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The Canadian Mineral Industry Monthly Report

December, 1976



Energy, Mines and
Resources Canada

Énergie, Mines et
Ressources Canada

Minerals

Minéraux

PREFACE

This report is prepared in the Mineral Development Sector of the Department of Energy, Mines and Resources. It is prepared from the best information available to us from many sources, but it is only intended to be a general review of the more important current developments in the Canadian mineral industry and of developments elsewhere that affect, or may affect, the Canadian industry. It should not be considered an authority for exact quotation or an expression of official Government of Canada views.

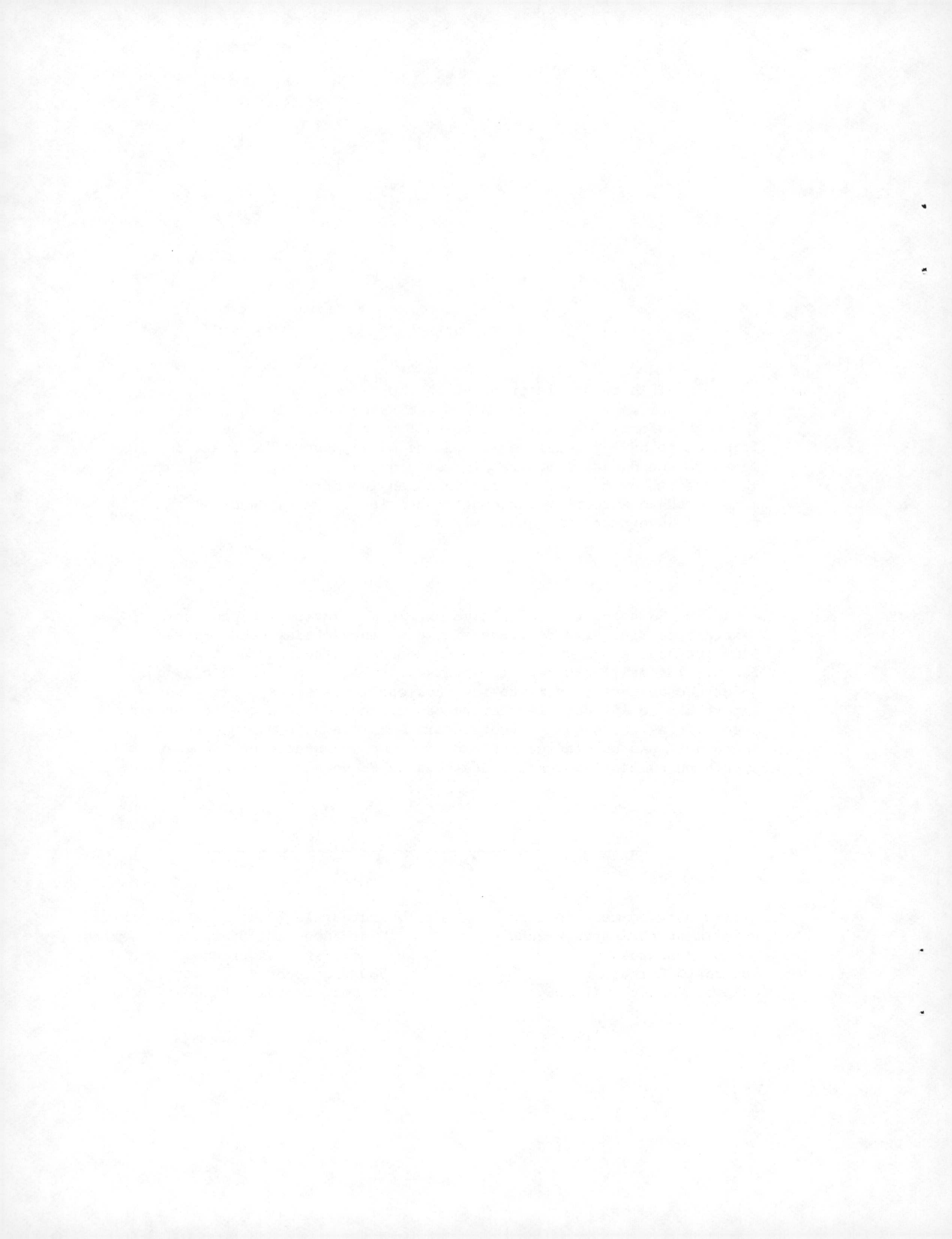
Ce rapport a été rédigé par le Secteur de l'Exploitation Minérale du Ministère de l'Énergie, des Mines et des Ressources. Bien que nous ayons eu recours à de nombreuses sources pour vous fournir les meilleurs renseignements possibles, cet exposé n'a pour objet que de passer en revue les développements actuels les plus importants de l'industrie minière canadienne, de même que les progrès accomplis ailleurs qui peuvent intéresser l'industrie canadienne. On ne doit pas considérer cet exposé comme une source de renseignements précis ou comme l'expression des vues du Gouvernement canadien.

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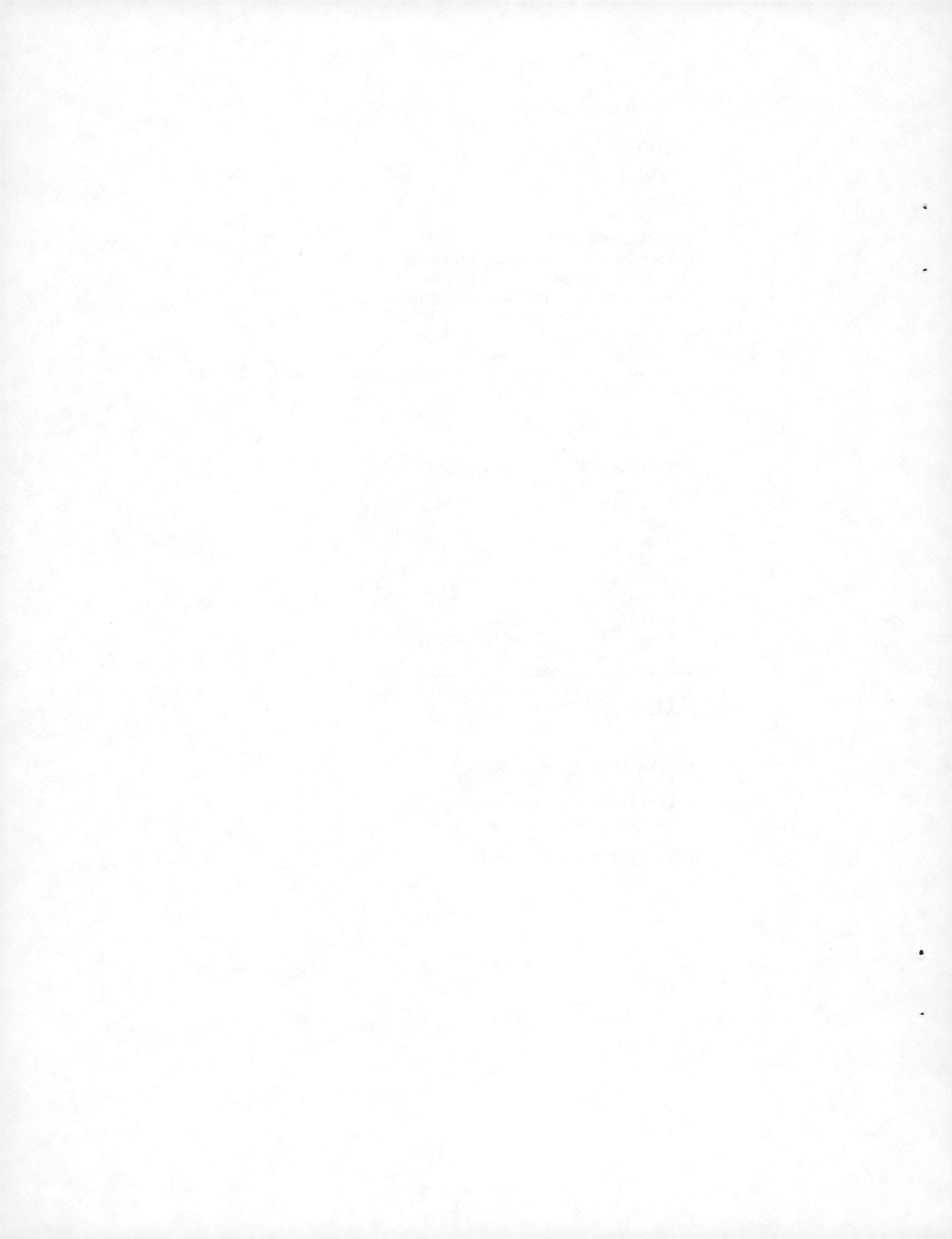
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THE CANADIAN MINERAL INDUSTRY FOR DECEMBER

The following constitutes a brief summary of the Canadian mineral industry based upon information that became available in December.

SUMMARY

1. Canadian mineral production in 1976 totalled \$15.4 billion in in value terms, representing an increase of 15.4 per cent over 1975.
2. Production costs increased throughout the mineral industry in 1976, unit labour costs generally rising at a faster rate than commodity prices.
3. Canada's unadjusted index of Real Domestic Product was 124.1 in October 1976, a decrease of 14.9 per cent from September.
4. The October index for Mines, Quarries and Oil Wells was 117.9, an increase of 5.5 per cent from the previous month.
5. Employees at the Aluminum Company of Canada, Limited's Shawinigan Falls smelter in Quebec were still on strike at the end of December.
6. Canadian copper producers reduced their Canadian and United States prices on December 6.
7. The 1976 average gold price for afternoon fixings on the London Gold Market was \$124.84 U.S. (\$123.16 Cdn.) an ounce.
8. Noranda Mines Limited increased the price of domestic lead as of December 14.
9. The United States General Services Administration received no bids for mercury at its December offering.
10. All major nickel producers are now matching AMAX, Inc.'s 1977 nickel briquette price.
11. Nanisivik Mines Ltd. began mining operations in October on Baffin Island, Northwest Territories.
12. Estimated ore reserves for the Grum zinc-lead deposit near Faro, Yukon Territory, total 35 million tonnes.
13. Cassiar Asbestos Corporation Limited announced a new fibre price schedule effective December 1.

14. Westroc Industries Limited intends to develop an underground gypsum deposit in Oxford County, Ontario.
15. Syncrude Canada Ltd.'s Fort McMurray oil sands plant is nearly 60 per cent complete.
16. The Federal Government has announced modifications to its nuclear safeguard requirements.

ECONOMIC TRENDS

The Canadian Mineral Industry in 1976

Overall demand for Canadian minerals in 1976 was up from 1975. Market conditions, however, varied widely among commodities. Although they improved for iron ore, molybdenum, asbestos and flat-rolled steel products, they continued to be weak for many nonferrous metals, structural steel products and construction materials. In a number of cases, market conditions were not buoyant enough to support price levels sufficient to provide reasonable returns on invested capital. When actual demand fell short of expected demand in mid-1976, some price increases announced by nickel, copper and zinc producers had to be rolled back or circumvented by offering price protection on future deliveries.

Despite improvements in labour productivity and a substantial abatement in wage settlements, labour costs per unit of output in the mineral industry increased significantly in 1976 for the third consecutive year. Although increasing at a slower pace than in 1975, unit labour costs in general rose at a faster rate than did commodity prices. Material, machinery, equipment and building costs also surged ahead.

Wholesale prices in 1976, on a year-to-year basis, are estimated to have increased 9.2 per cent for iron products, 4.2 per cent for non-ferrous metals and 9.8 per cent for nonmetallic minerals, compared with an overall national inflation rate of 9.0 per cent.

Mineral Industry Highlights

- . Canada's total mineral production in 1976 was worth \$15.4 billion, an increase of 15.4 per cent over 1975 (see Table A).
- . Production value in the nonmetals sector rose by 21.6 per cent in 1976 compared with 1975, the highest increase of all mineral sectors.

- . The production value of metals, fuels and structural materials increased by 9.3 per cent, 20.6 per cent, and 5.8 per cent respectively.
- . Asbestos production in 1976 increased 66.7 per cent in value terms and 46.7 per cent in volume terms compared with 1975, the largest production increase, in both value and volume terms, of all leading Canadian minerals (see Table B). This large increase in asbestos production, however, was partly due to the fact that production was severely disrupted by a work stoppage in 1975.
- . Iron ore production rose 35.2 per cent in value terms and 26.8 per cent in volume terms as the result of the addition of new productive capacity, fewer production difficulties and the upswing in world demand for iron ore.
- . Labour strikes in 1976 disrupted production in a number of industries (i.e., aluminum, zinc, nickel and others), but most notably in the lead industry where the volume of production dropped by 25.8 per cent compared with 1975 production.
- . For the sixth year in succession, Alberta led the other provinces with mineral production valued at \$7.0 billion, or 45.4 per cent of Canada's total. The percentage was 43.0 in 1975 (see Table C).
- . Ontario was the leading producer of metals in 1976 and its total mineral production was second only to that of Alberta, being 16.9 per cent of Canada's total compared with 17.6 per cent in 1975.
- . Crude petroleum accounted for 26.8 per cent of Canada's total mineral production followed by natural gas accounting for 16.0 per cent. The production value of natural gas rose by 62.2 per cent in 1976 compared with 1975 as a result of higher prices.
- . Iron ore surpassed both nickel and copper as the leading metal in 1976, accounting for 8.1 per cent of Canada's total mineral production compared with 8.0 per cent for nickel and 7.3 per cent for copper.
- . Preliminary figures indicate that the total overall value of minerals exported by Canada for the first nine months of 1976 compared with the corresponding period for 1975 increased by 10.5 per cent. In particular, ferrous and nonmetallic minerals posted significant gains of 27.3 per cent and 36.3 per cent respectively (see Table D).

- . Canada's terms of trade, the ratio of average export prices to average import prices, improved slightly during the first half of 1976 from the corresponding period the year previous. Canada was in a more favourable trading position than it was in 1975; export prices were up by more than import prices.
- . In a number of cases, employees went on strike not only to seek better wage settlements from mining corporations but in protest against wage rollbacks ordered by the Anti Inflation Board.

The Canadian and World Economies in 1976

The worldwide recovery in economic activity, which began in 1975, accelerated in the first quarter of 1976. However, all major industrialized countries, including Canada, experienced a marked curtailment of economic growth during the second and third quarters of the year. At year-end, the strength and duration of the worldwide economic expansion were in doubt.

Canada's real Gross National Product (GNP measured in volume terms) is estimated to have grown by about 4.8 per cent in 1976 compared with 0.6 per cent in 1975. Considering this was a recovery year, economic growth in Canada in 1976 was modest and below potential.

On the inflation front, the slow pace of economic recovery in Canada and the anti-inflation program were partly responsible for the moderation in price increases. Between October 1975 and October 1976, overall consumer prices advanced 6.2 per cent while consumer prices, excluding food, rose 9.1 per cent. The difference in growth rates is due to food prices which declined over the period.

A more discouraging development, resulting from the slow pace of economic expansion, has been the continuing high unemployment rate in Canada. The seasonally adjusted unemployment rate for the first eleven months of 1976 averaged 7.2 per cent compared with 6.9 per cent for the whole of 1975.

Economic activity for the world's seven largest market-based economies is estimated to have increased by 5.25 per cent in 1976 compared with a decline of 1.3 per cent in 1975. The volume of world trade is estimated to have grown by about 10 per cent in 1976 compared with a decline of 8 per cent in 1975.

Mineral Industry Outlook for 1977

The volume and value of Canadian non-fuel mineral production in 1977 will be determined largely by what is happening to the economies of our major trading partners. In view of the slow rate of economic

TABLE A
Mineral Production of Canada, 1975-1976^P
(\$ millions)

		New- foundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Yukon	N.W.T.	Canada
Metals	1975	512.3	-	...	197.2	668.3	1,949.0	448.1	18.6	...	622.2	196.0	182.1	4,793.8
	1976 ^P	699.9	-	-	217.9	765.7	2,153.5	387.3	25.1	-	710.5	96.0	185.2	5,241.1
Nonmetals	1975	21.0	-	28.9	6.3	253.5	56.2	4.8	385.9	100.8	49.0	32.8	-	939.2
	1976 ^P	38.7	-	32.9	6.8	439.2	75.7	4.4	392.3	72.9	45.1	34.5	-	1,142.5
Fuels	1975	-	-	44.6	7.2	...	11.5	31.5	433.8	5,560.3	529.8	1.3	24.3	6,644.3
	1976 ^P	-	-	54.5	6.4	...	11.8	33.0	462.6	6,829.6	567.0	0.6	27.9	7,993.4
Structural materials	1975	17.6	1.8	27.9	20.9	318.1	333.3	45.2	23.3	76.4	95.8	-	-	960.3
	1976 ^P	17.4	1.7	29.8	24.0	316.4	353.0	53.4	28.5	93.1	98.5	-	-	1,015.8
Grand Total	1975	550.9	1.8	101.4	231.6	1,239.9	2,350.0	529.6	861.6	5,737.5	1,296.8	230.1	206.4	13,337.6
	1976 ^P	756.0	1.7	117.2	255.1	1,521.3	2,594.0	478.1	908.5	6,995.6	1,421.1	131.1	213.1	15,392.8

^P Preliminary; ... Less than \$100,000; - Nil.

TABLE B
Canada, Production of Leading Minerals

		1975	1976 ^P	% change	1975	1976 ^P	% change
		(000 tonnes except where noted)			(\$ millions)		
Metals							
Copper		733.8	747.1	+ 1.8	1,030.5	1,126.2	+ 9.3
Gold	kg	51 433.1	52 440.5	+ 2.0	270.8	207.8	-23.3
Iron ore		44 892.5	56 899.5	+26.8	918.1	1,241.3	+35.2
Lead		349.1	259.1	-25.8	156.0	129.4	-17.1
Molybdenum	t	13 026.7	14 415.2	+10.7	71.2	91.9	+29.1
Nickel		242.2	262.5	+ 8.4	1,100.5	1,232.1	+12.0
Silver	t	1 234.6	1 271.7	+ 3.0	178.9	175.1	-2.1
Uranium ¹	t	4 678.5	5 137.3	+ 9.8	..	..	..
Zinc		1 055.2	1 039.7	- 1.5	872.3	862.3	-1.1
Nonmetals							
Asbestos		1 055.7	1 548.6	+46.7	267.2	445.5	+66.7
Gypsum		5 719.5	5 660.8	- 1.0	20.3	22.9	+12.8
Potash K ₂ O		4 673.4	5 125.6	+ 9.7	358.6	361.4	+ 0.8
Salt		5 122.6	5 749.7	+12.2	59.7	75.7	+26.8
Cement		9 965.1	9 850.2	- 1.2	320.2	339.2	+ 5.9
Clay products	\$000	..	..	..	86.0	92.1	+ 7.1
Lime		1 601.6	1 825.3	+14.0	46.9	54.1	+15.4
Fuels							
Coal		25 258.7	25 310.4	+ 0.2	586.4	604.0	+ 3.0
Natural Gas	000 m ³	87 485 757.6	86 858 171.2	- 0.7	1,520.7	2,466.6	+62.2
Crude oil and equivalent	000 m ³	82 802.2	77 841.8	- 6.0	3,754.8	4,128.5	+10.0

¹Tonnes uranium (1 tonne U = 1.2999 short tons U₃O₈).

^PPreliminary; .. Not available.

TABLE C

Canada, Mineral Production 1976

Distribution of Mineral Value by Commodity		Distribution of Mineral Value by Province	
	%		%
Crude petroleum	26.8	Alberta	45.4
Natural gas	16.0	Ontario	16.9
Iron ore	8.1	Quebec	9.9
Nickel	8.0	British Columbia	9.2
Copper	7.3	Saskatchewan	5.9
Zinc	5.6	Newfoundland	4.9
Coal	3.9	Manitoba	3.1
Asbestos	2.9	New Brunswick	1.7
Cement	2.2	Northwest Territories	1.4
Others	19.2	Yukon Territory	0.8
		Nova Scotia	0.8
		Prince Edward Island	0.01

TABLE D

Canada Exports of Minerals, Crude and Fabricated
(\$ millions)

	Year 1965	Year 1970	Year 1975	1st 9 months		% Changes 1st 9 months 1976 1st 9 months 1975
				1975	1976	
Crude						
Ferrous	369.1	508.9	717.9	514.3	750.7	+46.0
Nonferrous	493.5	993.8	1,513.2	1,151.6	1,094.8	- 4.9
Nonmetallic	229.9	453.2	792.1	570.3	795.3	+39.5
Fuels	397.3	884.6	4,637.2	3,346.8	3,373.7	+ 0.8
Total	1,489.8	2,840.5	7,660.4	5,583.0	6,014.5	+ 7.7
Fabricated						
Ferrous	251.7	487.3	909.6	673.3	761.2	+13.1
Nonferrous	959.3	1,689.7	1,831.9	1,314.0	1,634.5	+24.4
Nonmetallic	59.2	99.8	160.8	121.1	145.2	+19.9
Fuels	22.6	85.1	638.4	442.1	428.4	- 3.1
Total	1,292.8	2,361.9	3,540.7	2,550.5	2,969.3	+16.4
Total crude and fabricated minerals						
Ferrous	620.8	996.2	1,627.5	1,187.6	1,511.9	+27.3
Nonferrous	1,452.8	2,683.5	3,345.1	2,465.6	2,729.3	+10.7
Nonmetallic	289.1	553.0	952.9	691.4	940.5	+36.0
Fuels	419.9	969.7	5,275.6	3,788.9	3,802.1	+ 0.3
Total	2,782.6	5,202.4	11,201.1	8,133.5	8,983.8	+10.5
Total domestic exports, all products						
	8,525.1	16,401.1	32,325.0	23,304.6	27,506.8	
Crude minerals as % of exports, all products						
	17.5	17.3	23.7	24.0	21.9	
Crude and fabricated minerals as % of exports, all products						
	32.6	31.7	34.7	34.9	32.7	
Crude mineral exports as % of mineral exports						
	53.5	54.6	68.4	68.6	66.9	

recovery in recent months, a number of forecasting organizations have significantly altered their estimates of growth for the world economy and for the Canadian economy. For example, the Organization for Economic Co-Operation and Development (OECD) is reported to have lowered its estimates of growth for the Canadian economy from approximately 4.75 per cent to 3.5 per cent for 1977. Likewise, the OECD lowered its estimates of growth for the world's seven largest economies from 5.25 per cent to 4.0 per cent.

While many recent economic forecasts are pessimistic, there are factors suggesting that the world economy should continue to expand at a healthy rate. Governments of most industrialized countries are expected to adopt more expansionary fiscal and monetary policies to stimulate their economies in 1977. Economic activity for the world's seven largest market-based economies should grow by about 5 per cent compared with about 5.25 per cent in 1976, while the volume of world trade should expand by about 8 per cent compared with an increase of about 10 per cent in 1976.

In view of the prospect for continuing world economic growth and the fact that mineral demand usually lags expansions in overall economic activity, the demand for Canadian nonfuel minerals should continue to increase in 1977. World prices for nonfuel minerals should strengthen and increase in relation to unit costs. As labour productivity improves and wage settlements moderate, there should be a significant deceleration in unit labour cost growth. Volume sales and production levels, except for the nonferrous metals, should continue to increase and approach the peak production levels attained in 1973-74 by the end of 1977. Though volume sales and production levels for nonferrous metals, like nickel, copper and zinc, are expected to increase in 1977, levels of production are unlikely to match the peak pre-recession levels.

Nonfuel mineral production, measured in volume terms, should increase by about 5.5 per cent* in 1977 compared with an estimated increase of 2.5 per cent in 1976. Wholesale prices in 1977 should increase by approximately 10 per cent for iron and nonferrous metals and by about 7 per cent for nonmetallic minerals compared with 7.7 per cent and 9.8 per cent respectively in 1976. The overall rate of inflation should decrease from 9.0 per cent in 1976 to 7.5 per cent in 1977.

Indexes of Industrial Production

Table 1 shows Canada's unadjusted indexes of Real Domestic Product (RDP). The overall RDP index in October was 124.1, a decrease of 14.9 per cent from September.

* The concept of output used in this review is constant price Gross Domestic Product at factor cost, by industry (Real Domestic Product by Industry).

TABLE 1

Canada, Indexes of Real Domestic Product, by Industries Unadjusted (1971=100)

Industry or Industry Group	1975			1976			Percentage Changes			
	Sept	Oct	Average 1st 10 Months	Sept	Oct	Average 1st 10 Months	Sept 1976	Oct 1976	Oct 1976	1st 10 Months 1976 1975
							Sept 1975	Oct 1975	Sept 1976	
Real Domestic Product	136.7	118.4	117.2	145.8	124.1	123.3	6.7	4.8	-14.9	5.2
Primary Industries										
Agriculture	545.5	15.8	97.2	660.6	14.9	111.3	21.1	-5.7	-97.7	14.5
Forestry	106.0	85.9	99.6	139.7	127.2	104.3	31.8	48.1	-8.9	4.7
Fishing and Trapping	104.1	61.8	76.6	93.3	77.2	100.5	-10.4	24.9	-17.3	31.2
Mines, Quarries and Oil Wells	107.9	108.7	108.7	111.8	117.9	109.6	3.6	8.5	5.5	0.8
Metal Mines	96.2	97.5	102.0	114.1	112.4	108.7	18.6	15.3	-1.5	6.6
Placer and Gold Quartz Mines	81.3	77.2	72.0	77.1	72.3	73.6	-5.2	-6.3	-6.2	2.3
Iron Mines	118.0	127.1	110.9	167.0	162.6	141.4	41.5	27.9	-2.6	27.5
Other Metal Mines	91.5	91.2	101.2	102.9	101.9	102.4	12.5	11.7	-1.0	1.1
Mineral Fuels	122.6	120.4	118.7	106.4	122.0	110.7	-13.2	1.3	14.7	-6.7
Coal Mines	192.3	198.3	201.3	195.6	225.8	188.8	1.7	13.9	15.4	-6.2
Crude Petroleum and Natural Gas	116.9	114.0	111.9	99.1	113.5	104.3	-15.2	-0.4	14.5	-6.8
Nonmetal Mines	89.1	100.3	98.7	123.6	132.7	111.8	38.7	32.3	7.4	13.3
Asbestos Mines	62.1	65.0	61.9	106.1	107.3	96.9	70.9	65.1	1.1	56.5
Secondary Industries										
Manufacturing	116.6	117.0	113.5	122.9	121.2	119.3	5.4	3.6	-1.4	5.0
Nondurable Manufacturing	114.3	112.4	111.9	121.3	121.6	117.4	6.1	8.2	0.2	4.9
Petroleum and Coal Products Industries	113.1	115.6	122.0	114.6	114.5	124.4	1.3	-1.0	-0.1	1.9
Durable Manufacturing	118.9	121.7	115.1	124.6	120.7	121.2	4.8	-0.8	-3.1	5.3
Primary Metal Industries	107.0	105.5	107.6	103.9	98.5	104.8	-2.9	-6.6	-5.2	-2.6
Iron and Steel Mills	109.1	106.3	112.2	117.5	108.1	114.9	7.7	1.7	-8.0	2.4
Steel Pipe and Tube Mills	153.4	144.1	145.3	110.2	107.6	115.4	-28.2	-25.3	-2.4	-20.6
Iron Foundries	119.0	127.3	101.8	107.3	107.4	104.1	-9.8	-15.6	0.1	2.3
Smelting and Refining	94.2	93.4	97.9	76.7	74.4	85.1	-18.6	-20.3	-3.0	-13.1
Nonmetallic Mineral Products Industries	136.4	140.5	118.6	132.7	132.6	120.6	-2.7	-5.6	-0.1	1.7
Cement Manufacturers	131.5	147.9	118.1	135.9	146.7	121.2	3.3	-0.8	7.9	2.7
Ready-mix Concrete Manufacturers	149.8	148.0	113.2	135.5	137.8	116.8	-9.5	-6.9	1.7	3.2
Construction Industry	137.2	134.4	111.5	137.7	141.7	124.4	0.4	5.4	2.9	11.5
Transportation, Storage, Communication	126.1	125.7	124.4	134.6	133.8	129.4	6.7	6.4	-0.6	4.0
Electric Power, Gas and Water Utilities	110.8	114.3	124.9	116.6	121.6	132.8	5.2	6.4	4.3	6.3
Trade	130.7	128.8	122.0	135.9	137.7	129.5	4.0	6.9	1.3	6.2
Finance, Insurance, Real Estate	124.3	124.0	122.2	129.7	130.2	127.5	4.3	5.0	0.4	4.4
Community, Business and Personal Service	122.4	123.1	118.6	127.1	126.8	123.2	3.8	3.0	-0.2	3.8
Public Administration and Defence	120.2	118.3	118.9	124.4	122.0	123.0	3.5	3.1	-1.9	3.4

TABLE 2

Canada, Production of Leading Minerals
('000 tonnes except where noted)

	1975			1976			Percentage Changes		
	September	October	Total 1st 10 months	September	October	Total 1st 10 months	October 76 October 75	October 76 September 76	1st 10 months 1976 1975
Metals									
Copper	54.6	53.1	589.4	70.0	68.9	610.5	+29.7	- 1.6	+ 3.6
Gold	4 663.8	4 548.9	42 570.0	4 771.6	4 234.3	43 391.2	- 6.9	+12.7	+ 1.9
Iron ore	3 619.1	3 960.8	35 821.7	5 892.0	4 996.2	46 928.7	+26.1	-15.2	+31.0
Lead	32.3	35.3	270.5	20.6	21.5	198.4	-39.1	+ 4.4	-26.7
Molybdenum	1 436.0	1 304.5	10 796.7	1 060.5	1 088.7	11 433.7	-16.5	+ 2.7	+ 5.9
Nickel	17.9	16.4	203.5	19.0	21.6	199.9	+31.7	+13.7	- 1.8
Silver	98.9	105.5	1 024.5	127.1	114.5	1 094.0	+ 8.5	- 9.9	+ 6.8
Uranium (1)	570.6	194.6	3 101.7	808.8	396.1	4 086.7	+103.6	-51.0	+31.8
Zinc	82.9	61.3	840.2	91.7	88.2	858.8	+43.9	- 3.8	+ 2.2
Nonmetals									
Asbestos	73.1	89.4	790.3	144.1	134.3	1 261.3	+50.2	- 6.8	+59.6
Gypsum	551.8	549.4	4 711.9	654.2 ^F	714.4	4 846.1	+30.0	+ 9.2	+ 2.8
Potash K ₂ O	276.8	493.8	3 958.4	483.5	465.5	4 327.3	- 5.7	- 3.7	+ 9.3
Salt	336.1	398.7	4 259.6	422.8	493.5	4 615.6	+23.8	+16.7	+ 8.4
Cement	981.4	1 063.2	8 387.0	999.1	989.0	8 414.7	- 7.0	- 1.0	+ 0.3
Clay products	7,730.8	8,625.9	60,023.7	9,172.2	..	..	..	..	..
Lime	133.0	119.3	1 295.1	151.3	149.6	1 474.8	+25.4	- 1.1	+13.9
Fuels									
Coal	2 079.9	2 269.8	20 750.3	2 053.5 ^F	2 498.3	20 133.3	+ 9.1	+21.7	- 3.0
Natural Gas	6 492 713.9	7 277 940.2	71 632 087.7	6 128 530.9 ^F	6 691 753.0	70 799 572.3	- 8.1	+ 9.2	- 1.2
Crude oil and equivalent	8 108.6	7 914.4	76 054.7	6 580.6	7 302.7	68 314.7	- 7.7	+11.0	-10.2

(1) Tonnes uranium (1 tonne U = 1.2999 short tons U₃O₈).

^F Revised.

The RDP index for Mines, Quarries and Oil Wells increased by 5.5 per cent in October to 117.9. The index declined somewhat for the metal mines group to 112.4 as all of the subcomponents of the group registered a decrease in product. The mineral fuels index increased substantially by 14.7 per cent to 122.0, with both coal mines and the petroleum and natural gas sector increasing by 15.4 per cent and 14.5 per cent respectively. Nonmetal mines showed an increase of 7.4 per cent over September, recording 132.7 in October.

Table 2 compares the volume of Canadian production of leading minerals over ten-month periods in 1976 and 1975, indicating a generally increased output of metallic and nonmetallic minerals and decreased fuel mineral production.

TAXATION AND LEGISLATION AFFECTING MINING AND ALLIED INDUSTRIES IN CANADA

Provincial

Saskatchewan

The *Saskatchewan Mining Development Corporation Act, 1977* (Bill 39) has been introduced in the provincial legislature to establish the Saskatchewan Mining Development Corporation as a Crown corporation.

The head office of the corporation will be situated in Saskatchewan, and the corporation will be managed by a board of directors consisting of not less than five members appointed by the Lieutenant Governor in Council.

The corporation will have broad powers enabling it to engage directly in the exploration, acquisition, development, mining, production, processing, refining, smelting, transporting or marketing of any mineral, other than potash or sodium sulphate. It may also associate with or participate in other bodies or corporations for these purposes, and may purchase shares or other forms of interest in any company that contributes to the operation of the corporation. With the approval of the Lieutenant Governor in Council, the corporation would be empowered to borrow funds for corporate purposes.

METALLIC MINERALS AND PRODUCTS

Aluminum

Employees who walked off the job on November 4 at the Aluminium Company of Canada, Limited's (Alcan) Shawinigan Falls smelter were still on strike at the end of the month. The restart of Alcan's three other Quebec smelters after the strike settlement of November 14 is going well and is ahead of Alcan's original plans.

Reynolds Metals Company has disclosed plans to establish a one million tonne alumina refinery at Wagerup, about 100 miles south of Perth, Western Australia. Reynolds will be in partnership in the project with Alcan Australia Limited and other potential investors. Preliminary work and planning for the refinery will begin next year. The construction timetable will depend on such factors as government approval and environmental considerations.

Copper

Canadian copper producers reduced their prices on December 6 by 2.125 cents a pound in Canada and 5 (U.S.) cents a pound in the United States. The new prices in Canada are 66.5 cents a pound for full plate cathode and 67.125 cents a pound for wirebar copper. In the United States, prices are 65 cents a pound for full plate cathode and 65.625 cents a pound for wirebar copper. The apparently unequal price reduction in the two markets is the result of the recent fall in the value of the Canadian dollar in relation to the U.S. dollar. In contrast to this producer price action, free market prices for copper began to advance during December. From a level of 56 (U.S.) cents a pound early in the month, the London Metal Exchange spot price for wirebars ended the month at 62 (U.S.) cents a pound.

According to statistics released by the American Bureau of Metal Statistics Inc., world stocks of refined copper increased in October after a decline in September. Stocks in reporting countries were reported to total 1 338 800 tonnes at the end of October, compared with 1 322 500 at the end of September. London Metal Exchange stocks and New York Commodity Exchange (COMEX) stocks of refined copper continued to advance during December. At year-end, they stood at 603 475 tonnes and 182 352 tonnes respectively.

The prolonged period of depressed copper prices which has extended from late 1974 to December 1976 has placed many North American copper producers in a situation in which they cannot finance the modernization and expansion of their production facilities. In the United States, a number of copper producers have merged, or are seeking to merge with cash-rich companies. The list of such companies includes: AMAX, Inc. - Standard Oil Co. of California; The Anaconda Company - Atlantic Richfield Company; and Utah International Inc. - General Electric Co.

Utah International Inc. announced that its merger with General Electric Co. was completed on December 20. In order to obtain confirmation of the proposed merger by the U.S. Justice Department, Utah and G.E. agreed to set up a subsidiary to manage its uranium operations, and to give management control to a voting trust. Utah controls the Island Copper mine in the Port Hardy area of north Vancouver Island.

Kennecott Copper Corporation plans to sell its subsidiary, Peabody Coal Company, in order to allow it to expand and modernize its copper mines in the United States. The sale would realize \$1.2 billion, of which \$600 million would be received in the form of cash and short-term notes. The purchaser would be a holding company in which Newmont Mining Corporation would own a 35 per cent interest. Kennecott intends to invest heavily in its Chino and Ray mines and to develop a new underground copper mine in Utah.

During December, Texasgulf Inc. published further details of its production plans for the Timmins mine-metallurgical complex. Copper and copper-silver concentrates, which are shipped to the Noranda smelter of Noranda Mines Limited, are processed under a tolling arrangement which expired in December 1976. Texasgulf has now negotiated a five-year extension of this contract with Noranda. The date for completion of the copper smelter-refinery has been extended to late 1979, from the previous date of mid-1978. The initial capacity of these facilities will be only 59 000 tonnes a year, compared with a capacity of 118 000 tonnes a year in the original proposal. By 1980, the expansion of the Kidd Creek mine will be complete, increasing the annual tonnage milled to 4.5 from the present 3.2 million tonnes. The average grade of copper in those parts of the orebody which will be mined in the next 5-10 years appears to be substantially higher than with the ore mined to date. Consequently, for some time, copper concentrate production will be further increased. The following table shows the amount and grade of ore mined and processed in recent years.

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>Nine Months 1976</u>	<u>Remaining above 2,800 foot level June 30/76</u>
Millions of tonnes of ore mined and pro- cessed	3.34	3.29	3.27	3.37	3.29	2.43	86.0
Per cent zinc	9.74	10.14	9.78	9.20	8.20	8.00	6.02
Per cent copper	1.38	1.44	1.61	1.75	1.71	1.71	2.73
Silver, ounces per tonne	3.67	3.95	3.37	2.88	2.81	3.21	2.03

It was reported early in December that Zaire has cleared up virtually all of the interest arrears on its defaulted international commercial syndicated loans. The backlog of interest arrears had reached a peak level of \$36-\$40 million. The economy of Zaire is heavily dependent upon primary copper production and exports.

The Intergovernmental Council of Copper Exporting Countries' (CIPEC) Tenth Ministerial Conference was held in Santiago, Chile during December. No further immediate action was agreed upon either in the area of production cutbacks or in the establishment of a floor price for copper.

The current three-year contract of the United Steelworkers of America expires at the end of June 1977 for most of the major copper producers in the United States. Contract talks will begin in the spring with representatives of about 28,000 workers. A strike would affect the supply-demand balance for copper throughout the world copper market, and could come at a time when world copper consumption may be relatively high.

Gold

The average gold price of the afternoon fixings on the London Gold Market for the year 1976 was \$124.84 (U.S.) (\$123.16 Cdn.) an ounce compared with \$161.02 (U.S.) (\$163.78 Cdn.) in 1975. Opening and closing prices for the year were \$140.35 (U.S.) and \$134.50 (U.S.) respectively. The opening price for 1976 was the high for the year and the low price of \$103.05 (U.S.) was recorded at the morning fixing on August 31.

The gold price showed a small improvement in December. The low price of \$130.50 (U.S.) on the London Gold Market for the month was obtained at the month's opening fixing and the high price of \$137.65 (U.S.) an ounce was reached on December 10. The monthly average of the afternoon fixing gold price on the London Market for December was \$133.88 (U.S.) (\$136.41 Cdn.) an ounce compared with \$130.46 (U.S.) (\$128.60 Cdn.) an ounce in November.

Response was strong to the fifth gold auction by the International Monetary Fund (IMF) in Washington, D.C. on December 8, 1976. A total of 780,000 ounces of gold was sold at the common price of \$137.00 (U.S.) an ounce. Successful bids ranged from \$150.00 to the common price of \$137.00 and averaged \$137.89 (U.S.). In all, bids were received for 4,307,200 ounces. The London afternoon fixing price on December 8 was \$135.65 an ounce, slightly below the common bid price. The majority of the bids were reported to be in the range of \$134-\$135 (U.S.) an ounce which would indicate an overall strong price level. The bidders were primarily Switzerland banks and London and United States gold dealers.

The IMF announced that it will begin holding auctions on the first Wednesday of each month as of March 1977, and that 525,000 ounces of gold will be offered at each sale. However, one more sale of 780,000 ounces of gold will take place on January 26, 1977.

The IMF also announced that, beginning January 10, 1977, six and one-quarter million ounces of gold will be restituted to member nations of the IMF, in proportion to their quotas in the Fund, at the official price of \$42.22 (U.S.). The gold price could be adversely affected if some of this gold finds its way to the world market.

Lead

Noranda Mines Limited increased the price of domestic lead by one cent to 26.5 cents a pound as of December 14. Cominco Ltd. is still quoting the 25.5 cents a pound price on a delivered basis. Noranda's move was made in response to the decline in value of the Canadian dollar with respect to the United States dollar, an attempt to maintain equivalent price structures in the two markets. Prices in the United States were unchanged during the month with the split price of 25.5 to 26.0 cents a pound being quoted, although rumours of discounting by the secondary producers were prevalent.

On the London Metal Exchange (LME), the spot quote increased during the month from 21.4 (Cdn.) cents a pound to 23.0 (Cdn.) cents at month-end. The sterling quote increased by £20 to £294.5 a tonne on December 30. Lead metal inventories on the LME increased slightly from 68 850 tonnes on December 3 to 69 650 tonnes on December 17.

Mercury

The United States General Services Administration (GSA) received no bids for mercury at its December offering. Each month GSA offers 500 flask of 76 pounds each of mercury for sale with any metal so released being restricted to domestic consumption. Any disposals that are made are from surplus stocks held by the United States Atomic Energy Commission (USAEC). These surplus USAEC stocks do not require Congressional authorization prior to being sold and, furthermore, they are exclusive of the 199,964 flasks of mercury contained in the U.S. strategic stockpile, none of which may be disposed of without Congressional approval.

The only sale of surplus USAEC mercury made in 1976 was that of 500 flasks sold at the October offering. On December 31, 1976 there remained a surplus of 1,275 flasks of USAEC mercury available for disposal.

Nickel

All major nickel producers are now matching AMAX Inc.'s offer for 1977 nickel briquettes. AMAX intends to sell at 15 cents below the quoted price of \$2.41 (U.S.) a pound for the first six months of 1977 and at 10 cents a pound below the producer cathode price for the second half of 1977. Inco Limited and Falconbridge Nickel Mines Limited responded in November with competing price reductions for their oxide sinter 75 and ferronickel respectively. In December, Western Mining Corporation Limited announced that it will match AMAX's offer for briquettes and Soci t  Metallurgique Le Nickel will match Falconbridge's offer for ferronickel. Inco is now offering, for the first time, a "random cut" nickel cathode on a price-negotiable basis. Reports are that it is being sold at 10 cents a pound below the list cathode price of \$2.41 (U.S.) a pound.

Silver

In October 1976, Nanisivik Mines Ltd. began mining operations on Baffin Island in the Northwest Territories at a rated capacity of 1,500 short tons of ore per day. Ore reserves have been estimated at 7 million tons averaging 14.1 per cent zinc, 1.4 per cent lead and 1.8 troy ounces of silver a ton. Silver recovery in lead and zinc concentrates will total about one million ounces annually when the mine reaches full production.

The New York Handy and Harman silver price displayed an erratic trend throughout 1976. Between January and early July the trend was upward; thereafter, it declined until late in the year when there was an upward rally. In the United States, January's opening price of \$4.240 (U.S.) a troy ounce rose to \$4.375 at year-end, bridging fluctuations between a low of \$3.815 on January 26 and a high of \$5.100 on July 6. The Canadian price closely followed its U.S. counterpart with the essential difference being the currency exchange rate. Canadian prices fluctuated between January opening price of \$4.310 (Cdn.) and a year-end price of \$4.436. The low was recorded on January 26 at \$3.817 an ounce and the high of \$4.949 was reached on July 6. The Canadian average for the year was \$4.291 an ounce, compared with the average U.S. price of \$4.353.

Zinc

Estimates have been released for the Grum zinc-lead deposit near Faro in the Yukon Territory, owned 60 per cent by Kerr Addison Mines Limited and 40 per cent by Canadian Natural Resources Limited. The total ore reserve is estimated at 35 million tonnes averaging 6.47 per cent zinc, 3.47 per cent lead and 1.7 troy ounces of silver per

tonne. Approximately \$12 million has been spent on development to date and the final feasibility study is scheduled for completion in February 1977. It is understood that a 5 000 tonne-per-day open pit operation is under consideration.

In order to compensate for the exchange rates differential, Noranda Mines Limited increased its domestic zinc price by 1.5 cents per pound during December to 37.75 cents per pound for prime western and high grade, 38 cents per pound for controlled lead, and 38.25 cents per pound for special high grade and continuous galvanizing grade. However, no other Canadian producer followed and on January 3, 1977 Noranda rescinded this increase, reverting to the common quote of 36.25 cents per pound for prime western zinc. Producer prices in other markets remained unchanged although widespread discounting has been reported in Europe and the Pacific Rim in line with depressed London Metal Exchange cash quotations which have been below 30 cents per pound during the month.

INDUSTRIAL MINERALS AND PRODUCTS

Asbestos

Cassiar Asbestos Corporation, with operations in British Columbia and the Yukon, announced a new price schedule effective December 1, 1976. Fibre price increases were 15 per cent and will apply to all grades sold in export markets. This was the first price increase since January 1, 1976 when an 8 per cent increase was initiated.

Quebec producers intend to initiate across-the-board export price increases of 14 per cent on January 1, 1977. This increase will be the first since December 1, 1975 when an average increase of 19 per cent became effective.

Advocate Mines Limited, operating an asbestos mine at Baie Verte, Newfoundland, will redeem all of its outstanding preference shares held by Canadian Johns-Manville Company, Limited, Amet Corp. Inc., and Compagnie Financière Eternit S.A. Approximately \$12.5 million cash will be derived from Company funds and \$10 million will be borrowed from bankers. It is expected that Advocate will be able to pay increased common share dividends following this change in the original 1958 financing agreement.

Gypsum

Westroc Industries Limited has announced its intention to develop an underground gypsum deposit near Blandford, in Oxford County, Ontario. A 12-foot diameter shaft to a depth of 400 feet is scheduled for completion during 1978. Essentially, all of the gypsum output will be used at the company's wallboard plant at Mississauga, Ontario, which is currently underground expansion.

MINERAL FUELS AND PRODUCTS

Petroleum and Natural Gas

Syncrude Canada Ltd.'s oil sands plant in the Fort McMurray area is nearly 60 per cent complete. Less than 18 months of construction work remain before the first phase of the \$2.1 billion oil sands project goes onstream in May 1978. Another 12 months of construction will be required beyond mid-1978 to complete the second and final phase of the project. Production of synthetic crude oil will be increased from an initial 52,000 barrels per day (b/d) to 125,000 b/d about five years later.

The team of Gulf Oil Canada Limited and Mobil Oil Canada, Ltd. has drilled another successful gas well in the Parsons Lake field in the Mackenzie Delta. The Gulf-Mobil Parsons D-20 well was drilled directionally under the lake to a total depth of 13,550 feet and tested gas from three separate zones in the Parsons Lake sandstone at rates from 17 to 20.5 million cubic feet per day. The D-20 well was the last in the team's six well program in the 1975-76 winter drilling season, which produced five gas wells and an oil discovery in the Kamik D-48 well. Three locations in the area are currently being prepared for the 1976-77 drilling season.

The National Energy Board issued an order on December 1, 1976 authorizing TransCanada PipeLines Limited to increase its rates for transportation services effective January 1, 1977 largely due to increased gas costs. The Board allowed TransCanada an increase of about 2 cents per million British Thermal Units (MMBtu's) on average gas transportation charges from the Alberta border to Eastern Ontario and Quebec. The charges will increase to 45.272 cents from the present level of 43.304 cents per MMBtu's. TransCanada's rate of return will remain at 10.2 per cent, based on an approved rate base of \$1,321,848,206 from January 1, 1977 to December 31, 1977.

Kitimat Pipe Line Ltd. applied to the National Energy Board on December 8 for approval of its plan to build and operate a new 753-mile, \$494 million, oil pipeline from Kitimat, British Columbia to Edmonton. A group of six companies would form the new firm and participate in the project: Ashland Oil Canada Limited, Farmers Union Central Exchange, Incorporated, Hudson's Bay Oil and Gas Company Limited, Interprovincial Pipe Line Limited, Koch Industries, Inc., and Murphy Oil Corporation. If approved, the pipeline will carry crude oil brought to Kitimat by tanker from Alaska and sources in the Middle East and Indonesia.

Eleven members of the Organization of Petroleum Exporting Countries (OPEC) have agreed on a 10 per cent increase in crude oil price effective January 1, 1977. These countries - Qatar, Iran, Iraq, Kuwait, Algeria, Libya, Nigeria, Gabon, Venezuela, Ecuador and Indonesia - are also planning an additional 5 per cent increase on July 1, 1977. The remaining two countries of the OPEC organization, Saudi Arabia and the United Arab Emirates, have agreed to raise prices by only 5 per cent on January 1, 1977 and have not as yet made any firm decision on future increases.

Uranium

The Federal Government has announced a further extension to its nuclear safeguard requirements whereby all nuclear exports under future contracts to non-nuclear weapon states will be restricted to those countries which ratify the Non-Proliferation Treaty (NPT) or otherwise accept international safeguards to their entire nuclear program. Nuclear export policy, as announced in December 1974, required binding assurances that what Canada provides will not be used for explosive purposes but did not cover what a country receives from other suppliers or what it might do on its own. Negotiations relative to the extension of safeguards required as a result of the 1974 announcement are still under way with Japan, Switzerland and the European Economic Community. Failure to conclude the appropriate agreements by December 31 will endanger scheduled uranium shipments to Japan, Britain, West Germany and Italy. An agreement with Spain has been reached thus ensuring shipments under Spanish uranium contracts while negotiations with Pakistan have been stalemated, thus effectively ending all nuclear co-operation with that country.

In the wake of criticism regarding Atomic Energy of Canada Limited's (AECL) international marketing activities, four of the company's directors have resigned. Three are representatives of Canadian utilities which have purchased CANDU reactors and the fourth is a representative of an auditing firm which services these utilities. All are concerned about possible conflict of interest.

The Federal Government has approved a licencing agreement between AECL and the Italian firm, Progettazione Meccaniche Nucleari (PMN), giving PMN the exclusive right to build CANDU reactors in Italy. After five years, PMN will be permitted to compete for CANDU export sales.

New Mexico is currently studying recommendations for a revised taxation system for coal and uranium. Current tax rates combine for a total of less than 3 per cent for each mineral compared with 8 per cent for oil and gas. One proposal, resulting from a study sponsored by the state's Energy Resources Board, calls for an effective tax rate of 30 to 32 per cent, a level which is being strongly opposed by industry.

Energy Fuels Ltd. plans to build two ore-buying stations in southern Utah to receive ore from numerous small producers, to which it has negotiated production rights. Sites for two uranium mills have also been acquired and preparation of the required environmental impact statements is under way.

The Australian Council of Trade Unions met in early December and endorsed a government decision to fulfill contracts for the supply of some 9 000 tonnes of uranium to utilities in West Germany, United States and Japan. The uranium will be supplied by production from Mary Kathleen Uranium Limited and from the Australian government stockpile.

Sweden's state-owned mining company, Luossavaara-Kiirunavaara A.B., (LKAB), is requesting approval to proceed with plans to expand its Ranstad uranium operation from its current capacity of 120 tonnes uranium per year to 200 tonnes uranium per year. The proposed \$50-\$60 million expansion would involve the mining and processing of one million tonnes of shale per year. Earlier plans, which had called for a capacity of 6 million tonnes of shale per year, were withdrawn due to environmental objections.

Goodyear Tire and Rubber Corp. and the Williams Company have withdrawn from Uranium Enrichment Associates (UEA), the consortium which had proposed the building and operation of a gaseous diffusion uranium enrichment plant in the United States. The remaining partner, Bechtel Corp., the founder of the project, plans no further initiative, thus effectively shelving the proposal.

NEW PUBLICATIONS

The following publications were prepared in the Mineral Development Sector, Department of Energy, Mines and Resources and released for distribution in December.

Preprints, *Canadian Minerals Yearbook 1975*,
Antimony; Lime; Magnesium; Phosphate; Silver; Zinc.

The above publications are available from Publishing Center, Department of Supply and Services, Ottawa, for 50¢ a copy.

