

Operation and Site Performance 2006

HIGHLAND VALLEY COPPER



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# Highland Valley Copper

## Operational Overview

Located in south-central British Columbia, Highland Valley Copper (HVC) is Canada's largest non-ferrous metal mine. Owned 97.5% by Teck Cominco, the operation had a workforce of 956 at year-end and makes significant economic contributions to numerous local communities. The key performance indicators for 2006, together with comparisons to the previous two years, are shown below.

Operating Statistics			
	2006	2005	2004
Tonnage Mined (000's metric tonnes)	60,261	62,736	65,837
Ore Milled (000's metric tonnes)	45,356	50,666	50,623
Average Tonnes Mined Per Day	165,098	171,879	179,883
Average Tonnes Milled Per Day	124,262	138,812	138,313
Mill Operating Availability (%)	94.3	94.4	94.6
Average Mill Head Grade (%)			
Copper	0.412	0.398	0.384
Molybdenum	0.007	0.009	0.016
Average Mill Recovery (%)			
Copper	91.50	88.85	87.74
Molybdenum	61.40	62.10	59.70
Concentrates Produced (metric tonnes)			
Copper	414,230	459,051	453,214
Molybdenum	3,596	5,632	9,655
Average Concentrate Grade (%)			
Copper	41.5	39.0	37.6
Molybdenum	51.9	51.9	52.4
Number of Employees at Year End	956	892	880

## Environmental Highlights

EMS work progressed this year with an aim to reach the goal of ISO 14001 certification. A management system gap analysis was completed to help develop the implementation plan.

Energy consumption and consequently carbon dioxide emissions increased moderately in 2006. Stronger prices for molybdenum and copper enabled mining to resume in the Highmont East Pit after more than 20 years of inactivity. The longer haul associated with moving ore from this pit to the processing facility increased diesel consumption. In the Valley Pit, increased movement of waste rock necessary to enable the relocation of the in-pit crushers also increased diesel consumption in the fleet of mining equipment.



Valley Pit, Highland Valley Copper mine

Two energy efficiency projects were advanced in 2006, the first involving an upgrade of outside lighting on the property (replacement of inefficient fixtures and installation of sensors and controls to ensure reduction in use during the day). The second project aims to increase the efficiency of the system used to recycle process water from the tailings pond to the Mill. Once completed, these projects will result in energy savings of over 10 GWh/year.

The total area disturbed by mining activities is approximately 6,128 hectares (ha) with 2,259 ha of the total area being re-vegetated, equating to a 37% completion. This year, a total of 72 ha were prepared and approximately 71,000 coniferous and deciduous seedlings were planted. The use of biosolids from the Greater Vancouver Regional District (GVRD) and the Fraser Valley Regional District (FVRD) continued in 2006, with 30,000 wet tonnes of material applied on 62 ha.

## Safety and Health

This past year involved significant challenges in terms of lost-time injuries, which were the highest since 2002. These lost-time injuries were recorded against 2 million hours worked resulting in a frequency of 1.80. The number of days lost as a consequence was 596.



**Community Sustainability**

Community activities continued to have a high priority during 2006. In August, the mine hosted 1,800 visitors at its 20th anniversary Open House. The operation’s newsletter, the “Copper Wire”, continues to be a source of pride; it provides an excellent communications vehicle to current and former employees. A special commemorative 20th anniversary brochure was produced in 2006 and highlighted HVC and its suppliers. Community involvement activities also included donations to recognized charities, such as the B.C. Association for Community Living and Royal Canadian Legion, and programs from a number of regional school initiatives, UBC Mining Team, ski clubs, and an Aboriginal hockey school. The United Way continues to be a major recipient of HVC funds with combined employee/ company contributions of \$364,000 in 2006. As part of HVC’s ongoing commitment to the “Mining for Miracles” campaign, the joint company/employee contribution exceeded \$42,000 and was shared between BC Children’s Hospital in Vancouver and the Royal Inland Hospital in Kamloops. HVC also contributed to Royal Inland Hospital.

**Awards**

Highland Valley Copper received the Citation for Excellence in Metal Mine Reclamation from the B.C. Technical and Research Committee on Reclamation. The mine was also recognized by Ducks Unlimited for a contribution to the rehabilitation of the Logan Lake Marsh.

**Spotlight**

**Highland Valley Landfill Project.** During 2006, HVC continued to pursue the development of a large-scale regional landfill on a portion of the completed waste rock piles. The proposal would utilize a state-of-the-art triple liner containment system and convert captured landfill gas to energy.

**Highland Valley Copper Refinery Project.** A study to determine the feasibility of installing a refinery to convert copper concentrate directly to copper metal was inconclusive. The refinery would use new technology developed by Teck Cominco and create economic development opportunities for Logan Lake and surrounding communities. The project entered into the British Columbia Environmental Assessment process during the year. Efforts continue to identify additional sources of copper concentrate which could result in rendering the project economically viable.

**Towards Sustainable Mining (TSM) Reporting**

This year, the mine completed the Mining Association of Canada (MAC) TSM self-assessments in the four indicator areas. By mid-2007, the site will have received third-party verification of the levels that were self-assessed, and this will be forwarded to MAC as part of the TSM reporting requirement. The values of the assessment are found below. Note that an overall Level 3 is expected of our facilities.

Mining Association of Canada (MAC) TSM		
Indicator	Description	Self-Assessment Level*
<b>External Outreach</b>		
1.	Community of interest identification	Level 4
2.	Effective COI engagement and dialogue	Level 3
3.	COI response mechanism	Level 3
4.	Reporting	Level 3
<b>Crisis Management (Facility)</b>		
1.	Preparedness	Not compliant
2.	Annual review	Not compliant
3.	Training	Not compliant
<b>Crisis Management (Corporate Office)</b>		
1.	Preparedness	Compliant
2.	Annual review	Compliant
3.	Training	Compliant
<b>Tailings Management</b>		
1.	Tailings management policy and commitment	Level 2
2.	Tailings management system	Level 2
3.	Assigned accountability	Level 3
4.	Annual tailings review	Level 3
5.	OMS Manual	Level 3
<b>Energy Use and GHG Emissions Management</b>		
1.	Energy use management system	Level 2
2.	Energy use reporting system	Level 2
3.	Energy intensity reporting target	Level 1
4.	GHG emissions management system	Level 1
5.	GHG emissions reporting systems	Level 2
6.	GHG emissions reporting performance target	Level 1

\* Level 1 indicates “no management system in place” and Level 5 represents “excellence”.

Performance Trends—Highland Valley Copper			
	2006	2005	2004
<b>Health &amp; Safety Statistics</b>			
Fatalities	0	0	0
Lost-time injuries	18	5	5
LTI frequency	1.80	0.51	0.53
Severity	59.5	8.1	11.2
<b>Permit Compliance</b>			
Number of excursions	1	4	8
<b>Reportable Spills</b>			
Number	4	1	0
<b>Average Concentrations in Effluent (mg/L)—Trojan Creek discharge to Witches Brook*</b>			
Copper (permit limit 0.030 mg/L)	0.026	0.022	0.026
Molybdenum (permit limit 0.35 mg/L)	0.260	0.244	0.227
<b>Energy Use (Direct and Indirect)</b>			
Electricity (TJ)	3,497	3,467	3,427
Fuel (TJ)	1,276	1,172	1,039
Energy intensity in product (GJ/t)	27.7	25.5	25.5
<b>GHG Emissions (Direct)</b>			
CO <sub>2</sub> equivalents (kt)	86	78	69
Carbon intensity in (as CO <sub>2</sub> e) product (t/t)	0.50	0.43	0.39
<b>Production—Metal Contained in Concentrate (000 tonnes)</b>			
Copper	170.4	179.0	170.3
Molybdenum	1.8	2.9	4.9
<b>Recycling</b>			
Total solid materials (tonnes)	3,973	4,579	5,286
Total liquid materials (m <sup>3</sup> )	766	427	487
Total items counted (count)	24,411	16,290	112
<b>Managed Wastes</b>			
Total waste rock (000 tonnes)	14,905	n/a	n/a
Total non-hazardous wastes to landfill (000 tonnes)	2	n/a	n/a
Total tailings (000 m <sup>3</sup> )	19,500	n/a	n/a
<b>Water Conservation</b>			
Total groundwater withdrawal (m <sup>3</sup> /yr)	7,587,098	n/a	n/a
Total surface water withdrawal (m <sup>3</sup> /yr)	17,018,489	n/a	n/a
Water sources affected by withdrawal (name)	None	n/a	n/a
Total volume of water recycled/reused (m <sup>3</sup> /yr)	69,972,167	n/a	n/a
Total percentage water recycled/reused %	284	n/a	n/a
<b>Reclamation</b>			
Reclaimed land (ha)	2,352	2,322	2,279
Land to be reclaimed (ha)	2,985	3,004	3,010
Trees/shrubs planted (count)	71,120	65,370	98,138

\* Copper and molybdenum concentrations for 2004 Trojan Creek discharge were incorrectly stated in the 2005 report. The corrected values are included in this table.

n/a = Not available

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