**Telex: 03-821153**
**Contact: T. W. Gomke, sales manager**

A totally Canadian-owned and operated company with head office, design and fabrication facilities in Calgary, Maloney Steel Ltd. has a design office and fabrication facilities in Kelowna, B.C. (Maloney Steel Ltd., Active Division), a sales office in London, England (Maloney Steel-Craft, (U.K.) Ltd.) and agents in other countries around the world.

The Calgary fabrication shop and head office are located on a 15-acre site, providing engineering, design, fabrication, sales and service from this location, which includes 48,000 square feet of shop floor area. Opened in June 1981, the Kelowna fabrication plant has approximately 30,000 square feet of shop space, as well as offices and warehouse.

Maloney has designed and manufactured oil and gas production and process equipment over the past 30 years that is operating both onshore and offshore in the United Kingdom, Norway, Denmark, U.A.E., Abu Dhabi, Egypt, Indonesia, Pakistan, Trinidad, Venezuela, the USA and Canada.

The majority of Maloney's production equipment meets either ASME Section VIII, Division I Code or ASME Section VIII, Division II. However, the company has also designed equipment to meet the British BS 1515 Code. All the units exported have been packaged with

vessels, skids, piping and instrumentation, and Maloney demonstrates its flexibility by custom designing all its equipment for the specific requirements and applications of the customer.

# MacLAREN PLANSEARCH INC.

**1000 Windmill Road**
**Dartmouth, N.S.**
**B3B 1L7**
**Phone: (902) 469-0932**
**Telex: 019-21845**
**Contact: M. R. Cameron, president**

MacLaren Plansearch Inc. is the planning and research division of Lavalin Services Inc., and brings together professionals from a variety of disciplines to provide comprehensive services in a wide range of areas, including ocean sciences and operations, environmental sciences, water resources and economic and social studies.

The division serves clients working in many facets of marine resource development, but principally those involved in the oil and gas and fishing industries. Studies and services are also provided for all levels of government in Canada and abroad, as well as various international agencies.

Services available include biological, chemical and physical oceanography; waste disposal, effluent dispersion and slick modelling; ice and iceberg physics and engineering; oil spill contingency planning and marine resource delineation and feasibility studies.

Laboratory facilities are available for chemical, geochemical, biological, microbiological, bioassay and food sciences investigations.

The company is also available to provide operational capabilities in the areas of ice and iceberg surveillance and protection, weather and wave forecasting and environmental training services.

# McQUEST MARINE SCIENCES LTD.

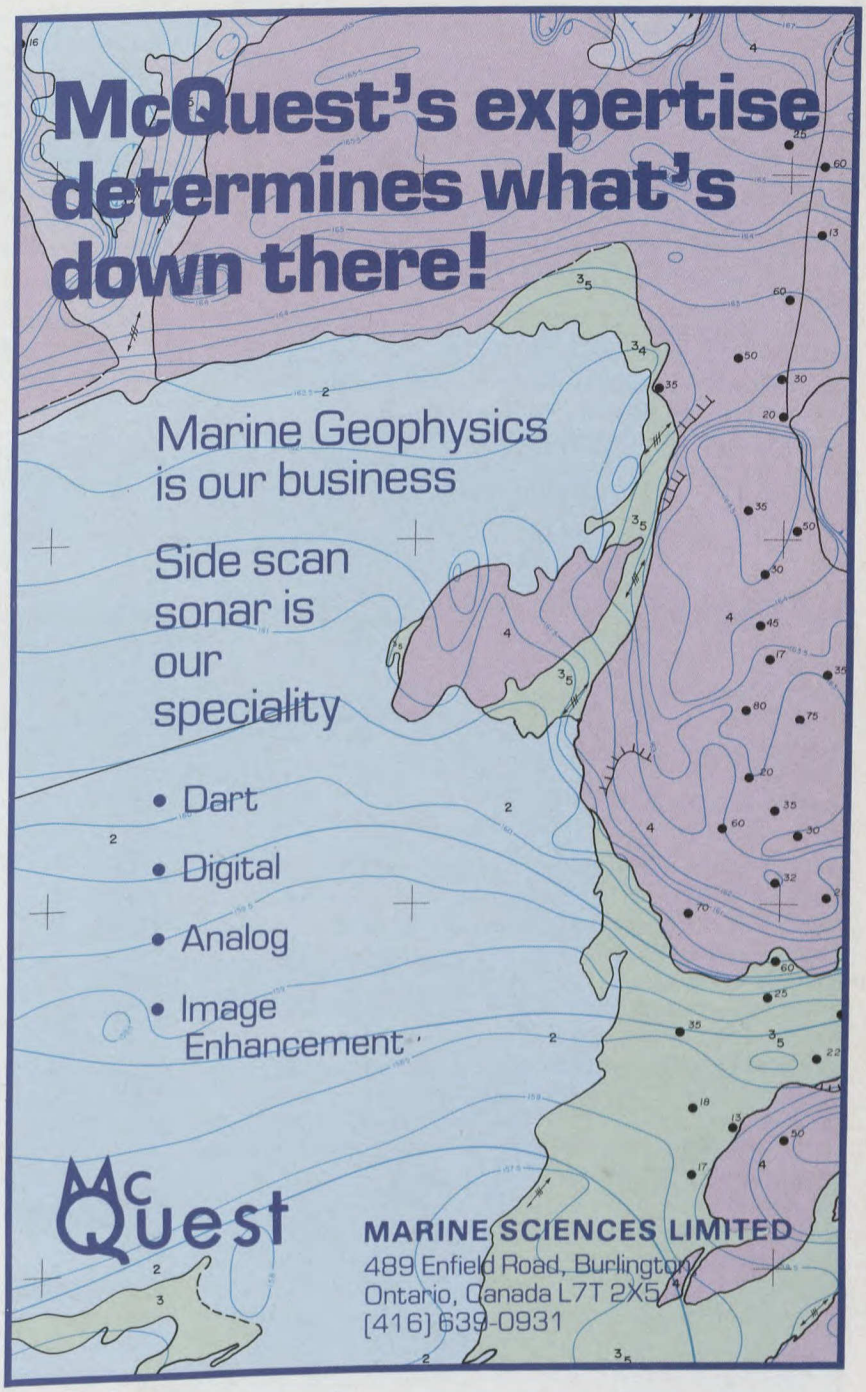
**489 Enfield Road**
**Burlington, Ont.**
**L7T 2X5**
**Phone: (416) 639-0934**
**Contact: Ken McMillan**
**J. W. Prior**

McQuest Marine Sciences Ltd. and its sister company, McQuest Marine Research and Development Co. Ltd., comprises geophysicists, engineers and instrument and computer image enhancement specialists providing a comprehensive range of marine geophysical services to the offshore engineering, construction and resource industries.

The company specializes in all aspects of side-scan sonar applications for sea floor mapping as part of submarine route or site surveys. The company also combines side-scan sonar with the more conventional acoustic sub-bottom profiling system to produce a three-dimensional structural map.

McQuest has a specialized in-house computer system to transform complex surface data, which would otherwise be presented in contour form, into a shaded relief image which allows the non-specialist to obtain a rapid appreciation of the significance of the data. This capability to provide a complete data presentation is useful when data must be presented to non-technical personnel.

Because McQuest handles all data through all phases of collection, quality control, reduction, interpretation and presentation, the company is able to lend a complete and cohesive quality to the results of any investigation.



# MAR-DEL COMPONENTS LTD.

**R.R. 2, Site 9, Box 20**
**Sherwood Park, Alta.**
**T8A 3K2**
**Phone: (403) 464-4177**
**Contact: Clay C. Jolly,**
**manager**

Mar-Del Components Ltd., a division of Caulfield Creative Arts Ltd., was created to fulfill a need for competent representation of high technology components and systems in the oceanographic, scientific, industrial and telecommunications fields. In co-operation with Jon B. Jolly Inc. of Seattle, Wash., Mar-Del now represents a broad line of high quality equipment manufacturers in Canada.

Combining sales and marketing expertise with broad technical background enables Mar-Del to perform well in many different fields, and allows the company to provide such services as marketing and sales and maintenance and repair.

The company, through its association with the Caulfield group, is linked to Caulfield Engineering Division. This division develops, manufactures and services specialized remote sensing equipment, front end digital systems and controls. Only state of the art micro-processor technology and software development are utilized, enabling the company to confidently place its systems in remote, harsh environments.

In addition, Caulfield Engineering has developed a data terminal that can be customized to display up to 256 custom symbols or graphics not found on standard computer terminals.

# MARSH ENGINEERING LTD.

**P.O. Box 7**
**Port Colborne, Ont.**
**L3K 5V7**
**Phone: (416) 834-3624**
**Telex: 061-5257**
**Contact: Ross Adams**
**John Marsh**

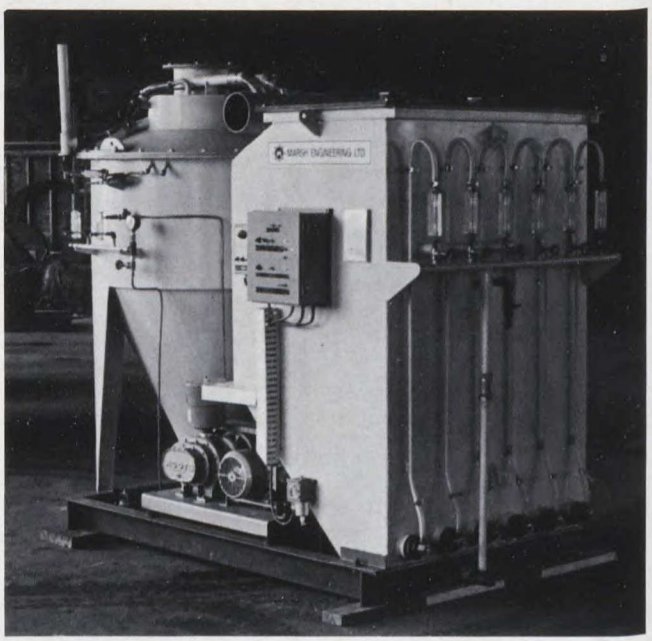
Marsh Engineering Ltd. was founded in 1870 as F. Woods and Sons, a blacksmithing shop, and the firm is still in the same location on the north shore of Lake Erie, adjacent to the entrance of the Welland Canal.

With the change from sail power to steam and eventually to diesel and turbine power, Marsh kept abreast of the shipping industry, and is now poised to offer a complete range of services to the domestic and international shipping industries.

Two machining and fabrication shops, with a total of over 2 700 $m^2$ of manufacturing space, are located in Port Colborne, while a third plant has just recently been completed at the new industrial port of Nanticoke, Ont., on the north shore of Lake Erie.

Marsh Engineering plants feature modern equipment with machining and fabricating facilities to handle the smallest parts to items in excess of 18 000 kg.

Among the services offered by Marsh Engineering are the overhaul of large diesel and turbine machinery, including piston and cylinder



head reclamation, turbine reblading and on-site machining. The rebabbitting and machining of bearings of all sizes can also be accommodated. These and other on-site maintenance and repair services are available on 24-hour call basis, in locations as remote as the Arctic Circle or South America.

# MARINAV CORPORATION

Navigation and Survey Technology division
1140 Morrison Drive
Ottawa, Ont.
K2H 8S9
Phone: (613) 820-6600
Telex: 05-34117
Contact: Penny Paddon,
marketing administrator

With offshore oil exploration moving into deeper and deeper waters, navigation is playing an increasingly important role and Marinav Corporation's position-fixing and survey services are in demand world-wide.

Marinav owns and operates a complete range of specialized navigation equipment for marine operations, including short-range, high precision microwave systems for the accurate positioning of ships operating within line-of-sight from the shore, as well as other systems which provide both medium and long-range capabilities for reliable and accurate navigation.

In addition to providing navigation services, Marinav undertakes offshore engineering and hydrographic surveys, and maintains a comprehensive inventory of oceanographic equipment, including precision depth-sounders, side-scan sonar and sub-bottom profilers and survey launches. The company can undertake survey-related software development to support most requirements and has designed autoplot systems to provide on-board real-time navigation.

Marinav has headquarters in Ottawa and maintains offices in Calgary, Houston, Singapore, London and Aberdeen. During recent years, the company has undertaken projects in South America, the Caribbean and the North Sea, as well as in the Canadian Arctic.

# MARINE INDUSTRIES LTD.

**P.O. Box 550**
**Sorel, Que.**
**J3P 5P5**
**Phone: (514) 743-3351**
**Telex: 055-61081**
**Contact: Guy Veronneau,**
**vice-president, shipbuilding division**
**Jose C. Pereira,**
**vice-president, development**

Marine Industries Ltd. has built more than 300 ships, ranging from trawlers and ferries to container vessels. Its naval architects, engineers and technical specialists developed the MARINDUS designs for cargo and tanker ships which have gained worldwide acceptance, and the company as a whole has played a major role in supplying the Canadian navy with combat ships. In recent years, the company has built a number of multi-purpose cargo ships for the international market.

Marine Industries maintains a ship repairing and modernization service used by ships sailing the St. Lawrence River and the Seaway route, and is currently launching a program aimed at the offshore oil and gas industry. To this end, the company has become actively involved in the construction of semi-submersible drilling platforms, ocean-going tugs, supply vessels, anchor-handling tugs, multi-purpose support vessels and ice strengthened vessels for use off Canada's east coast and in the Arctic.

In addition, MIL maintains hydroelectric, railcar and industrial divisions, which serve the energy, transportation and mining industries, as well as the petrochemical and chemical fields.

# MARITIME INDUSTRIES LTD.

**6307 Laurel Street**
**Burnaby, B.C.**
**V5B 3B3**
**Phone: 604 299-7591**
**Telex: 04-354799**
**Contact: Michael J. H. Weddle,**
**marketing manager**

Maritime Industries Ltd. is primarily involved in the design and manufacture of dynamic positioning elements for use on offshore drilling rigs and other craft, and has units available up to 6,000 bhp, utilizing fixed or controllable pitch propellors.

To serve the growing number of offshore drilling rigs, the company has developed a series of cannister or independently-mounted thrusters, which can be removed easily while the rig is afloat. The cannister-type thrusters are completely enclosed in a water-tight capsule, with the only external connections for electrical power and control instrumentation.

To serve the new generation of offshore service vessels, Maritime Industries has developed a range of 360 degree azimuthing propulsion packages, both direct-drive and diesel-electric. These systems provide greatly improved handling and precision positioning capabilities for supply ships, anchor-handling tugs and other support vessels.

Where standard products do not meet a particular propulsion requirement, Maritime Industries has design teams available to develop custom units for special applications. In this area, the company has designed and built equipment for such customers as the United States navy and major aerospace corporations.

# MIL...


*One of the several 58 m ice-reinforced supply vessels built by Marine Industries Limited for the Canadian Coast Guard. The shipyard has an international reputation as a leading builder of modern ships of many types.*

# WAY TO GO

*Fabrication at Marine Industrie Limitée of «K» joints for Sedco semi-submersible drilling platform.*

## For your offshore drilling projects

We offer the extensive experience of our highly skilled workforce and the widely diversified facilities of our shipyard for the construction of:

- semi-submersible drilling platforms
- ocean-going tugs • anchor-handling tugs
- supply vessels • pipe carriers
- multipurpose support vessels
- ice-reinforced vessels

*Your inquiry will receive our prompt attention.*

**MARINE INDUSTRIES LIMITED**

P.O. Box 550 Sorel, Québec, Canada J3P 5P5 Tel.: (514) 743-3351 Telex: 055-61081

# MARSHALL MACKLIN MONAGHAN GAS AND PROCESS LTD.

**275 Duncan Mill Road**
**Don Mills, Ont.**
**M3B 2Y1**
**Phone: (416) 449-2500**
**Telex: 06-966695**
**Contact: Robert Milne, deputy chairman**
**Fred Joneidi, president**

Marshall Macklin Monaghan Gas & Process Limited is a Canadian engineering company with expertise in the oil and gas sector, from the wellhead to the terminal, offshore and onshore.

Conceptual design, detailed engineering, procurement, construction supervision and overall project management have been carried out within the group on world scale projects, some involving limits of technology and engineering.

The group has a record of over 200 successfully completed projects in engineering and management for the oil and gas industries. These projects range from studies on a multi-billion dollar gas compression and transmission project to a complete grassroots offshore oilfield development. Extensive experience has been gained in the design of crude oil, gas, LPG and product handling and treatment plants, both onshore and offshore. These have included large scale dehydration and desalting projects. Many pipeline and terminal projects have also been carried out.

Surveying services, including offshore positioning with satellite and radio navigation systems, as well as detailed surveys for transmission lines, from reconnaissance through final as-built surveys, are provided through Marshall Macklin Monaghan Limited by professionally qualified surveyors and engineers.

The group, which employs some 900 people, has offices in Toronto, Calgary, Edmonton and Vancouver. In addition, it is operating internationally as Cansult Gas & Process, through Cansult offices in Oman, Abu Dhabi and Saudi Arabia.

# MARTEC LTD.

**801, 5670 Spring Garden Road**
**Halifax, N.S.**
**B3J 1H6**
**Phone: (902) 425-5101**
**Telex: 019-22770**
**Contact: Alan Y. McLean**
**W. G. Tidmarsh**

Martec Ltd. is an ocean science and engineering company based in Halifax with offices in St. John's and Calgary.

The company is part of the Monenco Group, a consulting engineering group with about 5,000 employees world-wide. The services which Martec has to offer fall into four main areas: structural analysis, ocean engineering, Arctic engineering and environmental impact studies.

With expertise covering all areas of engineering, as well as naval architecture, computer sciences, oceanography and marine biology, Martec is positioned to put together strong interdisciplinary project teams and the necessary equipment to tackle a wide variety of ocean-related projects, both in the field and in the office.

The company has carried out many projects for the offshore oil and gas industry, such as current profiling at well sites for marine riser design, wave scour and wave climate studies related to jack-up rig operations and studies on iceberg and icefloe movement predictions. As well, Martec has carried out environmental projects for most companies operating off Canada's east coast and in the Arctic, including Shell, Esso, Petro-Canada, Dome Petroleum, Mobil Oil, Texaco and Gulf.

Martec has also had extensive experience in Nigeria, Indonesia and South America, as well as in the Middle East.

# MARINE EQUIPMENT LTD.

**3695 Barrington St.**
**Halifax, N.S.**
**B3K 2Y3**
**Phone: (902) 429-3240**
**Telex: 019-22666**
**Contacts: John F. Mackey, president**
**T. Seifried, sales manager**

Marine Equipment Ltd. (MEL) is a Halifax based marketing services firm dealing primarily in the provision of manufacturers agents services. The company traces its existence back to 1968, when a major British manufacturer of marine lifesaving equipment established a subsidiary. The firm was incorporated under its present name in 1975 and is a wholly Canadian owned company providing marketing, sales, as well as manufacturers agents services to a variety of clients, including the government of Canada, commercial firms in Canada, the United States and Europe. MEL is one of the largest distributors of marine lifesaving equipment in Canada.

MEL is a strong young progressive company which is aggressive in meeting the requirements of its clients, its well-diversified service-oriented staff is adept at continuously researching, designing, testing and implementing concepts to serve the special needs of its customers. With this orientation, highly specialized engineering and expert technical backup is available for hydrocarbon pollution detection and control, clean-up and recovery, life support systems, desalination equipment, explosion prevention material, fire prevention and protection systems, ships' fittings, pyrotechnics and ammunition and training simulators.

The staff, dedicated to high quality workmanship and production, is comprised of a nucleus of professional marketeers backed by skilled sales personnel and general office staff.

MEL distributes through a dealership of approximately 40 companies strategically located in major cities across the country.

## OCEAN SYSTEMS & MARINE SUPPLY

### PRODUCTS:

Accommodation Ladders & Gangways
Adhesive Tapes & Adhesives
Adjustable Pedestal Fairleads
Anchors
Anchor Capstans
Anchor Windlasses, Warping Capstans
Roller Bow Stoppers
Anchors and Cables
Automatic Inflatable Workvest
Boats G.R.P. Rescue
Boiler Pumps
Bollards & Blocks
Bow Thrusters
Bridge Control System
Cabin Hardware, Locks, etc.
Canned Water
Chain, Castings
Chocks
Clearview Screens Ice Free
Compasses & Binnacles
Consoles
Control Panels
Cranes
Diesel Engine Load Control Systems
Doors and Hatches
Galley Equipment
Complete Shipboard & Fish Plant Processing Equipment
Console Hydraulic, Elec. Pneumatic Controls
Davits—Lifeboats, Stores, Oil Hose, Special Purpose
Desalination Equipment
Dishwashers
Distress Kits
Dredge Line Mooring and Industrial Winches
Electric Heating Shipboard
Emergency Rations Boat and Raft
Explosion Preventive Systems
Fairleads
Fan Systems—Pumproom, E-R, etc.
Fenders & Buoys—Rubber Pneumatic
Fire Extinguishers
Fishing Trawl Winches, Net Drums (All Types), Gallows Blocks, Grinding Wheels, etc.
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High Capacity Fish Unloading Systems
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Marine Distress Rockets, Flares & Smokes, Marker Buoys, Marine Hardware
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Oil Spill Containment Systems
Oil-Water Skimmers, Offshore, Inshore Ponds
Oily Water Separators
Pilot Hoists—Mechanical & Magnetic
Plastic Floats
Pneumatic Level Alarms, Sensing Systems (Audio-Visual)
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Portable Lighting
Propellers
Protective Firefighting Clothing
Release Hooks
Relief Valves
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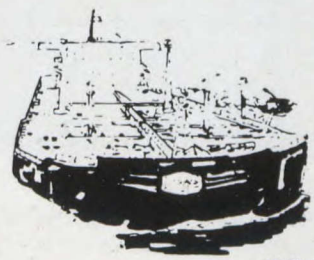
Rope and Twine
Rudder Propellers (360°)
Search Lights
Search & Rescue—Survival Products
Search Initiator Buoy
Shackles
Survival Suits—Surface-Dry-Pollar
Towing Hooks
Turbo Machinery
Warp Tension Meters
Warping and Cargo Winches
Washing Machines
Wave Height Monitor
Winch Windlasses
Wire Rope & Chain—Wire Reels & Stoppers
Windows
Workboat—Lifeboat (Inflatable)



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Sales and Service Across the Nation

## MARINE EQUIPMENT LIMITED

**Barrington Commercial Centre, 3695 Barrington Street, Halifax, N.S. B3K 2Y3, Tele.: (902)-429-3240, Telex: 019-22666**

# MARSHALL MACKLIN MONAGHAN GAS AND PROCESS LTD.

**275 Duncan Mill Road**
**Don Mills, Ont.**
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# MARTEC LTD.

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**Phone: (902) 425-5101**
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MEL distributes through a dealership of approximately 40 companies strategically located in major cities across the country.

# MARYSTOWN SHIPYARD LTD.

**P.O. Box 262**
**Marystown, Nfld.**
**A0E 2M0**
**Phone: (709) 279-1200**
**Telex: 016-3140**
**Contact: T. G. Whelan,**
**president**
**Christopher West,**
**general manager**

Completed in 1968, Marystown Shipyard Ltd.'s facility is one of the most advanced technological yards of its size in the world. It is located on the Burin Peninsula, in Mortier Bay, an ice-free harbor close to all east-west shipping lanes and convenient to offshore oil exploration areas.

The main shipyard is an all-weather operation, with the main shop completely enclosed to facilitate 24-hour construction in all weather conditions. A Syncrolift marine elevator and transfer system provides fast raising, lowering and transfer of vessels under construction or docked for repairs.

In 1981, Marystown Shipyard prepared for the inevitable boom of the offshore oil exploration program, and installed blowout preventers on the Zapata Ugland and Sedco 706 semi-submersible drilling rigs. Since its inception in 1968, the shipyard has manufactured and delivered 31 vessels, including nine supply and support vessels for the offshore oil industry. Currently, four of the vessels are operating off the east coast. In the field of ship repair, the yard is capable of handling between 150 to 200 vessels per year, which makes it invaluable to the Newfoundland deep sea fishing fleets and is an important part of the offshore oil industry.

# M.S.E. ENGINEERING SYSTEMS LTD.

**265 Canarctic Drive**
**Downsview, Ont.**
**M3J 2N7**
**Phone: (416) 661-5646**
**Telex: 06-523982**
**Contact: Alfred W. Egerton,**
**president and general manager**
**Robert T. Fraser,**
**vice-president, sales**

M.S.E. Engineering Systems was founded in 1974 as a supplier of scientific products for the offshore gas and oil exploration and environmental science market.

The company is engaged in research and development projects for oceanographic instrumentation, as well as the development of underwater and radiation tolerant television systems to be used with Atomic Energy of Canada Ltd.'s CANDU reactors.

M.S.E. has a contract with Spar Aerospace Ltd. of Toronto for engineering development of the vault observation subsystem, part of a remote manipulator system. Under contract to Ontario Hydro, Spar's R.M.S. will be used to replace reactor tubes in Ontario Hydro's Nuclear Reactors. The V.O.S. will be a complex television camera and video distribution system to remotely view the manipulator arm and other tools in operation within the reactor vault.

M.S.E. is also working on a $640,000 contract with Atomic Energy of Canada Ltd. to provide a multi-television camera and video distribution system for AECL's CANDU Reactor Wolsung 1, for Korea Electric Company. Cameras will be radiation tolerant and environmentally housed. A special multiplexer will be designed by M.S.E. which will be located inside the reactor vault. Canadian content on this program is in excess of 67%.

M.S.E. is a private, wholly owned Canadian company, and is a founding member of the Canadian Ocean Industries Association.

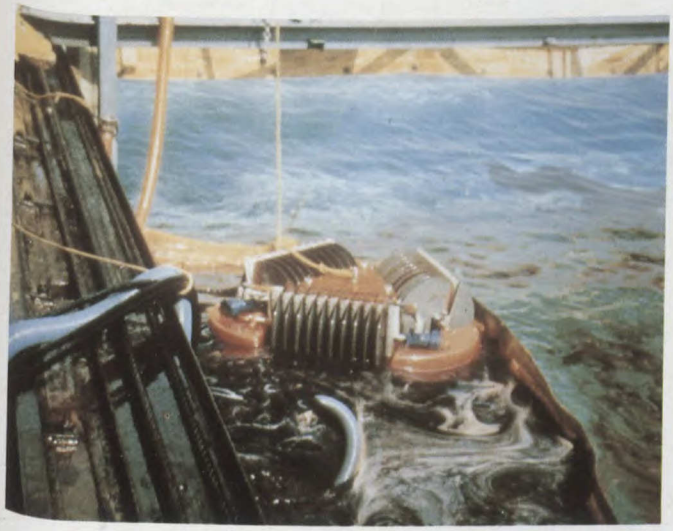
# MORRIS INTERNATIONAL TRADING LTD.

1527 Columbia St.,
North Vancouver, B.C.
V7J 1A3
Phone: (604) 982-2189
Contact: David E. Morris,
president

Morris Industries Ltd. was established in 1976 by David E. Morris who, for many years, worked for a large oil company in England, where he was engaged specifically on work related to the design and development of oil pollution control equipment. This work involved attendance at major oil spills throughout the world, and he has been able to apply this specialized knowledge to the design and manufacture of the Morris Industries line of oil pollution control equipment.

Morris Industries was incorporated in October 1977 and has undergone rapid growth, it now has equipment in Europe, South America, United Kingdom, United States and most parts of Canada. Morris International Trading Ltd., an associate company was established to handle the marketing function.

The product range comprises emergency oil skimmers and inshore containment booms. It is the policy of Morris Industries to continually improve product design, and it is willing to work closely with the industry on a custom engineering



or consulting basis. Under development at Morris Insdustries are a work boat which can serve as a skimmer and/or boom deployment vessel and also a fixed installation oil recovery unit for use in refineries and similar applications.

# I. H. MATHER AND SON LTD.

P.O. Box 3550 South
Halifax, N.S.
B3J 3J3
Phone: (902) 429-5680
Telex: 019-21771
Contact: Harry I Mathers,
president
Louis M. Homes,
director

Founded more than 100 years ago as ships' agents, family owned and managed I. H. Mather and Son has been a leader in the Halifax shipping community and has grown and expanded with the times and technology throughout its history.

The offshore industry is now a major part of its business and it is operating and crewing three offshore supply boats and had a tug boat business handling the docking of very large crude carriers in the Canso area.

The company is also engaged with the Canadian government in extensive negotiations for a proposed offshore training school to give people actual on-board training.

# MESOTECH SYSTEMS LTD.

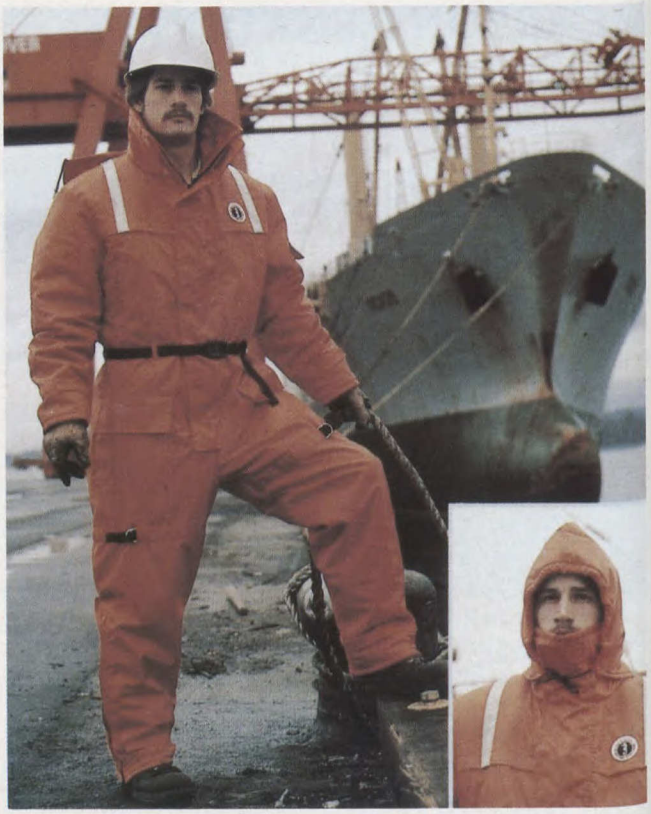
1174 Welch St.
North Vancouver, B.C.
V7P 1B2
Phone: (604) 980-3474
Telex: 04-352773
Contact: Alan Mulvenna,
vice-president, sales

Acoustic solutions to underwater engineering problems are the speciality of Mesotech Sytems Ltd. Concentration on this one area of engineering has created a vast expertise and numerous lines of standard products. Mesotech manufactures and markets profiling sonars, navigation systems, transponders, acoustic releases, pingers and transducers, among others.

Model 965, the "Underwater Theolodite", gives the civil engineer the ability to measure, position and image underwater objects and surfaces. Hard copy profiles of the bottom for precise determination of material to be removed and proof of results is delivered through the 'Dredge Master's Sonar" — Model 952. The "Pipeline Survey Sonar" — Model 961 is mounted on a remote controlled submersible, and will profile pipes and trenches many times faster than other methods. Back-fill, bridging, silting, scouring . . . are all instantly visible on the CRT. Besides these standard lines, many innovative custom designs are on file, and Mesotech is an active OEM supplier.

# MUSTANG SPORTSWEAR INC.

**3810 Jacombs Road,**
**Richmond, B.C.**
**V6V 1Y6**
**Phone: (604) 270-8631**
**Telex: 04-357689**
**Contact: Dwight Davies,**
**president**
**Brian Sweeney,**
**marketing manager**



Mustang Sportswear has extended its range of activities from the recreational flotation market to the production of specialized industrial safety wear used by seamen, offshore workers and people whose work exposes them to the hazards of accidents in frigid waters.

The Mustang anti-exposure coverall is a one piece thermally-protective suit that offers maximum flotation capability without restricting movement. Closed cell foam insulation protects the wearer against rapid loss of body heat in cold water and significantly increases survival time.

The U-Vic Thermofloat cold water survival coat, the Admiral Floater coat and the Standard Floater coat also provide both hypothermia protection and flotation.

All products have been approved by the U.S. Coast Guard and Canada's Ministry of Transport, as well as by many overseas regulatory agencies.

During the past four years, Mustang Floater products have been used by an increasing number of workers in the offshore petroleum and transportation industries.

# NORRIS WARMING CANADA LTD.

**1150 Morrison Drive, Suite 210**
**Ottawa, Ont.**
**K2H 8S9**
**Phone: (613) 820-9772**
**Telex: 053-4527**
**Contact: N. J. Shergold,**
**president**
**R. Gledhill,**
**marine manager**

With more than 30 years of marine experience in heating, ventilation and air conditioning, Norris Warming Canada Ltd. is capable of handling any environmental control problem, particularly in the living or working areas of drilling rigs and ocean-going vessels.

For the past 20 years, the company has supplied designs and equipment for almost all marine construction projects completed in Canada, a feat which places 17 at the top of its class in Canada.

Through the years, the company has provided equipment for rigs and commercial, government and naval vessels — operating from the Arctic to the tropics through virtually every climatic condition.

Manufactured to meet customer specifications, equipment supplied by Norris Warming includes air conditioners, filtration units, engine room fans and humidity controls. It also has complete engineering and design facilities.

Norris Warming has offices in the United States and Great Britain, as well as Canada, and maintains agencies in Europe, Australia, South Africa, Hong Kong, Greece, Japan and India.

# NARWHAL MARINE LTD.
# A subsidiary of Atlantic Bridge Co. Ltd.

**2 Bluewater Road**
**Bedford, N.S.**
**B4B 1G7**
**Phone: (902) 835-9935**
**Telex: 019-21683**
**Contact: Larry Bell,**
**vice-president, marketing**

Narwhal Marine Ltd. is extensively involved in the development and manufacturing of underwater and surface survival gear, with a strong emphasis on Arctic environment capabilities.

The company's diving equipment is used by international diving companies in research, offshore and construction projects, and by military units in Arctic and sub-Arctic applications. The company's designs and products have been used extensively by clients in the fishing, construction and offshore industries, and Narwhal Marine will design and manufacture equipment to customer specifications.

The most versatile of the company's suits is designed for use in surface working applications, involving the potential for a "man-overboard" situation. The suit is designed to provide for full mobility under all reasonable work tasks, and will keep a man dry while working in an open boat or on an exposed deck. The suit is watertight and will keep a man afloat indefinitely, even if the suit is ripped and flooded. The suit can also be inflated for extra warmth and flotation.

A complete service organization, Narwhal Marine will service any of its products on a 24-hour, seven day per week basis.

# NORDCO LTD.

**P.O. Box 8833**
**St. John's, Nfld.**
**A1B 3T2**
**Phone: (709) 364-1200**
**Telex: 016-4596**
**Contact: Frank Smith,**
**president**

With head offices located in St. John's, NORDCO is a multi-disciplinary systems approach designed company serving all aspects of the ocean resource development industry. It offers a full range of services, including geophysical surveying, socio-economic studies, weather forecasting and environmental monitoring, ice studies, ocean studies and instrument development, manufacture and maintenance.

The company also carries out considerable research and development, both in-house and under contract, through the application of innovative human and technological resources to solve problems associated with the marine environment.

The company's data processing facility provides reduction and analysis of stored and real-time analog/digital information as well as custom software development for specific projects. In addition, NORDCO's electronics laboratory is used for the fabrication and testing of custom electronic packages resulting from in-house design and for the routine maintenance, calibration and overhaul of oceanographic field instruments.

In the areas of the offshore industry, NORDCO is currently marketing systems which monitor, process, display and data log meteorological ocean, vessel motion and mechanical strain parameters.

# NORTHWEST HYDROGRAPHIC SURVEYS LTD.

**8911 152 Street**
**Surrey, B.C.**
**V3R 4E5**
**Phone: (604) 588-8541**
**Telex: 04-356679**
**Contact: Gordon Murray**
**Michael Slater**

Northwest Hydrographic Surveys Ltd. has 14 years of specialized experience related to the underwater power cable industry.

The company is involved in the initial studies of route selection, after which the data is gathered to form the basis for feasibility studies aimed at selecting the optimum route within the proposed corridor.

When the final cable route has been selected, the company will assist with the navigation of the cable-laying ship along the pre-plotted route. To date, Northwest has provided navigation services for over 35 different operations, in water depths of up to 400 m.

In addition to providing these services, Northwest is also capable of locating cable failure locations on the ocean floor. The company has assisted in the fault location, repair and relaying of 138 kv AC and 300 kv DC cables.

The company is experienced in project administration and provides the field staff for surveys, together with the equipment including positioning systems, on-board computers and plotters, micro-computer based navigators, depth sounders, side-scan sonar and current meters. It is also active in associating with consultants to provide a multi-disciplinary approach to ocean surveys and engineering studies.

# NOVA SCOTIA RESEARCH FOUNDATION CORPORATION

**100 Fenwick Street, Box 790**
**Dartmouth, N.S.**
**B2Y 3Z7**
**Phone: (902) 424-8670**
**Telex: 01-922719**
**Contact: John A. Gillis,**
**head of marketing**
**T. B. Nickerson,**
**vice-president**

The capability of the Nova Scotia Research Foundation Corporation (NSRFC) to supply the offshore oil and gas industry includes the design, manufacture and sale of high quality, reliable products for the diving industry and for offshore surveying.

NSRFC product development criteria include using the best technology combined with the required reliability for products used on and under the ocean. The commitment to reliability does not stop with the shipment of orders, but is continued with ongoing customer contact to ensure satisfaction with the product's operations and to ensure ongoing servicing requirements are met.

Among the products developed by the NSRFC is a deep-tow sub-bottom profiling system which gives high resolution profiles in water to 1,000 metres. The system is used in surveys for offshore cable and pipeline routes, platform siting, dredging and alluvial mining. The electrical slip rings carry power and signals, while fluid rotary unions carry fluids and gases from source on land or vessel, through rotating winches and down an umbilical cable.

# NORSEMAN SHELTERS LTD.

4311 92 Ave.
Edmonton, Alta.
T6B 3M7
Phone: (403) 465-9395
Telex: 037-3707
Contact: Gordon Hiron,
general manager

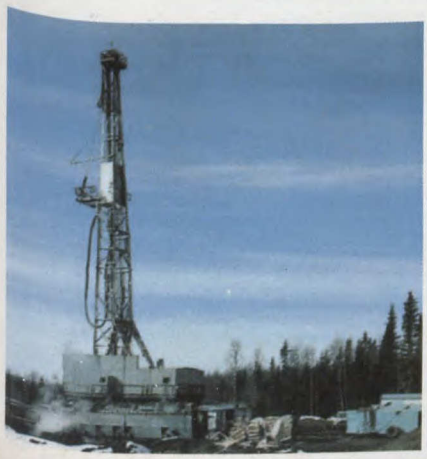
For over 50 years, Norseman has been supplying equipment and services to industry to provide controlled working environments. Through this time, the company has gained extensive expertise in the manufacture of transportable buildings, manufactured of steel, wood and fabric-covered steel frames.

The shelters are in use world-wide from the Arctic to the sands of the Middle East and include rig covers, mine covers, vehicle maintenance buildings, aircraft hangars and camp buildings.

With a full complement of engineering and design personnel, the company has the ability to custom design shelters for a wide range of uses in a minimum amount of time.

All Norseman shelters are designed to withstand winds of up to 160 kph and temperature ranges of −57°C to +49°C. Standard buildings are designed to carry snowloads of up to 195 kg/m$^2$.

Norseman also provides a full range of support services, including on-site repair of all its structures, when required.



# NOVATECH DESIGNS LTD.

**830 C Pembroke St.**
**Victoria, B.C.**
**V8T 1H9**
**Phone: (604) 381-1121**
**Contact: Richard Corman, president**
**Barbara Woodley, office manager**

Novatech Designs Ltd. is an electronics manufacturer specializing in radio direction finding equipment.

The RF200 is a compact VHF radio transmitter housed in a waterproof 4 cm X 45 cm aluminum tube. The beacon is powered by four replaceable "D" cells for up to three weeks operation.

As a floating beacon use the RF200 for: drift studies, oil spill tracking, search and rescue operations, man-overboard emergencies, etc. For air drops at sea install the oil spill skirt. For relocation problems at sea or on land mount the RF200 to your equipment. When your navigational instruments can't get you back close enough, leave a beacon there. Then for that last mile or so home in on the beacon with your direction finding receiver, or use our DR400 D.F. Receiver. The DR400 is portable, compact (can be folded up and stowed almost anywhere), and easy to use from aircraft, boats, or vehicles. With our DR400 get up to 30 miles range to an aircraft and up to 12 miles to a boat.

Over the years our products have proven themselves in such varied applications as locating tuna fish in the South Pacific to trading surface drogues in the Arctic. Numerous options make the RF200 suitable for a wide range of applications.

# OFFSHORE PHOTOGRAPHY SERVICES

**23 Summit St.**
**Dartmouth, N.S.**
**B2Y 2Z9**
**Phone: (902) 469-8080**
**Contact: Joseph Robichaud**

Offshore Photography Services, with many years experience in commercial, industrial and advertising photography services, is now specializing in providing photographic services to the petroleum industry, both offshore and onshore. It offers high quality workmanship and prompt, efficient service.

# OKANAGAN HELICOPTERS LTD.

**4391 Agar Drive**
**Richmond, B.C.**
**V7B 1A5**
**Phone: (604) 278-5502**
**Telex: 04-355594**
**Contact: Fred A. Moore**
**Pat A. Aldous**


Since oil and gas explortion commenced offshore Canada in 1967, Okanagan Helicopters Ltd. and its subsidiary companies have participated in the major exploration programs of 12 companies in Canada.

The company has maintained its presence in supporting the offshore efforts of these companies, a situation which experienced record activity in 1979, when Okanagan simultaneously supported all the eight drilling vessels operating along Canada's east coast and the three Arctic vessels in the Beaufort Sea. The eastern offshore activity ranged from the shelves off Nova Scotia and Newfoundland to the Davis Strait off the east coast of Baffin Island, and involved distances of up to 244 nautical miles offshore.

The Arctic projects in the Beaufort Sea included crew, equipment and supply moves in near-total darkness and at sub-zero temperatures, involving extensive IFR (instrument flight rules) flying and high safety standards.

In addition to operating in Canada, Okanagan has served extensively overseas, operating for 25 oil companies in more than 25 countries, from Greenland in the north to Australia and New Zealand in the south.

# NOVA SCOTIA DEPARTMENT OF DEVELOPMENT

**Industrial Benefits Office**
**P.O. Box 519**
**Halifax, N.S.**
**B3J 2R7**
**Phone: (902) 424-8920**
**Telex: 019-22548**
**Contact: R. M. Butler, director**
**R. A. Russell, assistant director**

Exploration for oil and gas offshore Nova Scotia is increasing in activity with four drilling rigs expected to be operating during 1982. Mobil Oil Canada is operating the Rowan Juneau and the new Zapata Scotian jackup rigs in shallow waters around Sable Island, Petro-Canada is drilling with the first Canadian owned semisubmersible rig, the Bow Drill I, and Shell Canada is using the dynamically positioned semisubmersible Sedco 709, which was built in Halifax. Petro-Canada also hopes to have the SDS Vinland, currently under construction in Sweden, on the east coast by late summer 1982. SDS established Canadian headquarters in Halifax.

The government of Nova Scotia is planning for this increased activity through a cabinet committee, the Interdepartmental Committee on Energy and Mineral Resource Development. The Industrial Benefits Office coordinates these activities, which include preparation for business opportunities.

Studies have been undertaken with respect to goods and services requirements, labor availability, and industrial development strategy. The Industrial Benefits Office is familiar with offshore activity and the Nova Scotia companies participating. It serves as an excellent first point of contact regarding offshore opportunities, industrial development programs, potential Nova Scotia jont venture partners, and general information about the offshore or other major industrial opportunities.

# OIL MOP POLLUTION CONTROL LTD.

**1765 Shawson Drive, Unit 11**
**Mississauga, Ont.**
**L4W 1N8**
**Phone: (416) 677-6320**
**Telex: 06-960211**
**Contact: Norman Tribe,**
**vice-president & general manager**
**Peter Stewart,**
**president**

In its eight years of operation, Oil Mop Pollution Control has supplied Oil Mop engines to the Canadian coast guard and the oil industry from coast to coast.

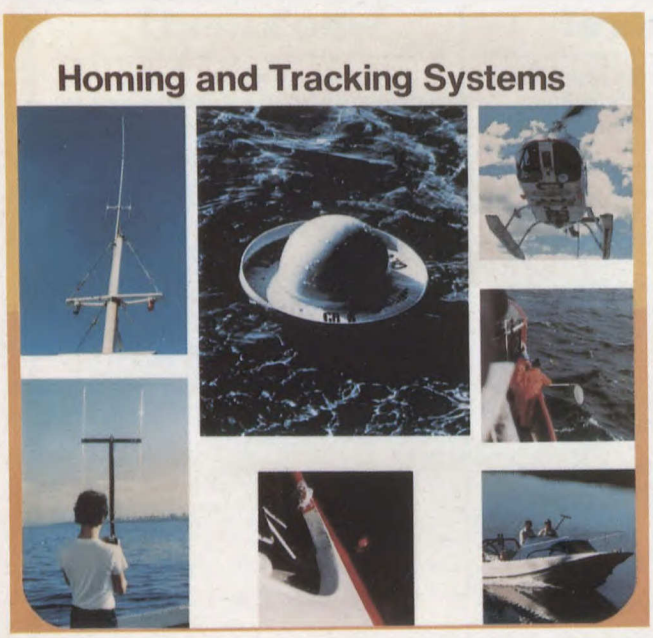
Oil Mop has also developed, in conjunction with the Canadian government, a remote-controlled Arctic oil skimmer designed primarily as a crude oil pick-up device in case of offshore blowouts.

The vehicle, constructed of heavy grade salt water impervious aluminum, is a diesel and hydraulics-powered catamaran, 5 metres in length. Incorporated into the catamaran is a high performance wringer and three, 30 cm diameter rope mops in parallel. The skimmer is designed to operate efficiently in wave and current conditions up to two knots. The skimmer unit can also be attached to floating booms to capture confined spills.

Ideal for use as a pollution control device wherever oil may be spilled on water, the skimmer is custom built to handle the various climatic and spill potential conditions of the area in which it will be used.

# ORION ELECTRONICS LTD.

**P.O. Box 58,**
**Saulnierville, N.S.**
**B0W 2Z0**
**Phone (902) 769-3059**
**Telex: 019-38506**
**Contact: Hugh Roddis,**
**president**
**Gerald Comeau,**
**marketing**




Incorporated in 1975, Orion specializes in design, development and manufacture of compatible direction finding transmitters, receivers and antennas for a variety of professional uses. Systems for tracking and finding buoys, ice-floes, oil spills, instrument packages, ocean crafts, ocean currents, personnel vehicles etc. The various units allow for tracking on land, sea or air.

With agents and representatives in over 20 countries, Orion equipment and services are being used by government agencies, major oil companies, police forces, universities, research groups, marine equipment manufacturers and general consultants.

Orion products include the Ranging and Bearing System 4800; direction finding transmitters that consist of an oil spill tracking buoy, homing transmitter with motion detector, ice tracking buoy, other specific use beacons and buoys; direction finding receivers such as the R11-B Portable and the R11BE, antennas, ultra-violet light night oil finder, and a flexible wavestaff and electronics for recording wave profiles.

Special needs call for special equipment and Orion's professional staff has the skills to solve the most unique problems. Whether it be designing a new product or adapting products and equipment to changing needs, Orion's research and development team turns ideas into practical reality with specialized technological expertise, custom research and prototype development and installation and operator training.

# OLYMPIC IRONWORKS LIMITED

2090, 255 - 5th Avenue SW
Calgary, Alta.
T2P 3G6
Phone: (403) 263-5425
Telex: 03-827603
Contact: Elson McDougald, president
Dale Johnson, vice-president/general manager


Olympic Ironworks Ltd. is engaged in design, fabrication and packaging for the petroleum industry. Its expertise covers both drilling and production equipment requirements. The company is capable of incorporating specific requirements into a line of drilling equipment components and completely assembled ready-to-drill rigs. Manufacturing in accordance with API standards, Olympic built rigs are performance proven in a variety of drilling applications.

Olympic is also engaged in manufacture of packaged production equipment, drawing on years of experience in modular construction methods, whereby entire plants can be prebuilt in packaged components in a controlled shop environment with only final assembly required at site.

Through affiliation with Tri Ocean Engineering, Olympic has the design expertise to provide innovative technical solutions to the most challenging problems. Currently it is developing a sophisticated pipe handling system for Gulf's Beaufort Sea program.

Olympic's 48,000 sq. ft. of shop and office space at Airdrie, Alta. provides the latest technology in fabrication facilities to undertake small and large projects. A qualified production staff is supported by a results oriented management team using computerized materials, cost and schedule control systems to ensure that quality, budget and delivery requirements are met.

# POLCON CORPORATION

**P.O. Box 520,**
**St. Saveur des Monts, Que.**
**J0R 1R0**
**Phone: (514) 227-2688**
**Telex: 05-839581**
**Contact: P.W. Legg,**
**vice president engineering**
**Alan Wright,**
**projects manager**

Polcon Corporation has developed and manufactures the Helixor aerator, a unique device unrivaled in its application for harbour and dock desiltation, pneumatic curtains for oil spill control, ice prevention, water purification of refinery wastes and gas circulation systems.

A major application is the use of 20,000 Helixon aeration and mixing units for the SASOL I, II and III plants in South Africa, the largest industrial waste water treatment system in the world.

The construction and operation of the Helixor is simple, it has low energy requirements and no moving parts except air blowers, keeping maintenance costs to a minimum.

The Helixor is a one piece extruded polyethylene tube incorporating a monolithic helix component of predetermined pitch which divides the tube longitudinally into two separte sections and is made in lengths up to 18 ft., with diameters of 12 and 18 ins. In use it is anchored on the bottom of the basin or tank in a vertical position. At the bottom of the tube, compressed air is introduced from a pipe through orifices in the pipe, in the form of small air bubbles. The air rising inside the vertically aligned helix causes the water to flow.

This mixture of water and air follows a spiral passage which prolongs the interfacial contact between the small air bubbles and the liquid.

Since the flow is very turbulent, very high and probably, maximum, oxygen transfer is ensured.

Although the highest percentage of oxygenation of the liquid takes place inside the Helixor, the stream of liquid and air leaving the top of the tube gives rise to a free turbulent jet which entrains additional quantities of liquid in its movement to the surface, achieving additional oxygen transfer.

The bubbles rise to the surface in the induced vortex, as well as in the turbulent surface boil above the Helixor and surrounding this boil as the water spreads rapidly away from the upwelling region.

# PRATT & WHITNEY AIRCRAFT OF CANADA LTD.

**Industrial and Marine division**
**Box 10**
**Longueuil, Que.**
**J4K 4X9**
**Phone: (514) 677-9411**
**Telex: 05-267509**
**Contact: Robert M. Sachs,**
**marketing director**

Pratt & Whitney Aircraft of Canada Ltd. (P & WC) is a subsidiary of United Technologies Corp. and its major business activities include the design and manufacture of gas turbines for aircraft, industrial and marine applications; design and supply of industrial and marine power systems using gas turbines and product support and factory repair of P&WC and UTC gas turbine engines.

The company manufactures three gas turbine engines for aircraft — the PT6 series for turboprops and helicopters, the JT15D series of turbofan engines for jet powered aircraft and the PW100 series of shaft engines for turboprops and helicopters. The PT6 series ranges from 500 to 2,000 hp, the JT15D in thrusts of 2,000 to 3,000 pounds and the PW100 from 1,500 to 3,000 hp.

P&WC manufactures the ST6 series of shaft engines designed for industrial and marine applications from 500 to 2,000 hp. These turbine engines are designed for small gas compressor sets, electrical generator sets and propulsion systems for air cushion vehicles and fast boats.

The company will also design and supply complete gas turbine propulsion systems to meet specific performance requirements.

# PORTA-TEST SYSTEMS LTD.

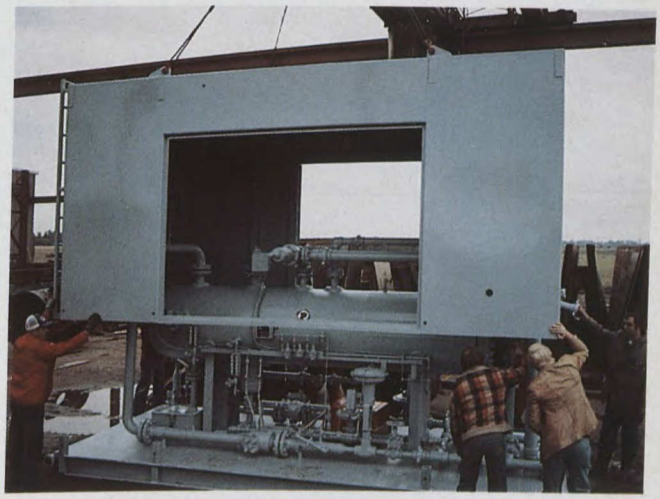
**P.O. Box 5510, Station 'L'**
**Edmonton, Alta.**
**T6C 4E9**
**Phone: (403) 464-1122**
**Telex: 037-3319**
**Contact: Robert C. Kinzer, general sales manager**
**Max M. Baker, sales manager**

Porta-Test, a wholly-owned Canadian company, has its head office in Edmonton, with branch offices in Calgary; Houston; Newbury; England; Singapore and Australia.

Porta-Test specializes in the design and fabrication of gas, oil and steam separators as well as smokeless gas and hydrocarbon burners. As well, it provides specialized service to the oil and gas industry in well testing and reservoir evaluation.

Porta-Test's line of equipment is manufactured for export from its plant in Edmonton, and is individually designed to meet the customer's specifications. The manufacturing process adheres to the ASME code, and this quality control is maintained throughout the manufacturing process.

Equipment manufactured by Porta-Test is currently in operation in the USA, Mexico, South America, Japan, China, Russia, England, Iran, Iraq, Saudi Arabia, South-East Asia, Australia and various European countries.



# PRIME MOVER CONTROLS LTD.

**3901 East Second Ave.**
**Burnaby, B.C.**
**V5C 3W9**
**Phone: (604) 294-6205**
**Telex: 04-354781**
**Contact: John Bjorknas, president**
**Ron Drouin, marketing manager**

Prime Mover controls designs and manufactures marine control components and systems of exceptional quality and durability. It has gained an enviable reputation for on time delivery of first class products and support with technical aid, customer training and thorough documentation.

Pneumatic, electronic and hydraulic products include:

- remote and enginerroom propulsion control systems
- clutch controls with optional shaft brake control, adjustable soft engage, timed reversing (proportional) interlock, fuel boost (Proportional) and throttle override
- C.P. propeller controls with automatic load control and maximum load selection
- manual and automatic load sharing of engines
- modular pneumatic logic systems — ultra compact and serviceable
- thruster and winch control systems
- custom built shipboard consoles — fully wired, piped, tested and documented
- solid state alarm annunciator systems with remote display and senders
- propulsion telegraph systems, microprocessor based, with innovative features
- solid state navigation light control with 24 hour monitoring
- pneumatic tank depth indicator systems

PMC provides additional support to its manufacturing capability with such customer services as a large parts stock, extensive quality control, repair and overhaul programs, engine governor service to high standards, customer training programs and consulting services.

# PULLMASTER WINCH CORPORATION

**11947 - 95th Avenue**
**Delta, B.C.**
**V4C 3V1**
**Phone: (604) 588-4407**
**Telex: 04-351 382**
**Contact: Stan Hresak,**
**president**
**Heinz K. Schroer,**
**marketing manager**

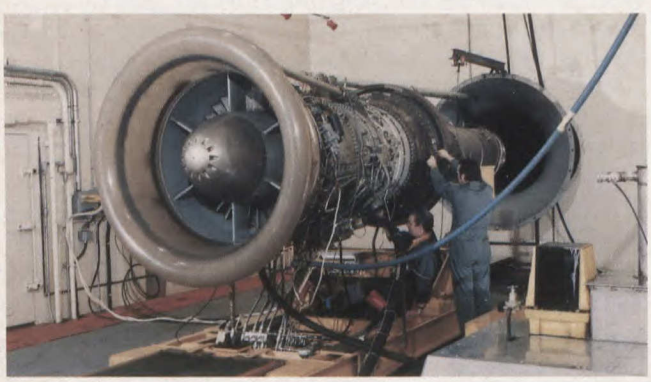
Pullmaster Winch Corporation has been in the gear business for many years and in the design of a planetary winch they have utilized a lot of experience. In a "PULLMASTER" planetary winch, two planetary gear reductions provide for the highest possible efficiency, without heat generation. The planetary gears are combined with a fail-safe, automatic, multi-disc brake, which is spring applied and pressure released. The brake is only effective in one direction and is connected to the drive train of the winch by an over-running clutch. In forward direction, the output of the hydraulic motor is converted into line pull and line speed over the two planetary stages. If a load is lifted and stopped, the winch will positively hold the suspended load by the over-running clutch with a safety factor of 3:1. When the hydraulic motor is powered for reverse or lowering, the brake is released automatically and is then modulated for the desired lowering speed by a single lever control.

Standard units in the M series of "PULLMASTER" planetary winches are designed for "equal speed" in both directions. "PULLMASTER" planetary winches in the H series have a rapid reverse where reversing speeds are 4.3 times faster than forward speeds. The present production program of winches covers a pull range from 4,000 lbs. to 25,000 lbs. There are a number of options available providing for "free spooling", increased cable storage capacity, fairlead attachments and various reduction ratios.

"PULLMASTER" planetary winches are used worldwide with 85% of production going to export markets. Representation has been established in Canada, the United States and in most overseas areas.

# ROLLS-ROYCE (CANADA) LTD.

**P.O. Box 1000, Montreal AMF,**
**Montreal, Que.**
**H4Y 1B7**
**Phone: (514) 631-3541**
**Telex: 05-821882**
**Contact: Brian Knight,**
**vice president, marketing**
**Jim F. Patterson,**
**contracts administrator**



Rolls-Royce Canada is a member of the worldwide Rolls-Royce group of companies. It offers a complete portfolio of support services, including full aero and industrial engine reconditioning, component manufacture, mobile repair teams and technical assistance to operators.

Gas turbine off-engine lubrication systems, fuel control and starting consoles are designed and manufactured with full production responsibility for the Industrial Spey and Industrial RB.211 for worldwide applications. The Spey meets requirements for an engine in the 16,000 BHP class while the RB.211 covers the 30,000 BHP range.

Some of the offshore applications for Rolls-Royce gas turbines are base load and standby electricity supply on offshore rigs, natural gas pipeline transmission, using centrifugal compressors, crude oil pipeline pumping, and driving water flood pumps.

The company recently established a high technology manufacturing centre in Montreal which ranks with the best in North America.

# Reed. The only tool joint manufactured and welded in Canada.

REED TUBULAR PRODUCTS

A division of Reed Tool Company
of Canada, Ltd.
7625 Argyll Road
Edmonton, Alberta, Canada T6C 4A7
A Baker International Company

# ROBB ENGINEERING, A UNIT OF AMCA INTERNATIONAL

**P.O. Box 490**
**Amherst, N.S.**
**B4H 4A3**
**Phone: (902) 667-3801**
**Telex: 019-22863**
**Contact: L. P. Perry,**
**sales manager**
**W. R. McFadden,**
**steel service centre manager**

Located equidistant between the ports of Halifax, N.S. and St. John's, Nfld., Robb Engineering is a structural and platework manufacturer with three main areas of activity, including fabrication, field construction and steel service.

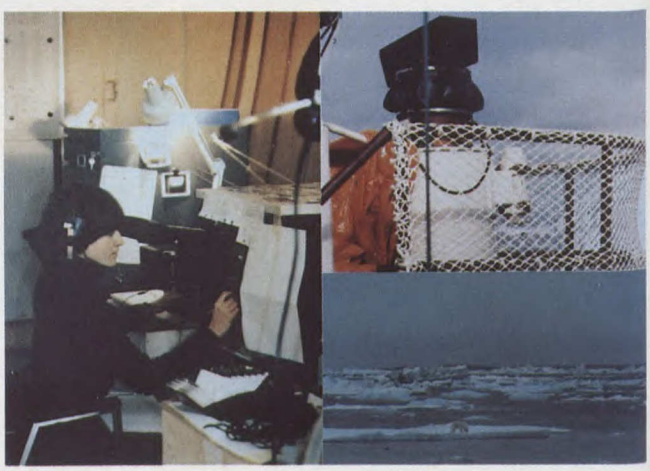
The fabrication facilities have supplied subcomponents for offshore exploration platforms manufactured in Halifax. The division plays a major role in the supply, fabrication and erection of structural steel and platework for major projects in Atlantic Canada including refineries, pulp and paper mills, electrical power plants, mines, fisheries and various manufacturing industries.

Robb Engineering also supplies field construction services and has the capability to erect in-house supplied components as well as client produced goods. In addition to ironwork capabilities, the company has extensive experience in millwork, piping and platework installations throughout the four Atlantic provinces.

Robb Engineering operates two fully integrated steel service centres, in Dartmouth and Amherst, N.S. These centres carry a complete line of carbon steel, structural shapes, plates, bars, grating and tubing, and can cut, roll or shape to meet customer specifications.

# REMOTEC REMOTE APPLICATIONS LTD.

**P.O. Box 5547**
**St. John's, Nfld.**
**A1C 5W4**
**Phone: (709) 364-1779**
**Telex: 016-4939**
**Contact: Richard Worsfold,**
**president**
**Byron Dawe,**
**general manager**



Remotec is a wholly-owned Canadian company incorporated in 1978 to offer remote sensing services to Canadian and international clients. Remotec's head office is in St. John's, Newfoundland. Clients include both government and private companies in Canada and the United States.

Remotec specializes in target/sensor interaction studies. The company's multidisciplined team studies the target to be sensed in terms of its physical properties and surrounding environment. Client requirements and a thorough knowledge of sensor interaction are used in determining the sensor to be used; what sensor platform is required; how data should be acquired; the analytical methods required for data reduction and presentation; whether state-of-the-art systems and methods meet with requirement, or if new sensors have to be designed, fabricated and/or tested.

Remotec has demonstrated capabilities in data acquisition and analysis, surface verification programs, multisensor interpretation and correlation, program development, sensor and sensor platform design, operating services and research and development. Each of these are an integral part of the target/sensor interaction analysis process.

Remotec's staff includes engineers, scientists, technologists, and electronic and remote sensing technicians. Through continuous contact with worldwide organizations and the maintenance of an extensive literature collection, Remotec personnel have up-to-date information for any target/sensor equipment.

# RUST-OLEUM (CANADA) LTD.

**590 Supertest Rd,**
**Downsview, Ont.**
**M3J 2M5**
**Phone: (416) 661-3380**
**Telex: 06-23599**
**Contact: F. B. Pugh,**
**general manager**
**B. H. Ibbotson,**
**sales manager**

In the more than 60 years since it was founded, Rust-Oleum has grown from one individual developing, producing and selling a single product to a company now ranked as one of the world's top protective coatings manufacturers. With recognized expertise in metal protection, Rust-Oleum provides a full range of coating systems capable of meeting the corrosion protection requirements of industy.

Rust-Oleum has gained this reputation through the employment of experienced people, the use of modern technology and the ability to provide dependable protective coatings to customers around the world.

Rust-Oleum has large, modern research development and manufacturing facilities in the United States, Canada and Europe. Regional warehouses are located throughout North America. Additionally, Rust-Oleum works closely with its network of over 2,000 distributors around the world to provide customers with the protective coatings they need, when they need them.

# SANDISLE STRUCTURES LTD.

**#600, 170 Attwell Drive**
**Rexdale, Ont.**
**M9W 5Z5**
**Phone: (416) 675-7341**
**Telex: 06-989582**
**Contact: J. L. Seychuk,**
**president**
**H. G. Gilchrist,**
**vice-president**

Sandisle Structures is a Canadian company, formed in 1976 by Golder Associates and AGRA Industries Ltd. to develop the concept of hydrostatically supported sand structures (Sandisles) and to design applications of the concept to engineered offshore construction.

The Sandisle concept was conceived by Golder Associates as an economic alternative to steel or concrete deep water offshore structures. The system involves forming a submerged structure by placing sand fill inside an impervious membrane, while at the same time extracting water through a system of internal drains to control the build-up of porewater pressure. The hydrostatic pressure of the surrounding water confines the sand, allowing near vertical walls to be erected, and the steep slopes reduce the fill required. The membrane acts to prevent erosion of the sand.

In 1976, a prototype Sandisle was constructed in Christchurch Bay on the south coast of England, and more recently, studies have been carried out to demonstrate the feasibility of the concept for utilization in artificial island construction in the Beaufort Sea.

# SAINT JOHN SHIPBUILDING AND DRY DOCK CO. LTD.

**P.O. Box 970**
**Saint John, N.B.**
**E2L 4E5**
**Phone: (506) 693-9941**
**Telex: 014-47243**
**Contact: D. I. Jones,**
**director of marketing**

Saint John Shipbuilding and Dry Dock Co., Ltd. is situated in the sheltered ice free harbor of Saint John, and is served by the deep water approaches and ice free conditions of the Bay of Fundy.

The shipyard has over 50 years of progressive experience of shipbuilding, ship repair and industrial engineering. The company has a wide experience in the design and construction of vessels to meet the varied demands of the marine market. Many of these vessels have been innovative in concept and design and have embodied the latest trends in marine technology, ship safety and reliability. This experience has been enhanced by the provision of a modern shipbuilding facility linked with the latest developments in technology, production control and management systems. The shipyard has recently broadened its horizons by moving into the offshore market by signing a contract to construct a semi-submersible drilling rig for Bow Valley Resources Services and Husky Oil, to operate off the east coast. The rig is an Aker H-3.2 design and is capable of drilling in 450m of water.

The shipyard's working area uses only a portion of the available space. As a result of long-range planning, sufficient acreage was reserved or committed around the existing facilities to accommodate expansion programs which may be brought about by future economic conditions. Thus, the shipyard is a growth facility, unaffected by physical constraints. Its layout of facilities can be adjusted to suit current and future demands.

The shipyard has a continual program of modernization and expansion. The main building dock is being lengthened by 76m and a new outfitting pier is being constructed. This new pier will be suitable for outfitting semi-submersible drilling rigs. Plans are now on the drawing board for the construction of a new facility large enough to build a rig, while at the same time, drydock one for inspection. It will also be capable of constructing any of the present production and storage facilities presently under consideration for the east coast oil and gas fields.

# SCAN MARINE INC.

**Box 80**
**Longueuil, Que.**
**J4K 5C6**
**Phone: (514) 651-9313**
**Telex: 05-267509**
**Contact: D. P. Ryan,**
**vice-president marketing**
**J. A. Clarkson,**
**marketing manager**

SCAN Marine was formed in response to the Canadian Patrol Frigate Program and is noted as a centre for excellence for Canadian ship design and related marine technology.

Davie Shipyard in Lauzon, Que. is the company's building contractor for the CPF program, and is currently involved in building offshore oil rigs.

SCAN Marine is dedicated to all phases of marine high technology both commercial and military, from research and development through to production, supply and lifetime support. SCAN Marine's resident disciplines include ship design, naval architecture, hydrodynamics and structures, marine propulsion, command control and communications, electrical controls and distribution, logistic support, arrangement and outfitting, deck machinery and ground tackle, quality assurance and many others related to marine technology.

Because of its capacity to carry on such a broad range of in-house disciplines, SCAN is in a very unique position to compete in the export market.

# SEACONSULT LTD.

200, 194 Duckworth Street
St. John's, Newfoundland
A1C 1G6
Phone: (709) 722-7023
Contact: L. W. Davidson

Seaconsult Ltd., a Newfoundland corporation, is a professional consulting organization with experience in oceanographic analysis for engineering design of offshore and coastal operations, particularly related to the petroleum industry.

Seaconsult Ltd. with its affiliated company, Seaconsult Marine Research Ltd., provides a wide range of services for a broad spectrum of projects (see Seaconsult Marine Research Ltd.). Petroleum experience is concentrated on activities related to offshore oil and gas exploration and development. Large oceanographic field programs are designed and managed to provide engineering design data and satisfy regulatory requirements. Field data are analyzed, interpreted and reported within the scope of the management contract. Engineering data is often collected and displayed in real time, for operational considerations. Keynote projects include: quantitative simulation of the effects of environment on drilling operations; real time data acquisition systems for internal waves; wave and surge hindcasting; oil/gas blowout plume modelling for deep water exploratory wells; oil spill trajectory analysis; design and management of multi-year programs for engineering data acquisition; and modelling of wind-generated current in upper ocean.

In undertaking projects, Seaconsult Ltd. and Seaconsult Marine Research Ltd. draw on a staff on specialists in the diverse disciplines of science and engineering. Design groups are formed to provide innovative and unique solutions for operational and environmental concerns.

# SEACONSULT MARINE RESEARCH LTD.

**2417, 400 - 4 Avenue S.W.**
**Calgary, Alberta**
**T2P 0J4**
**Phone: (403) 266-4303**
**Contact: R. D. Johnson**
**405, 1200 West 73 Avenue**
**Vancouver, British Columbia**
**V6P 5G6**
**Phone: (604) 266-9135**
**Contact: D. O. Hodgins**

Seaconsult Marine Research Ltd. is a professional consulting company with expertise in ocean physics and engineering, coastal and surficial geology, biological oceanography, and socio-economic analysis for coastal and offshore projects. Project work includes regional and site specific planning, design and impact assessment for offshore leases, well location and platform sites, marine pipelines, harbors, marine terminals, offshore mining, tailing disposal, pulp disposal, sewage outfalls, airport extensions, shipping, fishing and coastal zone management, regional and social planning. A major area of specialization is in oceanographic analysis and engineering design for the petroleum industry (see Seaconsult Ltd. for further detail). We are interested in international projects, consortium participation, Third World development and marine resource inventory.

Seaconsult Marine Research is an interdisciplinary team of highly qualified and experienced scientists, engineers, social and economic specialists at the Ph.D. and Masters' level for the consideration and resolution of marine related problems. Specifically, Seaconsult addresses the problem of accurate definition of marine, estuarine and lake environments for engineering design; evaluates the potential environmental and socio-economic impacts and industrial benefits of operations; and assesses alternate methods of accommodating specific social and industrial demands on the environment. Work includes definition of marine problems, project planning,data acquisition control, research, interpretation and assessment, presentation of conclusions, and representation at hearings. We also present in-house seminars and training sessions to specialized groups in government and industry.

Our work involves oceanographic, engineering, environmental and industrial benefits analysis. Clients include Mobil Oil of Canada, Ltd., Chevron Standard Ltd., Petro-Canada Exploration Inc., Canterra Energy Ltd., and the government of Canada. Much of the work has centred on oceanographic and engineering evaluation and design for operational concerns involving sea-state, currents, ice, oil spill movements.

# SEAFORTH FEDNAV INC.

**#410, Duke Tower**
**5251 Duke St.**
**Halifax, N.S.**
**B3J 1P3**
**Phone: (902) 429-8970**
**Telex: 019-22853**
**Contact: Roger Cadd**

Seaforth Fednav, with the strength of the combined expertise of its parent companies, Seaforth Maritime Ltd., of Aberdeen and Canadian Federal Commerce and Navigation Ltd., provides marine services to oil companies off Canada's east coast. The company, based in Halifax and St. John's, operates a fleet of large ice-strengthened, anchor handling tug/supply vessels.

Both parent companies have embarked on a new building program to provide SFI with an extended fleet base of highly ice-strengthened anchor-handling tug/supply vessels with a minimum of 12,000 bhp required for the hostile environment and deeper waters to which exploration activities are extending. SFI also provides the industry with such specialized equipment as diving support vessels and huge ocean-going barges.

Other services offered to the offshore industry include ship mangement, supply and logistics base management and the recruitment of offshore personnel.

# WHEN THE GOING GETS ROUGH...

# ...IT'S EXPERIENCE THAT COUNTS

**And we have it — in some of the roughest waters of the world. Now, Canadian offshore rig operators can put their critical logistic and supply needs in the hands of the experts.**

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# SCOTIAN CREWING & SUPPLY SERVICES LTD.

**P.O. Box 3550 South**
**Halifax, N.S.**
**B3J 3J3**
**Phone: (902) 422-9797**
**Telex: 019-21771**
**Contact: Harry I. Mathers, president**
**Derek T. Mathers, vice-president**

The marine recruitment arm of I. H. Mathers and Son Limited, Scotian Crewing and Supply Services Ltd. was established in response to the need by the shipping and offshore industry for qualified offices and seaworthy deckhands.

Scotian Crewing offers expertise in guiding the shipowner/operator through the labyrinth of industry and government rules and regulations including customs, C.S.I., coastguard, immigration licensing and labor relations. Knowledge of these matters assures clients of significant savings in time and money.

The comprehensive manning package also includes a computerized payroll system, crew medical and immigration functions, crew changes and travel arrangements, as well as labor liaison. Scotian Crewing also offers permanent and relief crew placement.

Currently 75 officers and deckhands are employed on offshore supply vessels working off east coast Canada. Crews are also provided on a regular basis to container lines, geophysical companies, government research vessels, tankers and general cargo ships.

Through Scotian Crewing, Canadian seamen are being placed on ships in several parts of the world. Being able to draw upon more than 300 officers and 400 able-bodied seamen on file, ensures clients receive experienced crews.

Scotian Crewing and Supply Services Ltd. is a major marine recruitment agency in east coast Canada and is represented in the ports of Halifax, Saint John, Port Hawkesbury and St. John's. Increased activity in east coast exploration, coupled with growing demand by the Canadian shipping community, has created the need for qualified, experienced officers and crew. We are committed to meet these challenges.

# SEAGOLD INDUSTRIES CORPORATION

**4008 Myrtle Street**
**Burnaby, B.C.**
**V5C 4G2**
**Phone: (604) 437-4445**
**Telex: 04-356682**
**Contact: J. L. Richardson**
**Denis Walsh**

Seagold Industries provides products and services worldwide which provide fresh water from the sea through reverse osmosis membrane systems. This service uses the least energy possible and with all the required support services to ensure the lowest possible cost to the customer.

Equipment and services are provided with the commitment the customer is getting the most practical and reliable system that can be offered.

Besides the fresh water systems, Seagold Industries provides a range of other products, from manual desalinators to energy recovery pumps and pre-treatment equipment.

Seagold also provides a range of services from field installation of equipment and systems to water analysis and parts supply. An international distribution system for equipment, supplies and services is maintained, and Seagold is fully prepared to custom design and manufacture any piece of equipment it is capable of handling.

# SEASPAN INTERNATIONAL LTD.

**10 Pemberton Avenue**
**North Vancouver, B.C.**
**V7T 2R1**
**Phone: (604) 988-3111**
**Telex: 04-352532**
**Contact: A. M. Fowlis, president**
**S. O. Stokke, vice-president, offshore division**

Seaspan International Ltd. operates Canada's largest tug and barge fleet, with 50 tugs and 260 barges operating on the Pacific coast of North America from Mexico to Alaska. Areas of operation also include the western Arctic, the far East, Arabian Gulf, the Gulf of Mexico and the Caribbean. The company has associated offices in St. John's and Montreal.

Barges with capacities ranging from 998 tonnes to 18 000 tonnes capacity haul petrochemical products, chemicals, rail cars, lumber, logs, limestone, wood ships, pulp and paper, salt, aggregate and bulk products. Seaspan also operates flat deck and covered barges, self-loading and dumping log barges, specialty barges and two roll-on/roll-off rail car ships.

The fleet of 50 tugs, ranging to 7,200 hp, conduct all manner of towing, ship docking and salvage operations.

Seaspan's offshore division, which operates under the name Genstar Marine, has a fleet of modern ocean-going barges specifically designed for world-wide heavy lift transportation. Large industrial modules and jack-up rigs of up to 10 800 tonnes have towed over 24 000 km on these barges. Genstar Marine has operated successfully in the North Sea, Alaska's North Slope, the Arctic and the Gulf of Mexico. The company also operates anchor-handling tugs out of St. John's, Nfld.

# SEFEL GEOPHYSICAL LTD.

**500 Bow Valley Square II**
**205 5 Ave. S.W.**
**Calgary, Alta.**
**T2O 2V7**
**Phone: (403) 261-3970**
**Telex: 03-825589**
**Contact: Murray Olson, vice-president**
**Barry Wood, publicity**

Sefel Geophysical Ltd. is a wholly-Canadian company offering complete marine seismic acquisition services world-wide.

The company presently operates two vessels, the Canadian-registered M/S Mai and the Norwegian-registered M/V Hans Egede. These vessels have seen service in the North Sea, the Mediterranean, offshore Africa and throughout Canada's busy east coast prospects.

With offices and data processing centres in Calgary, London, Denver and Sydney, Australia, Sefel has the capability of processing pre- and post-plot marine data quickly and without delay. Sefel also boasts a complete research and development department which has developed a full range of programs for processing marine data.

As a member of the Sefel Group of world-wide companies, and with an excellent reputation for collecting quality data and wide-ranging marine experience, Sefel Geophysical is an acknowledged leader in the marine seismic field.

# SEAKEM OCEANOGRAPHY LTD.

**2045 Mills Road**
**Sidney, B.C.**
**V8L 3S1**
**Phone: (604) 656-0881**
**Telex: 049-7460**
**Contact: Peter G. Berrang**
**David R. Green**


Seakem Oceanography Ltd. has a staff of over 35 scientists and technicians to provide a wide range of applied oceanographic services in the areas of physical, chemical and biological oceanography.

The company has modern, fully equipped chemical laboratories for the analysis of hydrocarbons and pesticides in sediment, biota and seawater, and has facilities for the analysis of heavy metals, nutrients, oxygen and chlorophyll. The company is also experienced in oil spill impact assessments and dye tracking studies.

In addition to the services offered by Seakem, a variety of products, including hydrographic winches, water samplers, gravity corers and real-time current measuring systems are available for purchase. The company's leasing department carries current meters, tide gauges, automatic weather stations and a variety of oceanographic sampling gear.

# SEATEC CANADA LTD.

**2 Bluewater Road,**
**Bedford, N.S.**
**B4B 1G7**
**Phone: (902) 835-3553**
**Telex: 019-21683**
**Contact: Robert Kennedy**

Seatec Canada Ltd. is a Canadian marine contracting firm jointly owned by Abco Ltd. and Seatec International Ltd. Seatec provides a full range of general marine construction and underwater specialty services to the offshore energy industry, utilities, port and harbor authorities, engineering firms, government agencies and other general contractors.

Seatec Canada is staffed entirely by Canadians, drawing upon the technology of Seatec International and the resources of Abco Ltd. Seatec's experience includes projects ranging in scope from ocean outfalls in Puerto Rico, oil burnoff operations above the Arctic Circle, deep diving off the coast of Surabuya, offshore flowlines, platform repairs, and setting risers in the Peruvian oilfield, tethered remotely operated vehicle inspection in the Gulf of Thailand, salvage and engineering services in Newfoundland and offshore rig support from the North Sea to the Philippines. All Seatec projects have been accomplished to the complete satisfaction of its clients.

Seatec's confidence in its abilities is underscored by the willingness to bid and perform fixed-price, lump sum or turnkey contracts. This innovative approach to under-water contracting allows clients to maintain effective controls and accountability on their costs and profit projections.

## SHAWINIGAN CONSULTANTS INC.

620 Dorchester Boulevard West,
Montreal, Quebec, Canada
H3B 1N8

Phone: (514) 878-6000
Telex: 055-60845

Contact: M. G. Séguin,
vice-president
N. K. Webb,
vice-president

Shawinigan has particular expertise in the design and project management of diesel and gas turbine power generation and power distribution systems for both onshore and offshore oil and gas installations. At the Prudhoe Bay in Alaska, Shawinigan was responsible for the studies, design, planning and scheduling, inspection, construction supervision and testing and commissioning of the entire 69 kV power distribution system. Other Prudhoe Bay work includes a power system module comprising a gas turbine-driven 32 MVA generator with auxiliary plant and services, and a 34 MVA 69 kV electric power supply system for a 2.2 million b/d seawater treatwater plant. This plant is mounted on a platform some 3 km offshore and protected by a gravel berm.

Shawinigan has been active in oil and gas work in Arctic regions since 1971, and has wide expertise in the design of "packaged" modular power generation and distribution systems.

The range of marine work includes cofferdams, docks, piers, canals, locks, in addition to caissons of various types. Feasibility studies of harbor developments, hydraulic model studies and many types of hydraulic investigations have been carried out.

## SEABASE LTD.

P.O. Box 5099
St. John's, Newfoundland
A1C 5V3

Phone: (709) 722-3080
Telex: 016-3229

Contact: E. P. Quigley,
managing director
P C. Locke,
general manager

Seabase Ltd. is engaged in stevedoring, dockside and remote open storage, warehousing, offshore supply vessels, anchor handling, towing, tugs, barges and standby vessels.

## SHAW PIPE PROTECTION LTD.

1601, 500 4 Ave. S.W.
Calgary, Alta.
T2P 2V6

Phone: (403) 263-2255
Telex: 038-21734

Contact: D. J. Lailey

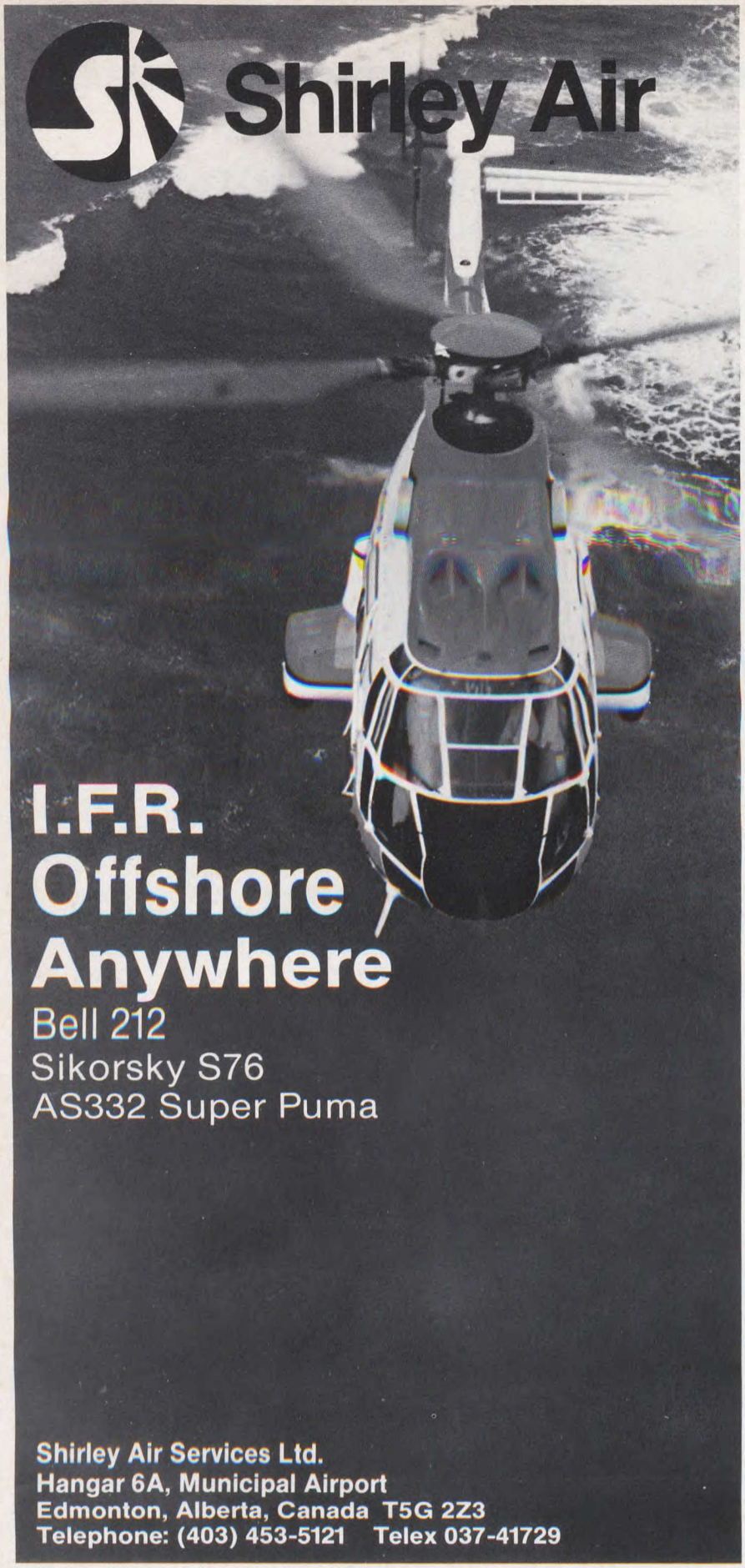
Shaw Pipe Protection Ltd. is a major Canadian company with plants and offices located throughout Canada and world-wide.

As the largest pipe coating company in Canada, Shaw offers a complete line of pipe coatings, linings and thermal insulation systems, all of which are available for export.

The "Yellow Jacket" and "Bondural" coating systems are specially designed to provide corrosion protection for oil and gas pipelines, while the company's method of lining pipe with a cement mortar is ideal to prevent corrosion in production and disposal pipelines.

Shaw also supplies a complete range of insulation packages, which can be used either on, above or below-ground pipelines. A high temperature insulation system is available for operating temperatures of up to 370° Celsius.

Internationally, Shaw Pipe Protection has participated in projects in remote areas of Australia, Saudi Arabia, Venezuela and Scotland.




## SHIRLEY AIR SERVICES LTD.

**Hangar 6A, Municipal Airport**
**Edmonton, Alta.**
**T5G 2Z3**
**Phone: (403) 453-5121**
**Telex: 037-41729**
**Contact: Vic Houlgate, marketing manager**

Shirley Air Services Ltd. began operations over 20 years ago as Shirley Helicopters and has grown to one of Canada's largest operators, particularly in western and northern Canada. At the peak of the season, Shirley Air operates some 60 helicopters and 30 fixed-wing aircraft.

The helicopter charter division has operated throughout western Canada with the concentration being from numerous bases and operating facilities in Alberta, British Columbia, the Yukon and Northwest Territories and Saskatchewan. To cover expanding east coast operations, an affiliate company, Ocean Air Services was established in St. John's, Nfld., with an additional base in Halifax, N.S.

Work has encompassed all possible helicopter applications. Service has been provided in the Arctic, mountain and tundra regions to the exploration, drilling, prospecting, construction, forest and surveying industries.

The fixed-wing division has quickly established an enviable reputation for reliable and safe charter services. The operations include executive transportation, crew rotations for drilling and other sites, freight services and courier services throughout North America. Maintenance divisions of both the fixed-wing helicopter divisions are maintained at the Edmonton Municipal Airport.

# SHELTECH CANADA
## A Division of Shell Canada Ltd.

P.O. Box 100
Calgary, Alta.
T2P 2H5
Phone: (403) 232-4321
Telex: 03-827983
Contact: Alex Hittel
Timothy Crago

Sheltech Canada is an amalgamation of two high technology disciplines that had previously existed within different departments of Shell Canada. Expert services based on micrographics and survey positioning are provided internally to Shell and externally nationwide.

For more than 30 years, the surveying department of Sheltech has been developing and employing state-of-the-art surveying techniques, establishing itself as a leading force behind many new survey technologies. During the last 10 years, it has offered its services on a worldwide basis to private industry and governmental agencies.

Sheltech involvement in the survey field is concentrated in four main areas, including doppler satellite systems, geodetic precision inertial development. Currently, Sheltech is one of the few companies involved in developing the Global Positioning System, using its own receiver and software equipment. The system is under constant development, and has been available to the industries since 1981.

# Sheltech – Quality Survey Services

- Integrated offshore positioning systems
- Satellite Doppler surveys
- Inertial Surveys
- Navstar/GPS development
- Earthworks design & engineering surveys
- Project consultation

Our worldwide experience in surveying utilizing advanced technology will satisfy your survey needs *accurately* and *cost–effectively*.
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## Sheltech Canada

425 – 1st St. S.W., Tower B
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Calgary, Alberta T2P 2H5
(403) 232–4321
Telex 03–827983/SHELTECH CGY

Sheltech Houston
Suite #127; 2010 North Loop West
Houston, Texas 77018 (713) 681–9406
Telex 791–803/SHELTECH HOU

# SONOTEK LTD.

**2410-5 Dunwin Drive,**
**Mississauga, Ont.**
**L5L 1J9**
**Phone: (416) 828-6810**
**Telex: 06-524733**
**Contact: J. K. Nor,**
**president**

Sonotek is a high technology Canadian company, standing in the forefront of applied microcomputer technology in the industrial and scientific fields. Sonotek data systems are now in use around the globe in airborne, marine, mobile, ground or underground applications.

Series SD1200 data system has become a workhorse of geophysical exploration. Utilizing the Z-80 processor, it controls all instrument functions and data acquisition via analog or digital inputs, communication ports and special interfaces, on board any small aircraft, helicopter, launch or truck. Model SD1200D is popular in borehole survey and logging in mineral exploration.

Model IGSS2 integrated geophysical system possesses computing power of the LSI-11/23 processor. In addition to all the functions of the smaller SD1200, this system has built-in circuitry for pulse-height analysis in gamma ray spectrometry, and standard operating software handles extensive real-time data processing such as digital filtering, spike removal, background removal, drift corrections, navigation data etc. This system records typically large volumes of raw and processed data on magnetic tape, and features high resolution graphics, with a high brightness flat-panel graphics plasma display.

The company also manufactures sensitive proton magnetometers of all solid state construction with automatic tuning, for airborne, marine or surface use, and gamma ray spectrometers of a similar state-of-the-art design. In addition, an array of meteorological sensors has been developed while new recording climatological stations are manufactured. As well as the climatological network sensors such as temperature, humidity, sunshine sensors and anemometers, the product line includes special devices such as sunphotometers and radiation integrators.

# SICO INC.

**2505 Avenue de la Metropole**
**Longueuil, Que.**
**J4G 1E5**
**Phone: (514) 527-5111**
**Telex: 05-268858**
**Contact: Pierre-Paul Paquet,**
**vice president, relations and expansion**
**Ken Delamater,**
**vice president,**
**research and development**

Sico Inc., in operation since 1937, is one of six members of the Sico Group, an organization that employs between 500 and 600 people and with a sales volume of $63 million in 1980.

The company operates five plants which manufacture commercial paints used for decoration and protection and heavy-duty industrial coatings such as bridges, refineries and steelworks.

Two of the plants specialize in the manufacture of a complete line of automotive finishes and furniture finishes for use on wood or metal surfaces.

# SURFLINE ENGINEERING LTD.

**167 Portland St.**
**Dartmouth, N.S.**
**B2Y 3Y5**
**Phone: (902) 463-3550**
**Telex: 019-21822**

Surfline Engineering is engaged in control system engineering and manufacturing and the design of special control devices and instruments for ocean oriented applications. It also specializes in electrical and electronic troubleshooting, on site hydraulics instruction, automatic whistle and warning light controls and electro hydraulic valve control systems.

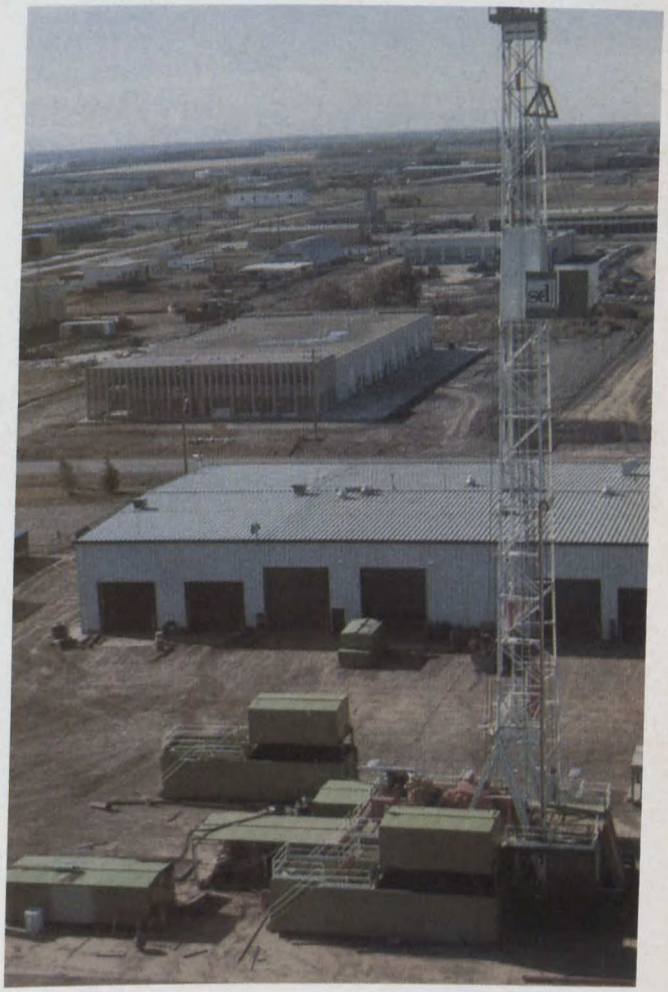
In the consultation field, it offers services in electronic, electric, instrument and control engineering areas.

# SIMMONS GROUP OF COMPANIES, THE

524, 550 - 6 Ave. SW
Calgary, Alta.
T2P 0S2

Phone: (403) 263-7686
Telex: 03-827662

Contact: Dale M. Simmons,
chairman
Gary Tarrant,
marketing director



The Simmons Group is an amalgam of companies engaged in nearly every aspect of the resource extraction industry, from seismic exploration to drilling operations and pipeline construction. The group also has operations in transportation, through its subsidiary Liftair International Ltd., oilfield services, and thermal graphics technology.

Another Simmons subsidiary, Western Underground Contractors Ltd., is engaged in the development of underground storage facilities, utilizing solution mined salt caverns and natural gas storage caverns. To date, Western Underground has participated in the contracting, engineering and construction of facilities in Quebec, New Brunswick, Alberta, Saskatchewan, the United States and Italy.

Kandex Resources and Development Ltd., the exploration arm of the Simmons Group, has taken part in successful plays in western Canada and the United States, while Seis-Port Exploration Ltd. has taken part in seismic activities in Canada and the USA.

Simmons Drilling Ltd., active in the industry for the past 14 years, operates medium depth drilling rigs throughout western Canada and the northern United States.

# SPILSBURY COMMUNICATIONS LTD.

120 East Cordova Street
Vancouver, B.C.
V6A 1L1

Phone: (604) 684-4131
Telex: 04-55482

Contact: H. J. Krutzen,
chairman
R. E. Macpherson,
international sales manager

Spilsbury Communications Ltd., established over 40 years ago to serve local demand, has since built a worldwide reputation for the imaginative design, rugged dependability and operational simplicity of specialized radio equipment.

Since its inception in 1941, Spilsbury's basic motivation has been one of service to government, industry and private users, both in Canada and the more remote corners of the world.

The basic concept of Spilsbury radios, emphasizing ruggedness, simplicity and portability, is not being met even more efficiently than ever with solid state SSB equipment specifically designed for long-range frontier and coast marine applications. An example is a compact LF radio beacon with a patented antenna system for use on offshore oil rigs, airstrips and helicopter landing pads.

The head office and factory is located in Vancouver. Research and development facilities include a 15-metre vessel for field testing marine products, plus a Canadian government approved inspection department and shop for avionics equipment.

# STEARNS-ROGER LTD.

**5940 Macleod Tr. S.**
**Calgary, Alta.**
**T2H 2N2**
**Phone: (403) 253-7411**
**Telex: 03-821581**
**Contact: Harry Spurr,**
**manager, business development**
**R. R. McEwan,**
**manager, engineering**

Increased emphasis on bringing export business to Canada represents the on-going objectives of Stearns-Roger Ltd., a Canadian company that has actively served this country's resource industries for more than 29 years.

Founded in 1953, Stearns-Roger has been providing engineering, purchasing and construction services from its Calgary head office and more recently, from its Saskatoon facility. The expertise gained throughout these years is now being offered for work outside Canada. Company officers foresee a strong demand for the organization's Canadian-based expertise in developing components for oil and gas production platforms off Canadian coastlines. Utilizing "resource modules" designed and manufactured by Stearns-Roger and the company's extensive construction experience, production control can be maintained. These controls are vitally important to meet the tight time schedules or "windows" for offshore projects. Even onshore, the maximum utilization of modulization for early plant start-up dictates that modules be completed quickly.

Looking to the future, Stearns-Roger believes the company's engineering talents will be instrumental in providing technology for the successful operation of offshore oil and gas production facilities. And through its international connections, Stearns-Roger will continue to import technology for the constant expansion and improvement of Canadian capability in the world market.

# SPRUNG INSTANT STRUCTURES LTD.

**1001 - 10 Ave. S.W.**
**Calgary, Alta.**
**T2R 0B7**
**Phone: (403) 245-3371**
**Telex: 03-826590**
**Contact: F. B. Irvine,**
**vice-president**
**B. J. Cavanagh,**
**sales manager**

Over the years, Sprung Instant Structures Ltd. has won worldwide recognition for its manufacture of durable, portable structures which can be erected in a minimum amount of time and with minimal expenditure.

These structures, built of laminated polyester panels tensioned between aluminum arches, provide an efficient clear span, and are capable of withstanding snow loads of 290 kg/$m^2$ or wind forces of 224 kph. A wide variety of sizes are available and the buildings can be configured to meet almost any building requirement, including warehouses, hangars, maintenance shops, offices, construction shelters and storage huts.

One of the key features of Sprung structures is the ease of erection, with set up times of up to

185 $m^2$/day. The units can be dismantled at rates of up to 371 $m^2$/day.

Sprung Instant Structures has manufacturing and head office facilities in Calgary, as well as manufacturing facilities in the Middle East. Branch offices are located in all major Canadian cities, the United States, Bahrain, the United Arab Emirates, Mexico and Kenya. Export sales account for over 75% of the company's business, and structures are located in over 27 countries throughout the world.

# DELIVERED!

## Resource Modules by Stearns-Roger Ltd.

Stearns-Roger designs and builds process plants on-shore for your off-shore facilities. This bargeload of oil and gas processing modules was shipped to the North Slope of Alaska. You can put this experience to work on your next remote project.

**Stearns-Roger** LTD.

. . . there is no location too remote


Stearns-Roger Ltd.
5940 Macleod Trail
P.O. Box 5276, Station A
Calgary, Alberta
T2H 2N2
(403) 253-7411

Saskatoon Office
Churchill Building
229 - 4th Avenue S.
Saskatoon, Sask.
S7K 4K3
(306) 664-8811

# STEEL-FLO, A DIVISION OF VADA INDUSTRIES LTD.

**100 Stockton Ave.**
**Okotoks, Alta.**
**T0L 1T0**
**Phone: (403) 938-3172**
**Telex: 03-826710**
**Contact: Bob McDougall,**
**director of marketing**
**Al Rogers, manager,**
**estimating and procurement**


Since its inception in 1973, Steel-Flo has developed and perfected a revolutionary process known as "cold extrusion" for manufacturing component parts for oil and gas transmission lines, petrochemical and nuclear plants and refineries. For this development, and others, the company was presented with the Award for Engineering Innovativeness at a recent Offshore Technology Conference in Houston.

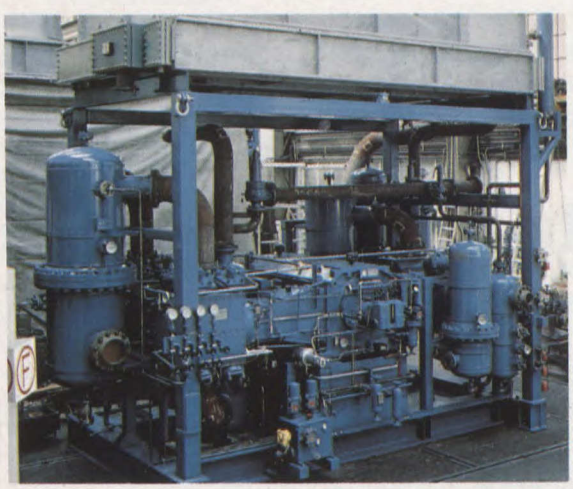
The process of cold extrusion is much faster than traditional hot forge methods, and the product can be offered to the customer at a lower cost.

Extrusions are manufactured by Steel-Flo at its plant in Okotoks, and the sizes available run the full range of two inches to 48 inches, on nominal run sizes of eight inches to 56 inches.

Steel-Flo's products are currently in use in Australia, New Zealand, Saudi Arabia, Great Britain and the United States, and overseas agents are located in London, Australia and New Zealand.

# SULZER CANADA INC.

**295 Hymus Blvd.**
**Pointe Claire, Que.**
**H9R 1G6**
**Phone: (514) 695-8320**
**Telex: 05-821577**
**Contact: P. L. Bovon,**
**eastern region and compressor department manager**



Sulzer Canada Inc. has gained valuable experience in engineering and manufacturing compressor and gas turbine platform modules for the oil and gas fields in the North Sea and Gulf states. This experience is available to Sulzer for the Canadian manufacture of such packaged units for semi-submersible drilling, production and service platforms built in Canada and destined for export markets.

With the supply of demanding propulsion systems such as that of the Canmar Kigoriak icebreaker, Sulzer is participating in frontier exploration as well as in the development of a viable transportation system for oil and gas.

Sulzer Canada Inc. makes use of a Canadian-based engineering system which ensures close co-operation with manufacturing partners and subcontractors, such as Dominion Bridge-Sulzer Inc. of Lachine, Que. A world-wide service network ensures reliable back-up service irrespective of where the units may be employed.

Some of Sulzer's products include reciprocating compressor modules for oil and gas production platforms, gas turbine generator sets, slow and medium speed diesel engines for drill ships, tankers and icebreakers, and liquefaction and regasification systems for installation onboard LNG tankers or at receiving terminals.

# STEVENSON HLUCHAN ASSOCIATES LTD.

**1106, Two Lansing Square**
**Willowdale, Ont.**
**M2J 4P8**
**Phone: (416) 493-0844**
**Telex: 06-986519**
**Contact: C. A. Stevenson, president**
**T. H. Hluchan, vice-president**

Stevenson Hluchan Associates Ltd. (SHAL) provides comprehensive consulting engineering and project management services on a world-wide basis to both government and industry engaged in marine projects.

For over 15 years, the company has specialized in the planning, engineering and design of ports and harbors, docks, wharves, marine terminals and facilities as well as in coastal engineering, dredging and reclamation.

SHAL, a Canadian firm owned by its senior staff, has been engaged as prime consultants on major projects and studies in Canada, as well as in the USA, the Caribbean, Guatemala, India, Indonesia, Kuwait and Pakistan. Clients have included most of the major international petrochemical companies as well as many of the international lending institutions. In 1978, SHAL was honored with a Canadian Consulting Engineering Award of Merit for the "high quality of engineering" on the Montego Bay Coastal Development Project, at Montego Bay in Jamaica.

SHAL was formed in 1966 as Stevenson Hardtke Associates Ltd. and in 1980 the name was changed to reflect the new partner. The senior staff members of the company have an average of 20 years of consulting experience on major projects in Canada and abroad.

# SWAN WOOSTER ENGINEERING CO. LTD.

**1525 Robson Street**
**Vancouver, B.C.**
**V6G 1C5**
**Phone: (604) 684-9311**
**Telex: 04-51275**
**Contact: W. Pegusch,**
**president**
**H. A. Mann,**
**vice-president, international**

Swan Wooster Engineering is a firm of consulting engineers and transportation economists with more than 50 years experience in the design of deep water marine structures. These activities have been carried out in more than 50 countries.

In recent years, the company has engaged in the design of offshore structures for the oil and gas industry, entailing intensive studies of wave climate and the effect of waves and swell on offshore structures. Special in-house computer programs have been designed for the investigation of static and dynamic forces, the response of fixed or floating structures, moored ship motions and ice structure interactions.

The company designs gravity structures, including jacket designs and floating moorings, and through its association with Williams Brothers Canada Ltd., is able to blend the skills of both groups to integrate oil and gas pipeline technology with marine structures and coastal engineering capabilities.

# TECHMAN ENGINEERING LTD.

**926 - 5th Avenue S.W.**
**P.O. Box 2840**
**Calgary, Alberta**
**T2P 2M7**
**Phone: (403) 267-6270**
**Telex: 03-821696**
**Contact: Peter Faloon,**
**sales engineer**
**Ms. Lynda E. Watson,**
**manager, proposals**

Techman Engineering is a Canadian engineering, procurement and construction contractor serving resource developers, notably in energy industries. The company is one of Canada's most experienced consultants to the coal industry, and has carried out a wide variety of assignments throughout Canada and in many other coal regions throughout the world.

Service areas of interest to potential international clients include:

Geological investigations and analyses, coal quality testing and evaluation, coal preparation assessment and plant design, mine design for surface operations, mining equipment selection, specification and design, minerals economics and investment analyses, complete detailed engineering design, environmental and reclamation research.

# SUBOCEANS MARINE CANADA LTD.

**1598 Bay Street**
**North Vancouver, B.C.**
**V7J 1A1**
**Phone: (604) 985-4145**
**Telex: 04-352743**
**Contact: Gary S. McAninch,**
**president**
**David E. Barber,**
**vice-president**

SubOceans Marine Canada Ltd. is a wholly-Canadian owned diving and marine contracting company incorporated in 1979.

The principals of the company have international reputations of competence and experience in a wide variety of diving applications which are reflected in the range of proven, cost effective professional services offered, including offshore oilfield service and marine contracting, pipeline construction, anchoring and repair; salvage and demolition, surface supply diving and saturation diving.

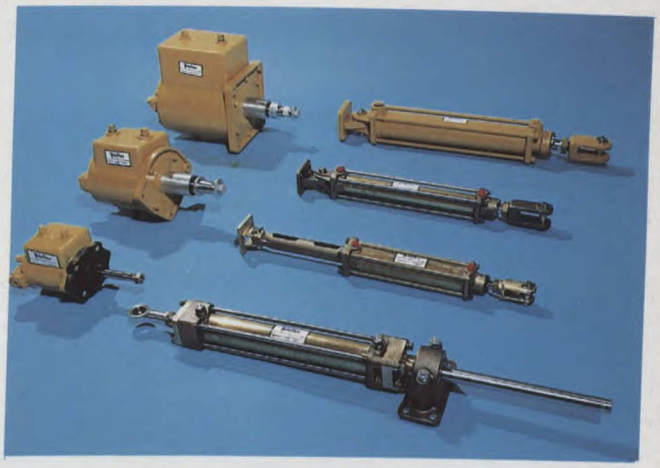
In a joint venture partnership with Global Diving Services Ltd. of Aberdeen, Scotland, SubOceans operates on an international scale and is able to offer a single organization capable of undertaking all aspects of sub-sea operations.

And, with the advent of turnkey contracts in the areas of diving operations, the SubOceans group has moved into the area of supplying dynamically positioned diving support vessels, and is in a position to offer virtually any DSV currently in operation.

A subsidiary of SubOceans Marine, SubOceans Welding Service Ltd., provides the marine industry with specialized welding techniques which will allow fully-certified welds to be performed under water.

# TELEFLEX (CANADA) LTD.

**1650 West Second Ave.**
**Vancouver, B.C.**
**V6J 1H4**
**Phone: (604) 736-2831**
**Telex: 04-508802**
**Contact: H. G. A. Copping, general manager**



Teleflex (Canada) Ltd. munufactures a complete line of manual hydraulic steering systems with optional power steering capability for vessels requiring a maximum torque up to 42,276 ft. lbs. or 5,899 kg. m.

These rugged systems, widely used in launches, crew boats, fishing vessels and smaller cargo vessels, are noted for their simplicity, long life and ease of servicing, and are ideally suited for operation in vessels involved in offshore operations where dependability under extreme environmental conditions is essential.

"Capilano" manual hydraulic steering systems, sold outside North America under the trade name "Flexatrol", are operated independently of any power source other than that supplied by the helmsman. "Capilano" systems are designed with safeguards against total steering loss due to contamination, and are protected from overpressures by relief valves.

The Teleflex range of manual hydraulic steering systems are complimented with a range of power assisted packages. Teleflex steering is an uncomplicated yet extremely reliable system which interfaces directly with our manual hydraulic steering systems and auto pilots.

Power assisted steering systems are manufactured in two versions, "Jog" and "Telemotor". The Teleflex Jog control system provides an economical means of removing the effort and concentration of wheel steering under difficult docking or close maneuvering conditions.

The Telemotor system provides power steering directly at the steering wheel. In the event of power failure, the manual hydraulic system will allow the helmsman to maintain steering control.

# TALBOT, JACKSON AND ASSOCIATES LTD.

**1039 W. 7th Ave.**
**Vancouver, B.C.**
**V6H 1B2**
**Phone: (604) 738-1522**
**Telex: 04-51358**
**Contact: Gerald Talbot, president**

Talbot, Jackson and Associates Ltd. has been established in the marine architecture field in Canada for over 20 years. During this time the company has gained expertise in specialized fields of the marine industry.

Projects undertaken for the oil industry include: design of proposed 420 foot anchor moored drillship, design for construction of 58 metre pipe carrier/supply vessel, design proposal for a 165 foot subsea support vessel and design for construction of two work barges for drilling, caisson setting and stores. Also undertaken was the design and supervision of construction for the conversion for Arctic waters and anchor mooring of Canmar Explorer 3 and Canmar Explorer 4 and the conversion of existing barges to a catamaran drilling platform "Arctic Star" for use in the Beaufort Sea.

The company conceived and designed the BOP stalk transporter of Explorer 3. Several innovative concepts have been developed, including the design of an octagonal configured drilling vessel — the forerunner of the so called "conical drilling unit".

The company has enhanced its engineering capabilities by developing a variety of programs for use with its in-house Hewlett Packard 9845B desktop computer.

Talbot, Jackson and Associates Ltd. follows the policy of joint venture with outside consultants whose fields of expertise can complement those of the company, thus being able to provide the most up to date professional service in a variety of engineering and marine fields particularly related to the oil industry.

# TERRITORIAL GROUP OF COMPANIES

**17420 Stony Plain Road**
**Edmonton, Alberta**
**Phone: (403) 483-8401**
**Telex: 037-43115**
**Contact: Jim Cebulik, president**

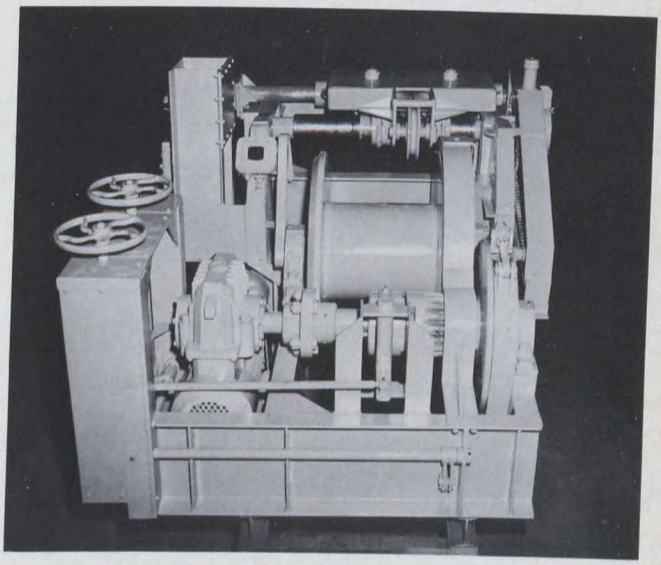
The Territorial Group Of Companies are rapidly expanding in the industrial camp industry. Started in 1973 by the president Jim L. Cebuliak and his father and vice-president John Cebuliak, the group now includes manufacturing plants in Vancouver and Edmonton able to custom build to specifications ranging in size from a single unit office to a 500 person camp.

Territorial Metal Fabricators Ltd. one of the newest members of the group can provide immediate delivery of incinerators and metal components, manufactured at the Edmonton plant. Territorial Leasing Ltd. rents client requirements which include kitchen units to total office complexes. Clients include members of the oil industry, lumber and forest industries, road construction, building contractors and government agencies in Alberta, British Columbia, Saskatchewan and the United States.

Territorial Camp Installations Ltd. was established to install Territorial's large camp complexes. Camp installation jobs begin with an inspection and survey of the proposed camp site and ends after the final inspection of the completed camp by project management. Territorial Transportation division provides the expertise in moving equipment, from individual units to complete camp installations. 24 hour parts and service and radio equipped vans can be at a site within hours. Territorial's diversifications allow for a complete package in shelter industry.

# TIMBERLAND EQUIPMENT LTD.

**P.O. Box 490**
**459 Industrial Ave.**
**Woodstock, Ont.**
**N4S 7Z2**
**Phone: (519) 537-6262**
**Telex: 064-74133**
**Contact: R. A. Pillon,**
**marketing manager**
**G. Micaccmi,**
**product manager**

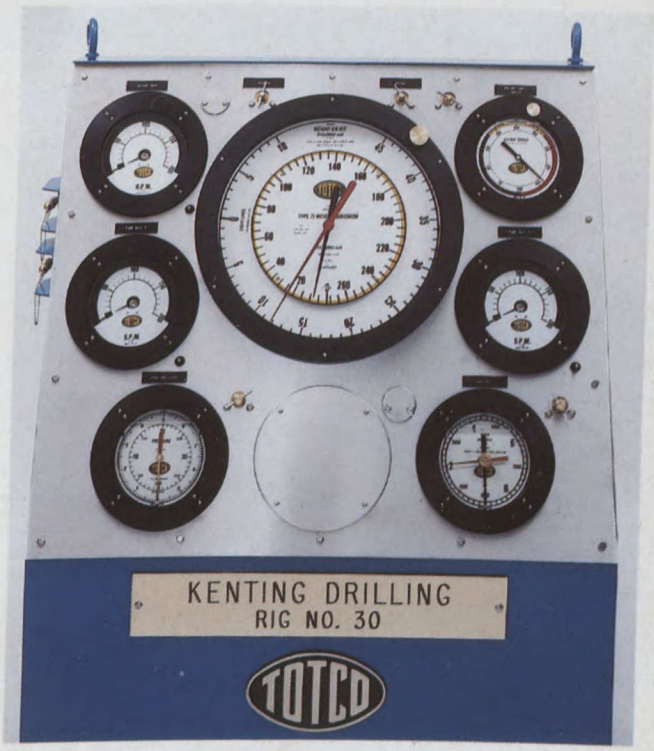


Timberland Equipment Ltd. is an engineering oriented manufacturing company serving the needs of the marine industry in the design and manufacture of a quality line of hoists, winches and derricks. Timberland derricks have been employed in drill rig and port construction as well as lock maintenance on inland waterways, and its winches are used in mooring and anchoring operations on barges, caissons and dredges. The company's spud winches are prominent on dredges on the Great Lakes and North American sea coasts, and its oceanographic winches are employed in underwater resource explorations.

This extensive experience in hoisting and winching equipment has led Timberland to a high level of expertise in the design and manufacture of blocks and marine fairleads. In addition, the company has considerable experience in the export of equipment for the stringing of high voltage power lines around the world, a background which will compliment Timberland's efforts in marketing marine winches, hoists and derricks outside North America.

# TOTCO CANADA LTD.

**202 7015 Macleod Trail S.W.**
**Calgary, Alta.**
**T2H 2K6**
**Phone: (403) 253-0195**
**Telex: 038227070**
**Contact: Tony Davis,**
**sales manager**




TOTCO Canada Ltd. manufactures a wide array of drilling rig instrumentation, solids control equipment and pressure control equipment, products which make the search for energy more efficient.

TOTCO's accurate instrumentation enables a driller to acquire the vital information necessary to monitor the entire operation, from drilling fluid levels to well bore deviation. The solids control products can help improve penetration rates, reduce mud costs and minimize maintenance. Greater blowout control is attainable with its line of well control products.

The TOTCO name is well-known in over 100 countries, with a full inventory of rig-ready equipment available from its Leduc, Alta. distribution centre.

# TRI-OCEAN ENGINEERING LTD.

222 - 58 Ave. S.W.
Calgary, Alta.
T2H 2S2
Phone: (403) 258-4400
Telex: 822798
Contact: K. J. MacGillivray, general manager
R. A. McBeth, principal engineer

Tri-Ocean Engineering Ltd. is a Calgary-based consulting engineering firm which provides comprehensive engineering and project management services to the petroleum industry on a world-wide basis.

The services include feasibility studies, preliminary and detailed designs and cost estimates, design criteria, detailed drawings and specifications, equipment specification and procurement, construction supervision, start-up assistance, operating manuals and project operation and management.

Throughout the past 10 years, Tri-Ocean has provided engineering and operations assistance in the Canadian Arctic Islands, and is currently project manager responsible for the design and installation of a 400 mmcf/d gas compression, dehydration and $CO_2$ removal plant to be installed on Melville Island. The project contract includes the selection and detailed design of the plant process and associated utilities.

In addition, Tri-Ocean has provided engineering and related services to both the onshore and offshore drilling industry, and has been engaged in projects in Canada, the USA, Great Britain, Norway, the Phillippines, Holland, Greece, Africa, Australia, South East Asia and Japan.

# TELECOMMANDER INSTRUMENTS LTD.

429 51 Ave. SE
Calgary, Alta.
T2H 0M8
Phone: (403) 253-5262
Telex: 03-822888
Contact: Paul Trudel

Telecommander Instruments Ltd. has been serving the resource industry since 1969, and specializes in the design and fabrication of housings for sophisticated instrumentation, primarily for the geophysical industry.

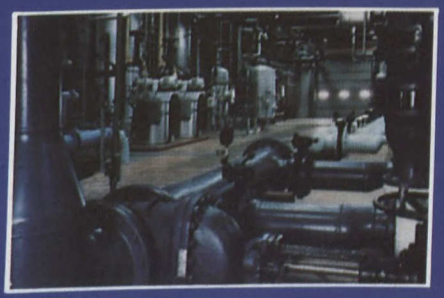
The housings range from small, heliportable packages to large shipboard marine doghouses, and are designed to provide the stable environment required for the continuous operation of the delicate instruments, regardless of the conditions that prevail outside the housing.

Depending on where the housings will be used, Telecommander can custom design units that can be fully automatic, for use in remote and unattended locations. Materials for all housings are carefully selected to accommodate design considerations for weight, strength and movement and are finished to sufficiently protect the unit from the climatic elements likely to be encountered in the area of use. Telecommander engineers are prepared to work and liase closely with the customers' project personnel to assure satisfaction in all aspects of the construction and operation of the housings.

PRODUCTION/
DRILLING
PLATFORMS

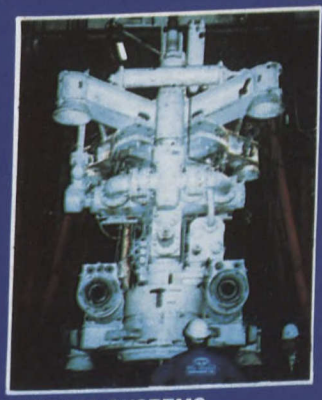
# TRI OCEAN
## ENGINEERING LTD.

OFFSHORE MODULES



PRODUCTION FACILITIES

EXPLORATION DRILLING



SUB SEA SYSTEMS

## CONSULTING ENGINEERS
## PROJECT MANAGERS

- ☐ OFFSHORE
- ☐ ONSHORE
- ☐ ARCTIC
- ☐ PRODUCTION
- ☐ DRILLING

TRI OCEAN is actively engaged in the design and project management of offshore production facilities, mobile and packaged drilling rigs and subsea production systems on a worldwide basis. Services have been provided in the Canadian Arctic, Beaufort Sea, North Sea, South East Asia, Middle East, Japan, South America, United States and Australia.

We would welcome an opportunity to offer engineering, cost control, project management, purchasing, construction supervision or complete management services on your next project.

808 - 4TH AVE. S.W., CALGARY, ALBERTA, CANADA, T2P 0K4. PHONE (403) 264-7320. TELEX 03 822798

# TECHWEST ENTERPRISES LTD.

**3650 Westbrook Mall**
**Vancouver, B.C.**
**V6S 2L2**
**Phone: (604) 224-1113**
**Telex: 04-507748**
**Contact: J. Breeze,**
**general manager**
**W. D. Thomas,**
**assistant general manager, technical**

Techwest is a small, highly-specialized engineering company which develops, manufactures and tests special purpose cranes and winches. The company has gained wide acceptance as a leader in the field of active and passive motion-compensating cranes, including the design and fabrication of a fully motion-compensated system for hoisting and cable handling diving chambers and deep-diving submersibles.

The company offers complete service to solve problems involved in lifting fragile or heavy loads under difficult conditions, and has developed an analytical technique to predict the performance of systems when subjected to wave-induced ship motions.

Techwest is currently engaged in the design of an active motion-compensated crane for transferring loads from a supply vessel to a platform, and for the complete cable handling system for a diving bell operating through a moon pool. Many of Techwest's cranes have been delivered to overseas customers.

# TRIMAC LTD.

**Box 3500**
**Calgary, Alta.**
**T2P 2P9**
**Phone: (403) 265-9900**
**Telex: 03-825633**
**Contact: Janet G. Goodwin**

Trimac Ltd. is a Canadian-owned public company active in energy and other natural resource exploration services in North America, Europe, Asia and Africa, and in transcontinental bulk highway hauling throughout Canada and the USA.

Trimac's operations in oil and gas and related industries are conducted by its subsidiaries, the Kenting group of companies in Canada, the northern USA and overseas, and the Cactus drilling companies in the United States.

The company is active in offshore platform drilling in the USA Gulf Coast through Cactus Drilling Corporation, based in Dallas. Cactus operates 53 land and seven offshore rigs, and its personnel have experience in rig design, construction and management in the North Sea, the Gulf of Mexico and the Caribbean.

Trimac also operates in the geophysics and mapping industry through its subsidiary Kenting Earth Sciences. Currently, Kenting Earth Sciences is conducting an extensive profile of the bed of the Nile River. Through its helicopter charter service, Kenting Helicopters, Trimac provides helicopter charter services to the oil and gas industry.

# TURBO CHEMICALS

**Bays 7 & 8, 3401 19 St. NE**
**Calgary, Alta.**
**T2E 6S8**
**Phone: (403) 276-9735**
**Telex: 03-827594**
**Contact: Julian Romocki,**
**general manager**
**Greig Clark,**
**manager, technical services (international)**

Turbo Chemicals, a wholly-owned subsidiary of Turbo Resources Ltd. of Calgary, specializes in developing, manufacturing and marketing unique chemicals used in stimulating conventional oil and gas wells or enhancing recovery of heavy oil reservoirs when steam injection or steam flooding are used.

In marketing its products, Turbo Chemicals also provides engineering and laboratory services related to applications of its products. Turbo Chemicals has achieved a great degree of expertise in solving various reservoir, stimulation and production problems.

Turbo Chemicals is well positioned to take part in global applications of its products, with manufacturing facilities and distribution centres in Calgary, Alta. and Houston, Texas. In addition, the company has distributors in London, England (Turbo U.K.) and in Caracas, Lake Maracaibo and El Tigre, Venezuela.

# VELTOM INDUSTRIES LTD.

**3, 4500 5th St. N.E.**
**Calgary, Alta.**
**T2E 7C3**
**Phone: (403) 230-9385**
**Contact: Tom Mealey,**
**president**
**Ed Letkiman,**
**business manager**

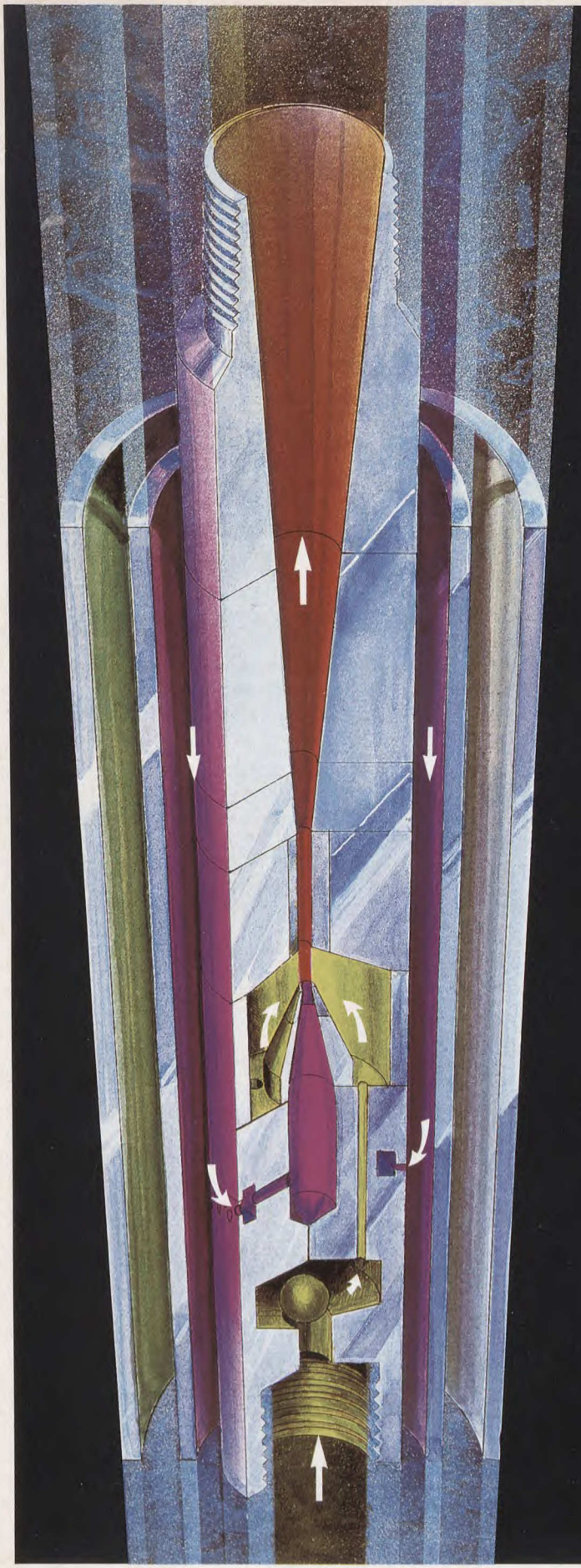
Veltom Industries provides subsurface jet pumps for water removal from gas wells. 316 stainless steel ejector complete with tungsten carbide nozzle and venturi landed into the production tubing of a gas well. Power fluid is pumped down production tubing through the ejector (which picks up produced liquids from below perforations) and back to the surface through an inner pipe. There are no moving parts below surface — pump cannot gas lock — wide pumping range. Gas production increases as virtually all pressure drops between sandface and pipeline are removed except gas gravity and friction. May be installed in wells to depths of 17,000 feet with various pumping rates.

Oilwell pumping units to rates of 2,000 b/d depending on sandface flowing pressure and size of piping, adaptable to deviated wells, high sandface temperatures, corrosive conditions and high gas oil ratios and high sand content, all of which are harmful to conventional pumping units.

Power units for water disposal at various rates and pressures complete with natural gas, diesel, or electric, driven prime movers.

Gas ejectors for the removal of sour gas vapors from stock tanks, to flare or pipeline. Operates in severe corrosive conditions as there are no moving parts. Power source may be from gas or liquids pumped through the nozzle venturi of the ejector.

See advertisement next page.



# THE VELTOM SUB-SURFACE JET SEPARATOR . . . A MAJOR BREAKTHROUGH IN FLUID LIFT TECHNOLOGY.

A new method of dewatering gas wells and pumping oil from oil wells, THE SUB-SURFACE JET SEPARATOR provides an alternate solution to:

- pumping single or dual zone wells,
- height restrictions in irrigation fields,
- rod failures,
- dewaxing wells,
- gas locking problems,
- pumping of 400° fluids,
- wide variations in pumping rates 1 - 2000 BPD,
- pumping sandy wells.

Conceived and developed by VELTOM INDUSTRIES LTD., and incorporating the sub-surface jet designed by Kempton Hydraulics Ltd., this jet pumping system removes produced liquids from wells 1,000 to 9,000 feet deep.

In a typical gas well, the power fluid is pumped by a triplex pump down the 2⅜ inch x 1 inch annulus through the ejector nozzle. Produced fluids flow up the ¾ inch suction tailpipe and combine with the power fluid in the venturi. The combined stream returns through a filter to remove contaminants, into the surge vessel and back into suction of the triplex.

Excess liquids are sent to storage or disposal while the gas is produced up the casing annulus.

The MAJOR ADVANTAGES of this Veltom technique are:

- SIMPLICITY
- COST EFFICIENCY
- FAST PAYOUT
- PUMPS BOTTOM ZONE OF DUAL ZONE WELLS
- ELIMINATES GAS LOCKING
- NO MOVING PARTS DOWNHOLE TO WEAR
- DEPLETES RESERVOIRS TO THE LOWEST ECONOMICAL PRESSURE
- THE ABILITY TO REDUCE WATER RATIO BY CHOOSING SMALLER GAS RATE

The required surface equipment includes:

- triplex power fluid pump
- prime mover
- surge tank
- related controls

packaged on a single 12½ x 7½ foot skid, completely self contained.

THE VELTOM SUB-SURFACE JET SEPARATOR
— a major advancment in fluid lift technology.

**Veltom industries ltd.**

#3, 4500 - 5th ST. N.E., CALGARY,
ALBERTA T2E 7C3 (403) 230-9385

# VANCOUVER SHIPYARDS CO. LTD.

**50 Pemberton Ave.**
**North Vancouver, B.C.**
**V7P 2R2**

**Phone: (604) 988-6361**
**Telex: 04-352740**

**Contact: W. D. Traill,**
**president**
**T. C. Ward,**
**operations manager**

Vancouver Shipyards a Genstar company, established since the turn of the century, is located in the port of Vancouver and is a modern shipbuilding and repair yard.

Facilities for new construction include a level shipbuilding berth and side launchway enabling the construction of two vessels of 160 metres long and 30 metres beam, simultaneously. The Syncrolift all-tide marine elevator can accommodate vessels up to 90 metres long, 21 metres beam and 1,500 metric tons displacement.

The yard builds vessels for the coastal and offshore markets, including tugs, barges, ferries, supply and cargo vessels, fishing seiners and ice breakers. In addition to new construction the yard also repairs and overhauls similar vessels.

Vancouver Shipyards carries out voyage repairs to deep sea vessels while at loading berths, anchorage or while vessels are on the run, and are repair representatives on the west coast of Canada for Sulzer and M.A.N. engines.

Vessels which cannot be accommodated on the Syncrolift are dry docked in the government graving dock in Esquimalt. (drydock dimensions 1,173 ft. X 135 ft.).

Repairs and scheduled maintenance are continually being carried out on tugs, barges, fishing vessels, ferries, naval vessels, government vessels and yachts.

All marine trades are employed to enable quick turnaround time on repairs, overhauls, conversions and to ensure delivery deadlines are met on all types of new construction.

Vancouver Shipyards also has a capable and efficient engineering and drafting staff.

# VERSATILE VICKERS SYSTEMS INC.

**1000, 200 Elgin Street**
**Ottawa, Ont.**
**K2P 1L5**

**Phone: (613) 236-6200**
**Telex: 05-34924**

**Contact: A. F. Patterson,**
**manager, contract proposals**
**R. L. McClean,**
**manager, integrated logistics system**

Versatile Vickers System is a high technology company within the marine and industrial divisions of the Versatile Corp., which also includes the shipyards of Versatile Vickers Inc. at Montreal and Burrard Yarrows Corp. of Vancouver and Victoria.

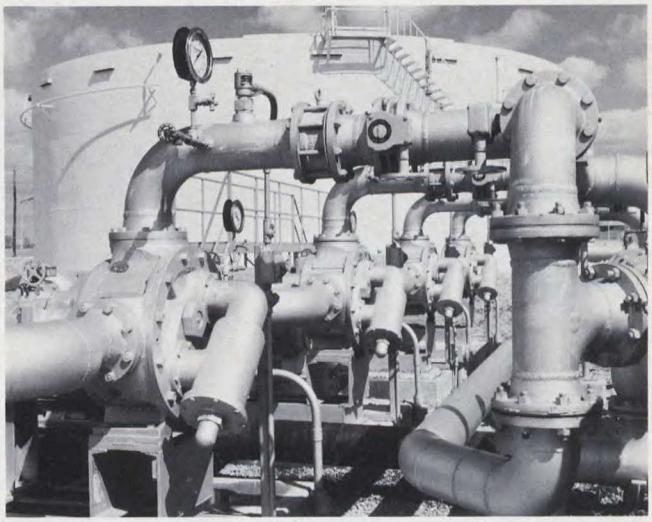
The organization houses the largest ship design and marine drawing office in Canada, and its engineering division specializes in conceptual, preliminary and detail design of all types of ships, both merchant and naval. This design work also encompasses a ship's means of propulsion together with the auxiliary, electrical generation and power distribution systems.

This division conducts marine-related studies and provides drafting services in its Ottawa, Montreal and Halifax offices for outside organizations such as the Canadian Coast Guard, the department of fisheries and oceans and the federal department of national defence.

The integrated logistics system division provides maintenance programs for marine and non-marine sectors of the industry and is active in the design of systems for inventory control, manning and training.

# VICAN PUMP COMPANY OF CANADA LTD.

**375 Steelcase Road E.,**
**Markham, Ont.**
**L3R 1G3**
**Phone: (416) 494-1866**
**Telex: 06-986830**
**Contact: A. C. Blunt,**
**president**
**Peter Davidson,**
**export sales manager**



Vican Pump has been manufacturing positive displacement rotary gear pumps in Ontario since 1921 and has supplied high quality pumps for most stages of offshore oil operations, on support equipment installations, on drilling rigs and loading and unloading crude oil on tankers and barges. Vican Pumps are widely used in the refining, processing and marketing of petroleum products.

The gear within a gear operating principle of the Vican Pump provides: excellent high suction lifts, superb self priming capabilities, high differential pressure capabilities, a smooth positive low shearing flow action, the ability to pump high viscosity liquids (eg. up to 2,000,000 SSU). These features make Vican Pumps a natural choice for many offshore oil pumping requirements.

Vican Pumps are readily available throughout the world. We have the reputation of having the best ex factory delivery lead times of positive pump manufacturers. From the ½" to the 4" size pumps, delivery lead times of two weeks are standard and for the larger 5" and 6" pumps four weeks is the norm.

Vican Pumps are currently being used on offshore oil projects in the North Sea, the Gulf of Mexico, the Middle and Far East. In other far out of the way places such as the Canadian Arctic, Bangladesh, Central Africa and South America, Vican Pumps are performing necessary oil related functions.

# VERSATILE VICKERS INC.

**5000 Rue Notre Dame est**
**Montreal, Que.**
**H1V 2B4**
**Phone: (514) 256-2651**
**Telex: 05-828735**
**Contact: J. R. Howett,**
**vice president - sales**

Versatile Vickers Inc. was founded in 1911, the Canadian subsidiary of Vickers Ltd., London, England, as a shipbuilder and repairer. It is now a wholly owned subsidiary of Versatile Corp. of Vancouver, B.C. The plant on the St. Lawrence River in the Montreal Harbour area consists of six main shops and ship repair basin covering 68 acres and employing some 1,500 people. The plant is served by road, rail and water.

The company has two main divisions, Industrial and Marine. The Industrial Division is concerned primarily with nuclear reactors and components, pressure vessels, heat exchangers, columns, heavy walled vessels, ore crushers, paper machinery and steam generators. One shop is solely devoted to the manufacture of railway passenger cars.

The shops are equipped with diversified machines both manually operated, digital read-out or numerical control. They range from vertical boring mills suitable for pieces up to 31 feet in diameter to the smaller type of conventional lathes.

The manufacturing sector is supported by a large engineering department experienced in handling all the different types of work carried out by the shops. Manufacturing is also ably supported by a large quality assurance department with a staff of 80. We have a Quality Assurance Manual designed to meet the Standards of ASME Section I, III Div. 1 and 2, VIII Div. 1 and 2, CSA Z299.1, DND 1915 and MIL-Q-9858A. The Marine Division is primarily concerned with ship repairs, with dry docks capable of docking ocean going vessels. It is qualified to carry out work to Lloyds standards.

# VICEROY FLUID POWER

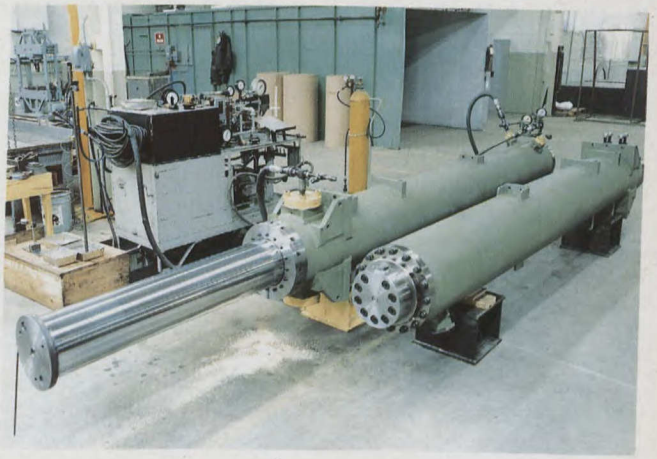
**282 Belfield Road**
**Rexdale, Ont.**
**M9W 1H5**
**Phone: (416) 675-7020**
**Telex: 06-989201**
**Contact: Mr. J. L. Meschino, president**
**Mr. R. J. Stuart, vice-president, sales**

Viceroy Fluid Power is a Canadian-owned manufacturer of air and hydraulic cylinders. The company has the capability to design, engineer and manufacture special hydraulic cylinders, particularly large size units (up to 500 mm bore and 12.2 m stroke) where severe service is expected.

The company also has an in-plant quality assurance program which to assure customers of correct manufacture to custom specifications.

As well as its capabilities in the 9.1 m range for boring, honing, chrome plating and grinding, the company specializes in the engineering aspect of its customers' applications, and thus, their cylinder requirements.

Viceroy is a supplier to the manufacturers of offshore and land based drilling rigs and equipment, and has recently completed a large project involving 48 258 kPa bore jacks which are to be used on a caisson-retained island in the high Arctic.



# WALSH INC.

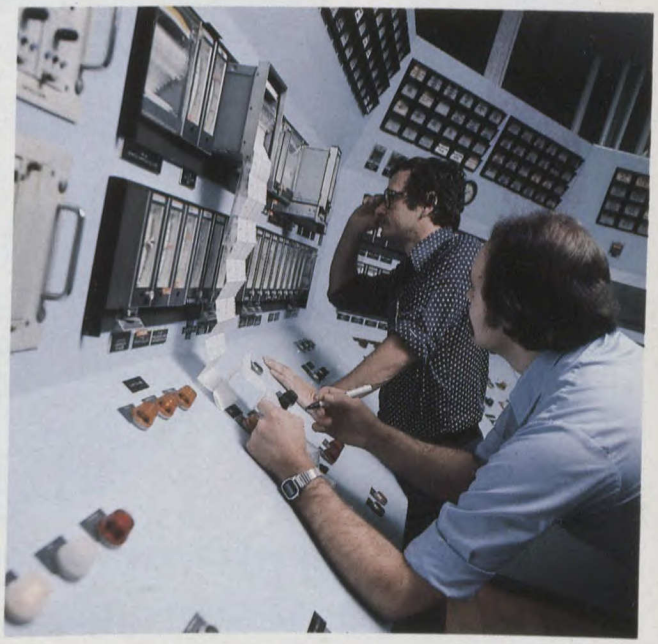
**4999 St. Catherine St. West, Suite 305**
**Montreal, Que.**
**H3Z 1T3**
**Phone: (514) 481-0455**
**Telex: 055-66104**
**Contact: Robert A. Walsh, president**
**John Brkich, vice-president, engineering**

Founded in 1969, Walsh Instrumentation Services is a totally independent Canadian corporation firmly dedicated to providing qualified engineers and technical support services to all industries utilizing process instrumentation and control equipment.

The Walsh group of companies conducts its activities worldwide with operations in Canada, the United States, South America and the United Kingdom. Walsh's management team draws on a thorough knowledge and broad experience in the industry and takes pride in its dedication and responsibility to its clients.

Qualified personnel provide complete instrumentation and control project support for new installations, modifications, turnarounds, as well as corrective/preventive maintenance for existing facilities.

Evolving from years of experience and high regard for training, Walsh now has a separate training division dedicated to providing comprehensive programs to industry. Training programs offered include a complete audio-visual instrumentation training program, theoretical classroom training and hands-on training.



# WAGNER ENGINEERING LTD.

**40 Gostick Place**
**North Vancouver, B.C.**
**V7M 3G2**
**Phone: (604) 988-1111**
**Telex: 04-352755**
**Contact: P. R. Wagner,**
**vice-president/sales**
**F. V. Weckerle,**
**marketing manager**

Wagner Engineering Ltd. has been manufacturing marine hydraulic steering gears and associated products for more than four decades.

It offers the largest selection of hydraulic steering equipment available from any single manufacturer. Six separate types in more than 60 sizes mean nearly every customer requirement can be met with standard components. Applied torque ranges from 53 kg.m. in the small manual systems for pleasure craft to 1600 TM in the large electro-hydraulic systems for commercial vessels.

A wide range of control equipment is available, including simple manual hydraulic, non follow-up (time dependent), full follow-up electric and the sophisticated full follow-up Accumotor system, which provides positional accuracy of ±0.25 degrees at hardover rudder speeds up to three seconds. With this choice, the entire steering system may be obtained from one source. With Wagner this sole responsibility guarantees the compatibility of all components. It also offers a selection of autopilots and electric steering control systems as well as rudder angle indicators and related accessory equipment.

The Wagner Mark 6 is a totally integrated ship's steering control system.

Wagner has an international reputation developed through long experience meeting the demands of specific markets. An affiliate company, Wagner (Europe) AG in Switzerland, is the master distributor of Wagner products to European countries and directs a significant inventory in Rotterdam. Our distribution network includes more than 60 countries, with representatives providing sales, service and technical assistance.

## WILLOWGLEN SYSTEMS LTD.

1235 64 Ave. SE
Calgary, Alta.
T2H 2J7
Phone: (403) 253-3051
Telex: 03-825630
Contact: J. Malcolm Milne,
vice-president, marketing

Willowglen Systems Ltd. is a wholly-Canadian company with head office and manufacturing facilities in Calgary. Founded in 1974, Willowglen has rapidly developed major micro-computer based product lines and has a significant installed base in Canada. Willowglen is presently expanding its marketing efforts to areas for potential exports and is currently represented by AB-CO Controls Inc. in Houston, Texas; Underwood Service Association in Marina Del Ray, California and by the Colosseum Corporation in Singapore.

Major products of Willowglen are the Supervisory Control and Data Acquisition System and the Distributed Process Control System. Both systems have wide applications in oilfield production, gas production, pipelines, alarm systems, power distribution systems and petrochemical plant control.

Willowglen also offers the VASCON line of remote control and process control systems, which provide the latest in state-of-the-art automation.

## WILSON MACHINE CO. LTD.

2299 Lapierre St.
Lasalle, Que.
H8N 1B7
Phone: (514) 365-4101
Telex: 055-66265
Contact: Gordon R. Wilson,
president
Christie Arnold,
executive vice president

Wilson Machine, founded in 1913, is a leading designer and manufacturer of industrial gearing, speed reducers, custom hoists and winches, worm screw jacks and diesel engine parts.

Wilson also offers a general machine and fabrication shop service for subcontract work and complete machinery built to customers' specifications and drawings. Overhead crane capacity is for lifts to 30 tons and 100 people are employed in the 50,000 square foot factory.

## WHITMAN, BENN AND ASSOCIATES LTD.

Suite 212, 5251 Duke Street
Halifax, N.S.
B3J 1N9
Phone: (902) 423-9314
Telex: 019-21594
Contact: Michael Gillham,
president
John Dow,
senior vice-president

Whitman, Benn and Associates is an established firm of consultants based in Halifax, offering a wide spectrum of services to the offshore oil and gas industry.

At present the staff exceeds 50 making it one of the largest consulting firms east of Montreal. Professionals are from nearly every discipline of engineering and business, including financial and marketing specialists, computer programmers and systems analysts.

The company has been principally involved in the development and design of heavy industrial plants, marine structures, major bridges and complex steel and concrete structures. Recent projects include the design of the CFB Halifax Dockyard ship repair unit and Nova Scotia Power Corporation's coal-fired thermal units at Lingan, N.S.

The integrated surveys division, formed in 1972, services the growing demand for hydrographic, seismic and marine surveys, and has been involved in surveys off the east coast and in Arctic and West African waters. A subsidiary company, Whitman, Benn Management Services Ltd., specializes in market identification, project feasibility studies and financial analyses.

# WOODWARD-CLYDE CONSULTANTS

**16 Bastion Square**
**Victoria, B.C.**
**V8W 1H9**
**Phone: (604) 381-5811**
**Contact: Edward H. Owens,**
**associate and manager, Canadian operations**
**John R. Harper,**
**project scientist**

Woodward-Clyde Consultants is a broad-based, multidisciplinary consulting firm in the fields of geotechnical engineering, earth and environmental sciences.

The firm maintains 30 offices in Canada, the U.S., and Europe. When the need arises, any of these offices draw on the resources of the entire professional staff of more than 900, which includes geologists, biologists, engineers, chemists, oceanographers, and other professionals. Woodward-Clyde can provide a single consultant or a multi-disciplinary team to suit the special needs of a project. Staff members work closely with clients to provide cost-effective and innovative solutions to environmental problems and to provide information to meet regulatory requirements. Field research studies have been conducted in coastal environments in the Arctic, temperate, and tropical latitudes.

The Enviromental Systems Division offers an extensive range of consulting services including coastal processes and sedimentology, coastal mapping and shoreline analysis (using aerial videotape surveys), sediment transport and wave climate analysis, oil and hazardous materials research, on-site spill response assistance, oil spill contingency planning and environmental impact studies and preparation of reports and documents for regulatory agencies.

It also undertakes offshore hydrocarbon exploration, production, and research, including all phases of engineering and environmental studies, marine pipeline analysis and design, oceanography and marine geology, marine biology and ecology and decision siting and risk analysis.

# WIRE ROPE INDUSTRIES LTD.

**3185 Grandview Highway**
**Vancouver, B.C.**
**V5M 2G1**
**Phone: (604) 435-3331**
**Telex: 04-356660**
**Contact: Chris Field,**
**manager, export division, western region**
**Pamela May-Marchand,**
**export co-ordinator**

Wire Rope Industries Ltd. was formed in 1963, through the amalgamation of four wire rope companies, one of which was formed in the 1880's. In 1973, after managing with four separate factories, three of the eastern plants were consolidated into one new plant in Montreal. Today, that plant is one of the largest and most modern rope plants in North America.

At present, combining the tonnages of the company's Montreal and Vancouver plants and associated facilities in the USA, Wire Rope Industries Ltd. is the largest wire rope consortium in North America.

The company has recently undergone a plant expansion in Montreal which centres around its new 120 tonne closer, capable of manufacturing ropes up to 30 cm in diameter. This piece of equipment is more than adequate to handle the rope range requirements of any concern.

Another product making its way into the offshore market is structural strand. The company's strander manufactures strands up to 15 cm in diameter. Also included in the strander manufacturing process is a pre-stretcher facility with a capacity of 360 000 kg and a socketting tower that has a working height of 10 m.

## CAPE BRETON DEVELOPMENT CORPORATION

P.O. Box 1330
Sydney, N.S.
B1P 6K3
Phone: 902 539-5910
Telex: 019-35214
Contact: D. S. Rankin,
president
D. I. Miller,
vice president, new business development

Cape Breton Development Corporation, a federal Crown corporation formed in 1967, has a coal division with 4,500 employees and an industrial development division, designed to stimulate and assist industrial growth in many sectors.

Of particular interest to the offshore industry is Cape Breton's Canso Superport and Sydport Industrial park. The Strait of Canso offers one of the best deep water ports on the Atlantic seaboard and is the closest port to the Venture oil and gas plays off Nova Scotia's coast. Sydport is located on Sydney Harbour in the centre of the area's coal and steel industries. It offers excellent berthing facilities and has 600 acres of back up land for both small and large scale development.

## NORTHERN RIG LITES LTD.

8225 CORONET ROAD,
EDMONTON, ALTA.
T6E 4N7
Phone: 403 468-6222
Telex: 037-3503
Contact: Sandy Miller,
marketing manager

The severe environments and safety requirements for lighting systems in the oil and marine industries demand fixtures, connectors, switchgear and other components designed and manufactured specifically for exterior use under hazardous conditions.

Northern Rig Lites manufactures a complete line of fluorescent, incandescent, quartz-mercury and high intensity sodium vapor lights and fittings, as well as landing strip, helicopter pad and airport runway lighting systems, emergency lighting systems, plastic globes, custom panels, derrick man heaters, weight indicator lights and aluminum and brass brackets and connectors. The engineering and research departments also produce custom lighting systems.

Northern Rig Lites also manufactures in Houston and has agents in the UK, Singapore, Indonesia, Australia and Venezuela.

## J. KOBELT MANUFACTURING CO. LTD.

235 East 5th Avenue
Vancouver, B.C.
V5T 1H2
Phone: 604 879-6323
Telex: 04-55450
Contact: Jack Kobelt,
president
George Gori,
technical engineer

Kobelt manufactures mechanical and pneumatic controls for marine and industrial applications where remote controls are required, using die cast silicon brass and stainless steel. Products include control heads, valves, throttle actuators, pitch controllers and engine load controls.

Its heavy duty disc brake systems for propellor shafts, deck machinery, anchor and cable winches, have calipers fitted with stainless steel hardware, bronze castings, air and water cooled discs, pneumatic failsafe and hydraulic applied systems. Rail clamps are also manufactured for deck machinery and ship loading equipment. Much of Kobelt's production is custom designed and manufactured.

Kobelt has distributors and agents throughout the world.

## SYPROTEC INC.

2251 St. Francois Road
Dorval, Que.
H9P 1K3
Phone: 514 683-1285
Telex: 05-821643
Contact: Jean-Pierre Gibeault,
president

Syprotec manufactures instruments to measure and monitor various parameters in dielectric materials and produces oil purification systems.

These Listings were received too late to be included in the Alphabetical Listing.

See Listing On Page 21

# Canada's World Trade Offices

**ALGERIA**
**Commercial Division**
**Canadian Embassy**
**27 bis, rue d'Anjou**
**Hydra**
*(Mailing Address:*
**C.P. 225, Alger Gare)**
**Algiers, Algeria**
*Cable:* CANAD ALGER
*Phone:* 60-66-11
*Telex:* (Destination code 408) 52036 (CANAD ALGER)

**ARAB REPUBLIC OF EGYPT**
**Commercial Division**
**Canadian Embassy**
**6 Sharia Mohamed Fahmi el Sayed**
**Garden City**
*(Mailing Address:*
**Kasr el Doubara Post Office)**
**Cairo, Arab Republic of Egypt**
*Cable:* CANADIAN
*Phone:* 23110
*Telex:* (Destination code 91) 9-2677 (CANCAR UN)

**ARGENTINA**
**Commercial Division**
**Canadian Embassy**
**Casilla de Correo 3898**
**Suipacha 1111**
**Buenos Aires, Argentina**
*Cable:* CANADIAN
*Phone:* 32-9081 to 88
*Telex:* (Destination code 33) 21383 (CEICANAD AR)

**AUSTRALIA**
**Canberra***
**Commercial Division**
**Canadian High Commission**
**Commonwealth Avenue**
**Canberra ACT 2600, Australia**
*Cable:* DOMCAN
*Phone:* 73-3844
*Telex:* (Destination code 71) 62017 (DOMCAN AA62017)
* The Canberra Office handles only those trade inquiries that require liaison with federal government departments and agencies.

**Sydney**
**Canadian Consulate General**
**A.M.P. Centre, 8th Floor**
**50 Bridge Street**
**Sydney, N.S.W. 2000, Australia**
*Cable:* CANADIAN
*Phone:* 231-6522 (02)
*Telex:* (Destination code 71) 20600 (CANGOVT AA20600)

**Melbourne**
**Canadian Consulate General**
**Princes Gate East Tower, 17th Floor**
**151 Flinders Street**
**Melbourne 3000, Australia**
*Phone:* 63-8431 (AC 03)
*Telex:* (Destination code 71) 30501 (CANGOVT AA30501)

**AUSTRIA**
**Commercial Division**
**Canadian Embassy**
**Luegerring 10**
**A-1010 Vienna, Austria**
*Cable:* CANADIAN
*Phone:* 63-36-91(-95), 63-66-26/27/28
*Telex:* (Destination code 47) 75320 (DOMCAN A)

**BELGIUM**
**Commercial Division**
**Canadian Embassy**
**rue de Loxum 6**
**1000 Brussels, Belgium**
*Cable:* CANADIAN
*Phone:* 513.79.40 (Area code 2)
*Telex:* (Destination code 46) 21613 (DOMCAN B)

**BRAZIL**
**Brasilia**
**Commercial Division**
**Canadian Embassy**
**Caixa Postal 07-0961**
**SES-Av. das Naçoes, lote 16**
**70.000 Brasilia D.F., Brazil**
*Cable:* CANADIAN
*Phone:* Brasilia 223-7515
*Telex:* (Destination code 38) 611296 (611296 ECAN BR)

**Rio de Janeiro**
**Canadian Consulate General**
**Caixa Postal 2164-ZC-00**
**Edificio Metropole**
**Avenida Presidente Wilson**
**165/6o andar**
**20.000 Rio de Janeiro —RJ — Brazil**
*Cable:* CANADIAN
*Phone:* 240-9912 (21)
*Telex:* (Destination code 38) 2122583 (ECAN BR)

**Sao Paulo**
**Canadian Consulate General**
**Caixa Postal 22002**
**Edificio Top Center**
**Avenida Paulista, 854, 5o andar***
**Sao Paulo, Brazil**
*Cable:* CANADIAN
*Phone:* (011) 287-2122, 287-2234, 287-2601, 287-2213, 287-2011
*Telex:* (Destination code 38) 1123230 (1123230 CCAN BR)

**BRITAIN**
**London**
**Commercial Division**
**Canadian High Commission**
**One Grosvenor Square**
**London, W1X 0AB, England**
*Cable:* DOMINION LONDON
*Phone:* (01) 629-9492
*Telex:* 261592 (CDALDN G)

**Glasgow**
**Canadian Consulate**
**Ashley House**
**195 West George Street**
**Glasgow G22HS, Scotland**
*Cable:* CANTRACOM
*Phone:* (041) 248-3026
*Telex:* (Destination code 77) 778650 (CDAGLW G)

**CAMEROON**
**Commercial Division**
**Canadian Embassy**
**Immeuble Soppo Priso**
**rue Conrad-Adenauer**
**P.O. Box 572**
**Yaoundé, Cameroon**
*Cable:* DOMCAN Yaoundé
*Phone:* 22-02-03, 22-29-22, 22-19-36
*Telex:* 8209 (DOMCAN 8209KN)

**CHILE**
**Commercial Division**
**Canadian Embassy**
**Ahumada 11, 10th Floor (Street Address)**
**Casilla 771** *(Mailing Address)*
**Santiago, Chile**
*Cable:* CANADIAN
*Phone:* 64189/62256
*Telex:* (Destination code 34) 3490068 (0068 DOMCAN C)

**CHINA, PEOPLE'S REPUBLIC OF**
**Commercial Division**
**Canadian Embassy**
**10 San Li Tun**
**Peking, People's Republic of China**
*Cable:* DOMCAN PEKING
*Phone:* 521475

**COLOMBIA**
**Commercial Division**
**Canadian Embassy**
**Apartado Aereo 53531/2**
**Calle 76 No. 11-52**
**Bogota 2, Colombia**
*Cable:* CANADIAN
*Phone:* 235-5066/235-5477
*Telex:* (Destination code 35) 44568 (DMCA CO)

**COSTA RICA**
**Commercial Division**
**Canadian Embassy**
**Apartado Postal 10303**
**6th Floor, Cronos Bldg.,**
**Calle 3y Avda Central**
**San Jose, Costa Rica**
*Cable:* DOMCAN SAN JOSE
*Phone:* 230446
*Telex:* (Destination code 376) 2179 (DOMCAN)

**CUBA**
**Commercial Division**
**Canadian Embassy**
**Apartado 6125**
**Calle 30 No 518 esq.**
**7a Avenida Miramar**
**Havana, Cuba**
*(Send all mail to this address:*
**Commercial Division**
**Box 500 (HVA)**
**Ottawa (Ontario) K1N 8T7)**
*Cable:* CANADIAN HAVANA
*Phone:* 2-6421/22/23
*Telex:* (Destination code 28) 511486 (CAN CU)

**CZECHOSLOVAKIA**
**Commercial Division**
**Canadian Embassy**
**Mickiewiczova 6**
**125 33 Prague 6, Czechoslovakia**
*Cable:* DOMCAN PRAGUE
*Phone:* 326941
*Telex:* (Destination code 66) 121061 (DMCN C)

**DENMARK**
**Commercial Division**
**Canadian Embassy**
**Kr. Bernikowsgade 1**
**1105 Copenhagen K, Denmark**
*Cable:* CANADIAN
*Phone:* (01) 12-22-99
*Telex:* (Destination code 55) 27036 (DMCNC DK)

**ECUADOR**
**Commercial Division**
**Canadian Embassy**
**Edificio Belmonte**
**6th Floor**
**Calle Corea 126 Y Ave. Amazonas**
*(Mailing Address:*
**Casilla 6512**
**Sucursal 11, C.C.I.)**
**Quito, Ecuador**
*Phone:* (2) 458-016/102/156
*Telex:* c/o 2557 TANASA ED

**EUROPEAN COMMUNITIES**
**Mission of Canada to the European Communities**
**rue de Loxum, 6**
**B-1000 Brussels, Belgium**
*Cable:* CANADIAN
*Phone:* 513-0600
*Telex:* (Destination code 46) 21613 (DOMCAN B)

**FINLAND**
**Commercial Division**
**Canadian Embassy**
**Pohjois Esplanadi 25B**
**00100 Helsinki 10, Finland**
*(Mailing Address:*
**P.O. Box 779**
**00101, Helsinki)**
*Cable:* DOMCAN HELSINKI
*Phone:* 17114
*Telex:* (Destination code 5) 121363 (121363 DMCNH SF)

**FRANCE**
**Commercial Division**
**Canadian Embassy**
**35 Avenue Montaigne**
**75008 Paris, France**
*Cable:* CANADIAN PARIS
*Phone:* (01) 723-5015
*Telex:* (Destination code 42) 280806
(CANAD B 280806F)

**GERMANY (FRG)**
**Bonn**
**Commercial Division**
**Canadian Embassy**
**Friedrich-Wilhelmstrasse 18**
**53 Bonn, West Germany**
*Cable:* CANADIAN
*Phone:* 231061
*Telex:* (Area code 41) 886421
(DOMCA D)

**Duesseldorf**
**Canadian Consulate General**
**Immermannstrasse 3**
**4 Duesseldorf, West Germany**
*Cable:* CANADIAN
*Phone:* 353471 (Area code 0211)
*Telex:* (Destination code 41) 8587144
(DMCN D)

**Hamburg**
**Canadian Consulate General**
**Esplanade 41-47**
**2000 Hamburg 36, West Germany**
*Cable:* CANADIAN
*Phone:* 351805
*Telex:* (Destination code 41) 215555
(DNCNH D)

**PORTUGAL**
**Commercial Division**
**Canadian Embassy**
**Rua Rosa Araujo, 2**
**7th Floor**
**Lisbon 2, Portugal**
*Cable:* CANADIAN
*Phone:* 56-25-47
*Telex:* (Destination code 404) 12377
(DOMCAN P)

**ROMANIA**
**Commercial Division**
**Canadian Embassy**
**36 Str. N. Iorga**
**C.P. 2966**
**Oficiul Postal No. 22**
**Bucharest, Romania**
*Phone:* 50-63-30/50-59-56
*Telex:* (Destination code 651) 10690
(CANAD R)

**SAUDI ARABIA**
**Commercial Division**
**Canadian Embassy**
**King Abdul Aziz Street**
**Queen's Building — 6th Floor**
**P.O. Box 5050**
**Jeddah, Saudi Arabia**
*Cable:* DOMCAN JEDDAH
*Phone:* 6434900/4597/4598/4587,
6429798
*Telex:* 401060 DOMCAN SJ

**SENEGAL**
**Commercial Division**
**Canadian Embassy**
**45, av. de la République**
**P.O. Box 3373**
**Dakar, Senegal**
*Cable:* DOMCAN DAKAR
*Phone:* 210290
*Telex:* 632 (DOMCAN SG)

**SINGAPORE**
**Commercial Division**
**Canadian High Commission**
**P.O. Box 845**
**Faber House, 7 & 8th Floors**
**230/236 Orchard Road**
**Singapore 0923, Singapore**
*Cable:* CANADIAN
*Phone:* 737-1322
*Telex:* (Destination code 87) 21277
(DOMCAN RS21277)

**SOUTH AFRICA**
**Canadian Embassy**
**Nedbank Plaza**
**Corner of Church and Beatrix**
**Arcadia, Pretoria 0083, South Africa**
*(Mailing Address:*
**P.O. Box 26006**
**Arcadia, Pretoria 0007)**
*Cable:* CANDOM PRETORIA
*Phone:* 287062/3/4
*Telex:* 3720(3-720 SA)

**SPAIN**
**Commercial Division**
**Canadian Embassy**
**Apartado 117**
**35, Nunez de Balboa**
**Madrid, Spain**
*Cable:* CANADIAN MADRID
*Phone:* 431-4300
*Telex:* (Destination code 52) 27347
(27347 DOMCAN E)

**SWEDEN**
**Commercial Division**
**Canadian Embassy**
**P.O. Box 16129**
**S-103 23 Stockholm 16, Sweden**
*Cable:* CANADIAN
*Phone:* (08) 23-79-20
*Telex:* (Destination code 54) 10687
(10687 DOMCAN S)

**SWITZERLAND**
**Commercial Division**
**Canadian Embassy**
**Kirchenfeldstrasse 88**
**3005 Berne, Switzerland**
*Cable:* CANADIAN BERNE
*Phone:* 44-63-81
*Telex:* (Destination code 45) 32489
(DMCNB CH)

**THAILAND**
**Commercial Division**
**Canadian Embassy**
**P.O. Box 2090**
**The Boonmitr Building, 11th Floor**
**138 Silom Road**
**Bangkok, Thailand**
*Phone:* 234-1561/8
*Telex:* (Destination code 86) 82671
(82671 DOMCAN TH)

**TRINIDAD AND TOBAGO**
**Commercial Division**
**Canadian High Commission**
**P.O. Box 1246**
**Huggins Building**
**72 South Quay**
**Port-of-Spain, Trinidad**
*Cable:* DOMCAN PORT OF SPAIN
*Phone:* 62-34787, 62-37254/8
*Telex:* (Destination code 294) 226
(226 DOMCAN WG)

**TUNISIA**
**Commercial Division**
**Canadian Embassy**
**3, Rue du Sénégal**
**Place de Palestine**
**P.O. Box 31**
**Belvédère**
**Tunis, Tunisia**
*Phone:* 286-577
*Telex:* 12-324

**TURKEY**
**Commercial Division**
**Canadian Embassy**
**Nenehatun Caddesi 75**
**Gaziosmanpasa, Ankara, Turkey**
*Cable:* DOMCAN ANKARA
*Phone:* 27-58-03/04/05
*Telex:* (Destination code 607) 42369 (DCAN TR)

**UNION OF SOVIET SOCIALIST REPUBLICS**
**Commercial Division**
**Canadian Embassy**
**23 Starokonyushenny Pereulok**
**Moscow, USSR**
*Cable:* CANAD MOSCOW
*Phone:* 241-90-34/9155/3067/5070
*Telex:* (Destination code 64) 413401 (413401 DOMCAN SU)

**UNITED NATIONS**
**Permanent Mission of Canada to the United Nations**
**866 United Nations Plaza**
**Suite 250**
**New York, N.Y. 10017-1897**
*Cable:* CANINUN NYK
*Phone:* (212) 751-5600
*Telex:* 00126228 (CANINUN NYK)

**UNITED STATES**
**Washington**
**Commercial Division**
**Canadian Embassy**
**1746 Massachusetts Avenue, N.W.**
**Washington, D.C. 20036-1985**
*Cable:* CANADIAN
*Phone:* (202) 785-1400; 483-5505 (Defence Production)
*Telex:* 0089664 (DOMCAN A WSH)

**New York**
**Canadian Consulate General**
**1251 Avenue of the Americas**
**New York City, N.W. 10020-1175**
*Phone:* (212) 586-2400
*Night Line:* 586-2403
*Telex:* 00126242 (DOMCAN NYK)

**Atlanta**
**Canadian Consulate General**
**900 Coastal States Building**
**260 Peachtree Street**
**Atlanta, Georgia 30303-1290**
*Phone:* (404) 577-6810
*Telex:* 00542676 (DOMCAN ATL)

**Boston**
**Canadian Consulate General**
**500 Boylston Street**
**Boston, Massachusetts 02116-3775**
*Phone:* (617) 262-3760
*Telex:* 00940625 (DOMCAN BSN)

**Buffalo**
**Canadian Consulate**
**One Marine Midland Center**
**Suite 3550**
**Buffalo, New York 14203-2884**
*Phone:* (716) 852-1247
*Telex:* 0091329 (DOMCAN BUF)

**Chicago**
**Canadian Consulate General**
**310 South Michigan Avenue**
**12th Floor**
**Chicago, Illinois 60604-4295**
*Phone:* (312) 427-1031
*Telex:* 00254171 (DOMCAN CGO)

**Cleveland**
**Canadian Consulate**
**Illuminating Building**
**55 Public Square**
**Cleveland, Ohio 44113-1983**
*Phone:* (216) 771-0151
*Telex:* 00985364 (DOMCAN CLV)

**Dallas**
**Canadian Consulate**
**2001 Bryan Tower, Suite 1600**
**Dallas, Texas 75201-3051**
*Phone:* (214) 742-8031
*Telex:* 00732637 (DOMCAN DAL)

**Detroit**
**Canadian Consulate**
**1920 First Federal Building**
**1001 Woodward Avenue**
**Detroit, Michigan 48226-1966**
*Phone:* (313) 965-2811
*Night Line:* 264-1370
*Telex:* 002307 15 (DOMCAN DET)

**Los Angeles**
**Canadian Consulate General**
**510 West Sixth Street**
**Los Angeles, California 90014-1377**
*Phone:* (213) 627-9511
*Telex:* 00674119 (DOMCAN LSA)

**Minneapolis**
**Canadian Consulate**
**15 South Fifth Street**
**Minneapolis, Minnesota 55402-1078**
*Phone:* (612) 333-4641
*Telex:* 00290229 (DOMCAN MPS)

**Philadelphia**
**Canadian Consulate**
**3 Parkway Bldg., Suite 1310**
**Philadelphia, Pennsylvania 19102**
*Cable:* CANADIAN
*Phone:* (215) 561-1750
*Telex:* 00845266 (DOMCAN PHA)

**San Francisco**
**Canadian Consulate General**
**One Maritime Plaza**
**Alcoa Building, Suite 1100**
**Golden Gateway Center**
**San Francisco, California 94111-3468**
*Phone:* (415) 981-2670
*Telex:* 0034321 (DOMCAN SFO)

**Seattle**
**Canadian Consulate General**
**412 Plaza 600, Sixth and Stewart**
**Seattle, Washington 98101-1286**
*Phone:* (206) 447-3820
*Telex:* 032-8762 (DOMCAN SEA)

**VENEZUELA**
**Commercial Division**
**Canadian Embassy**
**Edifice Torre Europa**
**Piso 7, Avenida Francisco de Miranda**
**Chacaito, Caracas, Venezuela**
*Cable:* CANADIAN
*Phone:* (AC 2) 339776
*Telex:* (Destination code 31) 23377 (DOMCAN VE)

**YUGOSLAVIA**
**Commercial Division**
**Canadian Embassy**
**Proleterskih brigada 69**
**11000 Belgrade, Yugoslavia**
*Cable:* DOMCAN BELGRADE
*Phone:* 434-524
*Telex:* (Destination code 62) 11137 (11137 YU DOMCA)

**ZAIRE, REPUBLIC OF**
**Commercial Division**
**Canadian Embassy**
**Edifice Petrozaire**
**Coin Ave. Wangata et boul. 30 juin**
*(Mailing Address:*
**P.O. Box 8341)**
**Kinshasa, Republic of Zaire**
*Cable:* DOMCAN KIN
*Phone:* 22706 and 24346
*Telex:* (Destination code 982) 21303 (DOMCAN ZR)

**ZIMBABWE**
**Commercial Division**
**Canadian High Commission**
**45 Baines Avenue**
*(Mailing Address:*
**P.O. Box 1430)**
**Salisbury, Zimbabwe**
*Cable:* CANAD SALISBURY
*Phone:* 793801
*Telex:* (Destination code 907) 4465 (4465 RH)

**GREECE**
**Commercial Division**
**Canadian Embassy**
**4 Ioannou Ghennadiou Street**
**Athens 140, Greece**
*Cable:* CANADIAN ATHENS
*Phone:* 739-511
*Telex:* (Destination code 601) 215584 (215584 DOM GR)

**GUATEMALA**
**Commercial Division**
**Canadian Embassy**
**Galerias Espana, 6th Floor**
**7A Avenida 11-59, Zona 9**
**Guatemala City, Guatemala, C.A.**
*Cable:* CANADIAN
*Phone:* 64955/6/7/9 65839/63049
*Telex:* (Destination code 37) 5206 (5206 DOMCAN GU)

**HONG KONG**
**Commercial Division**
**Commission for Canada**
**14/15 Floors, Asian House**
**1 Hennessy Road**
**P.O. Box 20264**
**Hong Kong, Hong Kong**
*Cable:* CANADIAN
*Phone:* 5-282224, 5-282423
*Telex:* (Destination code 802) 73391 (DOMCA HX)

**HUNGARY**
**Commercial Division**
**Canadian Embassy**
**Budakeszi ut 55/dP/8**
**1021 Budapest, Hungary**
*Phone:* 365-728, 365-738, 165-858, 365-087
*Telex:* (Destination code 61) 224588 (CANADA H)

**INDIA**
**Commercial Division**
**Canadian High Commission**
**P.O. Box 5208**
**Shanti Path**
**Chanakyapuri**
**New Delhi — 11021, India**
*Cable:* CANADIAN
*Phone:* 61-9461
*Telex:* (Destination code 81) 312346 (DOMCAN NDI 2346)

**INDONESIA**
**Commercial Division**
**Canadian Embassy**
**5th Floor**
**Wisma Metropolitan**
**Jl. Jendral Sudirman**
**Jakarta, Indonesia**
*(Mailing Address:*
**P.O. Box 52/JKT)**
**Jakarta, Indonesia**
*Phone:* 584417, 584566 and 584631
*Telex:* (Destination code 73) 44345 (44345 DMCAN JKT)

**IRAQ**
**Commercial Division**
**Canadian Embassy**
**P.O. Box 323**
**Central Post Office**
**Baghdad, Iraq**
**(Embassy located in the suburb of Al-Mansour)**
*Cable:* DOMCAN BAGHDAD
*Phone:* (01) 5521459
*Telex:* (Destination code 491) 2486 (DOMCAN IK)

**IRELAND**
**Commercial Division**
**Canadian Embassy**
**65/68 St. Stephen's Green**
**Dublin 2, Ireland**
*Cable:* DOMCAN
*Phone:* (01) 781-988
*Telex:* (Destination code 500) 5488 (DMCN EI)

**ISRAEL**
**Commercial Division**
**Canadian Embassy**
**220 Hayarkon Street**
**Tel Aviv, Israel**
*Cable:* CANADIAN
*Phone:* 228122
*Telex:* (Destination code 606) 341293 (341293 CANAD IL)

**ITALY**
**Rome**
**Commercial Division**
**Canadian Embassy**
**Via G.B. de Rossi 27**
**00161 Rome, Italy**
*Cable:* CANADIAN
*Phone:* (6) 864-327/855-341
*Telex:* (Destination code 43) 610056 (DOMCAN I)

**Milan**
**Canadian Consulate General**
**Via Vittor Pisani 19**
**20124 Milan, Italy**
*Cable:* CANTRACOM
*Phone:* 652-600/657-0451
*Telex:* (Destination code 43) 310368 (310368 CANCON I)

**IVORY COAST**
**Commercial Division**
**Canadian Embassy**
**P.O. BOX 4104**
**Le Général Building**
**Cor. Avenue du Commerce et Bottreau-Roussel Plateau**
**Abidjan 01, Ivory Coast**
*Cable:* DOMCAN ABIDJAN
*Phone:* 32-20-09
*Telex:* (Destination code 983) 3593 (DOMCAN ABIDJAN)

**JAMAICA**
**Commercial Division**
**Canadian High Commission**
**P.O. Box 1500**
**Royal Bank Building**
**30-36 Knutsford Boulevard**
**Kingston 10, Jamaica**
*Cable:* CANADIAN
*Phone:* 92-61500/92-61509
*Telex:* (Destination code 291) 2130 (2130 BEAVER JA)

**JAPAN**
**Commercial Division**
**Canadian Embassy**
**3-38 Akasaka 7-Chome, Minato-ku**
**Tokyo 107, Japan**

*Cable:* CANADIAN
*Phone:* 408-2101/8 (03)
*Telex:* (Destination code 72) 22218 (DOMCAN J22218)

**KENYA**
**Commercial Division**
**Canadian High Commission**
**P.O. Box 43778**
**Nairobi, Kenya**
**Situated in:**
**Comcraft House**
**Haile Selassie Avenue**
*Cable:* DOMCAN NAIROBI
*Phone:* 334033
*Telex:* (Destination code 987) 22198 (DOMCAN)

**KOREA**
**Commercial Division**
**Canadian Embassy**
**Kolon Bldg.**
**45 Mungyo-Dong, Jung-Ku**
*(Mailing Address:*
**C.P.O. Box 6299)**
**Seoul 100, Republic of Korea**
*Cable:* CANADIAN SEOUL
*Phone:* 776-4062/68
*Telex:* (Destination code 801) 27425 (CANADA K27425)

**KUWAIT**
**Commercial Division**
**Canadian Embassy**
**Plot 1**
**28 Quaraish**
**Nuzha**
*(Mailing Address:*
**P.O. Box 25281)**
**Safat, Kuwait**
*Phone:* 51.14.51/55.57.54
*Telex:* (Destination code 496) 23549 (MCAN 23549 KT)

**LEBANON**
**Commercial Division**
**Canadian Embassy**
**Sabbag Centre**
**Hamra Street**
**Beirut, Lebanon**
*Phone:* 350665, 352196
*Telex:* (Destination code 494) 20652 (DOMCAN 20652LE)
*Territory:* Jordan, Syria

**MALAYSIA**
**Commercial Division**
**Canadian High Commission**
**P.O. Box 990**
**A.I.A. Building, Ampang Road**
**Kuala Lumpur, Malaysia**
*Cable:* DOMCAN
*Phone:* 89722/5 and 89795
*Telex:* (Destination code 84) 30269 (DOMCAN MA 30269)

**MEXICO**
**Commercial Division**
**Canadian Embassy**
**Calle Schiller No. 529**
**(Rincon del Bosque)**
**Colonia Polanco**
*(Mailing Address:*
**Apartado Postal 105-05)**
**Mexico, 5 D.F., Mexico**
*Cable:* CANADIAN
*Phone:* (905) 254-3288
*Telex:* (Destination code 22) 1771191 (DMCNME)

**MOROCCO**
**Commercial Division**
**Canadian Embassy**
**13, Bis Rue Jaafar es Sadiq**
*(Mailing Address:*
**B.P. 709)**
**Rabat-Agdal, Morocco**
*Phone:* 713-75/76/77
*Telex:* (Destination code 407) 31964M (CDARABAT 31964MO)

**NETHERLANDS**
**Commercial Division**
**Canadian Embassy**
**Sophialaan 7**
**The Hague, Netherlands**
*Cable:* CANADIAN
*Phone:* (070) 61-41-11
*Telex:* (Destination code 44) 31270 (31270 DMCN NL)

**NEW ZEALAND**
**Commercial Division**
**Canadian High Commission**
**P.O. Box 12-049 Wellington North**
**ICI Building, 3rd Floor**
**Molesworth Street**
**Wellington, New Zealand**
*Cable:* DOMCAN Wellington
*Phone:* 739577
*Telex:* (Destination code 74) 3577 (DOMCAN NZ 3577)

**NIGERIA**
**Commercial Division**
**Canadian High Commission**
**P.O. Box 851**
**New Niger House**
**1/5 Odunlami Street**
**Lagos, Nigeria**
*Cable:* CANADIAN
*Phone:* 660130/153/177/201/211
*Telex:* (Destination code 905) 21275 (21275 DOMCAN NG)

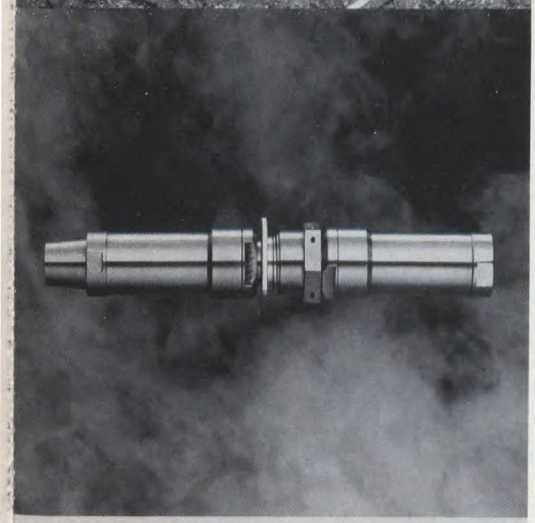
**NORWAY**
**Commercial Division**
**Canadian Embassy**
**Postuttak**
**Oslo 1, Norway**
*Cable:* CANADIAN
*Phone:* (Area code 2) 46.69.55
*Telex:* (Destination code 56) 71880 (71880 DOMCAN)

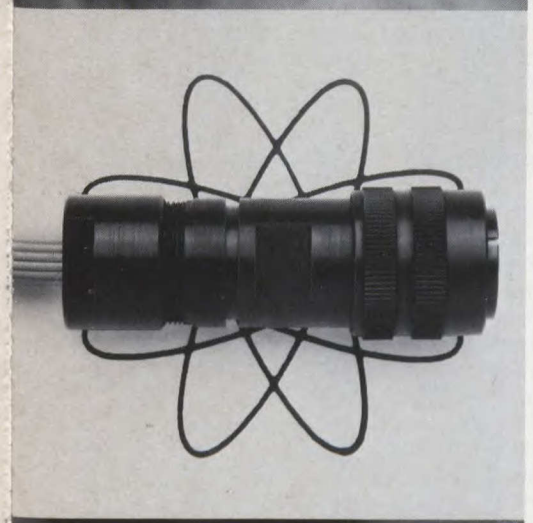
**PAKISTAN**
**Commercial Division**
**Canadian Embassy**
**P.O. Box 1042**
**Diplomatic Enclave**
**Ramna 5**
**Islamabad, Pakistan**
*Cable:* CANADIAN
*Phone:* 21101-04
*Telex:* (Destination code 82) 82700 (5700 DOMCAN PK)

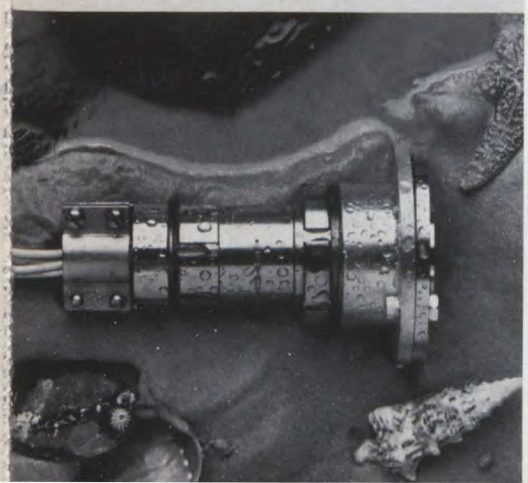
**PERU**
**Commercial Division**
**Canadian Embassy**
**Libertad 130, Miraflores**
**Casilla 1212**
**Lima, Peru**
*Cable:* CANADIAN
*Phone:* 463890
*Telex:* (Destination code 36) 25323 (25323PE DOMCAN)

**PHILIPPINES**
**Commercial Division**
**Canadian Embassy**
**4th Floor, Cibeles Bldg.**
**6780 Ayala Avenue**
*(Mailing Address:*
**P.O. Box 971)**
**Makati, Metro Manila, Philippines 3117**
*Cable:* CANADIAN
*Phone:* 87-65-36 or 87-78-46 (AC 02)
*Telex:* (Destination code 75) 63676 (63676 DOMCAN PN)

**POLAND**
**Commercial Division**
**Canadian Embassy**
**Matejki 1/5**
**Srodmiescle**
**Warsaw, Poland**
*Cable:* DOMCAN WARSAW
*Phone:* 29-80-51
*Telex:* (Destination code 63) 813424 (813424 CANAPL)







# SURVIVAL TACTICS FOR HOSTILE ENVIRONMENTS.

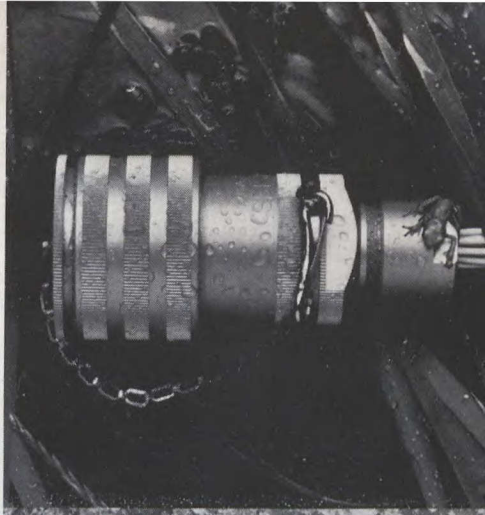
The tougher your requirements, the more you need connectors from ITT Cannon Electric Canada. We specialize in connectors that withstand the harshest, most severe environments found in industries such as geophysical, nuclear, downhole mining and marine.

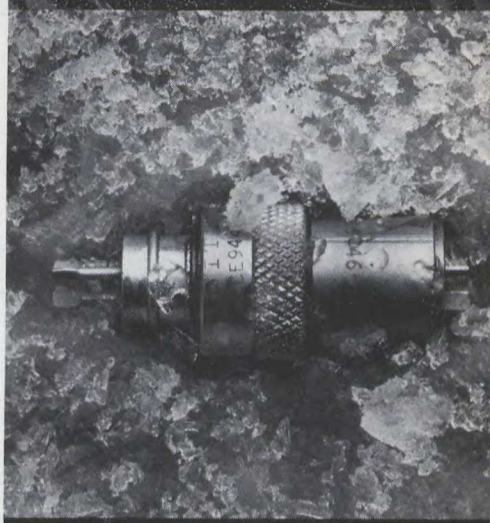
Our geophysical series is a prime example. They're specifically designed to withstand the tortures of oil and gas exploration; downhole drilling and mining; and heavy-duty commercial and industrial applications. You'll find field-proven hermaphroditic designs for use in data processing and acquisition equipment and system test equipment. Watertight connectors that survive high pressures (up to 4500 psi). And rugged, high pressure hermetics.

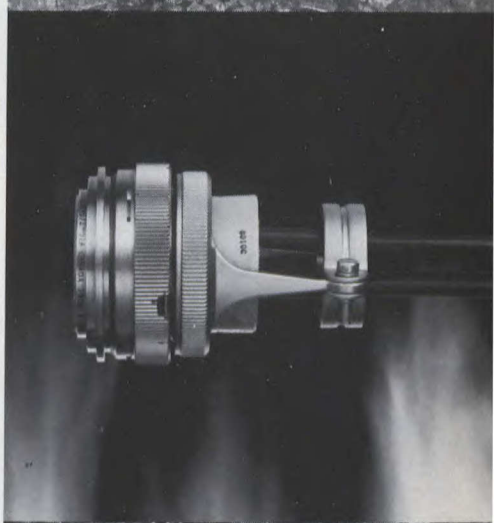
So when you need connectors that survive hostile geophysical environments, look to ITT Cannon Electric Canada for the right tactics. For technical information, contact ITT Cannon Electric Canada, a division of ITT Canada Limited, Four Cannon Court, Whitby, Ontario, Canada LIN 5V8. (416) 668-8881. Telex: 06-981357.

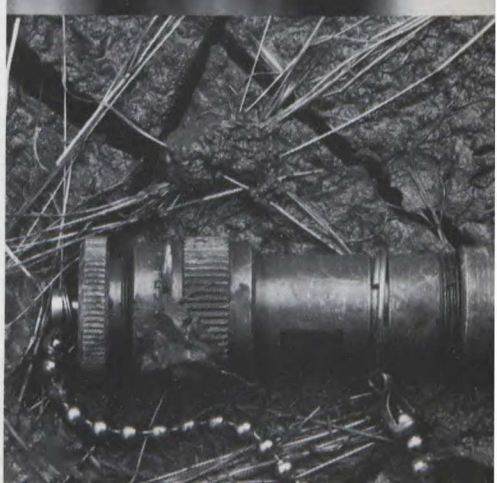
CANNON ITT

You can always connect with Cannon.









# PROFILES OF

## Our role in Canada's vital energy industries.

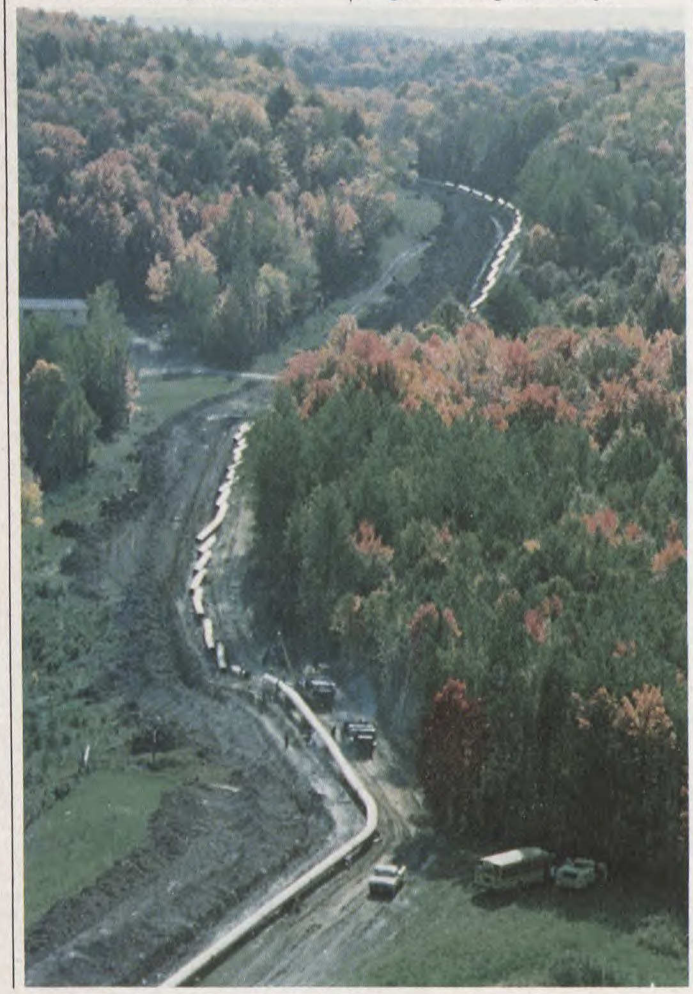
*Across Canada, from western oil and gas fields to offshore exploration, from innovative products to vital exports, the following stories all involve ITT companies serving the oil, gas, nuclear and conventional electricity generating industries.*

**Difficult Problems.**

Some of the problems of the oil and gas industry in Canada are particularly difficult (heavy oil and "sour" gas didn't get their names for nothing!). Because they understand what is needed, Barton Instruments, an ITT Canada company based in Calgary, is often called in to meet the unusually demanding needs of Western Canadian oil and gas producers.

Barton manufactures metering and flow control devices. As prices escalate, the accurate measurement of how much gas or oil passes from producing field to pipeline becomes increasingly important. Historically, an accuracy standard of one half of one percent was required in measuring gas flow. Today, however, the difference between ±.50 and ±.15 percent accuracy is an immense volume of gas—and, potentially, millions of dollars per annum in lost revenue for the big pipeline companies. Asked what it could do, Barton went to work and developed a recorder with an accuracy of ± .15 percent.

*Exploring for offshore oil and gas: ITT Cannon Electric Canada specializes in supplying electrical connectors for such hostile environments.*



*Precise measurement of gas flow from field to pipeline is potentially worth millions of dollars of additional revenue to pipeline companies. ITT Barton Instruments manufactures control and metering devices that provide an unprecedented degree of accuracy.*

**Another solution.**

High sulphur content ("sour") gas poses big problems; it corrodes everything it touches. When pipeline pressures are as high as 6,000 pounds per square inch, and when hydrogen sulphide bites into metal recording units built into the pipeline—the prospects for failure, and violent explosion are high. The condition is known as sulphide stress cracking. Barton answered the problem—to the satisfaction of both the customer and the National Association of Corrosion Engineers—by using special lead-free, low porosity metals, and then annealing them.

As a result of developing such specialized products, export markets are opening up for Barton Instruments—wherever "problem" oil or gas fields are located.

**In every Candu.**

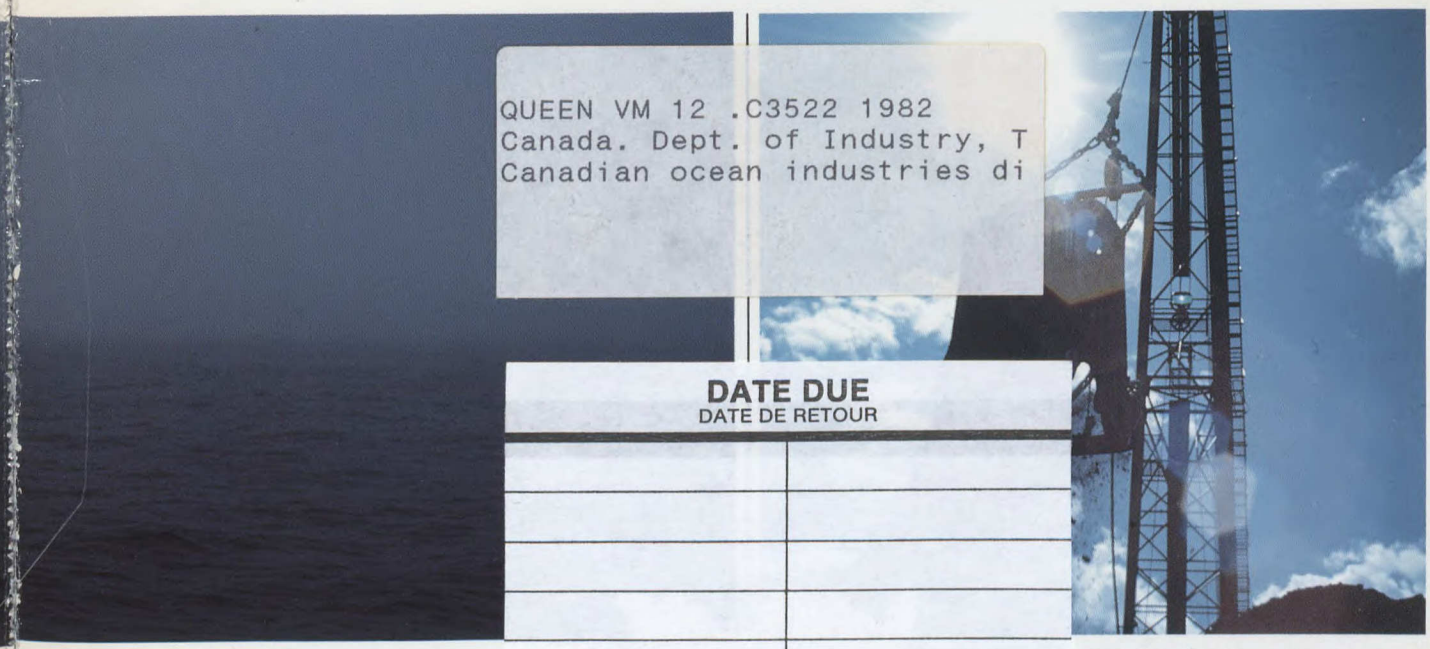
Moving east, ITT Grinnell in Toronto is a leading manufacturer of valves and pipe hangers. Grinnell is a major supplier to Canada's nuclear power industry, whose manufacturing standards are extremely rigid; these needs have been so well satisfied, Grinnell products have been certified, and subsequently chosen, *for every Candu reactor manufactured to date.*

**Unique design.**

One unique design of Grinnell pipe hangers supports 115,000 lbs. in the primary heat transport pump system of a Canadian nuclear electric generating station, providing constant, stress-free support while the gigantic pipe expands, contracts, and flexes. The hanger was developed in Toronto by Grinnell's engineering design group—the leading facility of its kind in Canada.

Grinnell's hangers and valves also enjoy a commanding presence in Canada's petro-

# ITT CANADA





chemical industry; its products are often neoprene-coated to withstand extremely severe corrosive conditions.

**Everywhere it's tough.**

Further east in Whitby, Ontario, ITT Cannon Electric Canada markets industrial connectors (plugs and sockets) of all kinds. Cannon specializes in developing and producing electrical connectors for the most hostile environments in industry, including approved nuclear connectors for the Candu system, geophysical

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**Other**

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amps. One two-speed pump can save up to 75% of pump operating costs. Natural gas control valves manufactured by Fluid Products are extensively used in the oil to gas conversion market, an important part of Canada's energy program.

*ITT Cana Grin for e to de*

*Energy projects frequently demand an unusual degree of co-operation between supplier and customer. That's something ITT Canada companies work at—hard: east, west, wherever. If we can help you, please contact the local office or agent of any of these companies.*

**THE ITT CANADA FAMILY**

**Engineered Products:**
ITT Aimco
ITT Barton Instruments
ITT Blackburn Canada
ITT Brydon
ITT Cannon Electric Canada
Components ITT
ITT Fluid Products Canada
Flygt Canada
ITT Grinnell
Milrod Metal
Phillips Drill

**Natural Resources:**
Rayonier New Brunswick

**Telecommunications and Electronics:**
ITT Communications Division
ITT Courier Terminals
SEL Canada
ITT Terryphone

**Consumer Products and Services:**
O.M. Scott & Sons
Sheraton Hotels

**Insurance and Finance:**
Abbey Life Insurance Company
ITT Diversified Credit Canada Ltd.
The Hartford Insurance Group

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