Canadian Mine Openings, Closings, Expansions/Extensions and New Mine Developments

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OVERVIEW

In 1995, mine openings considerably exceeded mine closings. During the year, there were 21 mine openings (10 new mines and 11 re-openings) and 7 mine closings (4 suspensions and 3 closures) (Tables 1 and 2). The new mines opened consisted of 4 gold mines, 4 base-metal mines and 2 industrial mineral mines. The 11 re-openings included 4 gold mines, 6 base-metal mines and 1 gypsum mine, all of which had previously suspended operations. The 7 mine closings included the closure of 2 base-metal mines and 1 gypsum mine, and the suspension of production at 1 gold mine, 2 asbestos mines and 1 limestone-dolomite operation. New mine openings showed a marked increase over 1994 when only 2 new mines were opened. Two of the 10 new mines that opened for production in 1995 were joint ventures between Canadian and foreign companies.

The new mines opened in 1995 were: the Bouchard-Hébert (formerly Mobrun 1100 Lens) zinc-copper-gold-silver mine in Quebec; the Eagle River gold mine, the Cobatec cobalt operation, and the Street Township garnet mine in Ontario; the Photo Lake copper-zinc mine in Manitoba; the Contact Lake gold mine in Saskatchewan; the Sheerness coal mine in Alberta; the Eskay Creek and QR gold mines in British Columbia; and the Grum zinc-lead-silver mine in the Yukon. Re-opened mines included the Ming copper mine and the Flat Bay gypsum mine in Newfoundland; the Wrightbar gold mine in Quebec; the Redstone nickel mine and the Shebandowan and Lockerby nickel-copper mines in Ontario; the New Britannia gold mine and the Westarm copper-zinc mine in Manitoba; the Table Mountain gold mine in British Columbia; and the Faro/Vangorda mining operations in the Yukon.

The most important new mines in 1995, in terms of value of production and employment, were the Bouchard-Hébert base-metal mine in Quebec, the Contact Lake gold mine in Saskatchewan, the Eskay Creek gold mine in British Columbia, and the Grum mine in the Yukon. The most important re-openings were the Golden Giant, Shebandowan and Lockerby mines in Ontario, the Faro/Vangorda operations in the Yukon (all base-metal mines), and the New Britannia gold mine in Manitoba.

Three significant mine closures took place during the year. In Ontario, the Drumbo gypsum mine, which first began production in 1978, closed in April. The Geco copper-zinc-silver mine, a major base-metal producer in northwestern Ontario that started production in 1957, closed in November. The Island Copper mine in British Columbia, one of Canada's largest copper mines, in operation since 1971, closed in December. All three mines closed because of ore exhaustion. In addition, the British-Canadian and the Beaver asbestos mines in Quebec suspended operations in May, and the Lower Cove limestone-dolomite mine in Newfoundland and the Astoria gold mine, also in Quebec, suspended production in August and September, respectively.

In addition to mine openings, there were at least 18 significant mine expansion and mine extension projects across Canada in 1995 (Table 2), continuing the strong performance noted in 1994. The total capital cost (excluding acquisition costs) for new and re-opened mines in 1995 is estimated to be about $400 million. Another $250 million is estimated to have been spent on mine expansions and extensions. Capital expenditures on mine openings, expansions and extensions are expected to rise considerably in 1996.

REGIONAL PERSPECTIVE

During 1995, seven provinces and one territory were affected by mine openings or closings. Most occurred in Quebec, Ontario, Manitoba and British Columbia. Of the 21 mine openings in the year, 2 occurred in each of Newfoundland, Quebec and the Yukon, 7 in Ontario, 3 in Manitoba, 3 in British Columbia, and 1 each in Saskatchewan and Alberta. Of the 7 mine closings, 3 occurred in Quebec, 2 in Ontario, and 1 each in Newfoundland and British Columbia. However, because the opening or closure of a larger mine will have more effect on production and employment than that of a smaller mine, the impact of mine openings and closings varied considerably from province to province.

In Newfoundland, the Flat Bay gypsum mine near St. George's in the southwestern part of the island was re-opened in October 1995 by a new owner, Galen Gypsum Mines Limited. The mine suspended operations in November 1994. Employment at the open-pit operation, which restarted with 10 workers, is expected to increase along with production in 1996. The Ming copper mine near Baie Verte, which had operated between mid-1964 and April 1982, re-opened in December 1995 creating 75 new jobs. Although current ore reserves will only sustain two more years of production, the recent discovery of a new ore zone will likely extend the mine's life. In August 1995, the Lower Cove limestone-dolomite operation ceased production when owner The Newfoundland Resources & Mining Company Limited was declared bankrupt. As a result, 32 jobs were lost. On December 21, Newfoundland Cement Company Limited acquired the operation through a wholly owned subsidiary, Alantic Minerals Limited. The new company plans to reactivate the operation in 1996. Overall in 1995, Newfoundland incurred a net loss of some 2100 t of daily ore capacity but a net gain of some 55 mining jobs, faring better than in the previous year when no new mines opened and one mine suspended operations.

Northwestern Quebec received a needed boost to its mining and employment with the opening of the 2000-t/d Bouchard-Hébert zinc-copper-silver mine near Rouyn-Noranda and the opening of the Wrightbar gold mine near Val-d'Or. Although the Astoria gold mine, also near Rouyn-Noranda, suspended operations in September, it retained more than half of its workers to continue exploration. However, with the suspension of production at both the British-Canadian and the Beaver asbestos mines near Thetford Mines, the Eastern Townships of southeastern Quebec suffered a severe economic blow. In all, Quebec suffered net losses of over 12 200 t/d of productive mine capacity and 275 mining jobs in 1995, faring poorly in comparison to 1994 when the province incurred net gains in both mine capacity (3450 t/d) and mining employment (340).

In Ontario, seven mines opened in 1995. These included three new mines: the Eagle River gold mine near Wawa, the Cobatec cobalt-nickel mining and tailings reprocessing operations near Cobalt, and the Street Township garnet mine in Sudbury. The Shebandowan mine near Thunder Bay and the Lockerby mine in Sudbury, both nickel-copper mines, the Redstone nickel mine near Timmins, and the Golden Giant gold mine near Marathon re-opened. The re-opening of the three nickel mines, largely the result of stronger demand and an improved price outlook for nickel, signalled a welcome recovery of nickel mining in Ontario. Due to a labour dispute and localized wall-surface fracturing within a production shaft, the Golden Giant gold mine near Marathon twice suspended production during the year (from June 17 to September 17 and from October 26 to mid-December), but there were no job losses. However, because of the closure of the Geco copper-zinc-silver mine at Manitouwadge, which had been an important base-metal producer since 1957, and the Drumbo gypsum mine near Clarkson in southern Ontario, the province of Ontario incurred a small net loss of some 600 t/d of mine production capacity but a net gain of some 260 mining jobs, comparing favourably with 1994.

With three mine openings and no closings, Manitoba fared best among the provinces in 1995. The Westarm copper-zinc mine near Flin Flon, which had been dormant for nine years, re-opened in January 1995. In the Snow Lake area, the Photo Lake mine, a new underground copper-zinc mine, came on stream in September. In the same month, the Britannia gold mine, which had closed in 1958, resumed production. With the opening of these three mines in 1995, Manitoba netted 2800 t/d of ore capacity and some 290 new jobs to end the year on a positive note. This compared favourably with the situation in the previous year when the province incurred significant losses in both mine capacity and mine employment.

The opening of the Contact Lake gold mine near La Ronge, Saskatchewan, in January 1995 added a second gold mine to that province's mineral assets. Contact Lake is a joint venture between Canada's Cameco Corporation (66.67%) and Uranerz Exploration and Mining Ltd. (33.33%), a German-controlled company. With the nearby 500-t/d Seabee mine, the province now has two producing gold mines. The 700-t/d Contact Lake underground mine is expected to contribute about 60 000 oz of gold to the province's annual output of this metal for at least the next five years. It has also added 100 new mining jobs to the La Ronge gold camp.

With the opening of the Sheerness coal mine near Hanna, which created some 70 new jobs, Alberta now has 12 producing coal mines. At a production rate of about 57 000 t/d, the mine is expected to supply some 2 Mt of sub-bituminous coal annually to the nearby Sheerness Generating Station.

In British Columbia, three gold mines came on stream in 1995. The rich Eskay Creek gold mine near Stewart opened at the start of the year, followed by the re-opening of the Table Mountain gold mine near Cassiar in April and the opening of the QR gold mine at Quesnel in May. These gold mines will add some 260 000 oz to British Columbia's annual production of gold, with the bulk of the new additions coming from the 210 000-oz/y Eskay Creek mine. The Eskay Creek mine, which also produces some 9.4 million oz/y of silver, is the only gold mine in Canada that is of sufficiently high grade to ship ore directly to smelters. With at least ten years of mine life, the mine will contribute significantly to the economy of British Columbia beyond the turn of the century. Overall, these three new and re-opened mines added some 1720 t of daily ore capacity and 188 jobs. However, because of ore exhaustion, the 50 000-t/d Island Copper copper mine near Port Hardy on Vancouver Island closed in December, resulting in a net loss of more than 48 000 t of daily mine capacity as well as 245 mining jobs in British Columbia in 1995.

With the opening of Grum and the re-opening of the Vangorda zinc-lead-silver mines at Faro, Yukon emerged as the winner in Canada in 1995 with net gains of nearly 19 500 t/d of mine capacity and 420 jobs, out-shining Manitoba which fared best among the provinces. Ore at the Faro mine was exhausted in November 1991 and production was suspended at the Vangorda mine and the Faro concentrator in April 1992. Anvil Range Mining Corporation acquired the entire mining assets at Faro and the nearby Grum, Dy and Swim deposits on November 8, 1994. Grum was subsequently developed by Anvil Range and partner Hyundai Corporation of the Republic of Korea as a new open-pit mine and was brought on stream at the same time that Vangorda was reactivated for production in August 1995. With its production forward-sold, and the prices of zinc, lead and silver rising, the Faro operations appear to be another success story for Canadian-Korean joint ventures in Canada.

MINE EXPANSIONS AND EXTENSIONS

As in 1994, at least 18 significant mine expansion and extension projects were undertaken in 1995. These included 8 in Quebec, 7 in Ontario, and 1 each in Manitoba, British Columbia and the Northwest Territories. While more than half of these projects involved existing programs, eight were new. Three of the new projects were in Quebec, four in Ontario and one in British Columbia. The most significant of the existing expansion projects during 1995 were at the Doyon and Casa Berardi (Quebec), and Dome and Detour Lake (Ontario) gold mines, and at the Craig (Ontario) and Thompson (Manitoba) nickel-copper mines. The most significant new expansions took place at the Sigma gold mine in Quebec; at the Campbell, Red Lake, Hoyle Pond and Holt-McDermott gold mines in Ontario; and at the Quinsam coal mine in British Columbia.

In Quebec, the existing expansion at La Ronde and extensions at Copper Rand and Portage and at Sleeping Giant, all of which began in 1994, were completed during 1995. Expansions at Casa Berardi (Est and Ouest) and an extension at Doyon also began in 1994. The $30 million expansion program at Casa Berardi and the $23.7 million program at Doyon are both expected to be completed in 1996. In addition, three new programs commenced in 1995: a one-year deep-ore extension at the Joe Mann gold-copper mine, a $9.5 million two-year ore extension at the Gaspé copper mines (E-34 orebody), and a US$13 million two-year capacity expansion at the Sigma gold mine. These mine expansions and extensions are the result of mine-site exploration successes in recent years in Gaspé and in northwestern Quebec.

Four new gold mine expansion and extension programs were launched in Ontario in 1995. The first was a $10 million program to expand the mine and mill at Holt-McDermott from 1250 t/d to 2000 t/d. Development of the high-grade South Zone is essentially complete and full production is expected to begin in 1996. A $10 million extension program began at Red Lake where a recent discovery of high-grade gold mineralization below previously known ore reserves is expected to considerably boost current ore reserves. As a result of recent successes in outlining new ore reserves below current workings, a $70 million program was launched in 1995 to expand the production capacity of the nearby Campbell gold mine and mill and to extend the mine life. The program is scheduled for completion in 1998. During 1995, mill capacity at the mine increased to 1585 t/d from 1365 t/d. As well, work on a new shaft is scheduled to begin in May 1996. A $35 million expansion program began at the Hoyle Pond gold mine to increase production over the next two years. A 750-m shaft, which started in May 1995, will facilitate further work on exploration at depth. During 1995, two existing major expansion projects were completed, one at the Dome and the other at the Detour Lake gold mines. Production capacity at the Dome mine was increased from 3800 t/d to some 9100 t/d. As of 1996, the mine will produce at a new rate of 315 000 oz of gold annually. The expansion at the Craig nickel-copper mine, which started in 1993, is expected to be completed in 1996. Ore production at the mine is expected to reach 1.2 Mt/y by the end of 1996. Craig, a part of the existing Onaping-Craig mine and mill complex, which has cost some $365 million to develop and expand since 1985, is now the flagship of Falconbridge Limited's nickel mines in Sudbury.

In Manitoba, development of the 1-D orebody, which is part of the Thompson mining complex, was completed in 1995. The capital cost to production of 1-D amounted to some US$181 million. Planned production in 1996 is about 9000 t of contained nickel, increasing to 17 000 t by 1998. At the current rate of production, the estimated production life at 1-D is about 14 years. This will likely extend the overall mine life of the Thompson mine to at least 19 years. A $14.1 million expansion program for the Quinsam coal mine on Vancouver Island, which attained a capacity of 600 000 t/y in 1994, was announced in 1995. This new expansion plan is expected to increase the mine's coal production to 1.2 Mt/y by 1997. The expansion will also result in over 100 new jobs at the mine. In the Northwest Territories, the Miramar Con gold mine completed a $4 million mill expansion program in early 1995, increasing the mill capacity from 1000 t/d to 1270 t/d. As well, considerable net additions to the ore reserves were made during the year in previously unexplored areas of the mine. This has increased the gold reserves at the mine to 1.35 million oz at year-end 1995, the highest level in the 57 years since the mine came into production in 1938.

The large number of significant mine expansion and extension activities in Canada during 1995 has continued the recent upward trend that began in 1992.

IMPACT

Although mine openings in Canada considerably outnumbered mine closures in 1995, there was a net loss in production capacity because of the closure of the Island Copper mine on Vancouver Island in December. Mine openings resulted in gross gains of some 38 600 t of daily ore production capacity and 1906 jobs, but about 73 200 t of daily capacity and 1180 jobs were lost because of mine closures. In all, Canadian mines suffered a net loss of some 34 600 t of daily ore production capacity, but had a net gain of some 726 jobs in 1995. In addition, mine expansions and extensions have added further new ore reserves to offset normal decreases in ore reserves due to production. Mine expansions created at least another 120 new jobs at Canadian mines.

The net results of mine openings and closures in 1995 show that while the closure of a single large mine can produce a negative net impact on Canada's ore production capacity, the opening of a large number of small mines can have a positive net impact on employment. It is also important to note that these smaller mines are often more widespread across Canada and thus bring more employment and associated socio-economic benefits to more communities across the country than would a single large mine. The smaller new mines that are brought on stream are often of a higher grade. In the case of copper mines, for example, the average copper ore grade at the small 500-t/d Photo Lake mine (4.5% copper) in Manitoba is almost 12 times higher than that of the 50 000-t/d Island Copper mine (0.39% copper) in British Columbia (co-product and by-product grades are not included in the comparison). Accordingly, the opening of a number of small but high-grade mines can offset the closure of one or two large ones.

Significant dicoveries of new ore have been established in recent years, demonstrating that additional ore can be found, not only at producing mines, but also at former mines and on the properties surrounding these former mines. Examples of the latter include the Bouchard-Hébert zinc-copper deposit and the Louvicourt copper-zinc deposit near Val-d'Or and the Bell Allard zinc-copper deposit near Matagami, Quebec; the Victor, Nickel Rim nickel-copper and the Strathcona Deep copper-nickel deposits at Sudbury, Ontario; and the Pipe Deep nickel deposit at Thompson, Manitoba.

NEW DEVELOPMENTS EXPECTED TO BECOME MINES IN 1996

A considerable number of new mining projects have reached the advanced development stage and are expected to begin production in 1996. Among the most promising are the Rambler gold tailings in Newfoundland; Stellarton coal in Nova Scotia; Beaufor (gold), Grevet (zinc-copper-silver) and St. Onge (wollastonite) in Quebec; Holloway and Nighthawk Lake (both gold), McCreedy East (nickel-copper) and Hawley (wollastonite) in Ontario; Farley Lake (gold) and Pick Lake (zinc-copper) in Manitoba; Komis (gold) in Saskatchewan; and Brewery Creek (gold) in the Yukon.

Several mining operations that had previously suspended production are likely to re-open in 1996. These include the Caribou zinc-lead-silver-gold and the Lake George antimony mines in New Brunswick; McWatters (gold) in Quebec; Madsen (gold) in Ontario; Bralorne-Pioneer and Golden Bear (both gold) in British Columbia; and Bellekeno and Silver King (both silver) and Mount Nansen (gold) in the Yukon. In addition, work on many of the significant mine expansions and extensions that took place at or near existing mine sites in 1995 will continue into 1996. These expansions and extensions not only reflect important exploration successes that rival new ore deposits discovered by grassroots exploration, but also represent welcome additions to mine-site or near-mine-site ore reserves that will help extend the lives of existing mines.

OUTLOOK

With healthy demand continuing for metals (especially copper and nickel) and industrial minerals, the outlook is bright for 1996. Preliminary estimates indicate that not only will more mines open than close in 1996, but more new mines will come on stream in the year, continuing the upward trend that began in 1994. Barring unexpected changes in metal prices, some 24 mines are expected to open in 1996 and another 25 in 1997. With only a handful of mine closures expected in each of 1996 and 1997, both years are expected to outperform 1995 with net gains in production capacity and employment. As larger new mines are developed for production, overall capital expenditures are expected to rise. Preliminary estimates indicate that expenditures toward mine openings in 1996 are expected to be some $600 million, and that mine openings in 1997 will require an additional $2.5 billion, with significant spin-off benefits to Canadians. Although it is too early to predict the actual number, there are good indications that more new base-metal mines will come on stream in Canada, reflecting the revival in base-metal mining that began in 1994 and 1995.

Note: Information in this review was current as of February 29, 1996.

TABLE 1. MINE OPENINGS AND CLOSINGS IN CANADA, 1995

Province/ Territory	New Mines			Mines Re-Opened			Mines Suspended			Mines Closed		
	Precious Metals	Base Metals	Other Minerals	Precious Metals	Base Metals	Other Minerals	Precious Metals	Base Metals	Other Minerals	Precious Metals	Base Metals	Other Minerals
Newfoundland	–	–	–	–	1	1	–	–	1	–	–	–
Quebec	–	1	–	1	–	–	1	–	2	–	–	–
Ontario	1	1	1	1	3	–	–	–	–	–	1	1
Manitoba	–	1	–	1	1	–	–	–	–	–	–	–
Saskatchewan	1	–	–	–	–	–	–	–	–	–	–	–
Alberta	–	–	1	–	–	–	–	–	–	–	–	–
British Columbia	2	–	–	1	–	–	–	–	–	–	1	–
Yukon	–	1	–	–	1	–	–	–	–	–	–	–
Canada, total by commodity group	4	4	2	4	6	1	1	–	3	–	2	1
Total, Canada	10			11			4			3		

Source: Natural Resources Canada.
– Nil.

TABLE 2. CANADIAN MINE OPENINGS, RE-OPENINGS, EXPANSIONS/EXTENSIONS, SUSPENSIONS, AND CLOSURES IN 1995

Mining Operation	Location	Province	Ore Capacity	Employment[1]	Date of Opening, Re-Opening, Expansion/Extension, Suspension or Closure	Mine or Plant Type	Main Commodities	Companies	Remarks
			(tonnes/day)						
NEW OPERATIONS									
Precious Metals									
Eagle River	Wawa	Ont.	300	125	September 18	U/G	Gold	River Gold Mines Ltd.	Annual production is expected to be about 40 000 oz of gold. Ore reserves in December 1994 were 816 690 t averaging 14.1 g/t gold. Capital cost to production is estimated at $16 million.
Contact Lake	La Ronge	Sask.	700	100	January	U/G	Gold	Cameco Corporation and Uranerz Exploration and Mining Limited	Planned production is about 60 000 oz of gold annually. As of January 1, 1995, ore reserves stood at 1.3 Mt averaging 8.0 g/t gold. Currently, mine life is estimated to be about 6 years. Capital cost to production was $36 million.
Eskay Creek	Stewart	B.C.	300	100	January 3	U/G	Gold, silver	Prime Resources Group Inc.	Production will be about 210 000 oz of gold and 9.4 million oz of silver annually. Ore is shipped to Noranda Minerals Inc.'s Horne smelter and to Japan for direct smelting. Ore reserves at January 1, 1995, were 1.08 Mt averaging 65.5 g/t gold, 2931 g/t silver, 0.77% copper, 2.89% lead and 5.64% zinc. Mine life is at least 10 years. Capital cost to production is estimated to be about $75 million.
QR	Quesnel	B.C.	1 000	43	May	O/P	Gold	Kinross Gold Corporation	Production is expected to be 37 000 oz of gold annually. Ore reserves at the beginning of 1995 were 1.3 Mt averaging 4.68 g/t gold. Currently, mine life is estimated to be about 5 years. Capital cost to production is about $21 million.
Base Metals									
Bouchard-Hébert (formerly Mobrun 1100 lens)	Rouyn-Noranda	Que.	2 000	125	January 1	U/G	Zinc, copper, gold, silver	Audrey Resources Inc.	The mine is expected to produce 30 000 t of zinc, 5400 t of copper, 19 000 oz of gold and 37 000 oz of silver annually. Ore reserves as at January 1, 1995, stood at 10 Mt grading 4.3% zinc, 0.79% copper, 34.5 g/t silver and 1.2 g/t gold. Estimated current mine life is about 14 years. Capital cost to production is estimated at about $35 million.

Cobatec	Cobalt	Ont.	180	50	June	Surface & U/G	Cobalt, nickel	Ego Resources Limited	The operation involves the mining of underground ore and tailings/waste rock in the Cobalt area. Annual production is expected to be about 290 t of cobalt. Ego is spending $6 million to increase production to 1 million lb/y of cobalt. The plant will also produce cobalt-based specialty chemicals. Capital cost to production is about $20 million. The operation is the world's first exclusive primary producer of cobalt. However, production of nickel as a by-product is being contemplated.
Photo Lake	Snow Lake	Man.	500	48	September	U/G	Copper, zinc	Hudson Bay Mining and Smelting Co., Limited	Production will begin with 53 000 t of ore in 1995, increasing to 180 000 t in 1996. Ore reserves in the beginning of October 1995 were 533 623 t grading 4.5% copper, 6% zinc, 4.7 g/t gold and 33 g/t silver. Capital cost to production is about $24.1 million.
Grum	Faro	Y.T.	11 750	256	August 14	O/P	Zinc, lead, silver	Anvil Range Mining Corporation and Hyundai Corporation	Ore is being milled at the Faro mill. Grum will become the sole source of ore supply to the Faro mill after ore from the Vangorda pit is exhausted in the first quarter of 1996. Ore reserves at the start of 1995 were 24.76 Mt grading 2.74% lead, 4.54% zinc, and 46 g/t silver. At full production, annual output is expected to average 324 million lb of zinc, 2.16 million lb of lead, 3 million oz of silver and 30 000-35 000 oz of gold. The operations at Faro, which include the Vangorda open-pit mine, the Grum ore deposit and the Faro mill, as well as the Dy and the Swim deposits, were acquired by Anvil Range on November 8, 1994. The capital cost of bringing Grum into production was about $31 million, which was mainly the stripping cost. Overall, excluding the acquisition cost, the total capital cost of opening the Grum and re-opening the Faro/Vangorda operations was about $74.9 million. Employment at the mine is expected to increase to 420 once full production is achieved sometime in 1996.
Other Minerals									
Street Township	Sudbury	Ont.	180	15	September 15	O/P	Almandine (garnet)	Emerald Isle Resources Inc. and Stralak Resources Inc.	Capital cost to production is about $3.5 million.
Sheerness	Hanna	Alta.	5 700[e]	70	August	O/P	Coal	Luscar Ltd.	Production will be about 2 Mt of sub-bituminous coal annually for supply to the nearby Sheerness Generating Station. Coal reserves at the start of 1995 were about 60 Mt. The capital cost to production is estimated to be about $28 million.

TABLE 2 (cont'd)

Mining Operation	Location	Province	Ore Capacity (tonnes/day)	Employment[1]	Date of Opening, Re-Opening, Expansion/Extension, Suspension or Closure	Mine or Plant Type	Main Commodities	Companies	Remarks
RE-OPENINGS									
Precious Metals									
Table Mountain	Cassiar	B.C.	270	35	April	U/G	Gold	Cusac Gold Mines Ltd.	Production in 1995 is expected to be about 8000 oz of gold. Milling will be performed from April to October. Currently ore is from the Big vein area while the West Bain vein is being developed for production. The West Bain contains about 12 500 short tons (st) of ore reserves averaging 0.3 oz/st gold. Future ore is also expected to come from the Michelle High Grade zone where a reserve of 24 000 st averages 0.82 oz/st gold.
Wrightbar	Val-d'Or	Que.	270	75	September	U/G	Gold	Lithos Corporation	The mine produced from 1986 to 1988. Ore reserves at the time of production suspension in 1988 were 276 690 t grading 7.89 g/t gold. Continued exploration since 1994 is expected to add to the reserves. Production is currently at about 2500 oz per month. Planned production at an increased rate of 350 t/d is expected to generate 30 000 oz of gold annually. Ore is being custom-milled at the Aurbel mill. The capital cost to re-open the Wrightbar mine is about $1 million.
New Britannia	Snow Lake	Man.	1 800	180	September	U/G	Gold	TVX Gold Inc. and High River Gold Mines Ltd.	Production will be about 100 000 oz/y of gold. Ore reserves at the beginning of 1995 were 743 000 t averaging 9.19 g/t gold. The capital cost to production was about $48 million. New Britannia was formerly the Nor-Acme mine which produced between 1949 and 1958. At present, an additional 20 contractors are temporarily employed at the mine.
Golden Giant	Marathon	Ont.	3 000	330	June 17	U/G	Gold	Hemlo Gold Mines Inc.	Due to a strike by 230 union members, production was suspended on June 17, 1995. A contract settlement was reached with the union and the mine re-opened on September 18. Production was again halted on October 26, 1995, due to localized fracturing of the surface of the wall rock within the production shaft at a depth of 700 m. The mine re-opened again in mid-December after repair.

Base Metals

Ming	Baie Verte	Nfld.	360e	75	December	U/G	Copper, gold	Ming Minerals Inc.	The mine suspended production in 1982 due to a shortage of ore. It was reactivated in the fall of 1995 and production of concentrate began in December. Although current ore reserves can only sustain two more years of production, the recent discovery of a new ore zone could extend the mine life. The mine was in production between mid-1964 and April 1982.
Vangorda/Faro	Faro	Y.T.	7 700	165	August 14	O/P	Zinc, lead, silver	Anvil Range Mining Corporation and Hyundai Corporation	Mining operations were suspended in December 1992 because of low metal prices and the financial problems of Curragh Inc., the previous owner. The mine and the Faro mill were acquired by Anvil Range in November 1994. About 1 Mt of ore reserves were left in the Vangorda orebody when mining re-started in August 1995. In addition, about 2.6 Mt of ore mined from Vangorda were stockpiled at the Faro mill at that time. Ore at Vangorda is expected to be exhausted in the first quarter of 1996. The re-opening of Vangorda involved the re-opening of the Faro mill and the opening of Grum, a new mine nearby (see Grum above). The capital cost of re-opening the Vangorda mine and the Faro mill, which included improvement repairs but not acquisition costs, was estimated at over $22 million.
Lockerby	Sudbury	Ont.	1 500	100	December 1995	U/G	Nickel, copper	Falconbridge Limited	Mining was suspended in June 1994 because of high operating costs and low nickel prices. Production for 1996 will total 3000 t of nickel and 2000 t of copper. At full production, planned for 1998, annual mine output will be 8000 t of nickel and 3500 t of copper, and employment will total 100 people. The capital cost of re-opening the mine is expected to be $47 million. Current reserves stand at 2.3 Mt averaging 2.59% nickel and 1.38% copper. Remaining mine life is about 10 years.
Shebandowan	Thunder Bay	Ont.	1 630	320	December	U/G	Nickel, copper	Inco Limited	The mine was placed on care and maintenance in April 1992 due to the low price for nickel. Production rate will be 1630 t/d initially, increasing to 2270 t/d by early 1996. Remaining mine life is about 3 years.

TABLE 2 (cont'd)

Mining Operation	Location	Province	Ore Capacity (tonnes/day)	Employment[1]	Date of Opening, Re-Opening, Expansion/Extension, Suspension or Closure	Mine or Plant Type	Main Commodities	Companies	Remarks
Base Metals (cont'd)									
Redstone	Timmins	Ont.	300	70	Late October	U/G	Nickel, cobalt	Black Hawk Mining Inc.	Mining operations were suspended in May 1992 due to low nickel prices. Custom milling and smelting are contracted to Falconbridge's Strathcona and Sudbury facilities. Deliveries of nickel ore from Redstone to Strathcona commenced on November 13. Current ore reserves stand at 182 325 t averaging 3.28% nickel and 0.038% cobalt. The estimated cost of re-opening the mine is about $1 million. Mining is under contract to BLM Mining Services Inc. The remaining mine life is estimated to be at least 2 years.
Westarm	Flin Flon	Man.	500[e]	64	January 1	U/G	Copper, zinc	Hudson Bay Mining and Smelting Co., Limited	Ore production is estimated to be about 150 000 t in 1995, increasing to over 200 000 t in 1996. Ore reserves at the beginning of 1995 were more than 500 000 t averaging 3.46% copper and 2.16% zinc. The mine was closed in 1995 because of cost problems. The cost of re-opening the mine for production is estimated at $4.1 million.
Other Minerals									
Flat Bay	St. George's	Nfld.	1 500[e]	10	October	O/P	Gypsum	Galen Gypsum Mines Limited	The mine suspended production in November 1994 as a result of rising costs and a shortage of ore reserves. Galen Gypsum Mines Limited acquired the mine from Domtar Inc. in December that year and reactivated it for production in October 1995. In 1996 the company intends to supply Atlantic Gypsum Limited and North Star Cement Limited of Corner Brook, and possibly international markets.
EXPANSIONS AND EXTENSIONS									
Precious Metals									
Copper Rand and Portage	Chibougamau	Que.	3 000	300	1994-95	U/G	Copper, gold	MSV Resources Inc.	Since the acquisition of the two mines in 1993, MSV has quadrupled the ore reserves to about 4 Mt averaging 1.74% copper and 3.02 g/t gold. MSV purchased the mines in February 1993 from Westminer Canada Limited, a wholly owned subsidiary of Western Mining Corporation Holdings of Australia. The company has met with continued success in outlining new ore reserves and both ore and metal production have been rising over the years. A further production increase is planned for 1996.

La Ronde	Cadillac	Que.	1 800	290	1994-95	U/G	Gold, copper	Agnico-Eagle Mines Limited	A $5.7 million expansion program has resulted in an increase in the overall potential resource of 18 Mt grading 0.176 oz/t gold and 2.49 oz/t silver, as well as 0.28% copper and 4.53% zinc. Agnico deepened the main production shaft in November 1995 to 4300 ft. By year-end 1995, drilling had expanded the newly discovered 20 North and the 20 South zones.
Sleeping Giant	Amos	Que.	600	105	1994-95	U/G	Gold	Aurizon Mines Ltd. and Cambior inc.	Since 1994, newly discovered ore zones had helped boost mineable ore reserves at the mine by 50% and resulted in a 75% increase in the contained ounces of gold. After accounting for production, the ore reserve level at the end of 1995 increase 8% over the previous year. New and potential ore reserves had led to a decision to deepen the shaft by nearly 300 m. Capital cost of extending the shaft and new ore development was estimated at $7.3 million for 1994 and 1995. Production costs are expected to decline to below $US200/oz in 1996.
Doyon	Cadillac	Que.	3 300	450	1994-95	U/G	Gold	Cambior inc. and Barrick Gold Corporation	The $23.7 million shaft-deepening program will extend mining into a newly outlined mineralized zone west of the Doyon fault containing an additional 4.9 Mt of probable or possible ore reserves averaging 6.3 g/t gold.
Casa Berardi Est and Ouest	La Sarre	Que.	2 000	290	1994-96	U/G	Gold	TVX Gold Inc. and Golden Knight Resources Inc.	A $30 million deep development plan by the partners will allow an expansion in ore production at the two mines to 800 000 t/y from the current 560 000 t/y, increasing gold production to 140 000 oz/y from the current level of 100 000 oz/y.
Joe Mann	Chibougamau	Que.	1 635	257	1995	U/G	Gold, copper	Campbell Resources Inc.	Recent exploration drilling below the developed levels has outlined new ore reserves containing some 250 000 oz of gold. Drilling has also indicated extensions of the mineralized zone as deep as 1130 m and it appears that the zone keeps its width at the deeper levels and grades increase slightly.
Sigma	Val-d'Or	Que.	1 600	318	1995-96	U/G	Gold	Placer Dome Canada Limited	A US$13 million expansion program is expected to increase mill capacity to 1873 t/d by 1996. Gold production will then increase to 100 000 oz annually.

TABLE 2 (cont'd)

Mining Operation	Location	Province	Ore Capacity (tonnes/day)	Employment[1]	Date of Opening, Re-Opening, Expansion/Extension, Suspension or Closure	Mine or Plant Type	Main Commodities	Companies	Remarks
Precious Metals (cont'd)									
Campbell	Balmertown	Ont.	1 585	377	1995-98	U/G	Gold	Placer Dome Canada Limited	A $70 million expansion and extension program which began in 1995 has increased mill capacity from 1365 t/d to 1585 t/d. The program is scheduled to be completed in 1998. The development capital outlays in 1995 were $10 million, and will be $20 million for each of 1996, 1997 and 1998. On-site exploration has been successful in outlining substantial new ore reserves and resources below present workings to warrant the sinking of a new shaft beginning in May 1996. Employment is expected to increase to about 383 in 1996.
Red Lake (formerly Arthur W. White mine)	Balmertown	Ont.	955	234	1995-97	U/G	Gold	Goldcorp Inc.	The company has launched a $10 million program to develop deep gold reserves in the next two years. A recent discovery of high-grade gold mineralization below previously known ore reserves proves the program successful. About 330 000 ft of drilling are planned for the next two years.
Hoyle Pond	Timmins	Ont.	900	154	1995-97	U/G	Gold	Kinross Gold Corporation	Kinross will spend $35 million over the next two years to expand on production. A 750-m production shaft, started in May 1995, will facilitate exploration of the orebody at depth. The mine is expected to produce 150 000 oz of gold annually starting in 1996. Employment is expected to increase to more than 165 in 1996.
Dome	Timmins	Ont.	9 100[e]	350	1994-95	O/P & U/G	Gold	Placer Dome Canada Limited	A $117 million expansion program that began in April 1994 was completed in the first quarter of 1995. Dome's production rate has since been increased to 9100 t/d from 3800 t/d. Expansion in the open-pit operation and processing plant will enable the combined open-pit and underground operations to produce 315 000 oz/y of gold. With mineable ore reserves estimated at 22.9 Mt grading 2.33 g/t gold, the remaining mine life is estimated to be about 11 years.

Detour Lake	NE of Cochrane	Ont.	2 500	250	1994-95	U/G	Gold	Placer Dome Canada Limited	A $10 million expansion program took place in two phases in 1994 and was completed at the end of January 1995. Phase 1 extends the current mine life through to the year 2000, with production from a combined reserve-resource of 7.3 Mt grading 5.1 g/t gold. Phase 2 will extend the mine life a further 3 years. Annual production at Detour Lake is expected to be 168 000 oz. Cash production cost will be reduced to US$240/oz from US$250/oz of gold produced. A slight increase in employment at the mine is expected.
Holt-McDermott	Kirkland Lake	Ont.	1 250	180	1995	U/G	Gold	Barrick Gold Corporation	A new $10 million program was announced by the company early in 1995 to expand the mine and mill capacity to 2000 t/d in 1995. When the high-grade South Zone comes into full production in 1996, the mine is expected to produce 100 000 oz of gold annually, considerably higher than the 59 872 oz produced in 1994.
Miramar Con	Yellowknife	N.W.T.	1 270	335	1994-95	U/G	Gold	Miramar Mining Corporation	A $4 million program to expand mill capacity from 1000 t/d to 1270 t/d was completed in the first quarter of 1995. Further exploration successes were recorded in the first quarter of 1995 with the discovery of new ore in previously unexplored areas of the mine. In addition, some 331 000 st grading 0.34 oz/st gold containing 114 000 oz of gold have been added to ore reserves, for a net gain of 85 800 oz of gold over production during the quarter. This has increased the reserves at the Miramar Con mine to 1.35 million oz of gold, an all-time record.
Base Metals									
Mines Gaspé	Murdochville	Que.	10 000	550	1995-96	U/G	Copper, silver, gold	Noranda Mining and Exploration Inc.	A $9.5 million two-year program to develop the E-34 copper deposit at the mine was announced by the company in early 1995. The E-34 is an extension of the E-29 orebody now being mined. The additional ore from E-34 will extend the life of the mine to mid-1999. Mineable ore reserves at the E-34 are estimated to exceed 1 Mt containing 33 400 t of copper. The company conducted a feasibility study on expanding this orebody in 1995. Production from the E-34 is to start in early 1997.

TABLE 2 (cont'd)

Mining Operation	Location	Province	Ore Capacity (tonnes/day)	Employment[1]	Date of Opening, Re-Opening, Expansion/Extension, Suspension or Closure	Mine or Plant Type	Main Commodities	Companies	Remarks
Base Metals (cont'd)									
Craig	Sudbury	Ont.	3 500	460	1993-96	U/G	Nickel, copper	Falconbridge Limited	Mine development and expansion of this mammoth project, which began in 1985, were completed in August 1995 with limited production since 1989. The total capital cost was estimated at about $385 million. Ore production is expected to reach its full capacity of 1.2 Mt/y by the end of 1996. The mine is part of the existing Onaping-Craig mine in which production from Onaping started in 1961. The 460 employees includes shared workers at Onaping.
Thompson Underground	Thompson	Man.	15 000	300	1994-95	U/G	Nickel, copper	Inco Limited	Mining of the 1-D orebody began in 1994, but formal production did not begin until the fall of 1995. The development cost of the orebody was estimated at US$181 million. Production in 1995 was 2000 t of contained nickel. Planned production in 1996 is about 9000 t contained nickel, with further increases to 17 000 t by 1998. With an estimated production life of at least 14 years and at its current rate of production, 1-D will likely extend the mine life at Thompson to 19 years.
Other Minerals									
Quinsam	Campbell River	B.C.	1 650	104	1995-97	O/P & U/G	Coal	Hillsborough Resources Limited	After increasing coal production to 600 000 t in 1994 from 550 000 t in 1993, the company launched a new $14.1 million program in 1995 to further expand its coal production capacity to 1.2 Mt/y by 1997. The expansion will result in over 100 additional jobs at the mine site.
SUSPENSIONS									
Precious Metals									
Astoria	Rouyn-Noranda	Que.	500	30	September	U/G	Gold	Yorbeau Resources Inc.	The company suspended production at the mine in order to concentrate on a $1 million mine-site exploration program for new ore reserves. About 15-20 workers were kept on site to continue exploration.

Other Minerals									
Lower Cove	Port au Port Peninsula	Nfld.	4 000[e]	32	August	O/P	Limestone, dolomite	Atlantic Minerals Limited	The operation consisted of three quarries, a modern processing plant and deep water shiploading facilities. Production capacity is about 1.2 Mt/y. Newfoundland Cement Company Limited, through a wholly owned subsidiary Atlantic Minerals Limited, acquired the operation from bankrupt The Newfoundland Resources & Mining Company Limited on December 21, 1995, and plans to re-open the mine for production in 1996.
British-Canadian and Beaver mines	Thetford Mines	Que.	14 000	480	May 27	O/P	Asbestos	LAB Chrysotile, Inc.	Production was suspended in May 1995 because the mines were not profitable. The two mines had a combined production capacity of 70 000 t/y of asbestos fibre. In the short term, the shortfalls in shipments of fibre from the two mines were offset by full production at the company's Black Lake and Bell asbestos mines as well as from existing stockpiles.
CLOSURES									
Base Metals									
Geco Division	Manitouwadge	Ont.	3 700	240	Mid-November	U/G	Copper, zinc, silver	Noranda Mining and Exploration Inc.	The mine closed due to ore exhaustion. Geco first began production in 1957. It was an important base-metal mine in Ontario.
Island Copper	Port Hardy	B.C.	50 000	455	December	O/P	Copper, gold, molybdenum	BHP Minerals Canada Ltd.	The mine closed due to ore exhaustion. Island Copper first began production in 1971 and had been one of Canada's largest copper mines.
Other Minerals									
Drumbo	Clarkson	Ont.	1 000	25	April	U/G	Gypsum	Westroc Industries Limited	The mine closed due to ore exhaustion. Production first began in 1978.

Source: Natural Resources Canada, based on company reports and communications with companies.
O/P Open-pit; U/G Underground.
[e] Estimated.
[1] Employment refers to workers on the company's payroll and to contract workers at an operation, or at an operation prior to its closure.
Note: A mine that closed and re-opened in the same year is shown under both categories.