

ReD 82
.80214
Aug. 1976

Lubans

The Canadian Mineral Industry Monthly Report

LIBRARY / BIBLIOTHÈQUE

OCT 5 1976

GEOLOGICAL SURVEY
COMMISSION GÉOLOGIQUE

August, 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.

Mineral Development Sector
Department of Energy, Mines
and Resources
580 Booth Street
Ottawa, Canada K1A 0E4

Secteur de l'Exploitation Minérale
Ministère de l'Énergie, des Mines
et des Ressources
580, rue Booth
Ottawa, Canada K1A 0E4

This document was produced
by scanning the original publication.

Ce document est le produit d'une
numérisation par balayage
de la publication originale.

CONTENTS

1	SUMMARY
2	ECONOMIC TRENDS
7	TAXATION AND LEGISLATION AFFECTING MINING AND ALLIED INDUSTRIES IN CANADA
7	Provincial
7	Alberta
8	Federal-Provincial Mineral Agreements
8	New Brunswick
10	METALLIC MINERALS AND PRODUCTS
10	Aluminum
10	Copper
12	Gold
13	Iron Ore
14	Lead
15	Nickel
15	Silver
16	Zinc
17	INDUSTRIAL MINERALS AND PRODUCTS
17	Asbestos
18	Potash
18	Strontium Products and Sodium Sulphate
19	MINERAL FUELS AND PRODUCTS
19	Coal
20	Petroleum and Natural Gas
20	Uranium
22	NEW PUBLICATIONS

THE CANADIAN MINERAL INDUSTRY FOR AUGUST

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

SUMMARY

1. Canada's unadjusted index of real domestic product was 124.4 in June 1976, an increase of 1.0 per cent from May.
2. The June index for total mining was 105.2, a decrease of 1.2 per cent from the previous month.
3. Canada and New Brunswick signed a five year agreement on Minerals and Fuels Development.
4. New price increases on primary aluminum were announced by producers in August.
5. During August, the price of copper wirebars on the LME declined.
6. The price of gold continued its downward trend in August.
7. A four-month strike at Brunswick Mining and Smelting Corporation Limited has ended.
8. The Hilton iron ore mine near Shawville, Quebec will remain open for one more year.
9. Falconbridge Nickel Mines Limited will resume work on two major programs suspended last year.
10. Operations were resumed at the Ruth Vermont silver-lead-zinc mine in British Columbia.
11. A lead-zinc deposit was discovered near Pine Point.
12. Kaiser Aluminum & Chemical Corporation announced the closure of its celestite mining operation in Cape Breton and its intent to close the strontium products plant there.
13. The Government of Saskatchewan announced the purchase of the Duval Corporation of Canada's potash mine.
14. The Government of Canada and Saskatchewan, Alberta and British Columbia have reached an understanding to work towards a new national coal policy.
15. Petro-Canada has completed formal acquisition of all outstanding common shares of Atlantic Richfield Canada Ltd.

ECONOMIC TRENDS

Canada's index of real domestic product was 124.4 in June 1976, an increase of 1.0 per cent from May.

The June index for total mining was 105.2. The metal mines index, at 107.4, showed a 4.1 per cent decrease from May. In this sector, placer and gold mines increased by 8.6 per cent from the previous month. The miscellaneous metal mines group, which includes all non-ferrous metal mines, showed a 5.8 per cent decrease to 99.8.

The mineral fuels index showed a 5.7 per cent increase in June with coal mines registering a 3.5 per cent increase. Non-metal mines were down 18.0 per cent to 95.0.

Table 2 compares the production of 19 leading minerals in May and June during 1975 and 1976. Tables 3 and 4 show capital and repair expenditures for mining, quarrying, and oil wells for 1975 and 1976 by regions and mineral groupings respectively.

TABLE 1

CANADA, INDEXES OF REAL DOMESTIC PRODUCT, BY INDUSTRIES UNADJUSTED (1971=100)

INDUSTRY OR INDUSTRY GROUP	1975			1976			PERCENTAGE CHANGES			
	MAY	JUNE	AVERAGE	MAY	JUNE	AVERAGE	MAY 1976	JUNE 1976	JUNE 1976	1ST 6 MONTHS 1976
			1ST 6 MONTHS			1ST 6 MONTHS	MAY 1975	JUNE 1975	MAY 1976	
REAL DOMESTIC PRODUCT	115.5	118.0	112.9	123.2	124.4	119.0	6.7	5.4	1.0	5.4
PRIMARY INDUSTRIES										
AGRICULTURE	73.9	42.3	54.2	109.9	62.9	69.5	48.7	48.7	-42.8	28.3
FORESTRY	67.4	99.0	97.0	77.8	93.1	88.4	15.4	-6.0	19.7	-8.9
FISHING AND TRAPPING	78.0	106.0	55.0	109.7	106.8	67.6	40.6	0.8	-2.6	22.9
MINES, QUARRIES AND OIL WELLS	104.2	106.3	106.8	106.5	105.2	106.1	2.2	-1.0	-1.2	-0.6
METAL MINES	108.2	96.8	101.8	112.0	107.4	105.4	3.5	11.0	-4.1	3.5
PLACER AND GOLD QUARTZ MINES	75.2	63.9	71.2	70.6	76.7	74.8	-6.1	20.0	8.6	5.0
IRON MINES	115.5	93.7	99.2	144.7	144.1	120.2	25.3	53.8	-0.4	21.2
MISCELLANEOUS METAL MINES	108.0	99.2	104.0	106.0	99.8	103.2	-1.9	0.6	-5.8	-0.8
MINERAL FUELS	99.0	115.6	113.1	97.3	102.8	106.3	-1.7	-11.1	5.7	-6.0
COAL MINES	208.5	235.9	206.4	117.8	121.9	187.9	-43.5	-48.3	3.5	-9.0
CRUDE PETROLEUM AND NATURAL GAS	90.0	105.7	105.4	95.6	101.2	99.6	6.2	-4.3	5.9	-5.5
NONMETAL MINES	102.0	99.8	107.4	115.8	95.0	111.7	13.5	-4.8	-18.0	4.0
ASBESTOS MINES	52.2	54.3	62.5	101.0	85.4	91.3	93.5	57.3	-15.4	46.1
SECONDARY INDUSTRIES										
MANUFACTURING	113.9	118.9	113.0	121.8	124.6	118.4	6.9	4.8	2.3	4.7
NONDURABLE MANUFACTURING	112.2	118.3	110.9	119.1	123.0	114.4	6.1	4.0	3.3	3.1
PETROLEUM AND COAL PRODUCTS INDUSTRIES	125.7	126.7	123.6	124.6	133.3	124.7	-0.9	5.2	7.0	0.8
DURABLE MANUFACTURING	115.5	119.6	115.1	124.6	126.2	122.4	7.9	5.5	1.3	6.3
PRIMARY METAL INDUSTRIES	106.7	110.0	113.3	115.0	113.2	112.7	7.8	2.9	-1.6	-0.5
IRON AND STEEL MILLS	110.0	118.6	118.0	116.3	127.6	117.2	5.7	7.6	9.7	-0.7
STEEL PIPE AND TUBE MILLS	153.0	144.9	151.0	186.4	241.9	176.1	21.8	66.9	29.8	16.6
IRON FOUNDRIES	105.5	121.2	126.0	136.9	120.1	133.6	29.8	-0.9	-12.3	6.0
SMELTING AND REFINING	97.3	91.7	101.4	98.5	70.6	92.6	1.2	-23.0	-28.3	-8.7
NONMETALLIC MINERAL PRODUCTS INDUSTRIES	119.9	135.9	108.4	128.0	134.4	111.0	6.8	-1.1	5.0	2.4
CEMENT MANUFACTURERS	131.4	160.6	102.7	150.4	154.3	105.5	14.5	-3.9	2.6	2.8
READY-MIX CONCRETE MANUFACTURERS	126.1	150.0	93.7	136.7	163.5	100.6	8.4	9.0	19.6	7.4
GLASS AND GLASS PRODUCTS MANUFACTURERS	127.9	152.7	111.6	109.7	116.9	93.9	-14.2	-23.4	6.6	-15.9
CONSTRUCTION INDUSTRY	95.7	109.6	91.2	111.9	122.8	105.8	16.9	12.0	9.7	16.1
TRANSPORTATION, STORAGE, COMMUNICATION	127.5	130.2	123.0	131.6	133.1	126.7	3.2	2.2	1.1	3.1
ELECTRIC POWER, GAS AND WATER UTILITIES	124.0	119.2	140.5	138.7	131.2	151.2	11.9	10.1	-5.4	7.6
TRADE	123.0	124.7	111.5	130.5	136.3	119.8	6.1	9.3	4.4	7.4
FINANCE, INSURANCE, REAL ESTATE	120.7	122.3	120.6	126.7	127.8	126.0	5.0	4.5	0.9	4.5
COMMUNITY, BUSINESS AND PERSONAL SERVICE	120.2	121.3	119.0	124.8	127.1	124.2	3.8	4.8	1.8	4.4
PUBLIC ADMINISTRATION AND DEFENCE	119.5	123.8	117.0	120.0	123.0	118.3	0.4	-0.6	2.5	1.2

TABLE 2

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

	1975			1976			Percentage Changes		
	May	June	Total 1st 6 Months	May	June	Total 1st 6 Months	June 76 June 75	June 76 May 76	1st 6 Months 1976 1975
Metals									
Copper	66.2	58.8	357.0	66.4	57.0	359.2	-3.1	-14.2	+0.6
Gold kilograms	4 846.9	3 699.8	24 991.7	4 244.8	4 458.9	26 225.4	+20.5	+5.0	+4.9
Iron ore	5 144.4r	4 697.9	19 960.8	6 371.5	6 417.2	22 122.2	+36.6	+6.7	+10.8
Lead	46.0	16.8	158.9	20.8	23.9	130.9	+42.3	+14.9	-17.6
Molybdenum tonnes	932.8	990.6	5 816.1	1 148.0	1 161.4	7 258.0	+17.2	+1.2	+24.8
Nickel	22.6	20.6	135.1	21.9	18.3	124.2	-11.2	-16.4	-8.1
Silver tonnes	143.4	76.5	586.8	123.2r	112.1	675.2	+46.5	-9.0	+15.1
Uranium(1) tonnes	189.3	263.9	1 893.1	431.9	503.4	2 085.9	+90.8	+16.6	+10.2
Zinc	99.2	92.6	532.1	95.1	81.6	506.7	-11.9	-14.2	-4.8
Nonmetals									
Asbestos	69.6	65.9	492.9	129.3	126.4	751.3	+91.8	-2.2	+52.4
Gypsum	588.1	527.4	2 538.5	428.7r	395.5	2 181.0	-25.0	-7.7	-14.1
Potash K ₂ O	393.6	375.8	2 683.0	311.3	318.2	2 535.8	-15.3	+2.2	-3.5
Salt	344.5	377.2	2 952.4	353.6	379.1	2 899.4	+0.5	+7.2	-1.8
Cement	1 020.3	1 121.1	4 187.8	992.9	1 159.2	4 271.8	+3.4	+16.8	+2.0
Clay products 000\$	6 962.3	6 972.8	28 797.9	8 298.2
Lime	137.1	127.6	808.0	155.2	167.2	870.6	+31.0	+7.7	+7.8
Fuels									
Coal	2 258.3r	2 130.4	12 515.0	1 290.4	1 314.2	11 627.2	-36.3	+1.8	-7.1
Natural gas 000 cubic metres	7 037 492.2r	6 664 807.2	44 141 275.4	7 184 657.6r	6 831 454.9	45 170 640.5	+2.5	-4.9	+2.3
Crude oil & equivalent 000 cubic metres	6 377.9	7 590.6	43 923.2	7 049.8r	7 404.9	40 658.9	-2.5	+5.0	-7.4

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

r Revised; .. Not available.

TABLE 3

Capital and Repair Expenditures - Mining, Quarrying and Oil Wells, 1975-76*

		Capital Expenditures			Repair Expenditures			Capital and Repair		
		Construction	Machinery & Equipment	Total	Construction	Machinery & Equipment	Total	Construction	Machinery & Equipment	Total
		(millions of dollars)								
Atlantic Region	1975	144.6	33.4	178.0	9.4	104.7	114.1	154.0	138.1	292.1
	1976	113.4	41.8	155.2	11.8	108.9	120.7	125.2	150.7	275.9
	1976	126.5	43.6	170.1	11.8	108.9	120.7	138.3	152.5	290.8
Quebec	1975	219.1	106.3	325.4	10.5	119.0	129.5	229.6	225.3	454.9
	1976	378.5	120.1	498.6	11.8	133.7	145.5	390.3	253.8	644.1
	1976	367.3	123.5	490.8	11.8	133.7	145.5	379.1	257.2	636.3
Ontario	1975	178.8	89.5	268.3	25.8	134.1	159.9	204.6	223.6	428.2
	1976	215.9	124.2	340.1	30.6	157.4	188.0	246.5	281.6	528.1
	1976	224.9	117.1	342.0	30.6	157.4	188.0	255.5	274.5	530.0
Prairie Region	1975	1,147.0	214.8	1,361.8	167.6	134.4	302.0	1,314.6	349.2	1,663.8
	1976	1,685.5	265.5	1,951.0	197.2	149.1	346.3	1,882.7	414.6	2,297.3
	1976	1,640.7	268.1	1,908.8	197.2	149.1	346.3	1,837.9	417.2	2,255.1
British Columbia	1975	100.7	64.9	165.6	14.4	121.3	135.7	115.1	186.2	301.3
	1976	159.2	82.6	241.8	23.6	128.8	152.4	182.8	211.4	394.2
	1976	176.8	71.8	248.6	23.6	128.8	152.4	200.4	200.6	401.0
Northwest Territories and Yukon	1975	210.0	113.1	323.1	7.7	27.2	34.9	217.7	140.3	358.0
	1976	200.5	66.2	266.7	10.0	29.8	39.8	210.5	96.0	306.5
	1976	285.7	127.4	413.1	10.0	29.8	39.8	295.7	157.2	452.9
Canada	1975	2,000.2	622.0	2,622.2	235.4	640.7	876.1	2,235.6	1,262.7	3,498.3
	1976	2,753.0	700.4	3,453.4	285.0	707.7	992.7	3,038.0	1,408.1	4,446.1
	1976	2,821.9	751.5	3,573.4	285.0	707.7	992.7	3,106.9	1,459.2	4,566.1

* 1975 Preliminary actual; 1976 Original intentions; 1976 Revised intentions.

TABLE 4

Capital and Repair Expenditures - Mining, Quarrying and Oil Wells, 1975 and 1976¹

	Capital Expenditures			Repair Expenditures			Capital and Repair		
	1975	1976	1976	1975	1976	1976	1975	1976	1976
	(Millions of dollars)								
Metal mines									
Gold	29.6	24.3	21.9	12.7	13.9	13.9	42.3	38.2	35.8
Iron	290.8	439.1	448.9	194.8	205.7	205.7	485.6	644.8	654.6
Copper-gold-silver	165.9	203.0	201.8	107.9	104.3	104.3	273.8	307.3	306.1
Silver-lead-zinc	81.8	86.3	73.7	30.9	34.5	34.5	112.7	120.8	108.2
Other metal mines	132.8	207.5	200.9	109.9	132.0	132.0	242.7	339.5	332.9
Total metal mines	700.9	960.2	947.2	456.2	490.4	490.4	1,157.1	1,450.6	1,437.6
Nonmetal mines									
Asbestos	64.1	94.0	83.6	49.2	68.7	68.7	113.3	162.7	152.3
Other nonmetal mines ²	234.7	251.1	257.0	131.1	151.1	151.1	365.8	402.2	408.1
Total nonmetal mines	298.8	345.1	340.6	180.3	219.8	219.8	479.1	564.9	560.4
Mineral fuels									
Petroleum and gas	1,622.5	2,148.1	2,285.6	239.6	282.5	282.5	1,862.1	2,430.6	2,568.1
Total mining industry	2,622.2	3,453.4	3,573.4	867.1	992.7	992.7	3,498.3	4,446.1	4,566.1

¹ 1975 Preliminary actual, 1976 Original intentions, 1976 Revised intentions.

² Includes coal mines, gypsum, salt, potash, miscellaneous nonmetal mines and quarrying.

TAXATION AND LEGISLATION AFFECTING
MINING AND ALLIED INDUSTRIES IN CANADA

Provincial

Alberta

Land Surface Conservation and Reclamation Act: Under this Act, the Regulated Oil Sands Surface Operation Regulations were established.

The new regulations designate oil sands surface operations as regulated surface operations. The operator of any oil sands project as of July 1, 1976 is given until December 31, 1977 to obtain the approvals necessary to conform to the new regulations.

Under the new regulations, any person proposing to explore for oil sands must first apply for an Exploration Approval. The application, with the appropriate application under the Oil and Gas Conservation Act, must be sent to the Energy Resources Conservation Board in the prescribed form and accompanied by the application fee of \$25. The Board will transmit the application to the Director of Forestry who may refer it to the Exploration Review Committee. The Director may grant or refuse an Exploration Approval. The Minister may require a security deposit from the applicant before an Approval is granted.

Before commencing the operation, extension or abandonment of an oil sands site, one must apply for a Development and Reclamation Approval (fee \$50). The application in the prescribed form, with the appropriate application under the Oil and Gas Conservation Act, must be sent to the Energy Resources Conservation Board accompanied by the prescribed fee. The application must include a development plan, a reclamation plan, and other maps and plans or sketches, all as prescribed in the Land Conservation Regulations. The Minister may grant or refuse the application, and may require a security deposit before the approval is granted.

An operator undertaking exploration must, at the conclusion of each program, file with the Director a report as prescribed. An operator undertaking the operation, extension or abandonment of an oil sands site must, annually before March 31, and at the conclusion of his activities, file with the Chairman two copies of a report, as prescribed.

Mines and Minerals Act: Under this act, two new regulations have been established.

The Petroleum and Natural Gas Licence Regulations AR 169/763 set out the procedure for applying for a licence, the fee and rental, the term which varies from two years in the plains area to five years in the foothills area, the maximum area of the licence and other details necessary to the administration of the licence.

The Petroleum and Natural Gas Lease Regulations AR 168/76, establish comparable rules for a lease.

Federal-Provincial Mineral Agreements

New Brunswick

Canada and New Brunswick recently signed a five-year Agreement on Minerals and Fuels Development, to run until March 31, 1981. It is subsidiary to the General Development Agreement between Canada and the Province. Signing the Subsidiary Agreement for Canada were The Honourable Marcel Lessard, Minister of Regional Economic Expansion (DREE), and The Honourable Alastair Gillespie, Minister of Energy, Mines and Resources (EMR).

The principal objective is to enable Canada and New Brunswick to participate in activities to maximize economic and socioeconomic net benefits from the Province's mineral resources. The Subsidiary Agreement will 1) promote private investment in mineral exploration and development; 2) encourage further processing of the Province's minerals; and 3) contribute to the nation's fuel supply. The total estimated cost of the work to be done is \$11,313,125, 80 per cent of which will be funded by Canada through DREE.

The Subsidiary Agreement covers a wide variety of projects under two programs. The design of the projects was carried out with considerable collaboration by officers of the DREE-N.B. office in Fredericton, the New Brunswick Department of Natural Resources, and the Mineral Development Sector (MDS), the Geological Survey of Canada (GSC) and the Canada Centre for Mineral and Energy Technology (CANMET), all of EMR. As is normal in such Agreements, the Province will have principal responsibility for implementation of the projects, but officers from MDS, the GSC and CANMET will have an ongoing planning-advisory role. An officer from MDS will co-ordinate the EMR involvement and serve as EMR's representative on the management committee.

Program 1 - *Opportunity Identification*

An energy resources project has three components: an inventory by systematic drilling of the coal resource in the Pennsylvanian sediments of central and eastern New Brunswick at an estimated cost of \$2,237,450; a uranium potential survey, using both geophysical and geochemical techniques, partly in conjunction with the Uranium Reconnaissance Program of the GSC, at an estimated cost of \$196,550; and a limited thermal peat inventory, at an estimated cost of \$166,000.

A many-faceted project on metallic, industrial and structural minerals will spend an estimated \$1,235,500. It will include components on potash and salt, limestone, quartzite, feldspathic minerals, sand, gravel, crushed stone and various metals.

A detailed evaluation of the mineral potential of the area underlying the proposed extension of Fundy National Park will be carried out, at a cost of \$500,000.

A project of detailed geological mapping, for publication at a scale of 1:50,000, will be carried out in west-central New Brunswick on the southward extensions of the Ordovician and Silurian volcanics and sediments and Devonian intrusive rocks mapped under the Canada-New Brunswick Mineral Reconnaissance Agreement which terminates in September 1976. This will essentially conclude the detailed geological mapping of all mineral potential regions of the Province. The cost is an estimated \$1,152,000.

Program 2 - *Opportunity Development*

A project on processing has two components: a study of improved techniques, at an estimated cost of \$1.8 million, will initially involve a continuation of work by the New Brunswick Research and Productivity Council on improved recovery of base metals from northeastern New Brunswick, which was begun under the Mineral Reconnaissance Agreement; and a review of various technological approaches to reducing the sulphur content of coal, at a cost of \$200,000.

A project on the promotion of identified opportunities provides \$600,000 for studies on a zinc reduction plant and manpower problems in the industry and for the promotion of an interest in prospecting through such aids as training, analytical and technical services and data compilation.

Capital funds totalling \$1,750,000 are available to assist with resource roads, such as the multiple use road to the Mount Pleasant area and the new Bathurst - St. Quentin highway, which will provide access to potentially important mining areas.

METALLIC MINERALS AND PRODUCTS

Aluminum

Price increases on primary aluminum have been announced by North American producers only two months after they raised prices from 41 to 44 cents a pound. The new price is 48 cents a pound for 99.5 per cent aluminum. The major portion of metal produced is 99.7 per cent aluminum, the most popular grade, and the industry is fast adopting a pricing policy of charging an extra half-cent a pound for the 99.7 per cent unalloyed aluminum ingot. In the past year prices have risen 23 per cent; in two years they have risen 33 per cent, and in three years 92 per cent. Other world producers have been posting similar prices except in Japan where producers have raised prices from about 49 cents a pound to 58 cents.

The newly formed Light Metal Stockpiling Association in Japan announced that it has purchased 9,600 tonnes of aluminum ingot from local smelters at a price of about 48.5 cents a pound. This purchase almost exhausts the \$10 million in government backed low interest loans that the association received to start operation of the stockpile.

World primary aluminum production to the end of June totalled 4,866,000 tonnes according to the London-based International Primary Aluminum Institute (IPAI). The world's aluminum smelters operated at about 80 per cent of capacity in the first half of 1976. During the first half of the year stocks of primary aluminum held by smelters and fabricators decreased some 631,000 tonnes to 2,498,000 tonnes. Producers have been gradually reducing stocks to more near normal levels while keeping an ample amount of unused capacity in reserve. IPAI's data excludes statistics for communist countries.

Copper

During August the price of copper wirebars on the London Metal Exchange (LME) declined from 73.4 U.S. cents a pound at the beginning of the month to 67.4 cents a pound at month-end. Canadian producer copper prices remained unchanged throughout August at 72.375 cents a pound for wirebars and 71.75 cents a pound for cathode. United States producer prices for wirebars and cathode were also unchanged at 74.625 and 74.00 U.S. cents a pound respectively.

Commodity exchange warehouse stocks of copper continued to increase in August. LME stocks at month-end were 559,900 tonnes, an increase of 12,600 tonnes for the month. Comex stocks increased from 128,053 tonnes at the end of July to 140,397 tonnes at the end of August.

At the Kidd Creek mine of Texasgulf Inc., development and construction projects continue on schedule. The shaft for the No. 2 underground mine reached a depth of 3,200 feet at the end of the second quarter. Production from underground will be increased to compensate for reduced production from the open pit which is now almost mined out. Engineering, design and procurement are proceeding for the new 65,000 ton per year copper smelter, refinery and related facilities. Start-up is now scheduled for the second quarter of 1979.

Sherritt Gordon Mines Limited closed the Lynn Lake mine during the second quarter of 1976 because of heavy operating losses. At the Ruttan mine, waste removal from the open pit continued to fall below target in the second quarter. Good progress was made in the exploration and development of the Ruttan underground mine and detailed drilling of the ore body from the 1,200 foot level was started. Zinc recoveries at the Ruttan mill reached a record level of 82 per cent.

The Norita mine of Orchan Mines Limited began commercial production on May 1, 1976. Preproduction development ore was milled between January and the end of April. Ore is being trucked from the mine to the Orchan mill.

Brenda Mines Ltd. reported sharply increased earnings in the second quarter of 1976 compared with the same period one year earlier. An important factor in this improvement was the continued increase in mill throughput rates resulting from computer control of the grinding units. Other factors were higher copper and molybdenum prices and the removal of the British Columbia royalty tax expense.

In the first six months of 1976, earnings also improved at the Lornex mine of Lornex Mining Corporation Ltd. Copper production was higher due to an increase in the tonnage milled. Deliveries to Japan will be made on a fixed-quantity-basis in 1976 following a sales agreement amendment made in 1975. Additional copper concentrate deliveries will be made in 1976 to a smelter in the United States.

Falconbridge Nickel Mines Limited intends to resume work immediately on two major projects in the Sudbury area. Both projects were suspended in 1975 to conserve cash. One project is the smelter modernization project and the other is the sinking of the Fraser shaft on the north rim of the Sudbury basin.

Mining and milling were resumed late in July at the operations of Campbell Chibougamau Mines Ltd. These mines were closed in May 1975 due to low copper prices and failure to reach agreement on the terms of a new labour contract.

The first lot of blister copper from the Cuajone project in Peru was delivered at the end of July to the Ilo refinery of Empresa Minera del Peru. Full production at the open pit mine, mill and expanded smelter is expected during the fourth quarter of 1976. The capacity of the Ilo refinery will be increased from 150,000 to 300,000 tonnes a year.

Citibank has filed suit in United States District Court for an injunction to prevent a preferential payment arrangement between Zaire and United States financial institutions which made loans to Zaire to finance the building of a 1,100 mile electrical transmission line. Citibank has also provided loans to Zaire. The proposed preferential payments scheme would be based upon copper revenues. The transmission line was built in connection with a suspended copper project in Zaire, the Tenke-Fungurume project.

The Beneguella railway, through Angola, was scheduled for re-opening in August. By July, Zambian copper was moving to markets steadily in spite of the loss of this rail link during the civil war in Angola.

Japanese metal traders and consumers are reported to have been making purchases of refined copper outside Japan for delivery in the third quarter of the year. Purchases are being made at lower prices than the Japanese producer price and as a hedge against a shortage in Japan. Japanese smelters have been unable to increase production due to low demand for sulphuric acid. The acid storage system in Japan is reported to be full.

On July 31, the first purchase contract was made by the newly established Metallic Mineral Stockpile Association of Japan to buy 13,000 tons of copper from Japanese smelters. Two more purchases are expected before the year end.

Gold

The price of gold continued its downward trend in August, dropping sharply towards the end of the month. The low for the month on the London Gold Market was \$103.05 (U.S.), the lowest price since December 4, 1973. The high was \$113.65 (U.S.) an ounce and the closing price was \$104.00 (U.S.). The monthly average of the afternoon fixing gold price on the London Market for August was \$109.93 U.S. (\$108.36 Cdn.) an ounce compared with \$117.75 U.S. (\$114.48 Cdn.) in July.

The third International Monetary Fund (IMF) gold sale is scheduled for September 15, 1976. The IMF announced that it will use the bid price method for this sale and will announce the names of the successful bidders, a departure from the practice in previous sales.

Because of the low gold price, some Canadian gold mines have been forced to revise their mining sequence and reduce their labour force. If the price of gold continues in its present range some mines may have to close in the near future.

Because of reductions in the scale of operations at a number of gold mines and the possible closure of these and other mines, concern about job availability and mining community stability has been expressed by a number of groups. But the Federal Minister

of Energy, Mines and Resources, according to a press report, felt that if the federal government subsidized the cost of mining gold other sectors of the mining industry experiencing financial problems would seek similar aid. A press report on the Annual Meeting of Resource Ministers held in St. John's, Newfoundland, stated that the Ontario Resource Minister called upon the federal government to provide subsidies for up to three years to financially troubled gold mines. The assistance provided would be a loan covering one quarter of the revenue earned by a mine in any quarter of the year and the loan would be repaid only if the mine should show a profit.

Iron Ore

The Hanna Mining Company, the price leader in North America, has raised the price of its Lake Superior iron ores by \$1.01 (U.S.) a long ton effective August 6. The price of pellets was raised by 2.6 cents a long ton unit. The new prices for ores of 51.5 per cent iron content are as follows:

Mesabi Non-Bessemer (long ton)	\$20.26
Manganiferous (long ton)	\$20.51
Pellets (long ton unit)	\$0.531

The prices are for Hanna ores delivered to rail of vessel at Lake Erie ports. The new prices include transportation increases averaging 48 cents a long ton.

A Mesabi Non-Bessemer ore is defined as an ore that contains 0.045 to 0.180 per cent phosphorus while manganiferous ore is an ore that contains more than 2 per cent manganese. The only producer of Non-Bessemer and manganiferous ores in Canada is the Iron Ore Company of Canada (IOC).

From August 1974 to August 1976 the price of Mesabi Non-Bessemer ore has increased from \$11.91 (U.S.) to \$20.26 a long ton and pellets have increased from about 35.0 cents to 53.1 cents a long ton unit.

As a result of recent price increases for iron ore, the management of the Hilton mine near Shawville, Quebec, has decided to extend the life of its mine by one year. The mine was scheduled to close by fall 1976. The ore mined grades only 22 per cent iron as compared to the national average of 37 per cent.

The mine, mill and pellet plant employ some 300 people and in order to keep the mill and pellet plant alive the company is studying the possibility of mining iron ore from several other small deposits located within 150 miles of the existing operations. One of the sources mentioned in the news is the old Hull iron mine, on the northeast fringe of Gatineau Park, a few miles north of Hull. However, the feasibility of this source as a major supplier of raw material has yet to be proven.

Iron Ore Company of Canada a annoncé un profit de \$6,957,000 au cours du second trimestre (avril-juin) alors que pour la période correspondante l'an dernier elle avait enregistré une perte de \$4,624,000. Pour les premiers six mois de 1976, la compagnie rapporte une perte de \$1,370,000 en comparaison d'une perte de \$13,069,000 pour la même période en 1975.

Au cours de la première moitié de 1976 la production de concentrés à Labrador City a été de 20 pour cent supérieure à celle de la même période en 1975 et la production de boulettes a augmentée de 18 pour cent. La production de boulettes est à sa pleine capacité.

Le vaste programme d'entretien entrepris en 1975 à l'usine de boulettage de Sept Iles fut complété vers la mi-1976 et la production a augmentée en mai et en juin.

Lead

The four-month strike by 1,200 mining division workers at Brunswick Mining and Smelting Corp. in Bathurst, New Brunswick ended late in August. The members of the United Steelworkers of America voted to accept a two-year contract giving them an 8 per cent salary increase in the first year and 6 per cent in the second year. It will take the mining division at least one month to get back to a normal operating level. The situation is further complicated by the fact that about 400 of the workers obtained other employment during the strike and may not return to work immediately.

Cyprus Anvil Mining Corporation declared a *force majeure* on deliveries of lead and zinc concentrates to customers in Japan and Europe. Production workers at the Faro mine went out on strike on July 30 over a wage roll-back ruling by the Anti-Inflation Board (AIB). There appears to be no apparent end in sight to this conflict.

Canadian Natural Resources Limited (formerly Aex Minerals Corporation) reports that probable reserves at the Grum deposit in the Yukon are 25.9 million tonnes of which 10.9 million tonnes grades 14 per cent combined zinc-lead (ratio approximately 2 to 1). In addition to the 25.9 million tonnes, there is a further 9 to 11 million tonnes of drill indicated reserves.

Regulations prescribing national emission standards in respect of secondary lead smelters were published in the Canada Gazette Part II of July 9, 1976. The standards are:

Commencing August 1, 1976, the quantity of particulate matter emitted into ambient air by a secondary smelter shall not exceed:

- (a) 0.046 grams per normal cubic metre from operations involving blast furnaces, cupolas or reverberatory furnaces, or
- (b) 0.023 grams per normal cubic metre from operations involving holding furnaces, kettle furnaces or lead oxide production units or involving scrap and material handling, crushing, furnace tapping, slagging, cleaning or casting.

Lead particulate matter must not exceed 63 per cent by weight the particulate matter emission levels in (a) and (b).

The Canadian and U.S. prices remained unchanged during the month, at 24.25 cents a pound and 24.5 to 25.0 cents a pound respectively. The LME price declined 0.3 cents to 21.5 cents a pound (Cdn.) during the month. Stocks of refined lead in LME warehouses declined 6,975 tonnes during the month to 75,000 tons on August 27.

Nickel

Falconbridge Nickel Mines Limited announced that it would resume work on two major capital spending programs that were halted last November when Falconbridge cut back production by 30 per cent and announced a reduction of \$40-\$50 million in capital spending. The company will resume construction of a \$95 million smelter environmental improvement program at Sudbury on which about \$30 million had been spent. It will also resume the sinking of the Fraser shaft on the north rim of the Sudbury basin which was 84 per cent complete when work was halted. The company also stated that it hopes to announce a step up in production in the near future if the U.S., European and Japanese economic recoveries continue.

Silver

About mid-June 1976, operations were resumed at the Ruth-Vermont silver-lead-zinc mine of Consolidated Columbia River Mines Ltd. near Golden, British Columbia. The mine had been closed down since January 1974. The 500-ton-a-day concentrator began operating at a rate of 150 short tons of ore a day and is currently up to a rate of 300 tons a day. Proven ore reserves are reported to be 242,500 tons averaging 4.66 troy ounces of silver a ton, 3.76 per cent lead and 5.52 per cent zinc. Probable ore reserves are reported to be 350,000 tons grading 3.73 ounces of silver a ton, 2.70 per cent lead and 3.26 per cent zinc. In addition, there are 450,000 tons of possible ore. The company plans to continue operations at least to the end of this year. Production would be discontinued during the winter months and resumed when weather permits in the spring of 1977.

Zinc

In Canada, the zinc-lead mining operations of Cyprus Anvil Mining Corporation at Faro were shut down on July 30, for the second time this year. Operations were first interrupted by a strike in March and April. Wage negotiations on a new contract were concluded and work resumed on May 1. The current strike by the union is in protest to a wage roll-back ordered by the Anti-Inflation Board.

The strike at Brunswick Mining & Smelting Corporation, which commenced on May 29, was settled August 28, with union acceptance of an 8 per cent and 6 per cent wage increase for the 1976 and 1977 contract years respectively.

Western Mines Limited and Du Pont of Canada Exploration Limited have discovered a lead-zinc deposit near Pine Point in the Northwest Territories having indicated reserves of 2.54 million tonnes grading 11.9 per cent zinc and 4.1 per cent lead.

In the United States, the National Zinc Company Inc. was struck by labour on August 2 during the transition between the closing of its horizontal retort operations and the start-up of its new electrolytic plant. The transition phase required a reclassification of positions which prompted the strike.

The Steel and Nonferrous Metals Council of the government of Brazil has approved the Morro Agudo zinc project, an integrated mine-smelter complex having an annual capacity of 35,000 tonnes electrolytic zinc to be in production during 1978. By-products will include sulphuric acid, lead, cadmium and lime. The project is being carried out by Metamig, a company owned by the State Government of Minas Gerais.

Jododex Pty Ltd., an Australian company owned jointly by St. Joe Minerals Corporation and Phelps Dodge Corporation, has reached an agreement in principal with Australian Mining & Smelting Ltd. (A.M.&S.) to begin joint venture development of a zinc-copper-lead-silver ore body in the Woodlawn area near Tarago, New South Wales, Australia. The ore body has proven reserves of 10 million tonnes grading 9.1 per cent zinc, 3.5 per cent lead, 1.8 per cent copper and 1.8 troy oz of silver a tonne. The deposit will initially be mined by open pit and can be in production within two years at an estimated cost of \$100 million. St. Joe, Phelps Dodge, and A.M.&S. will participate equally in the project but A.M.&S. will contribute the first \$23.3 million whereafter the participants will jointly fund the project.

On August 3, Texasgulf Inc. raised its western zinc metal price in the United States by 3 cents a pound, to 40 cents a pound, and raised the Canadian price by 1.5 cents a pound on August 6, to 38.5 cents. Cominco Ltd. followed Texasgulf in the United States,

raising its price to 40 cents a pound on August 17, but raised the Canadian price by 2 cents a pound rather than by 1.5 cents to 39 cents, as of August 26, allowing for pre-notification to the Anti-Inflation Board (AIB). On August 18, Noranda Sales Corporation Ltd. and Hudson Bay Mining and Smelting Co. Limited followed the Cominco price in the United States. Noranda Sales also raised its Canadian price to 39 cents on August 26, having given earlier notice to the AIB. Texasgulf spokesmen indicated that the company was considering increases in its Canadian price to more closely match other producers at the 39 cents a pound level.

In the United States, St. Joe Minerals Corp. increased its price for prime western zinc metal by 3 cents a pound on August 9, to 40 cents, following the Texasgulf lead. On August 10, New Jersey Zinc Company did the same. However, Bunker Hill Company on the same day, increased its price for prime western by only 2 cents a pound, to 39 cents a pound. Other producers are studying these price moves but have yet to react.

Overseas, the price for good ordinary brand zinc metal sold by producers remained unchanged at \$795 per tonne. This is equivalent to 36.06 cents a pound.

London Metal Exchange zinc quotations declined about £19 per tonne during August (about 1.5 cents a pound) from quotations of £431.50 per tonne (about 34.9 cents a pound) registered on July 31.

On July 31, the first purchase contract was made by the Metallic Mineral Stockpile Association of Japan to buy 12,000 tonnes of zinc from Japanese smelters.

INDUSTRIAL MINERALS AND PRODUCTS

Asbestos

Employees of Cassiar Asbestos Corporation Limited at the Cassiar mine in British Columbia ratified a two-year agreement in late August after walking out on strike June 23. The United Steelworkers of America, representing 421 workers, approved the agreement which increases the base pay rate to \$7.30 an hour from \$6.66 an hour.

United Asbestos Inc., in Matachewan, Ontario, announced that it is operating at 35 to 40 per cent of capacity as a result of a slowdown to allow satisfactory dust control as required by provincial standards. The company hopes to have all modifications to equipment completed by April, 1977, allowing full capacity operation of approximately 91,000 tonnes of fibre a year.

Potash

On August 12, the Government of Saskatchewan announced the purchase of the Duval Corporation of Canada mine near Saskatoon. Under the agreement the property, management, distribution facilities and marketing systems will be transferred to the Potash Corporation of Saskatchewan (P.C.S.) on October 29, 1976. The purchase price is \$128.5 (U.S.) million of which \$118.5 (U.S.) million will be paid in cash and \$10 (U.S.) million will be in the form of a two year, 9 per cent promissory note. The mine with a rated production capacity of 664,000 tonnes per year K_2O equivalent gives P.C.S. 8.8 per cent of the potash industry in Saskatchewan.

On August 6, the United States Treasury issued notice of final revocation of the anti-dumping finding on potassium chloride sold by the Swift Chemical Co., Brockville Chemical Industries Limited, Hudson Bay Mining and Smelting and Cominco Ltd. In 1974, the U.S. Treasury had excluded potassium chloride sold by eight other Canadian exporters from dumping charges.

On June 29, an indictment was filed, in the U.S. District Court, Northern District of Illinois, charging six companies, and subsidiaries of two of the companies, with conspiracy to restrain interstate and foreign trade and commerce by restricting production, export and import of potassium chloride and by price-fixing. In August, 157 persons and corporations were named as co-conspirators but were not charged. Because the case relates to the prorationing system operated in the Saskatchewan potash industry from 1970 to 1974 a large number of Canadians were among those named as co-conspirators. The State of Illinois, as a follow up to the Grand Jury investigation, has filed a suit demanding treble damages for the higher prices paid for potash during prorationing.

Strontium Products and Sodium Sulphate

Kaiser Aluminum & Chemical Corp. announced that it has closed its celestite mining operation at Loch Lomond, Cape Breton, and intends to close its strontium products plant near Sydney, Nova Scotia in December, 1976.

Reasons given for closing both operations are: (1) combined corporate operations have incurred losses since the first full year of operation in 1972; (2) the market for strontium products has failed to develop as anticipated; and (3) there have been technical problems with the chemical plant.

Discussions with Cape Breton Development Corporation, which has invested in the operations, and other government authorities are under way to determine if it is practical to continue operation under different ownership. Approximately 100 persons are employed at the two localities.

MINERAL FUELS AND PRODUCTS

Coal

The Honourable Alastair Gillespie, Minister of Energy, Mines and Resources, has announced that the Government of Canada and Saskatchewan, Alberta and British Columbia have reached an understanding to work together towards a new national coal policy. He said that he expects to reach a similar accord with the eastern coal producing provinces of Nova Scotia and New Brunswick in the near future. Mr. Gillespie's announcement was made at the Annual Mines Ministers' Conference held this year in St. John's, Newfoundland. Development of a new coal policy will include studies of future demand and supply requirements, coal research and development and constraints to development.

The Department of Mines and Petroleum Resources of British Columbia has released a study of the coal industry in British Columbia. The study looks at all aspects of the industry from reserve evaluation through to final consumers. The study forecasts that the export market for metallurgical coal will remain the largest market for British Columbia coal although some demand is forecast to develop in eastern Canada as well as in British Columbia in the period to 1995. Major constraints to future development are stated to be in the area of mining, manpower supply and transportation.

Luscar Sterco Ltd. announced that clearing and site preparation has started at its Coal Valley thermal coal property in the Coalspur coal region of Alberta. Initial shipments are expected to be made in the second half of 1978. Ontario Hydro has a contract to receive some 2 million tons annually from this mine for use in several of its coal-fired power stations. The coal will be shipped by rail to a new coal terminal being built at Thunder Bay and transhipped to lake freighters for delivery to southern Ontario.

The Government of Australia has reduced the export duty on coking coal of \$6 (Aust.) to \$4.50 (Aust.) and has indicated that the remainder will be phased out over a three year period. The export duty was introduced in 1975 by the previous government.

Petroleum and Natural Gas

Petro-Canada has completed formal acquisition of all outstanding common shares of Atlantic Richfield Canada Ltd. for an agreed price of \$340 million. The price reflects asset value with adjustment for net working capital. The assets consist essentially of producing oil and gas properties, exploration acreage and an Athabasca oil sands lease interest. The oil sands lease amounts to a one third interest in 1.2 million acres with an in situ development potential. The Atlantic Richfield name will be changed to Petro-Canada Exploration Inc. but it will continue operation as a separate entity and as a vehicle for Petro-Canada's exploration, development and production activities. Petro-Canada president W.H. Hopper has been named chairman; D.W. Axford, Petro-Canada exploration vice-president, is president and Sam Stewart, vice-president of Atlantic Richfield becomes executive vice-president and chief operating officer.

Canadian Arctic Gas Pipeline Limited has signed a letter of intent with The Steel Company of Canada, Limited (STELCO) covering the supply and purchase of the majority of the 48-inch diameter steel pipe required for the Canadian portion of the proposed Arctic gas pipeline. Under the letter of intent, STELCO will provide a total of 1.1 million short tons of 48-inch diameter pipe from its steel and pipe facilities at Hamilton and Welland, Ontario, during a three-year delivery period. Canadian Arctic Gas is anticipating it will purchase virtually all of the estimated 220,000 tons of smaller diameter pipe from Canadian mills.

An additional supply of about 500,000 short tons of 48-inch diameter and special purpose, heavy-wall pipe will be purchased in West Germany under the terms of an agreement which Canadian Arctic Gas has with Mannesmann A.G. of Duesseldorf, West Germany.

The National Energy Board began public hearings in Ottawa on an application by TransCanada PipeLines Limited for authorization to increase its rates, effective January 1, 1977. TransCanada's proposed new rates are based on a price of \$1.505 per million Btu, effective January 1, 1977, for gas sold at Toronto city gate at 100 per cent load factor. The Board announced that it will hold hearings on oil tariffs charged by Interprovincial Pipe Line Limited, starting in Ottawa on September 21. The interprovincial system extends from Edmonton, Alberta through Saskatchewan, Manitoba, the United States and Ontario to as far east as Montreal, Quebec.

Uranium

Eldorado Nuclear Limited is in the midst of a substantial expansion program for the 1976-80 period. This program includes the doubling of output from its existing uranium mill near Uranium City, Saskatchewan, to 2 million pounds of U_3O_8 per year by 1979, and the construction of two new refineries, one in Ontario to be operating by

1980 and the other in Saskatchewan with first production in the early 1980s. Eldorado has also increased its expenditures on exploration from about \$4.5 million in 1975 to about \$8 million for this year to support major programs in several provinces as well as in the Northwest Territories. In response to its increased activity in the west, Eldorado has announced that it will establish an office in Saskatoon.

The EEC Commission has announced that it will start providing subsidies to exploration companies searching for uranium in Europe. It is hoped that the \$1.2 million available this year will be increased to \$6 million for next year. Only EEC companies will receive subsidies with the level of subsidy depending on the companies' willingness to explore in previously unsurveyed areas. As a general rule the subsidy will be between 30-70 per cent of the cost of the project.

A substantial uranium ore deposit has been discovered in the Swakopmund district of Namibia (South West Africa). The deposit, discovered by General Mining Limited, is reportedly a uraniferous calcrete deposit similar to the Yeelirrie deposit in Western Australia. The Karoo Desert, located north of Cape Town, South Africa is another centre of active uranium exploration in southern African countries. For example, Southern Sphere Explorations, a subsidiary of Utah International Inc. has reportedly discovered uneconomic deposits near Graaff Reinet and Beaufort West in the Karoo.

Société Technique d'Entreprises Chimiques (Stec), a subsidiary of Pechiney Ugine Kuhlmann Development, Inc. of France, will carry out the design and engineering, purchase of materials and supervision of construction of two uranium mills. The first, a 2,200 tonne a year mill is to be built in Niger for Cie Minière d'Akouta (Cominak), a joint venture of the Niger government and companies from France, Japan and Spain. The second, a 150 tonne a year plant, is to be built at Novazza in Bergamo, Italy, for Agip-Mineraria. The parent company, Pechiney Ugine Kuhlmann, has signed a \$3 million contract with Nuclebras of Brazil to provide studies, technical assistance and engineering for a \$30 million uranium mine and mill at Pocos de Caldas in the state of Minas Gerais; the 500 tons of U_3O_8 per year complex is scheduled to begin production in 1979.

The Nuclear Fuel Assurance Act (NFAA) which will provide certain government guarantees to private enrichers, has been passed by the United States House of Representatives. The NFAA now goes to the Senate. However, there is little hope that it will be read before the Senate recesses for the Republican convention. This delay would likely stifle any hope of getting specific contracts for private enrichment through this session of Congress.

ERDA recently announced new charges for uranium enrichment services. Effective October 1, 1976 charges for enriched uranium covered by fixed-commitment type contracts will increase from \$59.05 to \$61.30 per separative work unit (SWU). Customers holding requirement type contracts will face an initial charge increase from \$60.95 to \$66.75 per SWU on August 25, 1976, followed by an increase to \$69.80 per SWU on January 27, 1977. These increased charges generally reflect the rising cost of electrical power.

NEW PUBLICATIONS

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

Operators List 4, *Coal Mines in Canada*, January 1976,
price \$1.50, Supply and Services.

Operators List 6, *Ceramic Plants in Canada*, January 1975,
price \$1.50, Supply and Services.

Operators List 7, 1976, *Natural Gas Processing Plants in
Canada*, price \$1.50, Supply and Services.

Preprints, *Canada Minerals Yearbook 1975*
Index; Cesium; Coal and Coke; Cobalt; Indium; Mercury;
Columbium (Niobium) and Tantalum.

Single copies of preprints are available from Supply and
Services Canada, Ottawa, for 25 cents a copy.

