

**Hudson Bay Mining and Smelting Co., Limited**  
**annual report 1979**







# Hudson Bay Mining and Smelting Co., Limited



annual report  
1979

Hudson Bay Mining is a diversified natural-resources organization consisting of divisions, subsidiaries and associated companies with investments in base metals, petroleum and fertilizers. While base metals continue to figure prominently in the Company's activities, particularly in plans for growth, appropriate opportunities for further diversification in natural resources are being sought constantly.

The Company has operated its own copper-zinc mines and metallurgical plants in northern Manitoba and Saskatchewan, Canada, since 1930 and during the last 15 years made major investments in copper mining in

the U.S., in crude oil and natural gas in North America and Indonesia, in fertilizers, feed ingredients and crop-protection chemicals in the U.S., in industrial chemicals and zinc diecastings in Canada, and in exploration services.

Hudson Bay Mining was incorporated on December 27, 1927; as of January 1, 1979, the authorized capital comprises an unlimited number of common shares, which are traded on the Toronto, New York and Montreal stock exchanges. On January 1, 1980, the Company had 9,556 shareholders and the total number of shares issued was 10,101,739.

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HOWARD ROSS LIBRARY  
OF MANAGEMENT  
AUG 24 1981  
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◀ *An Inspiration Development Company exploration crew drilling in southeastern California*

*Cover: ore at Ghost Lake Mine in northern Manitoba is hauled to surface in an articulated heavy-duty ore carrier*





*A five-charge blast breaks copper ore at one of Inspiration Consolidated Copper's many open-pit mines in Arizona*

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## Report of the Directors

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### Financial

The year 1979 was one of progress and achievements but production shortfalls at Flin Flon, Manitoba, and in Arizona prevented us from receiving the maximum benefit of the high prices for copper, gold and silver. Our improved financial results enabled dividends to be reinstated and a total of 80¢ per share was paid in 1979.

Although our net earnings of \$30,798,000 for 1979, before extraordinary items, represent a substantial improvement over the earnings for the previous two years — \$5,093,000 in 1978 and \$4,413,000 in 1977 — they are still not satisfactory in terms of a reasonable return on capital invested, particularly if one takes replacement values of assets into account. Both the metals operations, the Canadian Metals Division and Inspiration Consolidated Copper Company, in the U.S., recorded significantly better results than for 1978. The earnings of the petroleum subsidiaries continued to increase but the earnings of Terra Chemicals International, Inc., our U.S. fertilizer subsidiary, were again disappointing although they were higher than for 1978. Unrealized currency adjustments arising from the conversion of the working capital of our foreign subsidiaries to Canadian dollars resulted in a loss, after deducting minority interest, of \$368,000, compared with a net gain

of \$2.6 million in 1978. Towards the end of the year we repurchased certain forward gold sale contracts at a cost of \$8,468,000 at prices substantially below the current levels.

In the second half of 1979 we acquired 597,600 shares (9.8%) of Rosario Resources Corporation, of New York,

|                           | Analysis of net earnings by source |          |
|---------------------------|------------------------------------|----------|
|                           | 1979                               | 1978     |
|                           | (in thousands)                     |          |
| Metals                    | \$ 31,499                          | \$ 2,429 |
| Petroleum                 | 7,488                              | 6,379    |
| Fertilizers and chemicals | 958                                | 2,125    |
|                           | 39,945                             | 10,933   |
|                           | 5,926                              | 5,840    |
| Net earnings              | \$ 34,019                          | \$ 5,093 |

**Operating contributions before corporate costs include relevant investment amortization; in the case of fertilizers and chemicals, significant foreign currency translation adjustments are also included.**

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on the open market for approximately \$24 million. On January 16, 1980, we made a tender offer for the remaining Rosario common shares for US \$65 per share. Amax Inc., of Greenwich, Conn., which had withdrawn an earlier merger agreement with Rosario, subsequently acquired approximately 27% of the company, also on the open market. In the light of, among other things, Amax's equity position and delays resulting from Federal Trade Commission requests for additional corporate information, we decided to withdraw our offer and we sold our entire holding of 597,600 shares to Amax for \$51,816,000 in cash.

## **Metals**

The Canadian Metals Division contributed \$27,888,000 to our net earnings before corporate costs; the major portion of this contribution came from the Flin Flon-Snow Lake operations. The total tonnage mined was lower than planned as were the ore grades, which together with lower recoveries of copper and zinc in the metallurgical plants caused our production of metals to fall short of our targets. The new concentrator near Stall Lake Mine in the Snow Lake area was officially opened on June 28 and is operating satisfactorily. Studies are continuing regarding the upgrading of our metallurgical plants at Flin Flon. While these studies involve all our plants, the major expenditure would be on the zinc plant. The substantial increases in prices for precious metals has had a significant bearing on the selection of process routes and it is expected that a decision will be taken later this year.

The Company has signed a Letter of Intent with Falconbridge Nickel Mines Limited and Stall Lake Mines Limited to lease their jointly owned orebody in northern Manitoba for a royalty of 7% of the net realized value from the metals produced. The orebody, a small high-grade copper deposit approximately one mile from our Stall Lake Mine, will cost \$14.5 million to develop and production is expected to begin during the latter half of 1982. Construction at the new Spruce Point Mine, also in northern Manitoba, is on schedule. Tantalum Mining Corporation of Canada Limited, which had a good year as tantalum prices reached a record high, has announced a \$1-million expansion plan that will increase the throughput capacity of the metallurgical plant from 175,000 tons annually to 250,000 tons by permitting the reprocessing of 75,000 tons of tailings annually.

As announced previously, the Government of Saskatchewan has refused to renew our license to operate our hydro-electric plant at Island Falls on the Churchill River after April 1, 1981. Negotiations were held with the Saskatchewan Power Corporation to determine the compensation to be paid to the Company but no agreement was reached and it was mutually agreed to submit the matter to the Saskatchewan Court of Queen's Bench. Negotiations are underway with the Manitoba Hydro Commission to replace this power and although the new costs will be substantially higher than our current charges, we hope to offset the difference somewhat by efficiencies and improvements in our operations.

Inspiration Copper contributed \$3,611,000, after adjustments but before our corporate costs, to our earnings. Mining problems in the early part of the year due to extreme rainfall, low recoveries in the concentrator,

operating problems in the acid plant and smelter curtailments in the latter part of the year affected production. The \$14-million solvent extraction plant, completed on schedule and within budget, became operational late in the year and is operating very satisfactorily. This has enabled the vat leaching and the cement copper operations to be closed down so that now there are two metallurgical routes: through the solvent extraction plant and through the smelter. A program of replacing mine equipment is underway and the concentrator is being upgraded. The refinery is also being modified to accommodate the solutions from the solvent extraction plant. Detailed engineering studies are being undertaken to optimize the ultimate operations of the smelter. The Christmas open-pit mine resumed production at midyear after having been shut down since the industry-wide strike in the U.S. in 1977. Inspiration's anti-pollution plans include a major water collection and treatment project to purify effluent being produced at various locations throughout the operations. Black Pine Mining Company, a silver producer in Montana wholly owned by Inspiration, turned in a record performance for 1979, reflecting the high prices for silver and copper. In view of these high prices, production capacity is being expanded.

Since January 1, 1979, Inspiration's shareholders have surrendered 851,384 Class A Preferred shares, including the 666,000 shares owned by the Anaconda Company, a subsidiary of Atlantic Richfield Company. Hudson Bay Mining and an associated company, Minerals and Resources Corporation Limited, of Bermuda, equally own 100% of Inspiration's common shares, or 98.8% of all the shares issued and only 40,960 Class A Preferred shares are still held by other shareholders.

## **Petroleum**

The overall performance by our three oil and gas subsidiaries was satisfactory and their combined contribution to our earnings was \$7,488,000 after adjustments but before our corporate costs. Higher world oil prices were realized by Trend International Limited's operation in Indonesia, and helped offset the expected natural decline in oil production there. In North America prices for oil and gas also rose but to a lesser extent. On November 20 shareholders of Canadian Merrill Ltd. and of Francana Oil & Gas Ltd. approved a reorganization of the two companies and the business of Merrill has been transferred to Francana and the shareholders of Merrill will become shareholders of Francana on March 31, 1980, on the basis of 1.9 Francana shares for each outstanding common Merrill share. Merrill will be liquidated after all the necessary steps to transfer its business to Francana have been completed and Hudson Bay Mining's equity holding in Francana will be increased to 58% from 55%. The reorganization will enhance the position of the shareholders of both Francana and Merrill because of the greater financial and technical strengths of the combined business, which can operate more effectively in the highly competitive petroleum industry.

## **Fertilizer and other agricultural products**

Terra's financial results, while showing a substantial improvement over those for 1978 and a reversal of a four-year trend of declining annual earnings, are still disappointing and unsatisfactory in terms of return on



investment. Terra's contributions after adjustments but before corporate costs, to our earnings was \$958,000. Record sales and higher prices were offset by substantially increased manufacturing costs, notably the price for natural gas.

### Executive changes

H. S. Schwartz was appointed the first President of the Canadian Metals Division. Other executive appointments involved the petroleum companies and Vernon Van Sant, Jr. and Richard Wasteney were appointed Chairman of the Board and Chief Executive Officer and President and Chief Operating Officer, respectively, of Merrill and Francana. H. ReKunyk resigned from both companies and from Hudson Bay Mining as Senior Vice-President-Petroleum. Other Officers of the Company who resigned during the year were: J. L. Carpenter, a Director and Executive Vice-President; K. S. Dalton, Vice-President-Finance, and Treasurer; and G. A. C. MacRae who succeeded Mr. Dalton. Other new appointments were: M. B. Smith as Treasurer; W. A. Atkinson as Comptroller; W. K. Callander as General Manager of Flin Flon/Snow Lake operations and R. B. Wark as General Manager of Hudson Bay Diecastings.

### Directors

We welcome Vernon Van Sant, Jr., Chairman and Chief Executive Officer of our petroleum subsidiaries, to the Board on his appointment on March 6.

### Outlook

#### Metals

The investment in commodities as a hedge against inflation and the weakness of the U.S. dollar emerged as an important new force in determining prices in 1979. Speculation, prompted by escalating oil prices and political instability, drove some metal prices to record levels; gold and silver in particular reached unprecedented heights reflecting the nervousness of the markets. Some speculative activity overflowed into the world copper market which, however, remained fundamentally strong throughout 1979. In spite of lower consumption, temporary supply shortages occurred and were met by a reduction in world stocks. In the short term the potential effects of a downturn in the U.S. economy on copper prices are offset by the possibility of a strike in the U.S. copper industry at midyear and accordingly the outlook remains somewhat uncertain. In the longer term the future is bright. Copper appears to be undervalued at current prices when compared to energy prices and other yardsticks such as gold and silver. Furthermore, higher prices are needed to justify capital expenditure on new capacity.

A cutback in European production and the depletion of large stocks of zinc concentrate stabilized the zinc market and helped firm up what would otherwise have been a soft market. The outlook for the automotive industry, on which zinc producers are largely dependent, for the first half of 1980 is not encouraging and in particular will affect our diecastings operation. The sales outlook for zinc oxide is excellent following the closure of certain plants in the United States and our operations should be running at capacity.

### Fertilizer and other agricultural products

The outlook for 1980 is more promising than at any time in the past few years because of strong demand together with high net farm income. If farm commodity prices hold at or above the present level through the planting season fertilizer use should set a record. The U.S. Government has removed controls that kept acreage out of production, thus plantings for this year's crop seem certain to rise. Nitrogen fertilizer prices have already begun to improve and the outlook for the next several years is positive as a result of an expected increased world demand for grain. However, the effect on the grain market of President Carter's partial grain embargo against the Soviet Union is still unclear. While this could depress prices, the President has proposed to offset losses to farmers by expanding the grain reserve program, sending more grain abroad to alleviate hunger and using more grain in gasohol production.

### Petroleum

Exploration activity in Western Canada continues at a high level, but uncertainties as to future federal government policies and federal-provincial relations will inhibit frontier oil and natural gas exploration. Activity in the United States also continues unabated despite questions concerning the final form of the so-called "windfall profits tax" and its effect on the various segments of the industry. Indonesia increased its prices for oil from US \$13 per barrel at the beginning of 1979 to US \$25.30 at year-end. It is expected that Indonesia will continue to sell at world prices and that the producing companies will receive world prices on their share of production; there is no indication that this policy will be modified in the near future.

### Conclusion

After a number of depressed years the outlook for the mineral industry is again favorable. In particular the outlook for all sectors of our operations in 1980 appears to be bright; however this must be tempered by the unsettled international political situation and continuing high levels of inflation. Furthermore it is essential, if we are to improve our processes and develop new operations, that this favorable climate is not inhibited by penal fiscal changes or unduly restrictive regulatory action.

Even more than in the past, we will be relying on our employees in this coming decade and we have launched an ambitious campaign to ensure that we develop and train adequate human resources. Major capital programs at Inspiration and the Canadian Metals Division over the next few years will enhance the future of these two operations and provide the Company with an excellent base for many years. Dividends have been increased to the current quarterly rate of 30¢ a share and your Board constantly reviews our dividend policy in the light of our earnings and cash flows.

On behalf of the Board,



Chairman



President

March 6, 1980



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# **Hudson Bay Mining and Smelting Co., Limited**

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## **Financial Statements**

For the years ended December 31, 1979 and 1978



**Statements of earnings***For the years ended  
December 31, 1979 and 1978*

|                                                                             | Consolidated     |                 | Unconsolidated   |                 |
|-----------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------|
|                                                                             | 1979             | 1978            | 1979             | 1978            |
|                                                                             | (in thousands)   |                 |                  |                 |
| <b>Revenues:</b>                                                            |                  |                 |                  |                 |
| Net sales                                                                   | \$ 628,486       | \$ 458,665      | \$ 267,693       | \$ 172,190      |
| Interest and other income (Note 11)                                         | 20,266           | 24,226          | 773              | 8,669           |
|                                                                             | <u>648,752</u>   | <u>482,891</u>  | <u>268,466</u>   | <u>180,859</u>  |
| <b>Costs and Expenses:</b>                                                  |                  |                 |                  |                 |
| Cost of sales                                                               | 476,831          | 368,482         | 210,902          | 154,654         |
| Depreciation, depletion and amortization                                    | 44,872           | 35,510          | 19,359           | 14,974          |
| Exploration expenses                                                        | 4,285            | 3,375           | 3,995            | 3,172           |
| General administrative expenses                                             | 18,631           | 15,540          | 6,739            | 5,902           |
| Interest                                                                    | 17,766           | 14,931          | 8,359            | 8,208           |
|                                                                             | <u>562,385</u>   | <u>437,838</u>  | <u>249,354</u>   | <u>186,910</u>  |
| Earnings (loss) before taxes                                                | <b>86,367</b>    | <b>45,053</b>   | <b>19,112</b>    | <b>(6,051)</b>  |
| Income taxes, mining taxes and royalties (Note 12)                          | 45,732           | 24,438          | 4,680            | (2,297)         |
| <b>Earnings (loss) from operations</b>                                      | <b>40,635</b>    | <b>20,615</b>   | <b>14,432</b>    | <b>(3,754)</b>  |
| Other items:                                                                |                  |                 |                  |                 |
| Minority interest in earnings of subsidiaries                               | (13,461)         | (13,739)        | —                | —               |
| Share of earnings of subsidiary companies                                   | —                | —               | 12,742           | 10,630          |
| Share of earnings (losses) of associated companies                          | 3,624            | (1,783)         | 3,624            | (1,783)         |
|                                                                             | <u>(9,837)</u>   | <u>(15,522)</u> | <u>16,366</u>    | <u>8,847</u>    |
| <b>Earnings before extraordinary item</b>                                   | <b>30,798</b>    | <b>5,093</b>    | <b>30,798</b>    | <b>5,093</b>    |
| Extraordinary item:                                                         |                  |                 |                  |                 |
| Income tax reductions resulting from the application of prior years' losses | 3,221            | —               | 3,221            | —               |
| <b>Net earnings for the year</b>                                            | <b>\$ 34,019</b> | <b>\$ 5,093</b> | <b>\$ 34,019</b> | <b>\$ 5,093</b> |
| <b>Earnings per share (Note 10):</b>                                        |                  |                 |                  |                 |
| Before extraordinary item                                                   | <b>\$ 3.05</b>   | <b>\$ 0.50</b>  | <b>\$ 3.05</b>   | <b>\$ 0.50</b>  |
| After extraordinary item                                                    | <b>\$ 3.37</b>   | <b>\$ 0.50</b>  | <b>\$ 3.37</b>   | <b>\$ 0.50</b>  |

**Statements of retained earnings***For the years ended  
December 31, 1979 and 1978*

|                                             | Consolidated      |                   | Unconsolidated    |                   |
|---------------------------------------------|-------------------|-------------------|-------------------|-------------------|
|                                             | 1979              | 1978              | 1979              | 1978              |
|                                             | (in thousands)    |                   |                   |                   |
| Retained earnings at beginning of the year  | \$ 188,601        | \$ 183,508        | \$ 188,601        | \$ 183,508        |
| Net earnings for the year                   | 34,019            | 5,093             | 34,019            | 5,093             |
|                                             | <u>222,620</u>    | <u>188,601</u>    | <u>222,620</u>    | <u>188,601</u>    |
| Dividends — 1979 — \$0.80 per share         | 8,081             | —                 | 8,081             | —                 |
| <b>Retained earnings at end of the year</b> | <b>\$ 214,539</b> | <b>\$ 188,601</b> | <b>\$ 214,539</b> | <b>\$ 188,601</b> |

See accompanying notes to the financial statements.



# Statements of financial position

As at December 31, 1979 and 1978

|                                         | Consolidated      |                   | Unconsolidated    |                   |
|-----------------------------------------|-------------------|-------------------|-------------------|-------------------|
|                                         | 1979              | 1978              | 1979              | 1978              |
|                                         | (in thousands)    |                   |                   |                   |
| <b>Current assets:</b>                  |                   |                   |                   |                   |
| Cash                                    | \$ 12,623         | \$ 8,067          | \$ 73             | \$ 512            |
| Short-term deposits                     | 43,967            | 91,142            | 24,901            | 70,400            |
| Accounts receivable                     | 97,408            | 72,624            | 29,563            | 19,151            |
| Inventories — metals and metal products | 52,168            | 47,681            | 52,168            | 47,681            |
| — fertilizers and chemicals             | 47,560            | 47,262            | —                 | —                 |
| Income taxes recoverable                | —                 | 4,329             | 709               | 1,213             |
| <b>Total current assets</b>             | <b>253,726</b>    | <b>271,105</b>    | <b>107,414</b>    | <b>138,957</b>    |
| Deduct:                                 |                   |                   |                   |                   |
| <b>Current liabilities:</b>             |                   |                   |                   |                   |
| Accounts and notes payable (Note 5)     | 86,786            | 69,704            | 47,072            | 42,072            |
| Accrued liabilities                     | 22,378            | 17,532            | 11,365            | 9,534             |
| Deferred petroleum income               | 4,197             | 6,413             | —                 | —                 |
| Income and other taxes payable          | 3,658             | 6,106             | —                 | —                 |
| Current portion of long-term debt       | 2,042             | 975               | 14                | —                 |
| <b>Total current liabilities</b>        | <b>119,061</b>    | <b>100,730</b>    | <b>58,451</b>     | <b>51,606</b>     |
| <b>Working capital</b>                  | <b>134,665</b>    | <b>170,375</b>    | <b>48,963</b>     | <b>87,351</b>     |
| Add:                                    |                   |                   |                   |                   |
| Investments (Note 3)                    | 113,332           | 69,792            | 209,004           | 161,005           |
| Property, plant and equipment (Note 4)  | 346,219           | 309,245           | 146,402           | 128,579           |
| Other assets                            | 21,522            | 19,653            | 18,778            | 17,077            |
| <b>Capital employed</b>                 | <b>615,738</b>    | <b>569,065</b>    | <b>423,147</b>    | <b>394,012</b>    |
| Deduct:                                 |                   |                   |                   |                   |
| Long-term debt (Note 6)                 | 125,716           | 124,855           | 71,031            | 72,514            |
| Deferred income taxes                   | 103,466           | 89,979            | 66,330            | 61,650            |
| Minority interest in subsidiaries       | 100,770           | 94,383            | —                 | —                 |
|                                         | 329,952           | 309,217           | 137,361           | 134,164           |
| <b>Shareholders' investment</b>         | <b>\$ 285,786</b> | <b>\$ 259,848</b> | <b>\$ 285,786</b> | <b>\$ 259,848</b> |
| Investment represented by:              |                   |                   |                   |                   |
| Share capital (Notes 8 and 9)           | \$ 71,247         | \$ 71,247         | \$ 71,247         | \$ 71,247         |
| Retained earnings                       | 214,539           | 188,601           | 214,539           | 188,601           |
| <b>Total shareholders' investment</b>   | <b>\$ 285,786</b> | <b>\$ 259,848</b> | <b>\$ 285,786</b> | <b>\$ 259,848</b> |

Approved by the Board of Directors

Director: H. R. Fraser

Director: E. P. Gush

See accompanying notes to the financial statements.



# Statements of changes in financial position

For the years ended  
December 31, 1979 and 1978

|                                                      | Consolidated       |                    | Unconsolidated     |                    |
|------------------------------------------------------|--------------------|--------------------|--------------------|--------------------|
|                                                      | 1979               | 1978               | 1979               | 1978               |
|                                                      | (in thousands)     |                    |                    |                    |
| <b>Working capital provided:</b>                     |                    |                    |                    |                    |
| Operations:                                          |                    |                    |                    |                    |
| Earnings (loss) from operations                      | \$ 40,635          | \$ 20,615          | \$ 14,432          | \$ (3,754)         |
| Depreciation, depletion and amortization             | 44,872             | 35,510             | 19,359             | 14,974             |
| Deferred income taxes                                | 14,809             | 6,134              | 4,680              | (2,397)            |
| Other                                                | (403)              | 719                | (458)              | —                  |
| Dividends from subsidiary companies                  | —                  | —                  | 1,672              | 3,007              |
| Dividends from associated companies                  | —                  | —                  | 113                | —                  |
|                                                      | 99,913             | 62,978             | 39,798             | 11,830             |
| Proceeds from long-term debt                         | 4,417              | 18,809             | —                  | —                  |
| Realization of investments                           | 1,010              | —                  | 1,010              | —                  |
| Working capital of amalgamated subsidiaries          | —                  | —                  | 11,440             | 3,495              |
|                                                      | <b>105,340</b>     | <b>81,787</b>      | <b>52,248</b>      | <b>15,325</b>      |
| <b>Working capital applied:</b>                      |                    |                    |                    |                    |
| Dividends                                            | 8,081              | —                  | 8,081              | —                  |
| Dividends paid by subsidiaries to minority interests | 5,350              | 6,277              | —                  | —                  |
| Investment in subsidiary companies (Note 3)          | 1,475              | 5,497              | 1,475              | 8,522              |
| Other investments (Note 3)                           | 38,603             | 26,129             | 41,980             | 24,824             |
| Property, plant and equipment                        | 82,116             | 83,354             | 35,916             | 39,439             |
| Reduction of long-term debt                          | 3,556              | 5,237              | 1,483              | 1,365              |
| Increase in other assets                             | 1,869              | 456                | 1,701              | 984                |
|                                                      | <b>141,050</b>     | <b>126,950</b>     | <b>90,636</b>      | <b>75,134</b>      |
| <b>Decrease in working capital</b>                   | <b>(35,710)</b>    | <b>(45,163)</b>    | <b>(38,388)</b>    | <b>(59,809)</b>    |
| <b>Working capital at beginning of the year</b>      | <b>170,375</b>     | <b>215,538</b>     | <b>87,351</b>      | <b>147,160</b>     |
| <b>Working capital at end of the year</b>            | <b>\$ 134,665</b>  | <b>\$ 170,375</b>  | <b>\$ 48,963</b>   | <b>\$ 87,351</b>   |
| Changes in working capital represented by:           |                    |                    |                    |                    |
| Increase (decrease) in current assets:               |                    |                    |                    |                    |
| Cash                                                 | \$ 4,556           | \$ (3,518)         | \$ (439)           | \$ 203             |
| Short-term deposits                                  | (47,175)           | (53,343)           | (45,499)           | (58,340)           |
| Accounts receivable                                  | 24,784             | 18,992             | 10,412             | 2,924              |
| Inventories — metals and metal products              | 4,487              | 3,687              | 4,487              | 6,600              |
| — fertilizers and chemicals                          | 298                | 5,816              | —                  | —                  |
| Income taxes recoverable                             | (4,329)            | 1,821              | (504)              | 1,213              |
|                                                      | (17,379)           | (26,545)           | (31,543)           | (47,400)           |
| (Increase) decrease in current liabilities:          |                    |                    |                    |                    |
| Accounts and notes payable                           | (17,082)           | (4,917)            | (5,000)            | (14,247)           |
| Accrued liabilities                                  | (4,846)            | (6,182)            | (1,831)            | 1,165              |
| Deferred petroleum income                            | 2,216              | (3,059)            | —                  | —                  |
| Income and other taxes payable                       | 2,448              | (5,829)            | —                  | 673                |
| Current portion of long-term debt                    | (1,067)            | 1,369              | (14)               | —                  |
|                                                      | (18,331)           | (18,618)           | (6,845)            | (12,409)           |
| <b>Decrease in working capital</b>                   | <b>\$ (35,710)</b> | <b>\$ (45,163)</b> | <b>\$ (38,388)</b> | <b>\$ (59,809)</b> |

See accompanying notes to the financial statements.



**1. Summary of significant accounting policies****Generally accepted accounting principles:**

The financial statements are prepared in conformity with generally accepted accounting principles in Canada.

**Principles of consolidation:**

The consolidated financial statements include the accounts of Hudson Bay Mining and Smelting Co., Limited and all companies more than 50%-owned. In addition, the Company follows the equity method of accounting for its interest in associated companies in which it owns from 20% to 50% of the common shares.

**Unconsolidated financial statements:**

In the unconsolidated financial statements, the Company follows the equity method of accounting for its investments in subsidiary as well as associated companies.

**Inventories, materials and supplies:**

Inventories of metals, fertilizers and chemicals and all other saleable products are valued at the lower of cost or estimated net realizable value; metal by-products are valued at estimated net realizable value. Materials and supplies are valued at cost. Cost is determined on the first-in, first-out basis, except the inventories of a subsidiary, Terra Chemicals International, Inc., which are valued on the last-in, first-out basis and which represent substantially all of the inventories of fertilizers and chemicals.

**Property, plant and equipment:**

**Mineral properties** — Exploration costs with respect to mines operating, or in the development stage, are capitalized as mineral properties and amortized by the unit-of-production method based on estimated recoverable reserves; all other mineral exploration costs are written off to expense as incurred.

**Mine development expenditures** — Expenditures on major mine development are capitalized and amortized by the unit-of-production method for each mine based on related estimated recoverable reserves.

**Petroleum properties** — Petroleum properties are accounted for on the full-cost basis whereby all costs relating to the exploration for and the development of petroleum resources are capitalized, whether productive or nonproductive, and amortized by the unit-of-production method based on estimated recoverable reserves.

**Plant and equipment** — Expenditures for plant and equipment additions, major replacements and improvements are capitalized in the property accounts; the cost of maintenance and repairs is charged to operating expense as incurred.

Depreciation of metal and petroleum plant and equipment is charged to operations by the unit-of-production method based on estimated recoverable reserves. Depreciation of other plant and equipment is charged to operations generally on a straight-line basis over their estimated useful lives.

**Deferred income taxes:**

Deferred income taxes represent primarily tax reductions for expenditures on mine development, petroleum and other properties, cost of participation in certain mining companies, and depreciation deducted in the determination of taxable income but not yet charged to earnings.

**Foreign currency translation:**

The financial statements are expressed in Canadian dollars. Foreign currencies have been translated into Canadian dollars as follows: revenue, costs and expenses of foreign subsidiaries at the average rates of exchange for the period; noncurrent assets (including depreciation, depletion and amortization thereof) and noncurrent liabilities at rates in effect at dates of transactions; current assets and current liabilities at rates in effect at the end of the year. Gains and losses on currency translations are included in the statements of earnings.

**2. Change in accounting principle**

During 1979 generally accepted accounting principles in the United States were changed on a retroactive basis, with respect to deferred income taxes on certain timing differences of oil and gas companies. Francana Oil & Gas Ltd., a subsidiary of the Company, was affected by this change.

The retroactive effect of the change, after minority interest, does not have a significant impact on the earnings of the Company (reduction of \$584,000 or \$0.06 per share) and therefore has been included in the determination of earnings for the year ended December 31, 1979, rather than restating prior years.



### 3. Investments

Details of investments, including advances, are as follows:

|                                                                | Consolidated      |                  | Unconsolidated    |                   |
|----------------------------------------------------------------|-------------------|------------------|-------------------|-------------------|
|                                                                | 1979              | 1978             | 1979              | 1978              |
|                                                                | (in thousands)    |                  |                   |                   |
| Associated companies                                           | \$ 68,190         | \$ 46,302        | \$ 68,190         | \$ 46,302         |
| Subsidiary companies                                           | —                 | —                | 111,830           | 117,832           |
| Partnerships                                                   | 15,393            | 18,632           | —                 | —                 |
| Joint venture                                                  | 7,050             | 7,138            | 7,050             | —                 |
| Other — at cost:                                               |                   |                  |                   |                   |
| Quoted (market value 1979 — \$37,984,000;<br>1978 — \$662,000) | 26,352            | 1,376            | 26,352            | 1,376             |
| Unquoted                                                       | 9,182             | 9,173            | 8,624             | 8,531             |
|                                                                | 126,167           | 82,621           | 222,046           | 174,041           |
| Less provision for decline in value                            | 12,835            | 12,829           | 13,042            | 13,036            |
|                                                                | <u>\$ 113,332</u> | <u>\$ 69,792</u> | <u>\$ 209,004</u> | <u>\$ 161,005</u> |

The investment in associated companies comprises the following:

|                                                                     | % of Common Share Ownership |       | Equity in Underlying Net Assets |                  |
|---------------------------------------------------------------------|-----------------------------|-------|---------------------------------|------------------|
|                                                                     | 1979                        | 1978  | 1979                            | 1978             |
|                                                                     | (in thousands)              |       |                                 |                  |
| Inspiration Consolidated Copper Company                             | 50.0%                       | 36.5% | \$ 54,847                       | \$ 36,556        |
| Tantalum Mining Corporation of Canada Limited                       | 37.5%                       | 37.5% | 4,517                           | 2,453            |
| Lytton Minerals Limited                                             | 33.9%                       | 33.9% | 120                             | 132              |
| Ambay Services Limited                                              | 50.0%                       | 50.0% | 117                             | 105              |
| Equity in net assets                                                |                             |       | 59,601                          | 39,246           |
| Unamortized excess of cost of investments over equity in net assets |                             |       | 8,589                           | 7,056            |
| Total investment                                                    |                             |       | <u>\$ 68,190</u>                | <u>\$ 46,302</u> |

The unamortized excess cost is being written off against the Company's share of earnings from the associated companies generally over a period of 20 years.

During 1979, the Company, through a holding company which is owned equally with a related company, Minerals and Resources Corporation Limited, increased its own holdings in Inspiration Consolidated Copper Company to 50.0%. Effective January 1, 1979, Inspiration completed a reorganization whereby the share capital of the company was divided into common shares, which are wholly-owned by the holding company and Class A preferred stock representing the holding of the minority interest just prior to the reorganization. During 1979, the Company has purchased, through the holding company, additional common shares for a cash consideration of approximately \$16,400,000, which exceeded the Company's equity in the underlying net assets by approximately \$1,800,000. During 1978, 13.1% of Inspiration was acquired for a cash consideration of approximately \$16,600,000, which exceeded the Company's equity in the underlying net assets by approximately \$1,800,000. As at December 31, 1979, under the terms of the reorganization, the Company has undertaken to finance U.S. \$701,000 with respect to the purchase of additional new common shares.

Effective November, 1978, the Company acquired a 37.5% interest in Tantalum Mining Corporation of Can-

ada Limited, a mining company situated in the Province of Manitoba, for a cash consideration of approximately \$5,000,000, which exceeded the Company's equity in the underlying net assets by \$2,700,000.

The Company's equity in the underlying net assets of its subsidiaries amounts to \$103,560,000 at December 31, 1979, and \$107,743,000 at December 31, 1978. The unamortized excess cost of investment over equity value amounting to \$8,270,000 at December 31, 1979, and \$10,089,000 at December 31, 1978, is included in property, plant and equipment.



During 1978, the Company increased its interest in Whitehorse Copper Mines Ltd. to 100%. The following is a summary of the noncurrent assets and liabilities at July 1, 1978, the effective date of acquisition:

|                                                                           | (in thousands) |
|---------------------------------------------------------------------------|----------------|
| Property, plant and equipment less accumulated depreciation and depletion | \$ 2,681       |
| Investment in joint venture                                               | 7,958          |
| Noncurrent liabilities                                                    | (290)          |
|                                                                           | 10,349         |
| Investment at effective date of acquisition                               | 4,852          |
| Cost of acquisition less working capital acquired — \$3,025,000           | \$ 5,497       |

Effective December 31, 1979, Whitehorse Copper Mines Ltd. was amalgamated with the Company.

In 1979, the Company acquired 3.3% of the outstanding common shares of Terra Chemicals International, Inc. for a cash consideration of \$1,475,000, thereby increasing its interest to 53.8% in that company.

The investment in partnerships represents Terra Chemicals International, Inc.'s 25% interest in an ammonia production facility and 65% interest in a nitrogen product upgrading facility. The investment consists principally of Terra's equity contributions, advances and deferred preoperating costs, reduced by the company's share of operating losses to date.

During 1979, the Company purchased a 9.8% holding in Rosario Resources Corporation for a cash consideration of \$24,448,000. This investment is carried at cost and income is recorded as dividends are declared. (See Note 14.)

The Company makes provision in amounts which it considers prudent for declines in value of investments.

The cost of other investments as shown on the Statements of Changes in Financial Position comprises the following:

|                                               | Consolidated    |                 | Unconsolidated  |                 |
|-----------------------------------------------|-----------------|-----------------|-----------------|-----------------|
|                                               | 1979            | 1978            | 1979            | 1978            |
|                                               | (in thousands)  |                 |                 |                 |
| Inspiration Consolidated Copper Company       | \$16,380        | \$16,576        | \$16,380        | \$16,576        |
| Rosario Resources Corporation (Note 14)       | 24,448          | —               | 24,448          | —               |
| Tantalum Mining Corporation of Canada Limited | 92              | 5,006           | 92              | 5,006           |
| Partnerships                                  | (3,239)         | 4,517           | —               | —               |
| Other — net                                   | 922             | 30              | 1,060           | 3,242           |
|                                               | <u>\$38,603</u> | <u>\$26,129</u> | <u>\$41,980</u> | <u>\$24,824</u> |

#### 4. Property, plant and equipment

The following is a summary of property, plant and equipment at cost by major operating divisions:

|                                             | Consolidated      |                   | Unconsolidated    |                   |
|---------------------------------------------|-------------------|-------------------|-------------------|-------------------|
|                                             | 1979              | 1978              | 1979              | 1978              |
|                                             | (in thousands)    |                   |                   |                   |
| Metals                                      | \$ 225,078        | \$ 206,518        | \$ 199,429        | \$ 172,051        |
| Fertilizers and chemicals                   | 81,591            | 79,380            | —                 | —                 |
| Petroleum                                   | 227,805           | 185,872           | —                 | —                 |
|                                             | 534,474           | 471,770           | 199,429           | 172,051           |
| Less accumulated depreciation and depletion | 233,281           | 201,453           | 97,924            | 82,221            |
|                                             | 301,193           | 270,317           | 101,505           | 89,830            |
| Unamortized mine development expenditures   | 45,026            | 38,928            | 44,897            | 38,749            |
|                                             | <u>\$ 346,219</u> | <u>\$ 309,245</u> | <u>\$ 146,402</u> | <u>\$ 128,579</u> |

#### 5. Accounts and notes payable

This amount comprises the following:

|                         | Consolidated    |                 | Unconsolidated  |                 |
|-------------------------|-----------------|-----------------|-----------------|-----------------|
|                         | 1979            | 1978            | 1979            | 1978            |
|                         | (in thousands)  |                 |                 |                 |
| Accounts payable        | \$84,871        | \$64,960        | \$40,317        | \$31,442        |
| Loans from subsidiaries | —               | —               | 4,955           | 10,630          |
| Bank loan               | 1,915           | 4,744           | 1,800           | —               |
|                         | <u>\$86,786</u> | <u>\$69,704</u> | <u>\$47,072</u> | <u>\$42,072</u> |

The Company and its major subsidiaries have lines of credit aggregating approximately \$78,000,000 with banks in Canada and the United States with interest at bank prime rates.

The maximum amount of short-term borrowings outstanding during 1979 and 1978 was \$48,000,000 and \$30,000,000, respectively, and the approximate average amount outstanding during each year was \$19,000,000 and \$12,000,000, respectively, with weighted average interest rates of 12.2% and 8.7%.



## 6. Long-term debt

Details of the long-term debt are as follows:

|                                                                     | Consolidated      |                   | Unconsolidated   |                  |
|---------------------------------------------------------------------|-------------------|-------------------|------------------|------------------|
|                                                                     | 1979              | 1978              | 1979             | 1978             |
|                                                                     | (in thousands)    |                   |                  |                  |
| <b>Hudson Bay Mining and Smelting Co., Limited:</b>                 |                   |                   |                  |                  |
| 9% unsecured debentures due 1991                                    | \$ 20,001         | \$ 21,750         | \$ 20,001        | \$ 21,750        |
| 10½% unsecured debentures due 1995 (U.S. \$50,000,000)              | 50,764            | 50,764            | 50,764           | 50,764           |
| Mortgage loans                                                      | 280               | 295               | 280              | —                |
| <b>Canadian Merrill Ltd.:</b>                                       |                   |                   |                  |                  |
| Secured bank production loans                                       | 20,469            | 16,303            | —                | —                |
| Other (1979 — U.S. \$349,000; 1978 — U.S. \$595,000)                | 374               | 630               | —                | —                |
| <b>Terra Chemicals International, Inc.:</b>                         |                   |                   |                  |                  |
| 9½% unsecured notes (U.S. \$17,500,000)                             | 17,760            | 17,760            | —                | —                |
| 8¾% unsecured notes (U.S. \$15,000,000)                             | 16,884            | 16,884            | —                | —                |
| Other (1979 — U.S. \$911,000; 1978 — U.S. \$1,196,000)              | 962               | 1,343             | —                | —                |
|                                                                     | 127,494           | 125,729           | 71,045           | 72,514           |
| Current portion due within one year included in current liabilities | 1,778             | 874               | 14               | —                |
|                                                                     | <u>\$ 125,716</u> | <u>\$ 124,855</u> | <u>\$ 71,031</u> | <u>\$ 72,514</u> |

(a) Under the trust indenture covering the 9% unsecured debentures, sinking fund payments sufficient to retire \$800,000 of principal amount are required each year until 1990. The Company has the option to redeem the debentures at prices ranging downward from 104.6% currently to 100% in 1988 and thereafter. Debentures redeemed through the operations of the sinking fund are callable at par. Debentures amounting to \$4,999,000 (principal amount) have been purchased by the Company and cancelled. Therefore, no sinking fund payments have been required to date and \$2,599,000 is available for application against future sinking fund requirements.

(b) Under the trust indenture covering the 10½% unsecured debentures, sinking fund payments sufficient to retire U.S. \$3,330,000 of principal amount each year from 1981 to 1994, inclusive, are required. The Company has the option to redeem the debentures at prices ranging downward from 107.7% currently to 100% in 1990 and thereafter. Debentures redeemed through the operations of the sinking fund are callable at par.

(c) The bank production loans of Canadian Merrill Ltd. include \$12,054,000 in 1979 and \$7,961,000 in 1978 payable in United States currency (U.S. \$10,958,000 and \$7,483,000 respectively). Loans are repayable in monthly instalments of U.S. \$21,000 until April 1981, and U.S. \$148,000 and \$117,000 commencing in January 1982. The loans are secured primarily by an assignment of interests in certain producing properties and bear interest, with minor exceptions, at rates not exceeding ¾ of 1% above Canadian bank prime rate and 1% above the lending bank's United States base rate.

(d) The 9½% unsecured notes of Terra Chemicals International, Inc. are repayable in annual instalments of U.S. \$1,000,000 from 1980 to 1995, with U.S. \$1,500,000 due in 1996.

(e) The 8¾% unsecured notes of Terra Chemicals International, Inc. are repayable in annual instalments of U.S. \$1,000,000 from 1984 to 1998.

Interest and related expenses on long-term debt were:

|                                             | 1979            | 1978            |
|---------------------------------------------|-----------------|-----------------|
|                                             | (in thousands)  |                 |
| Hudson Bay Mining and Smelting Co., Limited | \$ 8,105        | \$ 8,194        |
| Consolidated subsidiaries                   | 6,775           | 5,534           |
|                                             | <u>\$14,880</u> | <u>\$13,728</u> |

Sinking fund and principal payments, after allowing for prepayments, required over the next five years are as follows:

|      | Consolidated   |            | Unconsolidated |            |
|------|----------------|------------|----------------|------------|
|      | Canadian Funds | U.S. Funds | Canadian Funds | U.S. Funds |
|      | (in thousands) |            |                |            |
| 1980 | \$ —           | \$ 1,625   | \$ —           | \$ —       |
| 1981 | —              | 4,616      | —              | 3,330      |
| 1982 | 1,404          | 6,311      | —              | 3,330      |
| 1983 | 2,005          | 6,131      | 601            | 3,330      |
| 1984 | 2,204          | 7,131      | 800            | 3,330      |



## 7. Commitments and contingent liabilities

During 1978 the Company received a reassessment notice from the Department of National Revenue disallowing the deduction of a nonrefundable contribution for construction to Manitoba Hydro made in 1973, which was, in the opinion of the Company, a proper deduction. On the advice of its counsel, the Company has filed a formal Notice of Objection to the reassessment. Income taxes, penalties and interest paid with respect to the reassessment, aggregating \$2,100,000, have not been charged to earnings pending settlement of the reassessment. Should the reassessment be upheld, the tax and related costs would be charged to retained earnings as a prior period adjustment.

During 1978 the Company, by way of a takeover bid, acquired all of the shares of Whitehorse Copper Mines Ltd. at \$4.00 cash per share. The Company has applied to the Supreme Court of British Columbia to fix the fair value for 76,838 shares previously held by shareholders who demand fair value for their shares. Since the Court has not rendered its judgment, the amount of any additional payment to such shareholders is not determinable; however, the Company believes there will be no material increase in the acquisition cost of the shares.

A subsidiary, Terra Chemicals International, Inc., is contingently liable for discounted notes subject to recourse aggregating U.S. \$7,190,000 at December 31, 1979 (U.S. \$5,323,000 at December 31, 1978) and is a 25% guarantor of U.S. \$83,610,000 of first mortgage notes payable of the ammonia production facility partnership referred to in Note 3.

In addition, Terra is committed to various non-cancellable leases expiring at various dates through 1989 and requiring aggregate minimum rental payments as follows:

|                     |                          |
|---------------------|--------------------------|
| 1980                | U.S. \$ 2,910,000        |
| 1981                | 2,442,000                |
| 1982                | 1,886,000                |
| 1983                | 1,512,000                |
| 1984 and thereafter | 5,758,000                |
|                     | <u>U.S. \$14,508,000</u> |

Total rental expense under all leases, including short-term cancellable leases, was approximately U.S. \$3,319,000 and U.S. \$2,891,000 for 1979 and 1978 respectively.

## 8. Share capital

The Company is authorized to issue an unlimited number of common shares.

The Directors are authorized to determine, with respect to any cash dividends declared, that shareholders in specified jurisdictions may elect to receive such dividend as a stock dividend payable in common shares. The stock dividend would have a value, as determined by the Directors, that is substantially equivalent to the cash amount of the dividend.

As at December 31, 1979 and 1978 there were issued and fully paid 10,101,739 shares.

## 9. Share-option plan

Under the Company's 1973 Share Option Plan for full-time officers and key employees, 200,000 unissued shares are reserved for granting of options at prices not less than 95% of the market value (full market value in the case of United States citizens) on the day the option is granted. No options have been granted under this plan.

## 10. Earnings per share

Earnings per share are calculated on the weighted average number of shares outstanding (10,101,739 for 1979 and 1978).

## 11. Interest and other income

This amount comprises the following:

|                                                                             | Consolidated    |                 | Unconsolidated |                 |
|-----------------------------------------------------------------------------|-----------------|-----------------|----------------|-----------------|
|                                                                             | 1979            | 1978            | 1979           | 1978            |
|                                                                             | (in thousands)  |                 |                |                 |
| Interest income                                                             | \$13,149        | \$11,765        | \$ 7,144       | \$ 8,073        |
| Share of earnings of joint venture                                          | 5,439           | 1,270           | —              | —               |
| Cost of closing gold sale commitments                                       | (8,468)         | —               | (8,468)        | —               |
| Unrealized exchange gains (losses) on translation of subsidiaries' accounts | (820)           | 5,191           | —              | —               |
| Profit on sale of investments                                               | 4,157           | —               | 458            | —               |
| Miscellaneous                                                               | 6,809           | 6,000           | 1,639          | 596             |
|                                                                             | <u>\$20,266</u> | <u>\$24,226</u> | <u>\$ 773</u>  | <u>\$ 8,669</u> |

## 12. Income taxes, mining taxes and royalties

This item comprises the following:

|                                   | Consolidated     |                  | Unconsolidated  |                   |
|-----------------------------------|------------------|------------------|-----------------|-------------------|
|                                   | 1979             | 1978             | 1979            | 1978              |
|                                   | (in thousands)   |                  |                 |                   |
| Current income taxes              | \$ 17,065        | \$ 7,121         | \$ —            | \$ —              |
| Mining taxes and royalties        | 13,858           | 11,183           | —               | 100               |
| Deferred income taxes (reduction) | 14,809           | 6,134            | 4,680           | (2,397)           |
|                                   | <u>\$ 45,732</u> | <u>\$ 24,438</u> | <u>\$ 4,680</u> | <u>\$ (2,297)</u> |



The reconciliation of the combined statutory income tax rates and the effective income tax rate is as follows:

|                                                   | Consolidated |        | Unconsolidated |         |
|---------------------------------------------------|--------------|--------|----------------|---------|
|                                                   | 1979         | 1978   | 1979           | 1978    |
| Combined statutory income tax rates               | 48.0%        | 48.0%  | 50.4%          | (50.0)% |
| Inventory allowance                               | (1.2)        | (1.3)  | (3.8)          | (9.6)   |
| Tax credits, rebates and allowances               | (9.8)        | (18.2) | (21.1)         | 9.0     |
| Difference between Canadian and foreign tax rates | 3.2          | 4.8    | —              | —       |
| Nontaxable and nondeductible items                | 3.7          | (4.1)  | (1.1)          | 8.6     |
| Effective income tax (recovery) rate              | 43.9%        | 29.2%  | 24.4%          | (42.0)% |

Prior to 1978, an oil and gas subsidiary determined its Indonesian income taxes under a contract with the government and generally allowed for deduction of all costs incurred, although certain of these costs were capitalized and amortized for financial reporting purposes. It was not appropriate to provide for deferred Indonesian income taxes relative to these timing differences since additional future taxes were to be met by increased oil allocations under the production-sharing contract.

Effective January 1, 1978, the production-sharing contract was changed and Indonesian income taxes are now based on revenue and expense; deferred income taxes are being provided for relative to timing differences arising after that date. The timing differences as at December 31, 1977, will continue to be amortized and charged to earnings of future years as a non-deductible item. The unamortized balance of the timing differences as at December 31, 1979 and 1978 was U.S. \$17,800,000 and U.S. \$21,000,000, respectively.

The Company has available for application against future Canadian federal income taxes payable, if any, investment tax credits of approximately \$5,609,000, which expire in the years 1981 to 1984. In addition, the Company and associated companies have unrecorded income tax benefits of approximately \$2,500,000 relating to prior years' losses. The income tax savings with respect to these items will be recorded when realized.

### 13. Retirement plans

The Company and its subsidiaries maintain noncontributory retirement plans which cover substantially all salaried and hourly paid employees.

Total cost of the plans approximated \$4,370,000 in 1979 and \$4,626,000 in 1978 including past-service costs of \$1,709,000 and \$1,785,000 in the respective years.

The unfunded past-service costs with respect to all the plans were approximately \$22,000,000 as at December 31, 1979 (1978 — \$15,000,000), including unfunded

vested benefits of approximately \$18,000,000 (1978 — \$9,000,000) and are being funded and amortized over periods generally not exceeding 15 years. During the year, revisions to certain pension plans provided for improved benefits that increased the unfunded obligation by approximately \$11,800,000.

### 14. Subsequent events

In January, 1980, the Company made a tender offer for all of the outstanding shares of Rosario Resources Corporation at U.S. \$65 per share. On February 1, 1980, the Company sold its 9.8% holding (see Note 3) for U.S. \$75 per share for a total cash consideration of U.S. \$44,820,000 and withdrew its tender offer. This resulted in a gain of approximately \$19,500,000 after related costs and provision for income taxes.

On November 20, 1979, the shareholders of two subsidiary companies, Francana Oil & Gas Ltd. and Canadian Merrill Ltd., approved a reorganization of the two companies whereby the business of Merrill would be transferred to Francana and the shareholders of Merrill would become shareholders of Francana on the basis of 1.9 Francana shares for each outstanding common share of Merrill. Implementation of the reorganization was delayed by a provisional injunction granted in November, 1979, by the Superior Court of the Province of Quebec. A judgment dismissing a motion for an interlocutory injunction restraining the reorganization was granted by the Court on February 19, 1980, and the reorganization is expected to be completed by March 31, 1980. The reorganization will not have any significant effect upon the consolidated financial position or operations of the Company in 1979 as it will be accounted for as a pooling of interest.

### 15. Business segment reporting

Included in the supplementary financial information set out on pages 16 and 17 are financial data for 1979 and 1978 pertaining to the business segments of the Company as approved by the Board of Directors as those which most appropriately reflect the operating divisions. They are as follows:

| Business Segment          | Operations                                                                                                                                                                        |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Metals                    | Mining, milling, smelting, refining and sale of copper, zinc, gold, silver and cadmium; production and sale of zinc oxide and zinc die-castings                                   |
| Fertilizers and chemicals | Production and sale of ammonia for inorganic fertilizers and animal feed; purchase of potash, phosphate and agricultural chemicals for production of mixed fertilizers and resale |
| Petroleum                 | Exploration, development, production and sale of natural gas, oil and condensates                                                                                                 |
| Corporate                 | Corporate assets consist primarily of cash, short-term securities and investments                                                                                                 |



## 16. Current replacement cost information (unaudited)

The Company, like other companies and individuals, is affected by inflation. Its most direct effect is to increase the Company's costs of operations. The Company establishes the sales prices of its products primarily on the basis of competitive market conditions, rather than directly on costs incurred and as a result annual variations in gross margin percentage are experienced. Consequently, the impact of inflation on the Company's earnings is not readily determinable.

In addition, replacing items of plant and equipment with assets having equivalent capacity would require a substantially greater capital investment than was originally required for the existing assets.

## 17. Quarterly consolidated financial data (unaudited)

Summarized quarterly consolidated financial data (in thousands of dollars except for per-share amounts) for 1979 and 1978 are as follows:

|                                     | Quarters ended |           |           |           |
|-------------------------------------|----------------|-----------|-----------|-----------|
|                                     | March 31       | June 30   | Sept. 30* | Dec. 31   |
| <b>1979</b>                         |                |           |           |           |
| Net sales                           | \$121,488      | \$231,670 | \$133,550 | \$141,778 |
| Earnings before taxes and royalties | 12,523         | 32,903    | 16,422    | 24,519    |
| Earnings before extraordinary item  | 3,304          | 14,527    | 3,901     | 9,066     |
| Net earnings                        | 3,304          | 14,527    | 3,901     | 12,287    |
| Earnings per share:                 |                |           |           |           |
| Before extraordinary item           | 0.33           | 1.44      | 0.38      | 0.90      |
| After extraordinary item            | 0.33           | 1.44      | 0.38      | 1.22      |
| <b>1978</b>                         |                |           |           |           |
| Net sales                           | \$85,833       | \$173,923 | \$103,447 | \$95,462  |
| Earnings before taxes and royalties | 6,749          | 18,246    | 10,957    | 9,101     |
| Net earnings                        | (1,640)        | 4,356     | 969       | 1,408     |
| Earnings per share                  | (0.16)         | 0.43      | 0.09      | 0.14      |

\* The retroactive effect of the change in accounting principle (see Note 2) is included in the quarter ended September 30, 1979.

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## Auditors' report

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To the Shareholders of  
Hudson Bay Mining and Smelting Co., Limited:

We have examined the consolidated and unconsolidated statements of financial position of Hudson Bay Mining and Smelting Co., Limited as at December 31, 1979 and 1978, and the consolidated and unconsolidated statements of earnings, retained earnings and changes in financial position for the years then ended. Our examinations were made in accordance with auditing standards generally accepted in Canada, and accordingly included such tests and other procedures as we considered necessary in the circumstances. We did not examine financial statements for certain investments, which have been accounted for using the equity method of accounting, or of certain subsidiaries. The earnings from these entities comprised 19% and 47% of the net earnings in 1979 and 1978, respectively; the sales of the subsidiaries comprised 47% and 48% of the consolidated sales, and their assets comprised 21% and 25% of the consolidated assets for

The Securities and Exchange Commission of the United States now requires certain companies to include in their annual Form 10-K filing certain information concerning the estimated replacement cost of their productive facilities and inventories, and concerning depreciation and cost of products sold computed on the basis of such replacement cost. This information has been included in the Company's Form 10-K (a copy of which is available on request).

the years 1979 and 1978, respectively. The financial statements for these entities were reported upon by other auditors and our opinion, insofar as it relates to the amounts included for such entities, is based solely upon reports of the other auditors.

In our opinion, based upon our examination and the reports of other auditors, these consolidated and unconsolidated financial statements present fairly the financial position of the Company as at December 31, 1979 and 1978, and the results of its operations and the changes in its financial position for the years then ended in accordance with accounting principles generally accepted in Canada applied on a consistent basis.

Toronto, Canada  
February 15, 1980  
(February 19, 1980  
with respect to Note 14)

**Deloitte Haskins & Sells**  
Chartered Accountants



## Financial review and management's discussion and analysis of statements of earnings

This discussion relates solely to the consolidated results. Increases in the free market selling prices for copper, zinc, gold, silver, molybdenum and tantalum in 1979 greatly increased the wholly-owned Canadian Metals Division earnings contribution and the equity in earnings of Inspiration Consolidated Copper Company and Tantalum Mining Corporation. The petroleum companies also improved earnings and were the second largest contributor to net earnings after the Canadian Metals Division; in 1978 the positions were reversed. The unrealized currency losses arising from conversion of the working capital of our foreign subsidiaries to Canadian dollars had an immaterial effect on 1979 earnings, compared to 1978 when the gain represented approximately half of the earnings. The 1979 results reflected the Company's increased equity interest in Inspiration Consolidated Copper Company, up from

36.5% to 50.0%. The 1978 comparisons with 1977 reflect the Company's increased equity interest in Whitehorse Copper Mines Ltd., up from 41% to 100%, and in Inspiration Consolidated Copper Company, up from 23% to 36.5%.

Consolidated net sales increased 37% during the year primarily because of the higher metal prices, increased fertilizer and chemical volumes and prices and also because of higher petroleum prices. Metals sales reached \$271,520,000 in 1979, compared with \$185,692,000 in 1978, an increase of 46% attributable to higher unit selling prices for all metals and to greater deliveries of zinc. Copper and, to a lesser extent, zinc producer prices during 1979 were adjusted frequently and maintained a close relationship to the metal exchange prices. Sales of metals during 1978 increased by 21% attributable to

### 1979 operations by segment (in thousands)

|                                                     | Metals           | Fertilizers<br>and<br>chemicals | Petroleum        | Corporate       | Consolidated     |
|-----------------------------------------------------|------------------|---------------------------------|------------------|-----------------|------------------|
| <b>Revenue</b>                                      |                  |                                 |                  |                 |                  |
| Canadian operations:                                |                  |                                 |                  |                 |                  |
| Canada                                              | \$ 126,315       | \$ —                            | \$ 42,672        | \$ —            | \$ 168,987       |
| Export — United States                              | 118,775          | —                               | —                | —               | 118,775          |
| Export — Europe                                     | 26,430           | —                               | —                | —               | 26,430           |
| Foreign operations:                                 |                  |                                 |                  |                 |                  |
| United States                                       | —                | 263,282                         | 7,986            | —               | 271,268          |
| Southeast Asia                                      | —                | —                               | 43,026           | —               | 43,026           |
| Sales to unaffiliated customers                     | 271,520          | 263,282                         | 93,684           | —               | 628,486          |
| Interest income:                                    |                  |                                 |                  |                 |                  |
| Canada                                              | 107              | —                               | 1,069            | 7,099           | 8,275            |
| United States/Europe                                | —                | 3,076                           | 1,798            | —               | 4,874            |
| Other income                                        | (607)            | 3,014                           | 3,656            | 1,054           | 7,117            |
| <b>Total revenue</b>                                | <b>\$271,020</b> | <b>\$269,372</b>                | <b>\$100,207</b> | <b>\$ 8,153</b> | <b>\$648,752</b> |
| <b>Operating profit</b>                             |                  |                                 |                  |                 |                  |
| Canada                                              | \$ 30,888        | \$ —                            | \$ 27,946        | \$ 7,099        | \$ 65,933        |
| United States                                       | —                | 11,145                          | 2,399            | —               | 13,544           |
| Southeast Asia                                      | —                | —                               | 28,524           | —               | 28,524           |
|                                                     | \$ 30,888        | \$ 11,145                       | \$ 58,869        | \$ 7,099        | 108,001          |
| Other corporate revenue                             |                  |                                 |                  |                 | 1,054            |
| General corporate expenses                          |                  |                                 |                  |                 | (4,922)          |
| Interest expense                                    |                  |                                 |                  |                 | (17,766)         |
| Earnings before taxes                               |                  |                                 |                  |                 | \$ 86,367        |
| <b>Identifiable assets:</b>                         |                  |                                 |                  |                 |                  |
| Canada                                              | \$267,825        | \$ —                            | \$106,240        | \$ 57,526       | \$431,591        |
| United States                                       | 57,917           | 155,535                         | 60,511           | —               | 273,963          |
| Southeast Asia                                      | —                | —                               | 29,245           | —               | 29,245           |
| Total identifiable assets                           | \$325,742        | \$155,535                       | \$195,996        | \$ 57,526       | \$734,799        |
| Depreciation, depletion and<br>amortization expense | \$ 20,582        | \$ 5,958                        | \$ 18,096        | \$ 236          | \$ 44,872        |
| Capital expenditures                                | \$ 36,269        | \$ 3,410                        | \$ 42,348        | \$ 89           | \$ 82,116        |



greater deliveries of copper and particularly zinc and rising selling prices for copper, gold and silver.

For 1979, fertilizers and chemicals sales rose to \$263,282,000 from \$197,526,000 in 1978, an increase of 33%, due to a greater volume of deliveries and improved prices. Sales of fertilizers and chemicals for 1978 increased by 70% from those of 1977 mainly because the Riverside operations of Terra Chemicals, acquired late in 1977, were included for a full year.

Sales of oil and gas increased to \$93,684,000 in 1979 or 24% above the \$75,447,000 reported in 1978, primarily because the O.P.E.C. crude oil price increases more than offset a 20% reduction in production from Trend's Indonesian production-sharing contract and because of increases in Canadian gas production and prices. In 1978, sales were 2% below the 1977 figure, primarily because a change in the method of revenue determination arising from the revised production-sharing contract caused revenue from the Indonesian operations to decline substantially; the Indonesian revenue and the applicable tax provision are not comparable with those

of the previous year due to the contract changes. This decline was offset by the dollar value of Canadian petroleum revenues despite a 10% decrease in natural gas deliveries.

All business segments experienced higher costs for labour, energy and materials; however, gross margins improved as production costs did not rise as much as selling prices. These cost increases and the increased sales volumes resulted in 1979 cost of sales of \$476,831,000, an increase of 29% over \$368,482,000 in 1978. During 1978, when metal and fertilizer margins were low, costs of sales reached \$368,482,000, an increase of 53% over \$240,512,000 in 1977; the inclusion of Terra's Riverside operations contributed \$71,815,000 of this increase. Depreciation, depletion and amortization increased in 1979 and 1978 as a result of generally lower developed reserves, which increased unit-of-production write-off rates and much higher costs for recent additions to productive property.

Other income was reduced in 1979 by a loss on closing out forward gold sale commitments; however, the

**1978 operations  
by segment**  
(in thousands)

|                                                     | Metals            | Fertilizers<br>and<br>chemicals | Petroleum        | Corporate       | Consolidated      |
|-----------------------------------------------------|-------------------|---------------------------------|------------------|-----------------|-------------------|
| <b>Revenue</b>                                      |                   |                                 |                  |                 |                   |
| Canadian operations:                                |                   |                                 |                  |                 |                   |
| Canada                                              | \$ 76,149         | \$ —                            | \$ 33,307        | \$ —            | \$ 109,456        |
| Export — United States                              | 50,751            | —                               | 1,689            | —               | 52,440            |
| Export — Europe                                     | 58,792            | —                               | —                | —               | 58,792            |
| Foreign operations:                                 |                   |                                 |                  |                 |                   |
| United States                                       | —                 | 197,526                         | 3,744            | —               | 201,270           |
| Southeast Asia                                      | —                 | —                               | 36,707           | —               | 36,707            |
| Sales to unaffiliated customers                     | 185,692           | 197,526                         | 75,447           | —               | 458,665           |
| Interest income:                                    |                   |                                 |                  |                 |                   |
| Canada                                              | 192               | —                               | 113              | 8,026           | 8,331             |
| United States/Europe                                | —                 | 2,110                           | 1,324            | —               | 3,434             |
| Other income                                        | 3,374             | 6,638                           | 2,545            | (96)            | 12,461            |
| <b>Total revenue</b>                                | <b>\$ 189,258</b> | <b>\$ 206,274</b>               | <b>\$ 79,429</b> | <b>\$ 7,930</b> | <b>\$ 482,891</b> |
| <b>Operating profit</b>                             |                   |                                 |                  |                 |                   |
| Canada                                              | \$ 2,734          | \$ —                            | \$ 17,681        | \$ 8,026        | \$ 28,441         |
| United States                                       | —                 | 6,337                           | 2,024            | —               | 8,361             |
| Southeast Asia                                      | —                 | —                               | 28,577           | —               | 28,577            |
|                                                     | \$ 2,734          | \$ 6,337                        | \$ 48,282        | \$ 8,026        | 65,379            |
| Other corporate expense                             |                   |                                 |                  |                 | (96)              |
| General corporate expenses                          |                   |                                 |                  |                 | (5,299)           |
| Interest expense                                    |                   |                                 |                  |                 | (14,931)          |
| Earnings before taxes                               |                   |                                 |                  |                 | \$ 45,053         |
| <b>Identifiable assets:</b>                         |                   |                                 |                  |                 |                   |
| Canada                                              | \$ 187,812        | \$ —                            | \$ 103,596       | \$ 121,931      | \$ 413,339        |
| United States                                       | 38,003            | 154,600                         | 30,184           | —               | 222,787           |
| Southeast Asia                                      | —                 | —                               | 33,669           | —               | 33,669            |
| Total identifiable assets                           | \$ 225,815        | \$ 154,600                      | \$ 167,449       | \$ 121,931      | \$ 669,795        |
| Depreciation, depletion and<br>amortization expense | \$ 16,508         | \$ 5,348                        | \$ 13,373        | \$ 281          | \$ 35,510         |
| Capital expenditures                                | \$ 44,285         | \$ 9,967                        | \$ 28,931        | \$ 171          | \$ 83,354         |



Whitehorse Copper Mines joint venture earnings increased and a profit on sale of investments was earned.

Interest income increased during both years particularly because of higher interest rates. Additional long-term debt issued by Canadian Merrill, at floating rates and the cost of Terra's short-term borrowing increased interest expense to \$17,766,000 in 1979 from \$14,931,000 for 1978, which had increased from \$12,041,000 in 1977 as a result of higher borrowings by Terra.

General and administration expenses increased at a rate above general inflation in 1979 because of the inclusion of the cost of the petroleum companies re-organization.

Equity in earnings of associated companies in 1979 totalled \$3,624,000, compared with a loss of \$1,783,000 in 1978 as Inspiration Consolidated Copper Company was profitable at the higher level of metal prices while in 1978 and 1977 losses were experienced as a result of the low level of production in its mining operations.

Income taxes increased in 1979 as a function of increased profitability which brought effective rates closer to

statutory rates while in 1978 the investment tax credit in Terra and, as noted above, the revised accounting treatment for Indonesian operations reduced the income tax provision significantly. Mining taxes and royalties increased both years as royalties on oil and gas increased.

Working capital declined by \$35,710,000 during 1979 and by \$45,163,000 during 1978 with the largest element of change within working capital each year being a reduction of \$42,619,000 and \$56,861,000 in cash and short-term deposits in 1979 and 1978 respectively and was a function of new investments, which are detailed elsewhere, and capital expenditures. Capital expenditures in 1979 were relatively unchanged at \$82,116,000 while the 1978 increase was 29% to \$83,354,000. Included in 1979 were higher petroleum expenditures, while the 1978 increase was due primarily to substantial expenditures incurred for the new mill and concentrator at Stall Lake in Manitoba, and increased petroleum exploration and development outlays.

Dividend payments totalled \$8,081,000 in 1979, were omitted during 1978, and \$6,061,000 were declared in 1977.

### Supplementary consolidated financial information

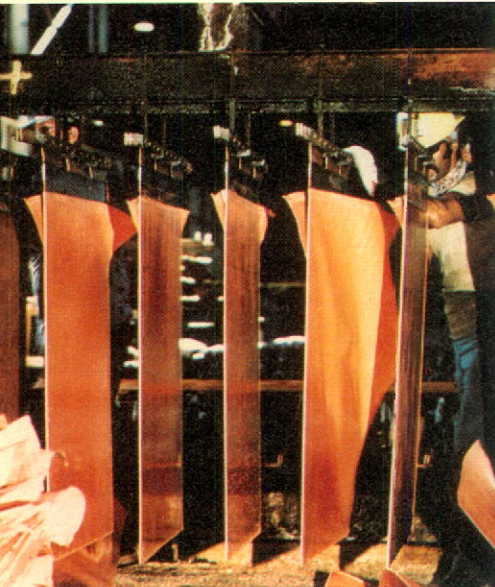
(in thousands except per-share data)

|                                     | 1979      | 1978      | 1977      | 1976      | 1975      |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|
| <b>Summary of operations</b>        |           |           |           |           |           |
| Net sales                           | \$628,486 | \$458,665 | \$346,346 | \$343,647 | \$259,634 |
| Equity earnings (losses)            | 3,624     | (1,783)   | (2,620)   | 2,224     | 4,285     |
| Other income                        | 20,266    | 24,226    | 18,386    | 2,828     | 1,927     |
|                                     | 652,376   | 481,108   | 362,112   | 348,699   | 265,846   |
| Cost and expenses                   | 562,385   | 437,838   | 300,385   | 292,670   | 202,556   |
| Taxes and royalties                 | 45,732    | 24,438    | 40,637    | 49,204    | 36,625    |
| Other deductions                    | 13,461    | 13,739    | 16,677    | 4,006     | 11,894    |
|                                     | 621,578   | 476,015   | 357,699   | 345,880   | 251,075   |
| Earnings before extraordinary items | 30,798    | 5,093     | 4,413     | 2,819     | 14,771    |
| Extraordinary items                 | 3,221     | —         | 52,577    | (11,098)  | —         |
| Net earnings (loss)                 | \$34,019  | \$5,093   | \$56,990  | \$(8,279) | \$14,771  |
| <b>Other financial data</b>         |           |           |           |           |           |
| Capital expenditures                | \$82,116  | \$83,354  | \$64,771  | \$46,762  | \$47,199  |
| Investment expenditures             | 40,078    | 31,626    | 11,306    | 17,254    | 26,022    |
| Working capital                     | 134,665   | 170,375   | 215,538   | 85,758    | 58,706    |
| Total assets                        | 734,799   | 669,795   | 618,736   | 476,289   | 517,770   |
| Capital employed                    | 615,738   | 569,065   | 536,624   | 405,676   | 445,782   |
| Shareholders' investment            | 285,786   | 259,848   | 254,755   | 203,826   | 217,318   |
| Dividends                           | 8,081     | —         | 6,061     | 8,018     | 13,918    |
| Earnings (loss) per share           | 3.37      | .50       | 5.64      | (.83)     | 1.49      |
| Dividends per share                 | .80       | —         | .60       | .80       | 1.40      |

### Dividends and market price ranges, by quarters

| 1979        | Dividends Declared | Market Range                                          |                                |                                      |                                |
|-------------|--------------------|-------------------------------------------------------|--------------------------------|--------------------------------------|--------------------------------|
|             |                    | Toronto Stock Exchange<br>(Principal market, Cdn. \$) |                                | New York Stock Exchange<br>(U.S. \$) |                                |
|             |                    | High                                                  | Low                            | High                                 | Low                            |
| 1st         | 10¢                | 24 <sup>3</sup> / <sub>8</sub>                        | 19 <sup>7</sup> / <sub>8</sub> | 21                                   | 17                             |
| 2nd         | 20¢                | 23 <sup>1</sup> / <sub>4</sub>                        | 19                             | 20 <sup>1</sup> / <sub>8</sub>       | 16 <sup>1</sup> / <sub>2</sub> |
| 3rd         | 20¢                | 27 <sup>7</sup> / <sub>8</sub>                        | 20 <sup>1</sup> / <sub>4</sub> | 24 <sup>3</sup> / <sub>8</sub>       | 17 <sup>1</sup> / <sub>2</sub> |
| 4th         | 30¢                | 30                                                    | 20 <sup>1</sup> / <sub>4</sub> | 25 <sup>7</sup> / <sub>8</sub>       | 17 <sup>3</sup> / <sub>8</sub> |
| <b>1978</b> |                    |                                                       |                                |                                      |                                |
| 1st         | —                  | 17 <sup>1</sup> / <sub>4</sub>                        | 15 <sup>1</sup> / <sub>8</sub> | 15 <sup>3</sup> / <sub>8</sub>       | 13 <sup>3</sup> / <sub>8</sub> |
| 2nd         | —                  | 18 <sup>5</sup> / <sub>8</sub>                        | 15 <sup>3</sup> / <sub>4</sub> | 16 <sup>7</sup> / <sub>8</sub>       | 13 <sup>3</sup> / <sub>8</sub> |
| 3rd         | —                  | 21 <sup>1</sup> / <sub>4</sub>                        | 17 <sup>1</sup> / <sub>4</sub> | 18 <sup>1</sup> / <sub>2</sub>       | 15 <sup>1</sup> / <sub>4</sub> |
| 4th         | —                  | 24                                                    | 15 <sup>1</sup> / <sub>8</sub> | 20 <sup>3</sup> / <sub>8</sub>       | 16 <sup>1</sup> / <sub>8</sub> |





*Bulldozing Glauber's salt in Saskatchewan; loading Terra herbicide; telephoning control-room data in Flin Flon; working copper in Arizona; inspecting gas-treatment equipment in Alberta; loading refined zinc in Flin Flon*

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## Review of Operations

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*A two-drill jumbo drilling machine working in one of the many cavernous stopes at Tantalum Mining Corporation*

## Canadian Metals Division

*The Canadian Metals Division is responsible for mining and metallurgical operations in the Flin Flon-Snow Lake area of northern Manitoba, at Whitehorse Copper Mines in the Yukon and at Tantalum Mining Corporation of Canada in southeastern Manitoba, as well as all metal sales and purchases of concentrates, and the transportation of all raw materials and finished products. The Division has sales, financial, administrative and transportation personnel in Toronto; operating personnel at the various sites have their own appropriate support staffs. The Division's responsibilities also include Francana Minerals Ltd., Zochem and Hudson Bay Diecastings, which produce detergent-grade sodium sulphate and salt-cake, zinc oxide, and zinc-base diecastings respectively.*

### **Flin Flon-Snow Lake operations**

Operations were continuous during the year. Reduced production of some metals was due to shortages of purchased concentrates and lower-than-planned ore

tonnages and grades from our own operations. In addition, commissioning problems at the new Snow Lake concentrator affected recoveries; these problems have since been resolved.

Production of metals from all sources for the Company's account:

|                     | 1979        | 1978        |
|---------------------|-------------|-------------|
| Refined copper (lb) | 133,761,692 | 137,102,586 |
| Slab zinc (lb)      | 147,361,249 | 141,778,738 |
| Cadmium (lb)        | 194,477     | 248,972     |
| Selenium (lb)       | 82,596      | 83,103      |
| Gold (oz)           | 63,082      | 69,343      |
| Silver (oz)         | 1,195,931   | 1,305,385   |
| Lead (lb)           | 901,800     | 1,170,989   |

### **Mining – Flin Flon area**

In the Flin Flon Mine, development and mining of remnants and pillars continued. Centennial Mine's production was maintained at rated capacity until late November when a bulkhead failure resulted in a run of fill into the mine, shutting down operations until year-end. White Lake Mine produced as scheduled throughout the



year. Westarm Mine production increased gradually, reaching rated capacity in the latter part of the year.

| ore production/average assays |           |              |              |         |         |
|-------------------------------|-----------|--------------|--------------|---------|---------|
| mine                          | tons      | Au<br>oz/ton | Ag<br>oz/ton | Cu<br>% | Zn<br>% |
| Flin Flon                     | 619,663   | 0.040        | 0.67         | 1.61    | 1.85    |
| Centennial                    | 193,907   | 0.038        | 0.65         | 1.51    | 2.21    |
| White Lake                    | 129,506   | 0.025        | 0.65         | 1.83    | 4.76    |
| Westarm                       | 175,870   | 0.038        | 0.52         | 3.36    | 1.46    |
| Total for 1979                | 1,118,946 | 0.038        | 0.64         | 1.89    | 2.19    |
| Total for 1978                | 1,053,547 | 0.039        | 0.71         | 1.87    | 2.56    |

## Mining – Snow Lake area

| ore production/average assays |         |              |              |         |         |
|-------------------------------|---------|--------------|--------------|---------|---------|
| mine                          | tons    | Au<br>oz/ton | Ag<br>oz/ton | Cu<br>% | Zn<br>% |
| Stall Lake                    | 272,352 | 0.036        | 0.23         | 4.69    | 0.58    |
| Osborne Lake                  | 188,937 | 0.006        | 0.13         | 2.40    | 1.18    |
| Anderson Lake                 | 65,148  | 0.028        | 0.26         | 3.51    | 0.14    |
| Chisel Lake                   | 226,400 | 0.037        | 0.85         | 0.51    | 11.35   |
| Ghost Lake                    | 9,998   | 0.033        | 0.89         | 0.42    | 11.66   |
| Total for 1979                | 762,835 | 0.028        | 0.40         | 2.72    | 4.03    |
| Total for 1978                | 797,647 | 0.031        | 0.47         | 2.78    | 3.96    |

At Stall Lake, the upgraded No. 1 production shaft was producing as planned and work was started on the No. 4 internal shaft. Maintenance of ore reserves at Chisel Lake led to the postponement of the proposed open-pit development. At Ghost Lake, development of the Lost Lake zones continued. The Anderson Lake development program to the 3,000-foot level was completed and production resumed with the new vertical-crater-retreat section supplying most of the ore. At Osborne Lake Mine, diamond-drilling failed to prove up additional ore and a start was made on development of the lower ore zone.

## Ore reserves

Proven recoverable reserves of copper-zinc ore in Company-owned and leased mines in the Flin Flon – Snow Lake area at year-end totalled 17,455,000 tons, assaying gold – 0.037 oz per ton; silver – 0.55 oz per ton; copper – 2.68%; zinc – 2.7%. The new calculation included average waste dilution of 20% and average estimated recovery of 90% of diluted tonnage. Ore reserves at year-end 1978 totalled 17,016,000 tons.

## Metallurgical operations

### Concentrators (Flin Flon and Snow Lake)

The tonnage of ore treated was as follows:

|                                                        | 1979      | 1978      |
|--------------------------------------------------------|-----------|-----------|
| tons                                                   | 1,874,835 | 1,850,781 |
| Average tons per operating day<br>(five days per week) | 7,469     | 7,315     |

Production of concentrates totalled 204,597 tons of copper concentrate, 69,616 tons of zinc concentrate and 835 tons of lead concentrate.

**Zinc refinery.** The amounts of refined zinc and cadmium produced for the Company's account were as follows:

|                             | Zn/lb       | Cd/lb   |
|-----------------------------|-------------|---------|
| From HBM & S feed           | 57,442,598  | 84,096  |
| From purchased concentrates | 89,918,651  | 110,382 |
| Total 1979                  | 147,361,249 | 194,478 |
| Total 1978                  | 141,778,738 | 248,972 |

Although zinc production was higher than in 1978, it was adversely affected by increased quantities of antimony in plant feed, and to some extent by the high turnover in the labor force. The inventory of zinc at year-end totalled 5,436 tons, compared with 22,239 tons at the end of 1978.

**Copper smelter.** Tonnage and metal content of anode copper produced for the Company's account and shipment to the refinery were as follows:

|                             | tons   | Au/oz  | Ag/oz     | Cu/lb       | Se/lb   |
|-----------------------------|--------|--------|-----------|-------------|---------|
| From HBM&S feed             | 33,209 | 37,232 | 654,062   | 66,091,829  | 127,070 |
| From purchased concentrates | 34,254 | 27,415 | 552,664   | 68,170,546  | —       |
| Total 1979                  | 67,463 | 64,647 | 1,206,726 | 134,262,375 | 127,070 |
| Total 1978                  | 69,294 | 71,769 | 1,327,601 | 137,962,122 | 127,851 |

Coincidental with the commissioning of the Snow Lake concentrator, improvements in metallurgy were realized by additions to the concentrate-unloading system. This permitted a better blending of the various feed stocks, resulting in a more homogeneous reverberatory furnace feed supply.

## Environmental control

An environmental license was obtained for one mine during the year, the license for a second was revised, and discussions were held with environmental authorities on four others. Completion of these discussions will bring all mines in the Flin Flon/Snow Lake area under license, and will require some investment to meet environmental regulations. Emissions from the Flin Flon metallurgical complex were reviewed and considerable upgrading of dust-collection facilities was completed. This, plus related studies, was directed toward renewal of the license covering atmospheric emissions, which expired in 1979, and the requirements under a new license are being reviewed. Extensive activity continued in industrial hygiene monitoring and in engineering of workplace improvements.

## Major projects

Construction and commissioning of the 3,800-ton-per-day Snow Lake concentrator were completed, with the first ore being treated on April 26. The official opening ceremonies were held on June 28, 1979. Following some initial commissioning problems, the plant was producing at design performance by year-end. Collaring of the Spruce Point shaft was completed early in the year and construction of the surface plant was nearly complete by year-end. Shaft-sinking began in February, 1980. In the zinc tankhouse, conversion to mechanical stripping continued and completion is expected early in 1980. A new acid-resistant brick floor was completed in August.



## Industrial relations

A new three-year agreement successfully negotiated in September became effective in October. A Co-operative Wage Study program for evaluating all hourly certified jobs was completed in July. More than 1,800 employees participated in training programs this year and work continued on the development and refinement of our training program for native Northerners. The Company-wide safety training program was intensified at the beginning of the year and by year-end accident frequency and accident severity had been reduced by 19% and 11%, respectively, from the 1978 levels. A total safety awareness program directed toward the employees, their families and the general public was launched in July. At year-end there were 2,479 employees on the payroll, compared with 2,368 at the end of 1978.

## Whitehorse Copper Mines

Joint-venture operations (The joint venture is owned 2/3 by Whitehorse Copper and 1/3 by Anglo American Corporation of Canada Limited.)

| Production                       | 1979       | 1978       |
|----------------------------------|------------|------------|
| Ore hoisted (wet tons)           | 935,997    | 869,800    |
| Ore milled (dry tons)            | 914,060    | 863,092    |
| Ore grade (% Cu)                 | 1.12       | 1.40       |
| Concentrates produced (dry tons) | 19,640     | 23,448     |
| Metal contained in concentrate:  |            |            |
| Copper (lb)                      | 17,494,036 | 20,923,048 |
| Gold (oz)                        | 15,868     | 19,007     |
| Silver (oz)                      | 168,972    | 195,765    |

## Mining

Mining continued to be plagued by poor ground conditions, high dilution and poor recovery in the older areas of the mine. As a result, the grade of copper mined was reduced to 1.12%. A vertical-crater-retreat method of mining was initiated at the start of the year in newer areas of the mine and the method is working well with minimum dilution and good fragmentation. Development of the Middle Chief orebody is continuing with the crusher station excavation 75% complete.

## Ore reserves

|                      | December 31, 1979 |      | December 31, 1978 |      |
|----------------------|-------------------|------|-------------------|------|
|                      | tonnage           | % Cu | tonnage           | % Cu |
| Little Chief orebody | 1,377,730         | 1.47 | 1,697,866         | 1.58 |
| Middle Chief orebody | 933,833           | 1.55 | 933,833           | 1.55 |
| Total                | 2,311,563         | 1.50 | 2,631,699         | 1.57 |

The proven ore reserves are diluted and recoverable.

## Concentrator

Copper recovery in the concentrator was low at 85.7% due to depressed head grades and the presence of the unusual copper mineral valleriite. Construction of an additional tailings dam was halted in November due to cold weather but will be completed in 1980.

## Administration

The overall work force remained relatively constant at 200 employees. The accident frequency (the number of accidents per million manhours worked) was reduced slightly from 1978 figures. Training in first-aid and mine-rescue was conducted throughout the year.

## Tantalum Mining Corporation

| Production                         | 1979    | 1978    |
|------------------------------------|---------|---------|
| Ore mined (tons)                   | 180,505 | 171,892 |
| Ore grade (tantalum pentoxide — %) | 0.137   | 0.148   |
| Tantalum pentoxide produced (lb)   | 344,186 | 340,124 |
| Recovery of tantalum pentoxide (%) | 69.2    | 64.8    |

Shipments of concentrates contained a total of 350,194 lb of tantalum pentoxide. The price per pound of tantalum pentoxide in the concentrates has varied from US \$24 at the beginning of 1979 to more than US \$75 at year-end. The demand for tantalum continues strong.

## Mining

A total of 2,585 feet of development was driven, mostly for the delineation and development of low-grade reserves in the northwest corner of the shaft orebody. Rock mechanic studies have been completed and have indicated that a reduction in pillar size is feasible, thereby increasing the mineable reserves. Delineation of low-grade tantalum zones by short diamond-drill holes from underground workings continues to confirm mineable values. Increasing haulage distances necessitated a conversion to truck haulage from load-haul-dump units.

## Concentrator

There was a marked improvement in recovery in 1979 and this trend is expected to continue in 1980. Continued research followed by a successful pilot-plant operation on tantalum flotation resulted in the start of construction of a new froth-flotation facility and modifications to the gravity plant in September, 1979. The throughput capacity of the plant will be increased from 175,000 tons annually to 250,000 tons, permitting the reprocessing of 75,000 tons of tailings while the production rate of ore from underground remains unchanged.

## Exploration

An intensive exploration program was carried out in the Bernic Lake area and in other areas in Canada: 32,378 feet of diamond-drilling in close proximity to the Bernic Lake pegmatite, plus 4,025 feet in surrounding areas, were completed. During the summer months 317.8 line-miles of rock geochemistry were completed. No significant discoveries were made during the year.

## Ore reserves

A preliminary estimate made near year-end indicated 1.22 million tons of proven, probable and possible mineable ore with an indicated grade of 0.15% tantalum pentoxide. In addition, 833,000 tons of stored tailings grading 0.07% tantalum pentoxide can be considered economically viable for reprocessing during summer months.

## Industrial Products

### Francana Minerals Ltd.

Shipments of detergent-grade were higher than anticipated, partly due to production problems encountered by other Canadian and U.S. producers;

*Copper concentrates produced by Whitehorse Copper Mines in the Yukon are shipped to Flin Flon*









demand for salt cake remained strong as kraft pulp mills (the main buyer) operated at capacity. As a result of higher sales and improved prices, cash flow increased and the company paid its first dividend to shareholders, reducing arrears on preferred shares by 50%

### **Zochem**

Despite a relatively flat world market for zinc oxide, Zochem captured a much greater share of the market for regular grades and posted a 16% increase in sales. Production was 80% of capacity and the plant achieved a high rate of efficiency in the use of manpower, energy and in zinc conversion, with the result that unit costs, other than zinc metal, were lower than in 1978.

### **Hudson Bay Diecastings**

Although sales and tonnage of zinc processed were comparable with those for 1978, earnings were adversely affected by the slump in the automotive marketplace. The tonnage of zinc diecastings used by the automobile makers decreased for the fourth consecutive year due to the increased use of thin-wall zinc diecastings and the substitution of lighter materials. In addition, production and sales of full-size automobiles and trucks showed a marked decline, particularly in the U.S. Since 62% of Hudson Bay Diecastings' production is used on larger vehicles, net earnings were reduced considerably and the new electro-plating facility, which started operating during the latter half of 1978, operated at less than capacity during 1979.





*Inspiration's solvent extraction plant will produce more than 100,000 lb of copper per day when it reaches full capacity*

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## **U.S. copper mining**

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### **Inspiration Consolidated Copper Company**

*Inspiration is an integrated mining company, its principal business being the production and sale of copper from its Arizona operations which include mines, smelter, refinery, rod fabricating and sulphuric acid plants. Inspiration also smelts copper-bearing materials for other producers, and owns and operates a silver-bearing silica flux mine in Montana.*

#### **Financial results**

Net earnings totalled US \$7,367,000, or \$2.34 per common share, on deliveries of 93.3 million lb of copper at an average selling price of 89.2¢ per lb. This compares with the previous year's loss of \$7,821,000, or \$2.38 per share, on deliveries of 88.3 million lb of copper at 65¢ per lb. Higher metal prices during the year were the most significant factor contributing to the turnaround.

#### **Mining**

The open-pit mines and most of the treatment plants at

Inspiration, Arizona, operated on a seven-day week schedule throughout 1979 except for a planned 20-day shutdown for maintenance and repairs in July. Production from the Thornton, Live Oak, Red Hill Barney North and Joe Bush open-pit mines totalled 6,105,000 tons of ore, equivalent to 17,800 tons per operating day. In addition, for each ton of ore mined, 3.3 tons of waste were removed. Comparable figures for 1978 were 18,600 tons of ore per day and a waste-to-ore ratio of 2.8 to 1. New equipment ordered for the open-pit mines included a 17-yd electric shovel and fourteen 120-ton haulage trucks. Mining at the Ox-Hide open-pit mine, just west of Inspiration, remained suspended throughout the year. However, 1,220,000 lb of copper were recovered from the circulation of sulphuric acid through previously mined ore on leach dumps. In the prior year, 4,147,000 lb were similarly recovered. The Christmas open-pit mine, 35 miles southeast of Inspiration, resumed operations at midyear. Production averaged 5,200 tons of ore per operating day with a waste-to-ore ratio of 2.7 to 1. Copper recovered from Christmas ores totalled 12,336,000 lb.



## Ore reserves

|                       | tons<br>(in thousands) | grade<br>% Cu | Recoverable<br>copper<br>(in thousands of lb) |
|-----------------------|------------------------|---------------|-----------------------------------------------|
| <b>Active mines</b>   |                        |               |                                               |
| In Inspiration area   | 245,224                | 0.58          | 2,265,942                                     |
| Ox-Hide               | 29,309                 | 0.31          | 94,496                                        |
| Christmas open pit    | 13,735                 | 0.73          | 133,252                                       |
| <b>Inactive mines</b> |                        |               |                                               |
| Christmas underground | 20,131                 | 1.78          | 567,605                                       |
| Sanchez               | 79,362                 | 0.36          | 285,700                                       |

## Metallurgical operations

The leaching plant produced 24,647,000 lb of copper: 13% in the form of electrowon cathodes and 87% as cement copper which was shipped to the smelter. Production of CuPels<sup>®</sup>, Inspiration's patented upgraded cement copper, totalled 3,410,000 lb in 1979 (3,332,000 lb in 1978).

The concentrator at Inspiration treated 17,700 tons of ore per operating day and produced 43,744,000 lb of copper in the form of concentrates. Comparable figures for the previous year were 18,700 tons per day (five days per week during first six months) and 39,660,000 lb of copper in concentrates. The moly plant produced 208,000 lb of molybdenum (62,000 lb in 1978).

The refinery produced 84,993,000 lb of copper as electro-refined cathodes in 1979 (95,914,000 lb in 1978). The rod plant, treating cathodes from the refinery, along with some purchased and toll copper, produced 104,601,000 lb of copper as Inspirod<sup>®</sup>; production in 1978 totalled 84,396,000 lb. Rod production of 11,563,000 lb in October was the largest for any single month since the plant's startup in 1969.

The new \$14-million solvent extraction plant came on stream in October, on schedule and within budget. Production in the fourth quarter was satisfactory and significant savings are being realized as a result of eliminating the costly iron precipitation and smelting processes normally required in the recovery of copper from leach solution. The plant is operating at a rate of 2,800 gallons per minute and producing 45,000 lb per day of high-quality cathodes. In the second half of 1980, it is expected to reach full capacity of 4,000 gallons per minute and produce more than 100,000 lb of copper per day.

## Smelting operations

The smelter treated 403,000 tons of new metal-bearing material in 1979: 28% coming from the company's own production and 72% representing other producers' concentrates treated on a toll basis. Comparable figures for 1978 were 420,000 tons of new material: 23% domestic and 77% toll. Production of copper from the smelter consisted of 73,000 tons in the form of blister cakes and 59,000 tons as anodes which were transferred to the refinery. The year-ago figures were 74,000 tons and 65,000 tons, respectively. Production was somewhat curtailed in 1979 because of environmental constraints. During 1979, the acid plant produced 233,000 tons of sulphuric acid, compared with 249,000 tons in 1978.

## Environmental control

Despite Inspiration's expenditure of more than \$60 million in the past 10 years on the best available

technology to improve the quality of air surrounding its smelting operations, it was cited by the Arizona Department of Health Services in late 1979 for violating air-quality standards. Although it questioned the validity of the data collected by the state at its local monitoring stations, Inspiration voluntarily agreed, in January, 1980, to spend more than \$250,000 on new equipment, equipment modifications and operational procedures to ensure compliance with the environmental regulations. Many of the deficiencies will be corrected next summer when the plants shut down for a regular maintenance and vacation period. In the meantime, periodic shutdowns of the smelter and acid plant may be necessary to prevent further violations when air inversions occur in the local area. It is expected that additional environmental control expenditures of approximately US \$59 million will be required in the years 1980 through 1983. To avoid violations of water-quality standards, Inspiration is seeking to implement a zero-discharge program in part through a \$15-million water collection and treatment project to purify effluent stored at various locations throughout the operations.

## Long-range plans

Considerable effort was spent in 1979 by company personnel and outside consultants on the development of long-range plans. These include optimization of recovery from the existing orebodies in both mining and beneficiation phases. In addition, engineering studies to optimize the ultimate operations of the smelter are underway, the upgrading of the concentrator has begun and a program of replacing mine equipment is being implemented. Such planning includes service facilities required to maintain an expanded operation: maintenance workshops, office accommodations and housing for employees. Inspiration has begun developing a site on which employees can purchase quality homes. The area will also be open to other residents of the local community.

## Black Pine Mining Company

This wholly owned subsidiary operates a small underground mine near Philipsburg, Montana, which supplies silver and copper-bearing silica flux ore to the Anaconda smelter at Anaconda. Installation of an optical sorter system, which upgrades the copper and silver content, the substantial rise in the price of silver, an increase in the price of copper, acceptance of excess flux over contract amounts by the smelter, all combined to produce a record performance for 1979. Deliveries to the smelter in 1979 totalled 73,900 dry tons of flux ore averaging 6.90 oz of silver per ton, 0.94% copper, and 0.005 oz of gold per ton. Early in 1980 it was decided to expand the mine's production capacity from 6,000 tons of ore per month to 17,000 tons. Ore reserves total 1,593,000 tons grading 6.19 oz silver per ton and 0.43% copper.





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## Exploration

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*Exploration in North America is conducted by two companies: Hudson Bay Exploration and Development Company Limited, wholly owned by Hudson Bay Mining, in Canada and by Inspiration Development Company, wholly owned by Inspiration Copper, in the United States.*

**Hudson Bay Exploration** explored for its own account in Manitoba, Saskatchewan and the Yukon and participated with Anglo American Corporation of Canada Limited and Tombill Mines Limited in joint ventures in British Columbia, Yukon, Ontario and Quebec and in the Athabasca uranium area of Saskatchewan. Exploration diamond-drilling totalling 112,443 feet in 227 holes was done to test 146 geophysical anomalies and to investigate further several mineralized zones; 11,516 feet were drilled by Manitoba Mineral Resources Ltd. (MMR) and Saskatchewan Mining Development Corporation (SMDC) on projects in which Hudson Bay Exploration holds participating interests.

At the Tom lead-zinc-silver deposit, near MacMillan Pass on the Yukon-Northwest Territories boundary, an extension of the West Zone was located and work planned for 1980 will investigate the downward projection of this extension from the adit level.

On a property optioned from Risby Tungsten Mines Ltd. in the Yukon, drilling tested a tungsten-bearing zone which had been found by earlier work. The zone is open to the north and to depth and will be explored further during 1980. On the property south of Reed Lake in Manitoba, which is being explored under a joint-venture agreement with MMR, drilling continued in the Sylvia copper-zinc deposit. This drilling has partially outlined two parallel-plunging zones of better-grade material which have an indicated tonnage of 875,000 grading 2.3% copper and 0.7% zinc. Both zones are open to depth at the 1600-foot level. In the Athabasca uranium area of Saskatchewan, exploration continued on two properties under joint-venture agreements with SMDC.

The 1980 budget controlled by Hudson Bay Exploration totals \$6.29 million, including \$1,232,000 contributed by participants in shared programs. Approximately two-thirds of the total exploration budget will be spent in the Flin Flon-Snow Lake area.

**Inspiration Development Company** conducted exploration operations in all the western states of the U.S. plus Alaska. Two projects in Idaho, a tungsten-molybdenum-silver deposit and a fluorite-lead-silver project, and one in California, also a tungsten deposit, are encouraging and further evaluation is planned in 1980. The budget for 1980 totals US \$5,900,000.

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*Exploratory drilling at the Tom lead-zinc-silver deposit on the Yukon-Northwest Territories boundary*



*Francana Oil & Gas Ltd., a public oil and gas company in which Hudson Bay Mining owns controlling interest, now includes the assets and operations of Canadian Merrill Ltd. which were transferred to Francana as part of a reorganization of these companies. Accordingly, the results in this report include the operations of Merrill with those of Francana on a "pooling of interest" accounting basis. Francana is directly engaged in exploration for and development of crude oil and natural gas in North America. In addition, it holds a 57% interest in its major subsidiary, Trend International Limited, which operates in North America, in Indonesia and elsewhere outside North America.*

## Francana Oil & Gas Ltd.

### Reorganization

Under the terms of a Reorganization Agreement, Francana acquired the assets and business of Merrill on the basis of an exchange of 1.9 Francana shares for each outstanding Merrill share. The Merrill shareholders will become shareholders of Francana on March 31, 1980; the Merrill employees have become employees of Francana.

### Financial

Francana's consolidated gross revenue, before royalties, totalled \$102,164,000 (including Trend gross revenue of \$53,828,000) compared with \$80,033,000 (including Trend gross revenue of \$44,745,000) for 1978. Funds generated from operations, after income taxes, totalled \$45,315,000 in 1979 (including the Trend contribution of \$24,294,000) and \$35,388,000 (including the Trend contribution of \$21,502,000) last year. Net earnings, after providing for the majority interest position in Trend, increased by 31% to \$15,705,000 from \$11,959,000.

Francana's consolidated gross revenue, excluding Trend, was \$48,336,000 in 1979, including \$44,936,000 from Canadian and \$3,400,000 from U.S. operations. This compares with \$33,173,000 from Canada and \$2,115,000 from the U.S. for 1978, excluding Trend. Trend's share of consolidated revenue in 1979 was \$53,828,000 compared with \$44,745,000 in 1978, of which \$43,026,000 was derived from Indonesian operations, compared with \$36,632,000 from that source in 1978. The balance of Trend's gross revenues includes income from North America, investment income and other income.

The contribution to Francana's net earnings, after deducting the Trend minority interest, was \$7,241,000 from North American operations, \$6,633,000 from Indonesian operations and \$1,831,000 (primarily investment and other income) from other operations. This compares with \$5,267,000, \$6,533,000 and \$159,000, respectively, from those same sources in 1978.

The revenue increases achieved during the past year reflect higher production rates and product prices in North America and numerous increases in Indonesian oil prices during 1979.

### Production and sales

Francana's North American sales in 1979 totalled 1,482,000 barrels of crude oil, compared with 1,444,000 barrels last year. These figures include Trend production of 418,000 barrels and 437,000 barrels in the respective years.

Natural gas sales in North America increased to 19,511 million cubic feet in 1979 from 15,679 million cubic feet last year. Trend's share of production was 715 million cubic feet in 1979 and 851 million cubic feet in 1978. Increased production in Western Canada accounted for the majority of the increase.

Gross crude oil production from the Indonesian project operated by Trend, and in which Trend has a 27% working interest, was 22,456,000 barrels in 1979 which was 13% lower than in the previous year, reflecting the continuing natural decline of the reservoirs.

### Exploration and development

Francana and Trend drilled 243 gross wells in 1979 compared with 203 in 1978.

The following is a summary of the wells drilled in 1979:

|               | Oil | Gas | Dry |
|---------------|-----|-----|-----|
| Canada        | 27  | 64  | 32  |
| United States | 11  | 53  | 29  |
| Indonesia     | 26  | —   | 1   |
| Total         | 64  | 117 | 62  |

Consolidated capital expenditures totalled \$42,348,000. Expenditures for land acquisition and retention, geological and geophysical work, drilling and production equipment were: \$23,412,000 by Francana in Canada and \$5,688,000 in the U.S.; \$10,655,000 by Trend in the U.S. and \$2,593,000 in Indonesia and other non-North American areas of activity. The expenditures in 1979 represent a 53% increase over the \$27,750,000 of capital expenditures in 1978.

### Reserves

Francana's estimated reserves at year-end were:

|                                                                    | 1979   | 1978   |
|--------------------------------------------------------------------|--------|--------|
| <b>Natural gas</b> (billion cubic feet)                            |        |        |
| Proved developed and undeveloped                                   | 229.1  | 309.2  |
| Probable                                                           | 63.7   | 65.0   |
| Total                                                              | 292.8  | 374.2  |
| <b>Crude oil and natural gas liquids</b><br>(thousands of barrels) |        |        |
| Proved developed and undeveloped                                   | 24,671 | 34,410 |
| Probable                                                           | 12,785 | 3,543  |
| Total                                                              | 37,456 | 37,953 |

Included in these totals are 20.1 billion cubic feet of natural gas (1978 — 15.6 bcf) and 15,079 thousand barrels of crude oil and natural gas liquids (1978 — 19,627 thousand barrels) attributed to Trend's operations.

*A seismic blast is set off by a Francana exploration crew*







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## Fertilizers, agricultural products

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### **Terra Chemicals International, Inc.**

*Terra and its subsidiaries are primarily engaged in marketing a full line of chemical fertilizers and crop-protection chemicals. Terra markets its products at both the wholesale and retail levels: a network of retail farm service centres in the Midwest, South and Southwest deals direct with the farmer; wholesale marketing to dealers, distributors and manufacturers extends throughout most of the United States. Terra manufactures nitrogen products and nitrogen feed ingredients at its chemical production complex located near its headquarters in Sioux City, Iowa. Manufacturing facilities owned in partnership at Woodward, Oklahoma, produce ammonia, nitrogen fertilizer solutions and urea liquor.*

#### **Financial results**

Net earnings totalled US \$2,739,000 (29¢ per common share), up from US \$1,277,000 (1¢ per common share) for 1978. Revenues totalled US \$254,109,000, compared with US \$198,901,000 in 1978. Although still not satisfactory in terms of return on either sales or investment, Terra's 1979 earnings represent a substantial improvement over last year and a reversal of a four-year trend of declining annual earnings. Gross profit performance has improved in each of the last three quarters; at the pre-tax level, the earnings improvement over 1978 was US \$6.1 million.

Both higher prices for fertilizer products and agricultural chemicals and increased tonnage contributed to the record sales revenue. Although prices were weak in January and February, they strengthened throughout the remainder of the year. Increased manufacturing costs, particularly for natural gas, and increased costs of some purchased products offset to some extent the improvement in prices.

#### **Corporate objectives**

The company has been engaged in an extensive long-range strategic planning program emphasizing asset management and is now implementing and updating action plans developed to achieve objectives for improved return on investment. This planning process resulted in restructuring and consolidating the agricultural marketing function and establishing an information systems group with more sophisticated data-processing equipment and techniques to provide timely operating information to managers as the company grows. In line with objectives for improved return on money invested as well as for increased sales and profits, the company discontinued operations at several less profitable locations and either sold or transferred assets to other outlets. Funds recovered were used to purchase or improve and expand more profitable locations.

#### **Competitive disadvantage**

Terra and 12 other nitrogen producers, a group which accounts for about 53% of U.S. ammonia production,

have formed the Ad Hoc Committee for Domestic Nitrogen Producers to seek relief from rapidly increasing imports of low-priced ammonia from the Soviet Union. In response to a petition filed by the Ad Hoc Committee, the U.S. International Trade Commission (ITC) ruled that imports of Soviet anhydrous ammonia are disrupting the market in the United States and violate the Trade Act of 1974 and recommended import quotas for the next three years. President Carter initially decided against the quotas but later, because of changed domestic and international economic conditions, set a one-year quota limiting imports to the previously recommended ITC levels and requested the ITC to reopen its investigation.

#### **Market comments**

The U.S. agricultural economy had an excellent year in 1979, with record gross receipts and near-record net farm income. Although gross farm income in 1980 is expected to increase somewhat from the 1979 level, inflation will increase the cost of purchased inputs, and net farm income could decline substantially in 1980. It is expected that domestic use of 1979-80 U.S. crops will increase moderately, but that exports, especially grains, will increase sharply.

Despite the economic slowdown in the United States, predictions are for a healthy agricultural market situation. Strong foreign demand, resulting from reduced crop yields and expanded livestock production in many foreign countries, will provide support for crop prices in the U.S. However, the effect of the January 4 partial embargo by President Carter appears uncertain.

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*A Terra retail plant manager points to an adjoining field as he advises customers near Merrill, Iowa*







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## Directors and Officers

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### Directors

\*H.R. Fraser, Toronto  
Chairman  
Hudson Bay Mining

\*H.P. Crawford, Q.C., Toronto  
A Senior Partner  
Osler, Hoskin & Harcourt  
Barristers and solicitors

\*†E.P. Gush, Toronto  
President  
Hudson Bay Mining

M.B. Hofmeyr, London  
Chairman and Managing Director  
Charter Consolidated Limited  
A mining-finance house

†R.H. Jones, Winnipeg  
President and Chief Executive Officer  
The Investors Group  
A financial holding company

\*†A.T. Lambert, Toronto  
Former Chairman  
The Toronto-Dominion Bank  
A Canadian chartered bank

H.C.F. Mockridge, Q.C., Toronto  
A Senior Partner  
Osler, Hoskin & Harcourt

\*W.A. Morrice, Toronto  
Former President (retired)  
Hudson Bay Mining

G.W.H. Relly, Johannesburg  
Joint Deputy Chairman  
Anglo American Corporation of  
South Africa Limited  
A mining-finance house

A. Sweatman, Q.C., Winnipeg  
Partner  
Thompson, Dorfman, Sweatman  
Barristers & solicitors

J.D. Taylor, Q.C., Johannesburg  
Manager  
Anglo American Corporation  
of South Africa Limited

### Officers

H.R. Fraser  
Chairman

E.P. Gush  
President

H.S. Schwartz  
President  
Canadian Metals Division

A.M. Doull  
Senior Vice-President – Finance

Dr. J.B. Howkins  
Senior Vice-President – Exploration

J.R. Sadler  
Senior Vice-President  
Canadian Metals Division

C.K. Taylor, Q.C.  
Senior Vice-President – Administration  
Secretary and General Counsel

R.B. Cairns  
Vice-President – Exploration

S.R. Horne  
Vice-President – Investments

Dr. C.L. Sarthou  
Vice-President – Market Research  
and Development

W.A. Atkinson  
Comptroller

Miss S. Kozel  
Assistant Secretary

M.B. Smith  
Treasurer

---

\* Member of the Executive Committee

† Member of the Audit Committee



**Metals/industrial products**

Canadian Metals Division  
Flin Flon-Snow Lake Operations  
Francana Minerals Ltd. (60%)  
Hudson Bay Diecastings  
Tantalum Mining Corporation of Canada Limited (37.5%)  
Whitehorse Copper Mines  
Zochem  
Hudson Bay Exploration and Development Co., Limited  
Inspiration Consolidated Copper Company (50%)  
Lytton Minerals Limited (33.9%)  
Compania Cuprifera La Verde, S.A.  
(Lytton holds 47.5%)  
Stikine Copper Limited (34.9%)

**Petroleum**

Canadian Merrill Ltd. (61.9%)  
Francana Oil & Gas Ltd. (54.9%)  
Trend International Limited  
(Francana Oil & Gas holds 56.8%)

**Fertilizers and agricultural products**

Terra Chemicals International, Inc. (53.8%)

**Hudson Bay Mining and Smelting Co., Limited****Head Office**

P.O. Box 28, Toronto-Dominion Centre,  
Toronto, Ontario M5K 1B8  
Cable address: Hudbay, Toronto  
Telephone: (416) 362-2192  
Telex: 02-29408

**Transfer agents**

The Royal Trust Company —  
Montreal, Toronto, Winnipeg,  
Regina, Calgary, Vancouver.  
Morgan Guaranty Trust Company  
of New York — New York, N.Y.

**Registrars**

Montreal Trust Company —  
Montreal, Regina  
Crown Trust Company —  
Toronto, Winnipeg, Calgary, Vancouver.  
The Chase Manhattan Bank — New York, N.Y.

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**Principal addresses**

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**Metals/industrial products**

Hudson Bay Mining and Smelting Co., Ltd.  
Canadian Metals Division  
P.O. Box 1500, Flin Flon, Manitoba R8A 1N9  
Francana Minerals Ltd.  
670 Bank of Canada Building, Regina,  
Saskatchewan S4P 0M8  
Hudson Bay Diecastings  
230 Orenda Road, P.O. Box 1050,  
Brampton, Ontario L6T 1E9  
Tantalum Mining Corporation of Canada Limited  
Bernic Lake, Manitoba R0E 0G0  
Whitehorse Copper Mines  
P.O. Box 4280, Whitehorse, Yukon Y1A 3T3  
Zochem  
1 Tilbury Court, P.O. Box 1120,  
Brampton, Ontario L6V 2L8  
Inspiration Consolidated Copper Company  
100 West Washington Street, First National Bank Plaza,  
Suite 1870, Phoenix, Arizona 85003

**Petroleum**

Canadian Merrill Ltd.  
Suite 2900, Scotia Centre, 700 - 2nd Street, S.W.,  
Calgary, Alberta T2P 2W2  
Francana Oil & Gas Ltd.  
29th Floor, Scotia Centre, 700 - 2nd Street, S.W.,  
Calgary, Alberta T2P 2W2

**Fertilizers and agricultural products**

Terra Chemicals International, Inc.  
P.O. Box 1828, Sioux City, Iowa 51102

**Exploration**

Hudson Bay Exploration and Development Co. Limited:  
20 Victoria Street, 8th floor, Toronto, Ontario M5C 2N8  
P.O. Box 1500, Flin Flon, Manitoba R8A 1N9  
Bentall Centre, Tower No. 2, 1695 - 555 Burrard Street,  
Vancouver, British Columbia V7X 1G6



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**Hudson Bay Mining and Smelting Co., Limited**



P.O. Box 28, Toronto-Dominion Centre,  
Toronto, Ontario, Canada M5K 1B8