

COMINCO → TRAIL
196 AR
SMELTER

In another area, a seven-year rehabilitation program that involved contaminated soil removal, creek channel restoration and revegetation of a 2-kilometre-long, 12-hectare area was completed. Research was also done on hydrogeological conditions, vegetation cover systems for different areas and possible contaminated sites.

There were 32 lost-time accidents for a frequency of 6 accidents for every 200,000 hours worked, compared with a frequency of 4 in 1995.

Polaris Mine

At the Polaris underground zinc-lead mine on Little Cornwallis Island, N.W.T., infill drilling of the Ocean Zone and a complete review of the mineable reserves and anticipated ore recoveries from remaining pillars and fringe areas was completed during the year. Poor ground conditions in many remaining pillars have lowered ore recovery rates. A cemented backfill plant was put into operation in mid-1996 to help

improve ore recovery. Metallurgical performance continued to be very good.

At Polaris, exploration in the surrounding area focused on continuing efforts to find new orebodies, including a review of the Eclipse deposit, 35 kilometres northeast of the Polaris mill site. The feasibility of mining this deposit will be investigated in 1997. The present mining plan will see the last ore mined at Polaris in 2001.

Seven shipments of zinc and lead concentrates, totalling 225,600 tonnes, were made to Europe between July and November.

Polaris was in full compliance with its water license and environmental regulatory obligations during the year. In anticipation of future closure requirements, an updated reclamation plan was submitted to, and accepted by, the N.W.T. Water Board.

Polaris is a joint venture owned by Cominco (77.5 percent) and Teck Corporation (22.5 percent). Cominco is the operator of the joint venture. Rio Algom holds

a 25 percent royalty interest in the annual net proceeds of production from the mine.

There were 11 lost-time accidents in 1996 for a frequency of 4 accidents for every 200,000 hours worked, compared with a frequency of 3 in 1995.

Trail Smelting and Refining Operations

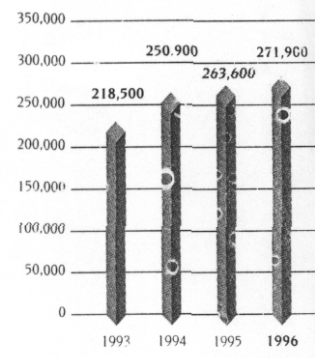
Trail Operations turned in its best year's operating profit since 1989, when metal prices were exceptionally high. Increased production of zinc, sustained production from the old lead smelter and careful attention to costs made Trail profitable in spite of weak zinc prices.

The smelting and refining complex at Trail, B.C., produces zinc, lead, silver, gold, cadmium, indium, bismuth, germanium concentrate, germanium dioxide, copper sulphate, copper arsenate, sodium antimonate and a variety of sulphur products and agricultural fertilizers. Germanium product sales were an important contributor to Trail's earnings in 1996. However, market prices for most of the specialty metals tend to be volatile, and the contribution of any particular one may change sharply from one year to the next.

All-time production records were set for many products at Trail. Zinc production of 271,900 tonnes was the highest annual volume since 1989. Sulphuric acid production was also the highest since 1989 and granular sulphate production was the best since the plant started up in 1994. Lead production at

Zinc production from Trail

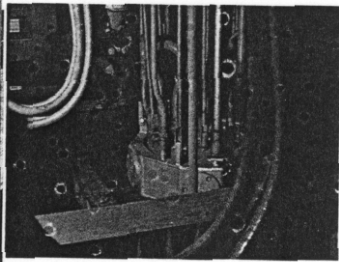
(tonnes)



"All-time production records were set for many products at Trail. Zinc production of 271,900 tonnes was the highest annual volume since 1989."

Polaris

	1996	1995
Ore milled (tonnes)	1,025,100	1,004,000
Zinc		
Average ore grade	12.2%	12.4%
Concentrate (tonnes)	149,800	152,100
Average concentrate grade	62.2%	61.3%
Average mill recovery	96%	97%
Lead		
Average ore grade	3.0%	3.5%
Concentrate (tonnes)	27,900	31,300
Average concentrate grade	78.0%	77.5%
Average mill recovery	90%	90%
No. of employees at year-end	239	237



"Construction of the new Kivcet lead smelter and a new slag fuming plant reached the substantial completion stage by year-end."

108,100 tonnes was up over the previous year, a significant accomplishment considering that the old smelter was in its last full year of operation. During the year, all-time production records were set for gold, indium, cadmium, germanium, copper sulphate and copper arsenate. The volume of silver production was the highest since the 1960s.

Approximately 51 percent of the zinc concentrate treated at Trail during 1996 came from the Red Dog mine, 41 percent was from the Sullivan mine and the remainder was purchased from other sources. Of the lead concentrate treated, 58 percent was from the Sullivan, with the rest purchased mainly from sources in North and South America.

Refined zinc production increased over the previous year as portions of the zinc expansion project were brought on line. One of the most important improvements was the addition of 20 new electrolytic cells for zinc refining. When all components of the project are complete in 1997, annual zinc capacity will reach 290,000 tonnes, an 18,000-tonne increase over the existing capacity. During the year, Trail's zinc was certified under the ISO 9002 quality standard.

A new zinc pressure leaching autoclave was installed in 1996 to replace the original unit built in 1979. At a cost of \$6 million, this higher capacity autoclave will go into operation in the spring of 1997.

Construction of the new Kivcet lead smelter and a new slag fuming plant reached the substantial completion stage by year-end. Commissioning of parts of the \$152 million project was well under way in late 1996 and actual start-up of the new plants is scheduled for the spring of 1997.

The new lead smelter will lower lead emissions by 75 percent, particulate emissions by 90 percent and sulphur dioxide

lines for a total price of \$130 million.

Cominco owns the Waneta Dam near Trail, which, together with its coordination agreements with B.C. Hydro and West Kootenay Power, provides more than enough electricity for Cominco's industrial needs at Trail and Kimberley.

Trail Operations signed a collective agreement with its unions in 1995 which extends to May 1999.

Trail

	1996	1995
Zinc		
(tonnes)	271,900	263,600
Lead		
(tonnes)	108,100	93,000
Silver		
(kilograms)	370,100	189,500
(ounces)	11,898,000	6,093,900
Gold		
(kilograms)	1,863	1,000
(ounces)	59,900	32,300
Cadmium		
(tonnes)	1,176	1,060
Ammonium Sulphate		
(tonnes)	260,500	238,300
No. of employees at year-end	2,044	2,010

emissions by 75 percent. Once it reaches normal operation, the new smelter will reduce operating costs and provide additional revenue from increased production.

During 1996, Cominco concluded an agreement with the Columbia Power Corporation, a B.C. Government Crown corporation, for the sale of the Brilliant hydroelectric generating

The work of the Trail Lead Task Force continued during the year, with the latest blood lead screening clinic for young children held in the fall. The results of the survey showed an increase in average blood lead levels from 10.4 micrograms per decilitre to 11.5 micrograms per decilitre. After the generally improving trend of the last five years, these results were disap-