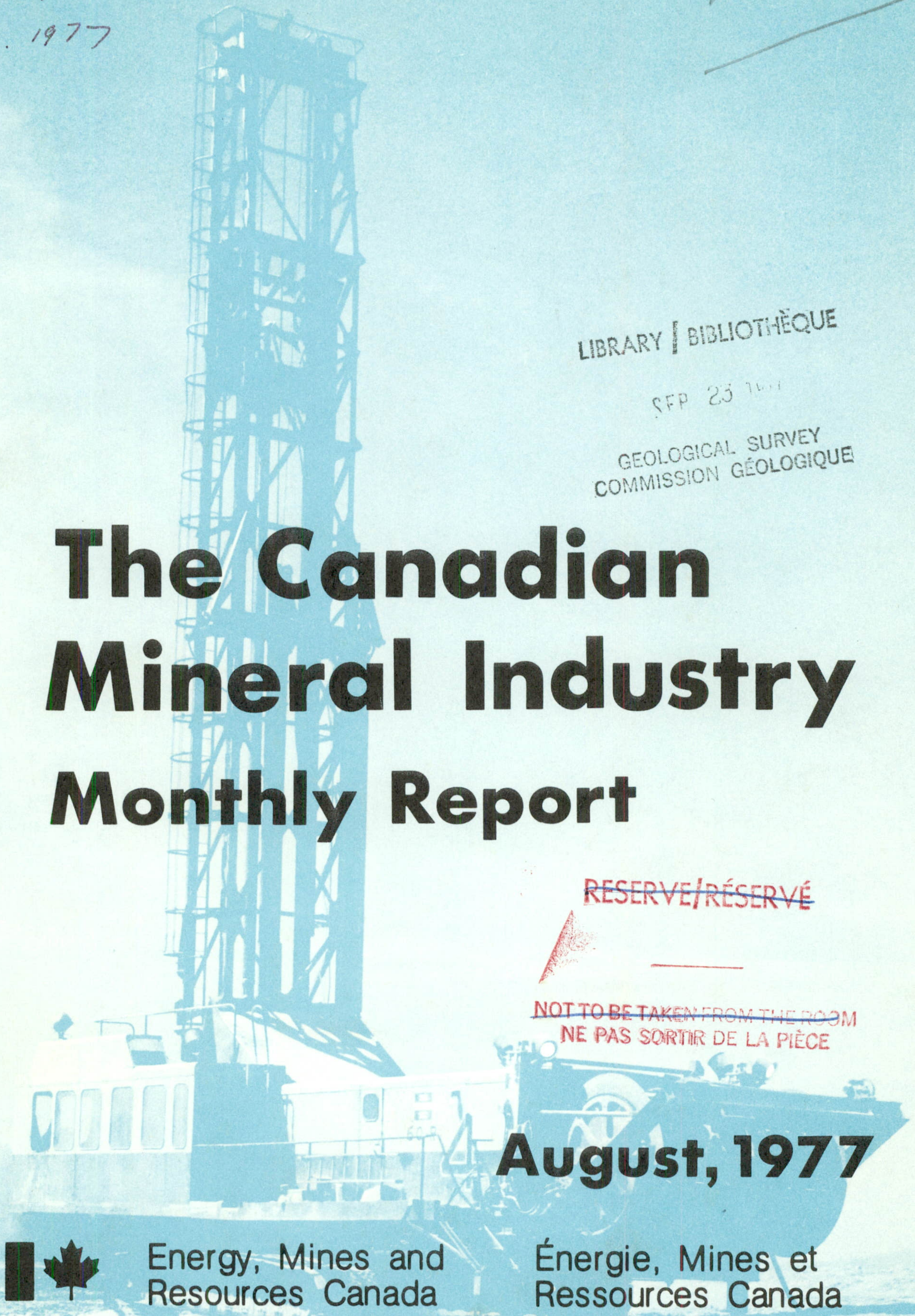

The Canadian Mineral Industry

Monthly Report

August, 1977

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'Energie, 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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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 128.8 in June 1977, unchanged from April 1977.

2. The June index of Mines, Quarries and Oil Wells was 120.7, an increase of 1.9 per cent from the previous month.

3. Copper prices continued their decline to the lowest levels since December 1975.

4. A new iron foundry is to be built in Quebec.

5. Falconbridge Nickel Mines Limited has announced temporary shutdowns which will affect close to 4,000 employees.

6. The United States Congress passed a bill amending the Clean Air Act in August.

7. Pan Sound Joint Venture reported the discovery of a silver-lead-zinc-copper deposit in Alaska.

8. Prices for asbestos have increased.

9. Truroc Gypsum Products, Ltd. has announced expansion plans for its gypsum wallboard production facilities in Alberta.

10. In August, DREE announced two amendments to a federal-provincial agreement with Nova Scotia that would provide an additional $7.5 million for coal exploration.

11. Amendments to the Canadian Oil and Gas Land Regulations were announced this month.

ECONOMIC TRENDS

Table 1 shows Canada's unadjusted indexes of Real Domestic Product in terms of 1971=100. The overall RDP index in June was 128.8, unchanged from May 1977.

The June RDP index for mines, quarries and oil wells was 120.7, up 1.9 per cent from 118.4 in May. The metal mines index decreased by 1.5 per cent over the month, due in part to a decrease of 5.9 per cent for other metal mines. An increase of 6.2 per cent was recorded for mineral fuels while nonmetal mines fell by 0.1 per cent.

The June index for primary metal industries was 5.7 per cent above that of May. An increase of 8.4 per cent was recorded for non-metallic mineral products industries.

Table 2 compares volume of production in major Canadian minerals. Output increased significantly in June compared with May for uranium (54.2 per cent), zinc (20.8 per cent) and salt (40.5 per cent).

Tables 3 and 4 outline sales and profits of corporations in the mining and mineral manufacturing industries for 1975, 1976 and January-June 1977.

Tables 5 and 6 show capital and repair expenditures for corporations in the mining, quarrying and oil wells industry for 1976 and 1977. Table 5 presents these expenditures by region, whereas Table 6 compares the data by type of mining.

TABLE 1

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

Industry or Industry Group	1976 May	1976 June	1976 Average 1st 6 Months	1977 May	1977 June	1977 Average 1st 6 Months	Percentage Changes May 1977 / May 1976	Percentage Changes June 1977 / June 1976	Percentage Changes June 1977 / May 1977	Percentage Changes 1st 6 Months 1977 / 1976
Real Domestic Product	126.5	125.0	121.2	128.8	128.8	125.0	1.8	3.0	0.0	3.2
Primary Industries										
Agriculture	132.1	4.5	68.3	109.5	4.0	56.4	-17.1	-11.1	-96.3	-17.5
Forestry	79.4	90.2	89.4	81.5	116.9	108.7	2.6	29.6	43.4	21.6
Fishing and Trapping	116.3	140.7	73.0	86.3	116.5	63.4	-25.8	-17.2	35.0	-13.1
Mines, Quarries and Oil Wells	113.4	109.5	109.3	118.4	120.7	116.7	4.4	10.2	1.9	6.8
Metal Mines	117.7	107.9	107.5	122.2	120.4	116.9	3.8	11.6	-1.5	8.7
Placer and Gold Quartz Mines	70.6	76.5	74.6	71.9	72.7	76.6	1.8	-5.0	1.1	2.7
Iron Mines	152.9	152.3	127.0	144.5	163.3	134.1	-5.5	7.2	13.0	5.6
Other Metal Mines	111.3	98.5	104.4	119.1	112.1	114.6	7.0	13.8	-5.9	9.8
Mineral Fuels	109.1	111.4	111.4	111.0	117.9	115.7	1.7	5.8	6.2	3.9
Coal Mines	162.2	115.2	194.2	215.2	218.1	221.9	32.7	89.3	1.3	14.3
Crude Petroleum and Natural Gas	104.7	111.1	104.6	102.5	109.7	107.0	-2.1	-1.3	7.0	2.3
Nonmetal Mines	114.7	101.3	115.0	135.1	135.0	133.5	17.8	33.3	-0.1	16.1
Asbestos Mines	113.4	96.0	102.4	113.3	117.7	113.1	-0.1	22.6	3.9	10.5
Secondary Industries										
Manufacturing	123.9	126.7	120.4	125.2	130.7	123.6	1.0	3.2	4.4	2.7
Nondurable Manufacturing	120.3	124.3	116.2	122.7	127.9	120.4	2.0	2.9	4.2	3.6
Petroleum and Coal Products Industries	124.2	138.6	126.7	130.0	142.6	134.1	4.7	2.9	9.7	5.8
Durable Manufacturing	127.4	129.1	124.7	127.8	133.5	126.9	0.3	3.4	4.5	1.8
Primary Metal Industries	112.1	108.7	110.8	115.3	121.9	115.2	2.9	12.1	5.7	3.9
Iron and Steel Mills	118.8	130.4	119.7	124.1	133.6	124.5	4.5	2.5	7.7	4.0
Steel Pipe and Tube Mills	123.0	135.6	132.9	117.5	135.2	126.5	-4.5	-0.3	15.1	-4.8
Iron Foundries	134.5	118.0	131.2	117.8	120.8	124.5	-12.4	2.4	2.5	-5.1
Smelting and Refining	96.3	68.9	90.7	102.4	105.1	99.1	6.3	52.5	2.6	9.3
Nonmetallic Mineral Products Industries	130.5	140.0	111.9	138.0	149.6	117.4	5.7	6.9	8.4	4.9
Cement Manufacturers	150.4	154.3	105.4	148.4	164.3	103.6	-1.3	6.5	10.7	-1.6
Ready-mix Concrete Manufacturers	137.4	163.5	101.4	154.6	174.8	104.8	12.5	6.9	13.1	3.3
Construction Industry	114.9	127.3	108.4	112.2	124.8	105.5	-2.3	-2.0	11.2	-2.6
Transportation, Storage, Communication	132.3	131.9	127.1	137.1	142.1	133.8	3.6	7.7	3.6	5.3
Electric Power, Gas and Water Utilities	128.9	121.9	141.5	133.4	125.2	150.2	3.5	2.7	-6.1	6.1
Trade	137.9	144.8	127.3	139.9	141.7	129.1	1.5	-2.1	1.3	1.4
Finance, Insurance, Real Estate	127.0	128.3	126.2	133.5	134.6	133.0	5.1	4.9	0.8	5.4
Community, Business and Personal Service	128.4	130.2	127.4	134.0	135.2	133.5	4.4	3.8	0.9	4.8
Public Administration and Defence	123.5	127.0	121.0	125.3	128.0	124.1	1.5	0.8	2.2	2.6

TABLE 2

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

		1976			1977			Percentage Changes		
		May	June	Total 1st 6 months	May	June	Total 1st 6 months	June 77 / June 76	June 77 / May 77	1st 6 months 1977 / 1976
Metals										
Copper		66.4	57.0	359.2	79.9	69.5	407.5	+21.9	-13.0	+13.5
Gold	kg	4 244.8	4 458.9	26 225.4	5 064.[illegible]	4 375.0	26 891.1	-1.9	-13.6	+2.5
Iron ore		6 371.5	6 417.2	22 122.2	5 615.2	6 029.1	20 159.8	-6.1	+7.4	-8.9
Lead		20.9	23.9	130.9	24.5	28.1	145.7	+17.6	+14.7	+11.3
Molybdenum	t	1 148.9	1 161.4	7 258.0	1 310.1	1 169.3	7 632.9	+0.7	-10.7	+5.2
Nickel		21.9	18.3	124.2	20.2	22.2	128.2	+21.3	+9.9	+3.2
Silver	t	123.2	112.1	675.2	118.6	108.4	699.8	-3.3	-8.6	+3.6
Uranium(1)	t	431.9	503.4	2 085.9	518.4	799.3	2 728.1	+58.8	+54.2	+30.8
Zinc		95.1	81.6	506.7	83.3	100.6	525.5	+23.3	+20.8	+3.7
Nonmetals										
Asbestos		129.3	126.4	751.3	117.7	130.0	731.3	+2.9	+10.5	-2.7
Gypsum		428.7	395.5	2 177.6	644.3	735.0	3 009.0	+85.8	+14.1	+38.2
Potash K_2O		311.3	318.2	2 535.8	473.6	443.7	2 926.5	+39.4	-6.3	+15.4
Salt		353.6	379.1	2 899.4	312.8	439.4	2 910.4	+15.9	+40.5	+0.4
Cement		992.9	1 159.2	4 271.8	1 040.3	1 199.9	4 308.5	+3.5	+15.3	+0.9
Clay products	$000	8,292.2	9,261.8	37,373.1	9,758.4	..	..	..	..	..
Lime		155.2	167.2	870.6	165.1	168.5	910.9	+0.8	+2.1	+4.6
Fuels										
Coal		1 758.2	1 314.2	12 095.0	2 504.0	2 322.0	15 055.4	+76.7	-7.3	+24.5
Natural gas	000 m^3	7 981 330.7	6 724 487.5 r	45 729 674.7	7 499 179.7 r	6 797 063.4	46 355 079.9	+1.1	-9.4	+1.4
Crude oil and equivalent	000 m^3	7 132.2	7 545.9 r	40 830.2	6 717.5 r	7 169.5	41 079.1	-5.0	+6.7	+0.6

(1) Tonnes uranium (1 tonne U = 1.299 9 short tons U_3O_8).

r Revised; .. Not available.

TABLE 3

Canada, Sales and Profits[1] of Corporations in the Mining Industry

	1975			1976			1977[P]
	January-June	July-December	Annual	January-June	July-December	Annual	January-June
	millions of dollars						
Metal mines							
Sales	2,522	2,564	5,086	2,720	3,185	5,905	2,886
Profits	743	593	1,336	579	670	1,249	648
Mineral fuels							
Sales	2,232	2,931	5,163	2,791	3,227	6,018	3,535
Profits	926	1,222	2,148	1,145	1,297	2,442	1,431
Other mining							
Sales	931	1,084	2,015	1,208	1,372	2,580	1,516
Profits	257	276	533	315	311	626	369
Total mining							
Sales	5,685	6,579	12,264	6,719	7,784	14,503	7,937
Profits	1,926	2,091	4,017	2,039	2,278	4,317	2,448

1 Profit reflects net income before income taxes, extraordinary items, and before recording transactions which can be altered at the discretion of corporate management.

P Preliminary.

TABLE 4

Canada Sales and Profits[1] of Corporations in the Mineral Manufacturing Industries

	1975			1976			1977P
	January-June	July-December	Annual	January-June	July-December	Annual	January-June
	Millions of dollars						
Primary metal industries							
Sales	3,094	3,145	6,239	3,330	3,397	6,727	3,909
Profits	431	313	744	297	229	526	402
Metal fabricating industries							
Sales	2,868	3,208	6,076	3,256	3,444	6,700	3,356
Profits	252	310	562	290	296	586	258
Nonmetallic mineral products industries							
Sales	1,439	1,820	3,259	1,591	1,916	3,507	1,829
Profits	179	311	490	213	277	490	219
Petroleum and coal products industries							
Sales	4,787	5,427	10,214	5,391	5,977	11,368	6,182
Profits	878	898	1,776	791	896	1,687	946
Total mineral manufacturing							
Sales	12,188	13,600	25,788	13,568	14,734	28,302	15,276
Profits	1,740	1,832	3,572	1,591	1,698	3,289	1,825

[1] See footnote 1, table 3.
P Preliminary.

TABLE 5

Canada, Capital and Repair Expenditures - Mining, Quarrying and Oil Wells, 1976-77[1]

		Construction	Machinery and Equipment	Total
		millions of dollars		
Atlantic Region	1976	107.4	160.8	268.2
	1977	144.1	176.1	320.2
	1977[r]	128.2	186.6	314.8
Quebec	1976	231.0	385.3	616.3
	1977	202.5	506.8	709.3
	1977[r]	172.9	495.2	668.1
Ontario	1976	227.5	295.7	523.2
	1977	233.5	309.4	542.9
	1977[r]	233.3	303.2	536.5
Prairie Region	1976	1,677.7	645.2	2,322.9
	1977	1,992.9	794.1	2,787.0
	1977[r]	2,127.7	830.6	2,958.3
British Columbia	1976	199.3	181.3	380.6
	1977	270.0	219.3	489.3
	1977[r]	293.4	224.5	517.9
Northwest Territories and Yukon	1976	239.4	155.2	394.6
	1977	352.4	71.9	424.3
	1977[r]	323.4	80.7	404.1
Canada	1976	2,682.3	1,823.5	4,505.8
	1977	3,195.4	2,077.6	5,273.0
	1977[r]	3,278.9	2,120.8	5,399.7

[1] 1976 Preliminary actual, 1977 Original intentions, 1977[r] Revised intentions.

TABLE 6

Canada, Capital and Repair Expenditures - Mining, Quarrying and Oil Wells, 1976-77[1]

	Capital Expenditures			Repair Expenditures			Capital and Repair		
	1976	1977	1977[r]	1976	1977	1977[r]	1976	1977	1977[r]
	millions of dollars								
Metal mines									
Gold	21.4	20.2	22.0	10.6	10.6	10.6	32.0	30.8	32.6
Copper-gold-silver	197.4	207.7	201.0	137.6	151.0	151.0	335.0	358.7	352.0
Silver-lead-zinc	64.9	87.1	94.3	38.7	41.2	41.2	103.6	128.3	135.5
Other metal mines	562.4	664.3	629.0	361.3	380.9	380.9	923.7	1,045.2	1,009.9
Total metal mines	846.1	979.3	946.3	548.2	583.7	583.7	1,394.3	1,563.0	1,530.0
Nonmetal mines									
Asbestos	93.7	111.3	108.2	75.4	79.2	79.2	169.1	190.5	187.4
Other nonmetal mines[2]	237.8	285.1	336.6	156.0	171.0	171.0	393.8	456.1	507.6
Total nonmetal mines	331.5	396.4	444.8	231.4	250.2	250.2	562.9	646.6	695.0
Mineral fuels									
Petroleum and gas	2,270.1	2,749.4	2,860.7	278.5	314.0	314.0	2,548.6	3,063.4	3,174.7
Total mining industry	3,447.7	4,125.1	4,251.8	1,058.1	1,147.9	1,147.9	4,505.8	5,273.0	5,399.7

[1] 1976 Preliminary actual, 1977 Original intentions, 1977[r] Revised intentions; [2] Includes coal mines, gypsum, salt, potash and miscellaneous nonmetal mines and quarrying.

TAXATION AND LEGISLATION AFFECTING MINING AND ALLIED INDUSTRIES IN CANADA

Provincial

British Columbia

The Mineral Act, Bill 73, 1977, repeals the former Mineral Act, R.S.B.C., 1960, C.244.

The purpose of this Bill is to consolidate, clarify and update the Mineral Act, which has undergone several amendments since the last consolidation in 1973. There are substantial changes in the organization, numbering and wording of the Act.

- Section 2(1) now makes it clear that an employee of a holder of a mineral claim or leasehold is not required to hold a free miner certificate.

- Section 6 is rewritten to clarify the definition and limit the lands on which a free miner has the right of entry.

- Section 7 bans all mining activity in a park unless authorized by the Lieutenant-Governor in Council on recommendation of the park authorities.

- Section 9 permits the holder of the surface to request security from the free miner. Refusal by the free miner to post security will result in forfeiture of his mining property over the area held by the surface holder.

- Section 11 permits the minister to restrict the use of surface rights, and provides for the holder of the mineral right to appeal the restriction to the Lieutenant-Governor in Council.

- Section 12 provides for an appeal from the minister and the Minister of the Environment where surface rights are required for mining purposes.

- Section 17. Following the adoption of the metric system of measurement for claims, British Columbia also replaced the former two post claim staking system with a modified grid system. Under the grid system, every mineral claim must be a square or rectangle with boundaries running astronomic N-S and E-W. The area of a claim shall be not less than 25 hectares nor more than 500 ha. If a claim comprises more than 25 ha., it must be divisible into square units of 25 ha. each or any fraction thereof. Regardless of the number of contained units, a mineral claim is located by the "legal corner post".

This section of the Act permits the inclusion of two post claims on their forfeiture within the boundaries of a modified grid claim so long as the forfeited claims are under the same ownership as the grid claim, thus eliminating the necessity of restaking the forfeited claims.

- Section 18 permits a claim to be reduced in size and the unexpired assessment work to be credited to the reduced claim.

- Section 22 replaces payment of rental introduced in 1973 by payment of a recording fee to eliminate forfeiture for non-payment of rent.

- Section 29 provides for the issue of a mining lease, which may be acquired at any time on compliance with this section.

- Section 34 permits deletion of part of a leasehold without requiring the consent of the chief gold commissioner.

- Section 37 permits the surrender of a mining lease and abandonment of the claims in it, without the consent of the minister.

- Section 41 provides for "limited production" without requiring a "limited production permit" and allows for "full production" on completion of a legal survey.

- Section 60 is a new section to prevent the sale of mineral claims for purposes other than mining, e.g. residential purposes.

The Mineral Land Tax Act, SBC 1973, C.53, has been amended by eliminating the term "designated mineral land" which resulted in ambiguities in calculating the tax payable under the Act.

Manitoba

Quarrying Minerals Regulation, 1976, MR 226/76, under the Mines Act is amended by MR 152/77 with the following changes:

(a) a definition for "borrow pit" is introduced

(b) "commercial quarry" is redefined to mean a quarry from which more than 2000 cubic yards of material are removed annually

(c) Crown agencies are now exempt from payments of fees and royalties

(d) the former cash deposit of $5,000, maximum $50,000 is replaced with a graduated deposit depending on the number of quarries in operation

(e) borrow pits are conditionally exempted from this regulation.

Saskatchewan

The Mineral Resources Act: The Petroleum and Natural Gas Regulations, 1969, as amended by SR 72/77, are again amended by SR 223/77. The amendment modifies the formula for determining the royalty on oil production as established by clause (a) of subsection (1) of Section 58.

The Oil and Gas Conservation, Stabilization and Development Act, 1973: The Oil and Gas Exploration, Development and Production Incentive Regulations, 1974, as amended by SR 73/77, are again amended by SR 224/77. The amendment modifies the formula for determining the mineral income tax deduction as established by subsection (1) of Section 6.

FEDERAL-PROVINCIAL MINERAL AGREEMENTS

Nova Scotia

The Canada-Nova Scotia Subsidiary Agreement on Mineral Development has undergone two amendments recently, in effect adding $7.5 million to the total funds available under this Agreement. This total has thus increased from $6,338,000 to $13,838,000, with the federal-provincial sharing ratio of 80:20.

The first of these amendments, signed on June 28, added $1 million to the Mineral Evaluation Survey project, essentially to extend a program of diamond drilling for coal outside the Sydney basin. In the three years that ended March 31, 1977, $1.278 million had been spent on this coal inventory, with some promising results. Recently, the province accepted a development proposal based on these results by George Wimpey Canada Limited for an open-pit mine near Stellarton in Pictou County. The company is carrying out detailed drilling prior to any decision on development.

The second amendment was signed on August 4 to add a further $6.5 million to this Mineral Evaluation Survey project. It resulted from a decision by the federal government to share in the cost of an offshore drilling program for coal in the Sydney basin, reported in last month's Monthly Report in the Mineral Fuels Section under "Coal".

METALLIC MINERALS AND PRODUCTS

Aluminum

Jamaica has set its new basic bauxite levy rate at $17.79 per tonne, 7.5 per cent of the average realized price of 51 cents a pound for aluminum ingot. This is a reduction from 8.0 per cent originally set by the government who agreed to lower it on condition that the bauxite producers achieve a minimum operating rate of 90 per cent of capacity.

Alcoa of Australia Ltd. (Alcoa) has dropped out of the Alwest alumina refinery project in western Australia. Reynolds Metal Company, The Broken Hill Proprietary Company Limited and News Ltd., the original members of the consortium, are holding talks with potential partners to replace the company. Alcoa was to design, build and manage the refinery. The Anaconda Company has said it is considering joining the consortium which is planning to build a $600 million alumina refinery at Worsley in western Australia with a capacity of 800 000 to 1 million tonnes a year. Construction is expected to start in 1978 with completion scheduled for 1981. Alcoa has announced its intention to build its own alumina refinery at Wagerup, western Australia. The alumina will be railed to Bunbury for export.

Alumax Inc., is planning to build a 179 000 tonnes aluminum smelter near Charleston, South Carolina. Construction of the $400 million project is scheduled to start in the spring of 1978 and estimated building time is three years. Alumax is 50 per cent owned by AMAX Inc., 45 per cent by Mitsui & Co. Ltd. and 5 per cent by Nippon Steel Corporation.

Copper

Copper prices continued to decline in August. The London Metal Exchange (LME) cash price for wirebars which opened the month at 54 (U.S.) cents a pound had dropped to below 52 (U.S.) cents a pound by month-end, the lowest level since December 1975.

The weakness in LME prices forced a further reduction in North American producer prices by 5 cents a pound late in August. United States producers led the way, followed by Canadian producers. The new prices established for electrolytic wirebars and cathode were 60.625 and 60.00 cents a pound in the United States and 65.125 and 64.5 cents a pound in Canada.

Stocks of refined copper in the LME and Comex warehouses remained unchanged during August. Increases in LME stocks of 4 000 tonnes were fully offset by equivalent decreases in Comex stocks. On August 26, LME warehouse stocks were 609 400 tonnes; Comex stocks were 182 271 tonnes.

The depressed state of the world nickel market will affect 1977 copper production by Inco Limited and by Falconbridge Nickel Mines Limited. Inco intends to allow its Canadian labour force to be reduced by normal attrition without replacement. Falconbridge plans shutdowns of Sudbury production facilities for an extended period in September followed by shorter periods in November and December.

Of the major United States copper producers with labour contracts due for renewal in 1977, only ASARCO Incorporated was still on strike at the end of August. In Canada the operations of Behelehem Copper Corporation were also closed by a strike in August. The dispute over rates of pay has affected 330 mine workers.

Texasgulf Inc. announced during August that construction work on the No. 2 underground mine and expansion of the concentrator are proceeding on schedule. The shaft for the No. 2 mine has reached its planned depth of 1 555 meters, however, equipping the shaft is expected to take several more months. Work on the copper smelter and refinery is reported to be progressing well. Buildings at the smelter and refinery should be enclosed before winter.

Afton Mines Ltd. has signed ten-year contracts with two United Kingdom companies for the sale of up to 60 million pounds of blister copper a year from the new Afton mine-smelter complex near Kamloops, British Columbia. The concentrator is scheduled to start up in September, to be followed two months later by start-up of the smelter.

Second quarter shareholder reports published by copper producers during August described progress at a number of new mine development projects.

- At the Ruttan mine of Sherritt Gordon Mines Limited results of deep drilling are tending to confirm the existence of major additional ore tonnages above the published reserve figures.

- At the Corbett mine of Falconbridge Copper Limited ore reserve tonnage and grade estimates have been confirmed by underground diamond drilling. Shaft sinking has been resumed and should be completed at 1 216 meters in 1978.

- The Lyon Lake mine of Mattagami Lake Mines Limited is expected to be ready to start production at the end of 1977.

A spokesman for Chile's Copper Commission during August indicated the desire by Chile to produce as much copper as possible, and a reluctance on Chile's part to curb present rates of production to reduce stocks and improve prices. He stated that CIPEC members still benefit even if costs rise above prices. The Chilean Copper Corporation Corporacion del Cobre de Chile (Codelco) recently published the results of studies showing Chilean copper resources to be the world's largest. Average production costs at presently operating Chilean mines are below those of Zambia, Zaire and Peru.

A meeting was held during August of the reconvened Intergovernmental Expert Group on Copper (IEGC) within the United Nations Conference on Trade and Development (UNCTAD). The IEGC set the terms of reference of a study, to be carried out by consultants of the costs, benefits and financial implications of stabilization measures, to be completed in time for the next session of the IEGC, to be held in November 1977. The IEGC also planned to receive further papers on some non-econometric aspects of the above studies, and a further study on a Copper Consultative Organization (CCO).

Gold

The International Monetary Fund held its twelfth gold auction on August 3, 1977 under the common price method and awarded 524 800 troy ounces of gold to the successful bidders at a price of $146.26 (U.S.) an ounce. The bids submitted by the successful bidders ranged from the common price of $146.26 (U.S.) to $150.00 (U.S.) an ounce of gold and averaged $147.20 an ounce. Comparable figures for the eleventh auction held on July 6 were: 524,800 ounces of gold awarded to the successful bidders at the common price of $140.26 (U.S.) an ounce of gold; the price range of successful bids ranged from the common price $140.26 (U.S.) to $145.00 (U.S.) an ounce of gold and averaged $140.85 (U.S.) an ounce. The afternoon fixing gold price on the London Gold Market on August 2 was $145.80 (U.S.) an ounce and the price remained near the bid price for the first part of the month. Bids were received for a total of 1,439,200 ounces compared with 1,358,400 ounces at the eleventh auction. There were 16 successful bidders, mainly international bullion dealers and European Banks. The thirteenth auction will be held on September 7 in which 525,000 ounces of gold will be offered for sale under an open bid price method and deliveries will be made in New York.

The gold price remained comparatively stable during the month registering a low of $143.30 (U.S.) an ounce on August 16 and a high of $146.75 (U.S.) on August 4. It closed for the month at $146.00 (U.S.) compared with an opening price of $144.20 an ounce. The monthly average of the afternoon fixing gold price on the London Gold Market for August was $144.95 (U.S.) ($155.82 Cdn.) an ounce compared with $143.39 (U.S.) ($152.14 Cdn.) an ounce in July.

Iron

A $16.5 million iron foundry is to be built at Farnham, 95 kilometers northwest of Montreal.

The foundry (to be called Métallurgie Farnham Inc.) is 51 per cent owned by Haley Industries Limited of Haley Station, Ontario and 49 per cent by Bendix Corporation of Southfield, Michigan.

The company will receive a $5.5 million grant from the Federal Department of Regional and Economic Expansion and a $2.2 million grant, coupled with a $1 million loan, from Société de Développement Industriel du Québec. At capacity, the foundry is expected to produce 20 000 tonnes of ductile iron castings for use by the automobile, aircraft, farm equipment, and heavy equipment manufacturers. Almost all production will be exported to the United States. Pig iron will be supplied by Quebec Iron and Titanium Corporation of Sorel and electricity will be purchased from Hydro-Quebec at an attractive rate. The plant is expected to create 330 new jobs when it is fully operational in about two years.

Iron Ore

Net earnings for Labrador Mining and Exploration Company Limited for the first half of 1977 were $7,437,000 or $2.25 a share from revenues of $15,408,000. This compares with net earnings of $5,364,000 or $1.63 a share from revenues of $12,121,000 for the same period in 1976.

Hollinger Mines Limited's net earnings for the first half of 1977 were $7,701,000 or $1.57 a share, up from $4,016,000 or 82¢ a share in the corresponding period of 1976.

In both cases higher earnings resulted mainly from increased royalties and from gains on foreign exchange.

Since early August, some 14,000 iron ore workers have been on strike in Minnesota and another 6,000 in Michigan. Minnesota alone accounts for about two-thirds of the U.S. iron ore production. The strike will probably have little immediate impact on steel production in Canada and in the United States. Enough ore has been stockpiled at mines, docks and furnace yards to supply feed for the blast furnaces for the next two months.

Lead

Compared to levels a year ago, after the first six months of 1977, Canadian mine production increased 11.5 per cent to 156 943 tonnes and refined metal production increased 3.0 per cent to 102 114 tonnes.

Producer prices remained unchanged in North America at 31 cents a pound in the United States and 32.25 cents a pound in Canada. The spot price on the London Metal Exchange (LME) reflected the overall lack of interest in metals during the month and closed on August 31 at a level of £318.5 a tonne (25.2 cents a pound U.S.), £5 a tonne below the August 1 price. LME warehouse stocks increased 875 tonnes during the month to 63 850 tonnes. Producer stocks in the United States continued to decline, albeit modestly, and were 11 870 tonnes as of the end of July (a decrease of 703 tonnes).

Mercury

The International Association of Mercury Producers (ASSIMER) will meet in Geneva, Switzerland, in the second half of September to discuss international mercury market trends. Members of ASSIMER are Spain, Italy, Turkey, Yugoslavia, Algeria and Peru. Canada is not a member of the Association, but from time to time sends an observer to attend the meetings. The association will also consider the joint decision made at the end of June by its members to withdraw from the spot market. This withdrawal has not affected deliveries under long-term contracts.

The decision to hold the September meeting was apparently motivated by the producers' desire to identify the origin of recent mercury sales which had unduly depressed world prices. Such sales could have been made by the Soviet Union or China.

A spokesman for Minas de Almaden y Arryanes, Spain, the largest world producer, stated that his company is maintaining 1977 production at an annual rate of 50,000 flasks (76 pounds each) of mercury which is not far below its normal operating level. Almaden is one of the principal corporations that withdrew from the spot market.

On August 9 the United States General Services Administration (GSA) recorded its first sale of mercury for the year 1977, when 200 flasks were sold to Minemet Metals Inc. Each month GSA offers 500 flasks of mercury for sale and 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 191,407 flasks of mercury contained in the U.S. strategic and supplemental stockpiles, none of which may be disposed of without Congressional approval.

On December 31, 1976 surplus USAEC mercury amounted to 1,255 flasks but on August 9, 1977 it was reduced to 1,055 flasks. Prior to August 1976 releases of USAEC mercury were restricted to domestic consumption but after that time export sales were permitted.

Nickel

On August 10, Falconbridge Nickel Mines Limited announced that it will close all production facilities at Sudbury from September 1 to October 9 inclusive. Additional shutdowns will include a 4 day weekend for the Remembrance Day holiday in November and suspension of operations between the Christmas and New Year's holidays. The shutdown will affect close to 4,000 employees. The reason for the shutdown is that the company's inventories have reached excessive levels. The company says that the shutdown is a partial solution to the over-production problem and an extension of the shutdown beyond the October 10 deadline may be required unless there is an immediate improvement in nickel sales. Capital expenditures in the Sudbury area will also be postponed wherever practical. Falconbridge is experiencing the same problems as other nickel producers competing in an industry where production continues to be well in excess of demand. Falconbridge's action follows that of Inco Limited who in July announced that, it will reduce Canadian employment and metal production by non-replacement of staff who leave.

On August 25, Western Mining Corporation Limited (WMC) said it will cut nickel output by about 10 per cent starting September 2 and dismiss about 600 of its mine workforce. WMC will effect the reduction by suspending production at its Great Boulder operations, at the Fisher mine at Kambalda and in some lower grade areas at other Kambalda mines. The production cut will mean a reduction of about 4 500 to 5 000 tonnes of nickel a year contained in concentrates. The company has about four to five months' production stockpiled at present and hopes that further production cuts will not be necessary. Western Mining is the first nickel producer outside Canada to rationalize production levels to keep them in line with demand.

Western Selcast Pty Ltd. and M-I-M Holdings Ltd. have arranged to sell nickel matte from the Agnew mine, in western Australia to AMAX Nickel, Inc. The matte will be shipped to the Amax refinery at Port Nickel, Louisiana. Amax will take the entire production of the mine up to a maximum of 15 000 tonnes of contained nickel a year for ten years from start of commercial production, scheduled for late 1978. The mine will have a planned initial capacity of 10 000 tonnes of nickel contained in concentrates which will be toll smelted by Western Mining Corporation at its Kalgoorlie smelter.

Platinum

In August 1977, the United States Congress passed a bill amending the Clean Air Act. One of the amendments granted a two year extension on the automotive emission standards now in force, to the model year 1979 and established revised emission standards for model year 1980 and beyond. The automotive manufacturers could not meet the stringent emission standards that would have been necessary to comply with the law had not the amendments been made. The amendment was necessary to enable the car manufacturers to sell their model year 1978 automobiles. Platinum and palladium are used in automotive catalytic converters to control exhaust emissions.

Silver

A feasibility study was completed about mid-1976 on Equity Mining Corporation's Sam Goosly silver-gold-copper property 65 kilometres south of Smithers, British Columbia. The company is now considering plans to bring the property into production in 1979 at a rate of 3 000-4 500 tonnes of ore a day if suitable arrangements can be made to obtain senior financing. Reserves of ore mineable by open pit methods have been estimated at 39.5 million tonnes, grading 86.5 grams of silver and 0.81 gram of gold a tonne, and 0.33 per cent copper. Equity Mining and Congdon and Carey Company of Denver, Colorado, share equally a 70 per cent working interest in the property, with Kennco Explorations (Western) Limited, a subsidiary of Kennecott Copper Corporation, holding a 30 per cent carried interest. The undertaking is managed by Equity Mining.

Early in 1977 Placer Development Limited considered taking an interest in the Sam Goosly property and assuming responsibility for bringing it into production. Later, however, Placer withdrew its support for the project. About mid-1977 Equity Mining began negotiating with Granby Mining Corporation of Vancouver and Boliden Aktiebolag of Stockholm, Sweden with a view toward these two companies participating in arrangements to bring the property into production. Terms of an agreement among the three companies are expected to be concluded early in 1978 with the provision for construction of a 4 170-tonne-a-day mining and milling complex at a cost of about $60 million. The proposed development includes an open pit mine and concentrator. Design and construction of the facilities would be the responsibility of Granby Mining. Access to the property would be via construction of a road from Houston which is 37 kilometres northwest of the property. Wright Engineers Limited of Vancouver have been retained to assist in the engineering phase of the project. It is expected that the major financing of the project would be provided by Canadian chartered banks. Terms under negotiation include acquisition by Granby and Boliden of a substantial minority interest in Equity Mining, which owns the property, through purchase of new shares to be issued by Equity.

Tune-up operations began at the 180-tonne-a-day concentrator of Van Silver Mines Ltd. at its precious-base-metals property 40 kilometers north of Squamish, B.C. Initially, 90 to 115 tonnes of ore will be milled daily. First production will be from a stockpile of about 2 700 tonnes of ore averaging 73.0 to 85.8 grams of silver a tonne. A further 1 800 tonnes of ore in the tunnel will be processed and then production will be switched to the open pit. The main zone in the open pit area is reported to contain a deposit of 135 000 tonnes grading 102.86 grams of silver and 0.69 gram of gold a tonne and 5 per cent combined lead and zinc.

Pan Sound Joint Venture reported the discovery of a silver-lead-zinc-copper deposit on Admiralty Island in southeast Alaska. The 28.5 square kilometer deposit runs from tidewater to about 1 200 meters on a mountainside on the northern shore of the island near Hawk Inlet. While initial diamond drilling has not been completed, the area has potential for a high grade ore deposit of sufficient size to sustain a small profitable mining and milling operation. Pan Sound is a joint venture of Noranda Mines Limited, Texas Gas Transmission Corporation, Mitsubishi Corporation and Marietta Resources International Ltd. Legislation already sponsored by Democrat Morris K. Udall in the U.S. House of Representatives would declare Admiralty Island a wilderness area in which mining and other development would be banned.

In March 1977, Great Western United Corporation acquired a 6 per cent interest in Sunshine Mining Company from two dissident shareholders, Hecla Mining Company and Silver Dollar Mining Company. Shortly thereafter, Great Western made an oral offer to Sunshine for a further 20 per cent interest at $16.75 a share, provided Sunshine agreed to key personnel changes in its board of directors. When Sunshine claimed that it did not have enough time to seriously consider the offer, Great Western filed notice with the Securities Exchange Commission of plans to acquire another 35 per cent of Sunshine stock and the formal tender offer was for $15.75 a share. In August, Great Western United Corporation reduced its takeover bid for up to 2 million shares of Sunshine by $1 (U.S.) to $14.75 per share. Great Western of Dallas, Texas, the diversified sugar producer and real estate firm, is controlled by W. Herbert Hunt and N. Bunker Hunt, who are believed by many to be the largest private holders of silver in the world.

The Sunshine company operates the largest silver mine in the United States at Kellogg, in the Coeur d'Alene mining district of Idaho. The mine resumed operations March 14, 1977 after being strikebound for over a year. In 1975, the last full year of operations, the mine produced 158 600 kilograms (5.1 million troy ounces) of silver.

Steel

For the first six months of 1977 the three major Canadian steel producers registered lower earnings per share as compared to the first six months of the previous year as shown below.

	Earnings per share (in dollars)			(6 months ended June 30)	
	1974	1975	1976	1976	1977
Stelco	4.50	3.60	3.67	1.92	1.79
Dofasco	4.41	3.46	4.17	2.33	1.97
Algoma	4.61	3.67	1.69	0.36*	0.30*

* Three months ended March 31

Over the past two years, the Canadian steel industry has operated profitably in only one market - the consumer market, primarily automobiles. Dofasco has been the principal beneficiary, especially in 1976. Currently there is a world steel overcapacity and there is little hope for increased earnings in the export sector. In the capital goods sector, a decision to build a northern natural gas pipeline (ALCAN project) through Canada would give a major boost to the steel industry. A decision to build such a pipeline would require 400 000 to 500 000 tonnes of steel a year for the next four years.

Zinc

The 21st session of the International Lead and Zinc Study Group will convene in Geneva during September, 1977. Forecasts of lead and zinc production in Canada for 1977 and 1978 which have been compiled for the Study Group from a survey of individual plans by all producing companies in Canada are as follows:

	1976	1977	1978
	(thousands of metric tonnes)		
Lead			
Mine production (Lead content)	247.1	329.7	338.5
Primary metal production	175.7	187.5	190.5
Primary metal consumption	61.7	64.2	66.3
Zinc			
Mine production (Zinc content)	1 158.4	1 309.0	1 316.8
Primary metal production	472.3	506.0	504.7
Primary metal consumption	119.1	124.5	128.5

The substantial increases in 1977-1978 mine production over 1976 reflect the impact of major labour strikes in 1976 reducing production that year.

On a Western world basis, forecasts by the Mineral Development Sector of zinc mine and metal production and metal consumption indicate that mine production is likely to accumulate substantially in 1977 and 1978 and metal production during this same period will likely be constrained to around 76 per cent of capacity. This level of metal production is deemed likely to occur as metal producers will be forced to reduce inventories somewhat from currently high levels. Alternatively, should metal production continue to outpace demand, a further reduction in the world price structure would become highly probable. Under such conditions mine and smelter closures would become eminent.

Free world, zinc supply-demand balance 1973-1980

	1973	1974	1975	1976	1977	1978	1979	1980
	(thousands of tonnes zinc content)							
Free world mine production	4 507	4 436	4 403	4 391	4 810	4 903	5 082	5 120
less: Exports to Socialist countries	60	70	120	100	100	100	100	125
Ores reduced directly to chemical compound	94	94	50	59	57	55	50	50
Processing losses net of secondary supplies	173	168	227	198	226	242	249	250
Metal equivalent of mine production	4 180	4 104	4 006	4 034	4 427	4 546	4 683	4 695
Free world metal production	4 258	4 363	3 759	4 070	4 200	4 300	4 650	4 800
Mine Balance: surplus (deficit)	(78)	(259)	247	(36)	227	246	33	(105)
Free world metal consumption	4 875	4 574	3 530	4 111	4 350	4 480	4 615	4 753
less: Imports from Socialist countries	139	82	82	89	76	50	50	50
plus: National stockpile purchases	(247)	(259)	2	12	–	50	88	100
Net metal demand	4 489	4 233	3 450	4 034	4 274	4 480	4 653	4 803
Free world metal production	4 258	4 363	3 759	4 070	4 200	4 300	4 650	4 800
Metal Balance: surplus (deficit)	(231)	130	309	41	(74)	(180)	(3)	(3)
Total Balance: surplus (deficit)	(309)	(129)	556	5	153	66	30	(108)
Metal capacity	4 840	4 931	5 180	5 329	5 548	5 647	5 767	5 927
Per cent utilization	88	89	73	76	76	76	81	81

Zinc price levels quoted by producers remained unchanged from July and stood at $700.00 (U.S.) a tonne overseas, $749.56 (U.S.) a tonne in the United States, and $782.63 (Cdn.) a tonne in Canada. Likewise the London Metal Exchange closed the month of August at $533.30 (U.S.) a tonne compared to $546.60 (U.S.) a tonne at the end of July.

INDUSTRIAL MINERALS AND PRODUCTS

Asbestos

The phase I study examining opportunities for further processing of asbestos fibre in Quebec by Sorés (Monthly Report - April 1977) was recently completed.

Early reports indicate that there is moderate optimism relating to further processing opportunities. The report will soon be available to EMR and a press conference is scheduled for September 1, 1977.

On July 1, 1977, prices for Quebec asbestos were increased an average of 8.5 per cent for some grades. Cassiar Asbestos Corporation Limited increased fibre prices an average of 15 per cent, also effective at this time. Demand for grades 3, 4 and 7 were reported to be weaker during the first quarter of 1977.

Construction Materials

Employees at the Shawinigan, Quebec plant of Gulf Oil Canada Limited have rejected contract changes proposed by the company as one of the conditions for keeping the plant open. Even after Federal and Provincial funds were made available to the company for plant modernization, pollution controls deadlines postponed and assistance provided in negotiating a new contract with Hydro-Quebec, the company still maintained its original request for changes in contract clauses dealing with seniority, sickness and contracting work to outsiders, stressing the need to increase productivity by at least 10 per cent. Wage increases of 8 per cent were agreed upon.

Truroc Gypsum Products, Ltd., a Genstar Limited subsidiary, has announced an expansion of its gypsum wallboard production facilities at Edmonton, Alberta to enable 50 per cent greater production. Equipment will be provided by C-E Raymond, Division of the Process Equipment Group of Combustion Engineering, Inc., Chicago, Illinois.

Potash

Nepal will receive 7,000 tons of Canadian potash between now and 1979 as the result of a $1.6 million grant from CIDA.

The Nepalese government will sell the potash to farmers at subsidized prices.

MINERAL FUELS AND PRODUCTS

Coal

During August, the federal Department of Regional Economic Expansion (DREE) announced two amendments to a Canada-Nova Scotia agreement that would provide $7.5 million for coal exploration in and off the shore of Nova Scotia. One of the amendments would provide for an additional $1 million to extend onshore drilling in Cumberland, Pictou, Inverness, Cape Breton, Richmond and Colchester counties to search for coal deposits outside the Sydney basin. The second amendment would provide $6.5 million for offshore drilling to establish the extent of coal in the Sydney basin. This latter amount will be devoted to drilling work already underway on up to 12 offshore holes. Both of these amendments have been included in the Coal Inventory projects of the Mineral Evaluation Survey of the Canada-Nova Scotia Mineral Development Sub-Agreement. Funding is on the basis of 80 per cent federal and 20 per cent provincial contribution.

The federal Department of Energy, Mines and Resources (EMR) also unveiled a research program on energy fuels with the province of Alberta. The proposed expenditure under the program will amount to $96 million and will involve several laboratory and field projects over the next 5 years. Included within the program will be studies of the efficiency of coal production along with experiments on coal gasification and the synthesizing of coal gas to produce liquid hydrocarbons. Some of the of the research on in-situ coal gasification will continue EMR and Alberta government work begun in 1976. Initial results of this work indicated that industrial quality gas could be produced from in-situ gasification with present technology.

Newly announced toll charges for the St. Lawrence Seaway and the Welland Canal will increase transportation costs for coal movements to Ontario steel mills and thermal plants. The present $800 lockage charge on the Welland Canal is to be replaced with a bulk toll of 28 cents per ton. For Ontario Hydro (which now moves 2 million tons of coal through the Welland Canal) this will increase the cost of generating electricity by $500,000 per year. The iron and steel industry of central Canada will also be affected through increased charges for both coal and iron ore on the Welland Canal and the Montreal-Lake Ontario sections of the Seaway.

August 1977

Petroleum and Natural Gas

The Alaska Highway Pipeline Inquiry report to the federal government was released on August 2, 1977. The inquiry was headed by Kenneth Lysyk, University of British Columbia Dean of Law and the subsequent report set four major conditions before approval of a natural gas pipeline through the southern Yukon should be granted. These are:

1. The pipeline should be delayed until August 1981 primarily to allow for settlement of native land claims.

2. A single planning and control agency should be established immediately with power to oversee the project.

3. The applicant, Foothills Pipe Lines (Yukon) Ltd., should be required to put $200 million into a Yukon Heritage Fund.

4. Ottawa should advance $50 million to Yukon Indians to ensure they have the necessary resources to research and negotiate land claims.

Pan Alberta Gas Ltd. is planning to apply to the National Energy Board to extend the marketing of Alberta natural gas to all main population centres across eastern Quebec, New Brunswick and Nova Scotia. Pan Alberta is supported in this venture by The Alberta Gas Trunk Line Company Limited, and Petro-Canada. The aim of the project is to provide a market outlet for surplus Alberta gas supply which is expected to develop over the next 10 to 15 years. When these markets are developed they could also provide part of a longer term market for consumption of natural gas developed in the Canadian Arctic Islands, of which first deliveries are planned for the 1980's through the Arctic pilot project in progress under the direction of Petro-Canada. The initial quantities of gas to be sold in the extended Eastern Canadian markets are estimated at 100 million cubic feet a day, commencing in 1980 and increasing to 300 million by about 1984 and nearly 400 million by 1988. Quebec and Maritimes Pipe Lines Ltd. has requested Pan Alberta, an active marketer of Alberta gas, to develop this marketing program. Q and M Pipelines Ltd. is owned by The Alberta Gas Trunk Line Company Limited and Petro-Canada.

Amendments to the Canadian Oil and Gas Land Regulations, which were announced this month by the Federal government, have opened up over one billion acres of land under federal jurisdiction in the north and offshore areas for oil and natural gas exploration and ended the five year moratorium on issuing exploration permits. The amendments will be effective immediately and will inaugurate a new system for the exploration and development of oil and gas in Canada's north and offshore frontiers. The new system will enable the processing of current applications for oil and gas leases on some 31 million acres now held under permit. It will also open the door for the selective issuing of new exploration rights on about 700 million acres of Crown reserve lands, lands which were once held under permit or lease but surrendered to the Crown. In addition, more than 600 million acres of Canada lands, both on and off-shore that have never been covered by permit or lease will become available for exploration on a carefully selected basis. The amendments provide special options for Petro-Canada to obtain up to 25 per cent of those lands available within a year of the date of the amendment of the Regulations, as well as up to 25 per cent of any lands surrendered to the Crown over a period of seven years from that date.

Uranium

The Australian Government has announced that it will permit the development of uranium projects provided that the projects satisfy the following conditions:

1) the mining operations must conform with a mandatory code of practice which the government shall progressively prescribe,

2) the requirements of the Environmental Protection (Impact of Proposals) Act of 1974 must be compiled with,

3) the government must be satisfied as to the acceptability of the development on the environment and on the aboriginal people; the total level of activity will be taken into account in this regard,

4) the sale contracts for the uranium produced must conform with the government's safeguards policy.

In his announcement to Parliament, Australia's Prime Minister noted that, while his government saw no reason to specify the sequence of uranium projects, development would no doubt be of a sequential nature due to the lead-times associated with meeting the government's requirements and with the eventual negotiations between mining companies and aboriginal land owners. All of the projects in Australia's Northern Territory (Ranger, Jabiluka, Koongarra and Nabarlek) will be permitted to be developed and, to this end, the Ranger, Pancontinental and Noranda lease areas will be excluded from the proposed Kakadu National Park. The Park will be established in stages, commencing with an area larger than that first proposed in 1975, and there will be no exploration, development or mining in the area so designated.

It was also noted that an uranium advisory council will be established to advise the government and to report annually to Parliament and that the establishment of an uranium marketing board will be considered. The government has declared that it will honour the agreement for its participation in the development of the Ranger project, as negotiated between the previous Labour government, Peko-Wallsend Ltd. and Electrolytic Zinc Company of Australasia Ltd.

As a result of these announcements, it is envisaged that development of the Ranger project will begin next spring (following the end of the rainy season) and that the development of Nabarlek will begin shortly thereafter. First production from Ranger, at the rate of 2 500 tonnes of uranium a year, can be expected by mid 1981.

Drilling has indicated the possible presence of over 500 000 tonnes uranium contained in shale near Lake Taasjoe, in north central Sweden. Average grades in the shale are reported at 400 grams U per tonne, compared with 300 grams U/tonne at the well known Billingen deposits in south central Sweden.

Continental Oil Company has begun a $4.5 million expansion of its Conquista mill, in the Karnes County area of southern Texas, to about 2 600 tonnes a day. Elsewhere in Karnes County, Chevron Oil Company began stripping its new open pit mine which will support a planned 2 270 tonne a day mill scheduled for first production in late 1979.

Teton Exploration Drilling Co. Inc. plans to test the feasibility of in-situ uranium mining at depths of 670 to 760 metres on properties in Wyoming and New Mexico. Reportedly this will be the deepest such test of this technique.

The Tennessee Valley Authority (TVA) is considering a research program which would have as its objective the improvement of recovery processes for the extraction of uranium from phosphate rock used in the production of phosphoric acid. The programs would be carried out at TVA's National Fertilizer Development Centre.

RECENT AMALGAMATIONS AND MERGERS PUBLISHED IN THE GAZETTES

Amalgamation of The Resource Service Group Ltd. and Consolidated Bear Industries Ltd. under the name of The Resource Service Group Ltd. on June 30, 1977. Source Alberta gazette July 15, 1977.

Amalgamation of Helton Engineering & Geological Services Ltd. and Helton Engineering Ltd. under the name of Helton Engineering & Geological Services Ltd. on June 1, 1977. Source Alberta gazette July 15, 1977.

NEW PUBLICATIONS

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

Preprints, *Canadian Minerals Yearbook, 1976*.
Cesium; Lime; Manganese; Sodium Sulphate;
price 50 cents a copy.

The Mineral Policy Series:
(F - also available in French); price $2.00 a copy.

MR 151 F - Le gypse
MR 158 F - Tendances et perspectives economiques dans l'industrie minerale
MR 161 - Minerals, Science and Technology

MR 171 - *Native peoples and mining*, by Glen Lazore,
price $2.00

Operators List 7, 1977, *Natural Gas Processing Plants in Canada*, price $1.50.

The above publications are available from the Publishing Center, Department of Supply and Services, Ottawa.

MH/GK/sl/ka/df