Tom Schroeter
Sept. 22/05

Highland Valley Copper

2005

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Highland Valley Copper

PARTNERSHIP INFORMATION

Highland Valley Copper is a partnership of TeckCominco LTD (95%) and Highmont Mining Company (5%). Highmont Mining has TeckCominco as a 50% shareholder effectively giving TeckCominco a 97.5% interest in Highland Valley Copper.

The Partnership was first formed in 1986 when Cominco LTD combined its assets in the valley with the assets of Rio Algom, Highmont Mining Company and Teck Corporation. The Partnership has continued to evolve since.

In October 2000, Billiton, an Anglo-South African mining Company, purchased Rio Algom Limited. Billiton subsequently merged with BHP, an Australian based natural resource company in May 2002 to form BHP Billiton.

On the other side of the partnership, in July 2002 Cominco LTD merged with Teck Corporation to form TeckCominco Ltd. The result was TeckCominco LTD with 63.9% interest and BHP Billiton with 33.6 %. Others held the remaining 2.5%. The management of the partnership was shared equally between the two primary shareholders.

In January 2004, TeckCominco Ltd. acquired BHP Billiton's interest in the mine; exercising first right of refusal when another mining submitted a bid for BHP Billiton's shares.

Wolf P. Nickel – *President, General Manager*
Frank B. Amon – *Manager, Operations*
Jim D. Clark – *Manager, Maintenance*
Terry D. Marsten – *Manager, Administration*
Rod J. Killough – *Manager, Human Resources*

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Highland Valley Copper

MINI FACT SHEET

OWNERSHIP Highland Valley Copper is a partnership between Teck Cominco 95% and Highmont Mining Company 5%.

LOCATION Highland Valley Copper is located on Highway 97C, 17 kilometers west of the town of Logan Lake and 75 kilometers south west of Kamloops.

TYPE OF MINE Highland Valley Copper is one of the larger open pit copper mines in the world in terms of tonnage mined and milled and accounts for production of approximately 1.4% of the world's copper in concentrate production.

END PRODUCTS Highland Valley Copper produced 453,000 tonnes of copper sulphide concentrates containing 363 million pounds of copper and 9,500 tonnes of molybdenum sulphide concentrates containing 10.7 million pounds of molybdenum in 2004.

SALES Sales for 2004 were $760 million. Most of the copper concentrates are sold under long term frame contracts to smelters in Japan, other Far East countries, and Canada. The molybdenum is sold to traders who currently ship it to Europe and Central America.

EMPLOYEES Highland Valley Copper currently employs approximately 900 people. Employees reside in Kamloops, Logan Lake, Cache Creek, Ashcroft, Merritt and Lower Nicola. Wage/salary benefit costs were approximately $99 million in 2004.

PROPERTY TAXES Property taxes paid to regional and provincial governments amounted to 1.8_ million.

SAFETY Highland Valley Copper operates a provincially recognized safety program and has received the award for being the safest large mine in B.C. for thirteen of the last sixteen years.

ENVIRONMENT Highland Valley Copper has an active environmental management program covering waste management, land and water reclamation as well as site decommissioning. At the end of 2004, approximately 2,180 hectares had been revegetated for one or more years out of a total disturbed area of 6,165 hectares.

MARKETING Services and contract administration provided by Teck Cominco.

Revised February 2005

The information is believed to be accurate as of December 31, 2004 however, no warranty is expressed or implied.

Highland Valley Copper

MINING HISTORY OF THE HIGHLAND VALLEY

Several small underground and open pit copper mines operated periodically in the area over the past 100 years.

➢ BETHLEHEM COPPER

- Mining began at this site in 1962.
- The majority of the employees lived in Ashcroft.
- First low grade, high volume open pit copper mine in western Canada.
- Three open pits were developed – Huestis, Jersey/East Jersey and Iona.
- Two tailing ponds were built, Main and the Trojan.
- Assets were purchased by Cominco in December 1981.
- Mining at Bethlehem finished in 1982.
- The plant site is at an elevation of 1,500 metres (4,920 ft.) above sea level.

➢ LORNEX

- The Lornex ore body was discovered in 1963.
- Stripping at the Lornex mine began in 1970.
- Milling of ore began in 1972.
- The municipality of Logan Lake was built to accommodate the employees of Lornex.
- Lornex amalgamated with Cominco's Valley mine in 1986 to form Highland Valley Copper.
- Most of the Lornex operation is located between 1,650 metres (5,400 ft.) and 1,250 metres (4,100 ft.) above sea level.

➢ VALLEY COPPER

- The Valley deposit was discovered in 1964.
- Stripping of waste rock began in 1982.
- The Bethlehem mill processed Valley ore until 1989. The Highland mill began processing Valley ore in 1986.

➢ HIGHMONT OPERATING CORPORATION

- Highmont began mining in 1979 and shut down in October of 1984.
- Two pits were developed, East/Main Pit and West Pit.
- Highmont assets were included in the Highland Valley Copper partnership in 1988 and the Highmont mill was moved and attached to the existing Lornex mill forming the Highland mill.

➢ HIGHLAND VALLEY COPPER

- Was initially a partnership of three mining companies Cominco Ltd. (later to become Teck Cominco), Rio Algom (subsequently purchased by BHP Billiton) and Highmont Mining.

Highland Valley Copper

GENERAL FACT SHEET

SCOPE OF OPERATION

Highland Valley Copper is one of the larger copper-mining operations in the world. The ore bodies average 0.4% copper, low grade by world comparisons.

OWNERSHIP

Highland Valley Copper is a partnership with one major mining company as the majority owner.

Their participation in the cash flow is:

95% Teck Cominco Limited
5% Others

PRODUCTION STATISTICS

TONNAGE MINED

In 2004, approximately 180,000 metric tonnes per day were mined of which 138,000 tonnes was ore and the balance overburden and waste rock. Mining activity is carried out using 3 drills, 5 shovels, 1 front-end loader, 18 – 172 tonne and 12 – 218 tonne haulage trucks supported by 3 large water trucks, 8 road graders, 7 track dozers and 3 rubber-tired dozers.

TONNES MILLED

In 2004, 138,000 dry metric tonnes of ore per day were treated in the Highland mill resulting in over 50.6 million metric tonnes of ore being treated during the year.

SIGNIFICANT OPERATIONAL INNOVATIONS

IN-PIT CRUSHING AND CONVEYING SYSTEMS

In 1987, Highland Valley Copper completed the installation of its two semi-mobile in-pit crushers and two-line conveyor system. Since that time, the crushers have been moved deeper into the Valley pit, side by side, to facilitate mining operations.

The conveyor systems consist of six main overland conveyors. The first two conveyors (L4 and L5) in parallel are 0.86 kms long and are fed by the in-pit crusher discharge conveyors near the bottom of the Valley pit. They lift the ore 121 m and feed conveyors 0.55 kms long, (L1A and L1B) which in turn discharge to an intermediate surge pile. The third flight of conveyors consisting of two parallel 1.25 km conveyors lift the ore 121 m from the reclaim tunnels under the surge pile to conveyors feeding the Highland Mill. Each conveyor is designed to carry 6,000 tonnes per hour.

The entire system is electronically operated by a fibre optic data highway, which can also detect trouble spots such as overheating of motors, metal pieces in the ore and conveyor-belt rips. This system is currently one of the highest-capacity, hard rock, in-pit crushing and conveying systems in existence.

TAILINGS DISPOSAL

The tailings pond is situated on the Valley floor, west of the Valley Pit. Two tailings dams approximately 10 kms apart contain the tailings.

Three 7.3 km 36" diameter polyethelene pipelines feed the tailings pond. The tailings pond is a closed system with 153,000 litres/minute of water recycled to the Highland milling complex.

RECLAMATION

Land reclamation is being carried out on areas of the property where no further activities are planned. Restoration towards productive end land uses is an important aspect of the mining operation. High standards are part of the environmental policy.

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Water management plays an important role both in the operation and in the decommissioning phase. Mine personnel work closely with regulatory agencies to ensure that requirements are met.

MARKETING

Highland Valley Copper has long-term contracts for over 90% of its copper concentrate production, most of that involves annual or biennial re-negotiation of smelter terms to reflect the current market. The principal market is Japan, but production is also sold to other Far Eastern countries and North America. Molybdenum production is sold as concentrate to roasters and trading companies worldwide.

FINANCIAL STATISTICS

REVENUE

Approximately $400 million per annum.

WAGES

Including the costs of fringe benefits, the cost of labour is approximately $100 million per year, or roughly 33% of property operating costs.

The average wage of bargaining unit employees is $28.50 per hour and after premiums and built in overtime, etc., this rate averages $45.00 or $95,000 per year. Including benefit costs, this figure rose to $89,500 in 2004.

ENERGY COSTS

Including the cost of diesel fuel/gasoline, natural gas and electricity, the cost of energy is approximately $56 million per year, or 20% of the operating costs. The electricity costs alone are approximately $44 million, making Highland Valley Copper the third largest customer of B.C. Hydro.

PERSONNEL

The total active employment figure is approximately 900.

INDUSTRIAL RELATIONS

The current collective agreement with the United Steelworkers of America (USWA) is in force from October 1, 2003 through September 30, 2006.

Highland Valley Copper

POLICY ON SAFETY AND HEALTH

The Management of Highland Valley Copper is dedicated to the provision of a safe, healthy, work environment and expects the full commitment and active participation of all employees working towards this primary objective.

Management believes that incidents that cause harm to people, property, or the environment, are preventable; and that the term "accident" which implies a chance occurrence, rarely, if ever, applies. Incidents are unacceptable, and our goal is zero incidents.

To achieve this, Highland Valley Copper has developed a Safety Program to provide guidance and coordination in:

- Promoting active involvement by all employees in the prevention of incidents.
- Ensuring compliance with statutory requirements, or where no provisions exist, the development of site specific standards of safe work through rules, policies, procedures, or safe work practices.
- Establishing expectations for workplace design, maintenance, operation, hazard identification, risk assessment and incident investigation.
- Providing effective communication and training in the standards and expectations to all levels of the organization.
- Defining responsibilities for program elements and establishing accountability for success.
- Ensuring appropriate resources are available to reduce or eliminate losses.
- Reviewing and evaluating of the Program for effectiveness.

Highland Valley Copper management will provide active leadership in the prevention of incidents and will work co-operatively with all employees to achieve excellence in health and safety.

Highland Valley Copper

SAFETY

While mining continues to be BC's safest large industry, Highland Valley Copper leads large mines in safety performance winning the prestigious John Ash Award for being the safest large mine in BC for 13 out of the last 16 years.

By combining good work procedures, safe work environments and employees motivated to work safely, injury prevention will be achieved. To this end, each employee shares in the responsibility to correct any unsafe condition and to assist in the development of policies, procedures and safety rules. Employee input into the Safety Program is strongly encouraged. Joint Occupational Health, Safety and Environment Committees, made up of representatives of workers and management, tour each operating area at least monthly and meet twice monthly. One of the committee's bi-monthly meetings is to review workplace conditions, the other to review reported incidents as well as safety procedures and policies.

In the event of an emergency, one of Highland Valley Copper's four emergency response teams may be used. These teams, each consisting of 10 to 14 members, offer immediate intervention to spills, fires, rescues, serious injury or other emergency. They are fully equipped and maintain their top proficiency through regular on site training.

To assist in a successful return to work for employees temporarily disabled due to injury or illness, Highland Valley Copper operates a "Modified Work Centre". This 550 square metre facility is dedicated to not only rehabilitation of employees, but the work performed is focused on the recycling and reuse of mine supplies. In 2004, the Centre provided accommodation for 49 employees and through their efforts, over $678,000 in goods and services were provided to other parts of the mine.

Safety and productivity are not seen as separate or conflicting ideals, but rather, a single overriding objective in everything that we do.

Highland Valley Copper

HIGHLAND VALLEY COPPER ENVIRONMENTAL POLICY

Highland Valley Copper is committed to balancing good stewardship in the protection of human health and the natural environment, with the need for economic development. Diligent application of technically proven and economically feasible environmental protection measures will be exercised throughout exploration, mining processing, and decommissioning activities to meet the objectives of legislation and to ensure the adoption of best management practices.

To implement this policy, Highland Valley Copper will:

1. Identify any existing or possible future environmental risks and exposures, not only at the operations, but also in the transportation of mine supplies and production;
2. Assess, plan, construct and operate its facilities in compliance with all applicable legislation providing for the protection of the environment, employees and public;
3. In the absence of legislation, apply cost-effective best management practices to advance environmental protection and to minimize environmental risks;
4. Strive to continually improve performance by routinely establishing and reviewing environmental objectives and targets:
5. Maintain an active self-monitoring program to ensure compliance with government and corporate requirements;
6. Institute and, during the life of the mine, carry out, a program of environmental protection and reclamation, and upon termination of mining:

   a) return the land and watercourses to an acceptable standard of productive use that ensures the physical stability of landforms;
   b) remove all structures, equipment and scrap; and
   c) leave watercourses stable and of acceptable water quality;

7. Subject all areas to periodic environmental, health and safety audits, and report the findings arising out of such audits to Highland Valley Copper's Environment Committee;
8. Foster research directed at expanding scientific knowledge of improved treatment technologies and the impact of Highland Valley Copper's activities on the environment;
9. Encourage reduction, reuse, and recycling of mine supplies;
10. Work proactively with government and the public in the development of equitable, cost effective, and realistic laws for the protection of the environment;
11. Enhance communications and understanding with governments, employees, and the public; and
12. Encourage the reporting to the President, General Manager, of a known or suspected departure from this policy or related procedures.

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RECLAMATION

In the Highland Valley there are approximately 6,000 hectares of land that have been disturbed by mining activity. At the end of 2004, approximately 2,180 hectares (or 34%) had been revegetated for one or more years. Much of the disturbed land will remain in full use until mining operations are completed however, the operation targets to reclaim an average of 100 hectares per year.

There are five general types of disturbances associated with open pit mining:

- the open pits
- waste rock dumps
- tailings ponds and dams
- roads and pipelines
- buildings and other facilities

The objectives of the reclamation program at Highland Valley Copper are to:

- Develop a self-sustaining vegetation cover using a combination of agricultural and native species to achieve specific land use objectives for the various types of disturbed areas;

- Achieve a productivity on the reclaimed mine land equal to that which existed prior to mining, on an average property basis; and

- Ensure that water quality in the mine area conforms to guidelines set by the Environmental Protection Branch of the British Columbia Ministry of Water, Land and Air Protection.

RESEARCH

Research continues to be an integral part of the reclamation process. Vegetation species selection and operational techniques are continually reviewed to handle the variety of site-specific conditions so that the most cost-effective techniques are employed.

The present vegetation-monitoring program for the reclaimed area represents a significant commitment of both financial and manpower resources and only addresses a small portion of the reclaimed area each year. The use of remote sensing is being investigated as a way of increasing the efficiency and expanding the area monitored each year. At Highland Valley Copper, images from aerial or satellite photography are used for our remote sensing applications. From these images we can tell what vegetation is growing on the site and where. For example, on the remote sensing image grasses look different from legumes and legumes look different from conifer trees. Each separate vegetation group shows up as a different colour. So, put simply, we can potentially look at site-wide images and determine where vegetation is growing well and where it needs attention. Tests are still being conducted to determine if remote sensing will work for our purposes. If it works, we will be able to monitor vegetation growth on the entire mine site and not just at sample points. As well, it would be more cost effective than manual quantification. Until the tests are complete, however, we will still need contractors to manually verify reclamation effectiveness.

Work began in 2003 to evaluate the potential of using biological treatment to lower the molybdenum concentrations in the pit lakes. Fertilizer was added to one pit lake on a regular basis in an attempt to produce and maintain a constant algae bloom. It was hoped the algae would incorporate the dissolved molybdenum into their cellular structures and carry the metal to the bottom of the lake when they died. The effectiveness of this approach depended on achieving sufficient algae production (thus metal removal) to achieve a significant improvement in water quality. This low cost approach would not be suitable for shallow water bodies where the settled metals would likely oxidize and re-enter the water column. However, it has potential for use in deep lakes with anaerobic bottom layers, such as the West

Pit, and in the future the Lornex and Valley Pits. Work on this project is ongoing.

Research has been done, in conjunction with Agriculture Canada, to see how molybdenum-containing forage effects grazing cattle. The research is ongoing but results so far show the moly affects cattle less than anticipated. However, Highland Valley is continuing to assess how to appropriately manage the cattle grazing in the high moly forage.

The establishment of sustainable aquatic life in the tailings ponds has been ongoing for many years. Annual sampling of the fish continues to indicate good growth and health. Fish have been transplanted to other areas on the site and their performance is also being monitored.

Research is ongoing, in conjunction with the Greater Vancouver Regional District, regarding the use of biosolids for the purpose of accelerating soil creation and plant growth began. Closely monitored test plots on different types of material and with different rates of biosolids addition have been established in a number of areas on the property. Thus far, the vegetation growth has been excellent with no detrimental effects observed.

Site Preparation

Site preparation is an essential aspect of reclamation. Surface recontouring, growth material selection, surface preparation and drainage control are key elements of the program. Water management is also incorporated into all reclamation work.

SEEDS AND PLANTS USED FOR REVEGETATION

Seed mixes for the waste rock dumps and the tailings ponds vary slightly in composition. However, in general, both grasses and legumes are required to re-establish a sustainable vegetative cover.

A typical seed mix consists of the following:

- Norden Crested Wheatgrass
- Greenleaf Pubescent Wheatgrass
- Wheatgrass
- Boreal Creeping Red Fescue
- Climax Timothy
- Carlton Bromegrass
- Rangelander Alfalfa
- Sainfoin

Native species of shrubs and trees are planted in areas that are suitable for wildlife. Species are chosen that provide cover and food for deer, moose and other animals. Deciduous cuttings are collected from areas in and about the minesite in February. Roots are grown in a greenhouse and the cuttings are planted in September. Conifers are started from seed, grown in greenhouses and planted in the spring. The following native species have been planted at Highland Valley Copper:

- Saskatoon
- Willow
- Lodgepole Pine
- Wild Rose
- White Clematis
- Wolfwillow (Silverberry)
- Buffaloberry
- Mountain Alder
- Shrubby Penstemon
- Big Sagebrush

Since extensive reclamation began in the valley in the early 1990's over 1.7 million shrubs and trees have been planted with almost 100,000 seedlings planted across the site in 2004.

WASTE MANAGEMENT

Recycling is important part of waste management at Highland Valley Copper. The Modified Work Centre and the Fluids Recovery Building are instrumental in the program. At the Modified Work Centre much of the day-to-day hardware used at the mine is refurbished. This includes hand shovels, sledge hammers, jerry cans, couplings, nuts, bolts, relays, valves, extension cords, rubber and leather gloves, and raincoats. These practices not only prevent large quantities of waste from entering landfills, but also provide an alternative work environment for people recovering from illness or injuries.

The Fluids Recovery Building handles waste oil, lubricants, and antifreeze. Each year, over 400,000 L of waste fluids was sent offsite for reprocessing. Other materials recycled on the site include eyeglasses, used batteries, filters, office paper, work boots, printer cartridges, cardboard, scrap steel, copper, brass and pop cans.

Highland Valley Copper has been active in reducing the environmental risks associated with asbestos and PCB (polychlorobiphenal).

A major campaign in the early 1990's removed the high-risk occurrences of asbestos. Now whenever asbestos material is encountered it is removed in accordance with established safe work procedures and disposed of in accordance with the direction of the Ministry of Water, Land and Air Protection.

Similarly, removal of PCB-contaminated (supplied) equipment and supplies has been a high priority. In 1997, Highland Valley Copper became free of any known PCB contaminated equipment. Over a four-year period, a total of 35 transformers and 63,102 liters of PCB fluid were decontaminated and disposed of in accordance with established guidelines.

Highland Valley Copper

GENERAL MINING INFORMATION

SURFACE MINING

GENERAL

The Lornex and Valley open pits have been designed by conventional means – computerized geological modeling, pit slopes which incorporate the available geotechnical data, forecasted metal prices, forecasted project costs and a combination of manual and automated pit design approaches which develop an economical, workable ultimate pit design.

As upgraded information becomes available, the ultimate pit outlines are reviewed and updated to workable pit designs.

The geological model incorporates all available information from logging of the diamond drill core, assaying the core and from geological interpretation. This is combined with mathematical modeling to reasonably represent the spatial distribution of the mineralization and other attributes within the orebody.

Highland Valley Copper produces approximately 400 million pounds of copper and 4 million pounds of molybdenum annually.

LORNEX MINE

The Lornex orebody has been developed in a series of sequential pit push-backs for conventional shovel-truck mining. Mining is currently concentrated on a mining sequence east and south of the centre of the orebody.

VALLEY MINE

The Valley mine has also been developed in a series of sequential pits. The mining width within each pit varies from 80 to 150 meters. In addition to conventional shovel-truck mining, the Valley mine also incorporates in-pit ore crushing and conveying as part of the operations.

MINE SCHEDULE

The current schedule calls for mining both from the Lornex and Valley orebodies for the balance of the project life. It is planned to mine an average of 70 million tonnes of ore per year for the life of the mine (to 2009).

Consideration of extending mine life to 2013 continues with a decision expected in 2006.

MATERIAL HANDLING

GENERAL

Mining at the Highland Valley Copper operation involves the movement of two material types – overburden and rock.

Drilling is carried out by a fleet of three rotary drills, which drill 311-millimeter diameter holes to a depth of 16.5 metres, allowing bench heights of 15 metres.

The operation utilizes five electric mining shovels to load material from the working faces into haulage trucks. The shovel fleet is comprised of four 31.3 cubic metre units, and one 16.8 cubic metre unit.

The haulage truck fleet is made up of eighteen (of which 10 are spare) mechanical drive 172 tonne units and twelve 218 tonne units.

Overburden and waste rock material from both pits is truck-hauled to designated dump locations surrounding each pit. Total daily production in 2004 averaged 180,000 tonnes, of which approximately 138,000 tonnes were ore.

CRUSHERS/CONVEYORS

Ore from the Lornex mine is hauled by truck to the permanent gyratory crusher (Unit #1) located at pit rim and after crushing, the material is conveyed to the Highland Mill. Ore from the Valley mine is truck-hauled from the operating faces to one of two semi-mobile gyratory crushers (Units #4 and #5), which are located within the working limits of the Valley mine. These two semi-mobile crushers were moved in 1998 to their ultimate location to stay as close as is practically possible to the centre of gravity of current mining, and hence minimize the materials handling costs.

After in-pit crushing, the ore from the Valley mine is carried by twin conveyors to a transfer pile located outside the ultimate pit limit. From the transfer pile, ore is conveyed to the stockpile at the Highland Mill.

OVERBURDEN AND WASTE ROCK DUMPS

GENERAL

Suitable waste dump designs have been developed through a combined approach-geotechnical evaluation, field experience and back analysis of specific field failure phenomena.

Highland Valley Copper, through its combined operations, has a variety of waste dumps, of both overburden and waste rock, which have been created on different material bases.

Geotechnical consultants have been retained for many years to provide guidance in developing safe dump construction and monitoring practices.

Dump designs have been developed to maximize the advantage of the land available within property constraints, and to optimize economic, safety and reclamation considerations.

STABILITY AND ACID GENERATION

Geotechnical stability of the Highland Valley dumps has been maintained through development of safe dump construction and monitoring practices. Long term stability of the various dumps has been demonstrated to be achievable.

The potential for acid generation has been examined many times since the initiation of mining operations in the Highland Valley.

Testing on a wide variety of samples using biological leaching and acid-base accounting techniques, in conjunction with reviews of water quality data, has indicated that no large-scale acid drainage is expected.

GEOLOGY AND ORE RESERVES

LORNEX GEOLOGY

The Lornex orebody occurs in Skeena Quartz Diorite host rock, intruded by younger pre-mineral quartz porphyry and aplite dykes. The Skeena Quartz Diorite is an intermediate phase of the Guichon Batholith and is generally a medium to coarse grained equigranular rock distinguished by interstitial quartz and moderate ferromagnesian minerals. The sulphide ore is primarily fracture fillings of chalcopyrite, bornite and molybdenite with minor pyrite, magnetite, sphalerite and galena.

VALLEY GEOLOGY

The host rocks of the Valley deposit are mainly porphyritic quartz monzonites and granodiiorites of the Bethsaida phase of the batholith. These rocks are medium to coarse grained with large phenocrysts of quartz and biotite. The rocks of the deposit were subjected to hydrothermal alteration followed by extensive quartz veining, quartz-sericite veining, and silicification. Bornite, chalcopyrite and molybdenum were introduced with the quartz and quartz-sericite veins and typically fills angular openings in them. Accessory minerals consist of hornblende, magnetite, hematite, sphene, apaatite and zircon.

Pre-mineral porphyry and aplite dykes introduce the host rocks of the deposit.

ORE RESERVES

The proven and probable ore reserves as of January 2005 are 167 million tonnes at 0.43% copper and 0.007% molybdenum. Resources amount to 19.7 additional tonnes.

NEW TECHNOLOGIES

COMPUTERIZED DISPATCH

Highland Valley Copper uses a large scale, computer-based system that controls the dispatching of all haul trucks in the mine. This technology continuously maximizes mining productivity with minimal input from mine personnel. Comprehensive reporting features provide detailed mine operating information and time accountability.

MONITORING PIT WALL IMPROVEMENTS

Safe mining requires the geotechnical group to assess pit wall movements occurring under dynamic mining and climatic conditions. One method employs robotic survey instruments coupled with survey software. These instruments observe approximately 500 prisms strategically located in the Valley and Lornex pits daily at predetermined intervals. This software processes the survey data providing accurate and precise slope displacement information to Mine Operations and Engineering personnel. Accurate and timely information makes mining safer.

SUSPENDED LOAD MEASUREMENT MODULE (SLM^2)

The SLM^2 is a real time (live) dynamic load measured system for electric mining shovels. It measures electrical inputs from various electric motors on the shovel and uses this information to calculate the mass of the load in the shovel buckets.

This system is also connected to the Dispatch system so that the tonnage's reported by Dispatch come from the SLM^2 system. The accuracy of this system is within $\pm$3%.

GLOBAL POSITIONING SYSTEM

This system combines satellite positioning technology with on-site computer technology to accurately determine the location of major mining equipment. The GPS system is used for surveying, on all shovels for position locating and on all the blasthole drills for positioning the drills at the planned locations of drill holes without the need for staking drill patterns.

Highland Valley Copper

HIGHLAND MILL

CRUSHING / CONVEYING

Ore from the Lornex Pit is delivered to a Allis Chalmers 1.52 metre x 2.26 metre (60" x 89") gyratory crusher (Crusher Number 1), where it is reduced to minus 165 millimeters (6-1/2 inch) in a single pass and discharged to a 270 tonne surge pocket beneath the crusher. Material is then fed from the ore pocket by a 2.44 metre (8 foot) wide Link-Belt apron feeder to a series of conveyors which discharge to either No. 2 coarse ore stockpile (feeding A and B grinding lines), or No. 1 coarse ore stockpile (feeding D and E grinding lines). (Refer to the attached Crushing & Conveying schematic.)

Ore from the Valley Pit is delivered to two Allis Chalmers 60" x 89" gyratory crushers. These are semi-mobile in-pit crushers located near pit bottom. Haul trucks dump into 600 tonne dump hoppers, from which 2.44 metre (8 foot) wide variable speed inclined apron feeders deliver ore to the crushers. Each of the crushers discharge onto 2.44 metre (8 foot) wide collection belt conveyors which in turn discharge to a conveyor system consisting of five main overland conveyors.

These conveyors raise the ore over 420 metres (1380 feet) from the Valley Pit bottom through almost 3 kilometers (1.8 miles) of conveyors. The first conveyor L4 is 0.97 kilometers (0.6 miles) long and is fed by Number 4 in-pit crusher in the Valley Pit and lifts the ore 197 metres (650 feet). L4 feeds a second conveyor L1A which is 0.55 kilometers (0.34 miles) long which discharges onto an intermediate Surge Pile. The crusher Number 5 feeds L5 conveyor 0.98 kilometers (0.6 miles) long which lifts the ore 200 metres (650 feet) and feeds conveyor L1B which is 0.55 kilometers (0.34 miles) long and discharges onto the Surge Pile. Ore is drawn from below the surge pile by two 2.44 metre (8 foot) wide belt feeders, which discharge onto the third flight of conveyors. These consist of two parallel 1.52 metre (5 foot) wide by 1.25 kilometer (0.78 mile) long conveyors (L2A, L2B) which lift the ore 121 metres (400 feet) from the reclaim tunnels under the surge pile to conveyors feeding the three coarse ore piles at the Highland Mill. Each conveyor system is designed to carry 6000 tonnes per hour.

GRINDING

There are three parallel semi-autogenous and ball mill grinding circuits in the Highland Mill, (A, B and C line). The Mill also operates two parallel fully autogenous and ball mill grinding plus crusher circuits (D and E line).

A and B Grinding

Variable speed 1.23 metre by 3.96 metre (4 feet wide by 13 feet long) apron feeders, are conveyed to A and B line.

Each circuit is comprised of a primary semi-autogenous mill 9.75 metre diameter by 4.72 metre long (32 foot diameter by 15.5 feet long) and two ball mills each 5.03 metre diameter by 7.01 metre long (16.5 foot diameter by 23 feet long). (Refer to the attached A, B & C Grinding Circuit schematic.)

The primary mill is equipped with a grate discharge and product is pumped to a splitter and then onto two 2.44 metre by 6.10

metre (8 foot wide by 20 foot long) stationary screens. Initial opening size for the primary mill grates and the screens is a 19 millimeter (0.75 inch) wide slot opening. The oversize from the screens is transferred using a launder to the feed end of the primary mill, and the undersize flows to the ball mill discharge pumps. The primary mills are each driven by two 3350 kW (4400 hp) fixed speed synchronous motors. Feed for the D

Secondary grinding is achieved using two ball mills operated in closed circuit with a cluster of ten 760 millimeter (30 inch) cyclones. The cyclone overflow, averaging 80 percent passing 275 microns, flows by gravity to bulk sulfide flotation. These mills are each driven by a single 3350 kW (4500 hp) synchronous motors through Fawick air clutches.

C Grinding

Feed for the C-line circuit is reclaimed from No. 3 stockpile by a single line of five 1.23 metre by 3.96 metre (4 feet wide by 13 feet long) apron feeders.

Primary grinding is achieved by a 10.36 metre by 4.88 metre (34 foot diameter by 16 feet long) primary semi-autogenous mill equipped with grate discharge. Mill discharge is pumped to a single 1.22 metre by 4.57 metre (4 feet wide by 15 foot long) stationary screen and the undersize is split to the two ball mills. Initial opening size for the grates and the screens is a 19 millimeters (0.75 inch) wide slot opening. The oversize is transferred using a launder to the feed end of the primary mill, and the undersize reports to the ball mill discharge pumps. This mill is powered by two 4700 kW (6250 hp) variable speed direct current motors, with a maximum speed corresponding to 81 percent of critical speed; normal operating speed is 79 percent of critical.

Secondary grinding is achieved using two ball mills each 5.03 metre diameter by 8.23 metre (16.5 foot diameter by 27 feet long) operated in closed circuit with a cluster of ten 760 millimeter (30 inch) cyclones. The cyclone overflow, averaging 80 percent passing 300 microns, flows by gravity to bulk sulfide flotation.

One ball mill is driven by a 3350 kW (4500 hp) synchronous motor, and the other by a 4700 kW (6250 hp) variable speed D.C. motor; these motors act as the spares for the primary mills.

D and E Grinding

Feed for the D and E lines is reclaimed from No. 1 stockpile using two parallel lines of three 1.23 metre by 3.05 metre (4 feet wide by 10 feet long) hydro-stroke feeders and one apron feeder.

Each line consists of a fully autogenous mill 10.36 metre diameter by 4.57 metre long (34 foot diameter by 15.8 feet long), powered by twin synchronous fixed speed 4400 hp (3300 kW) motors. Each line has a single 5.03 metre by 8.83 metre (16.5 foot diameter by 29 feet long) ball mill powered by a 4100 kW (5500 hp) synchronous motor. (Refer to the attached D & E Grinding schematic.)

The primary autogenous mill is equipped with 64 millimeter (2.5 inch) wide slot discharge grates for removal of critical size rock particles and discharges onto a vibratory single deck screen to screen out minus 12.7 millimeter (0.5 inch) material. The oversize material is conveyed to a 2.13 metre (7 foot) Symons short head crusher. The crushed product returns to the primary mill feed conveyor. Screen undersize is pumped to the ball mill cyclone circuit.

The ball mill is operated in closed circuit with a cluster of ten 760 millimeter (30 inch) Linatex cyclones, the under flow going to the ball mill and the overflow to flotation feed. The cyclone overflow, averaging 80 percent passing 300 microns.

BULK SULFIDE FLOTATION

Fuel oil, potassium amyl xanthate, Dowfroth 250 and pine oil are used in the bulk sulfide flotation circuits to collect the copper and molybdenum sulphides.

A, B and C Lines

From the A and B grinding circuits, the cyclone overflows from each ball mill to feed a bank of twenty-two Denver 17 cubic metre (600 cubic foot) H-DR flotation cells. Each bank is arranged as eight rougher and fourteen scavenger cells. (Refer to the attached A, B & C Flotation Circuit schematic.) The cyclone overflows from the C line ball mills are mixed and distributed to four banks of eight Denver 36 cubic metre (1275 cubic foot) DR flotation cells, each bank arranged as three rougher and five scavenger cells.

Scavenger concentrates are pumped back to the head of the rougher cells and the tailings are collected in a common sump and discharged by gravity 7 kilometers (4.2 miles) to a pump station at the HH dam which pumps the tailings into the impoundment.

Rougher concentrate is cleaned in two banks of six Denver 8.5 cubic metre (300 cubic foot) DR cells. The cleaner concentrate advances to the regrind circuit. The regrind circuit is composed of a 3.35 metre diameter by 4.27 metre long (11 foot diameter by 14 foot long) ball mill in closed circuit with ten 0.51 metre (10 inch) diameter cyclones. Cyclone overflow is re-cleaned in two banks of five 8.5 cubic metre (300 cubic foot) DR cells. Cleaner and recleaner tails are returned to the rougher feed. The re-cleaner concentrate is sent to the copper molybdenum separation circuit.

D and E Lines

From the D and E grinding circuits, the cyclone overflows are combined and distributed to four banks of nine Denver 36 cubic metre (1275 cubic foot) DR flotation cells, each bank arranged as three rougher and six scavenger cells. Scavenger concentrates are pumped back to the head of the flotation circuit and the tailings are collected in a common sump and discharged by gravity to the tailings pumping station. (Refer to the attached D & E Flotation Circuit schematic.)

Bulk rougher concentrate from D and E lines is pumped to the regrind circuit which is composed of a 3.35 metre diameter by 4.27 metre long (11 foot diameter by 14 foot long) ball mill in closed circuit with ten 0.51 metre (10 inch) diameter cyclones. Cyclone overflow is cleaned in a 2.13 metre diameter by 12.2 m high (7 foot diameter by 40 foot high column flotation cell. Column concentrates are sent to copper molybdenum separation. Cleaner column tails are sent to two banks of twelve Denver 30 DR cleaner scavenger cells. Cleaner scavenger concentrates are returned to the Cleaner Columns. Cleaner Scavenger tails return to the head of the bulk flotation circuit.

COPPER MOLYBDENUM SEPARATION

The cleaned bulk concentrates from the two flotation circuits (ABC and DE) are combined and dewatered in a 38 metre diameter (125 foot) thickener. Thickener underflow at 55 % solids is pumped to a 7.3 metre diameter by 7.3 metre high (24 foot by 24 foot) agitated stock tank where sodium hydrosulphide is added. Slurry from the stock tank is pumped into two 2.1 metre diameter by 2.7 m (7 foot by 9 foot) agitated nitrogen-sparged conditioning tanks in series. Nitrogen is generated on site by a plant owned by Air Liquide which was installed in 1999. Sodium hydrosulphide is added in the first conditioner. Feed then passes into one of two banks of eight Denver 30 DR cells. Nitrogen is used as the flotation gas in all cells. In the first cell, the pH is adjusted to approximately 8.5 using CO_2 addition to the agitator mechanism. The first bank of cells is used for rougher flotation and the tails of the first bank are pumped to the second bank which is used for scavenger flotation. Tails from the second bank are final moly plant tails and are sent to the copper dewatering circuit. Concentrate from the second bank, scavenger concentate, returns to the bulk copper/molybdenum concentrate thickener.

Rougher moly concentrate from the first bank is reground in a 1.5 metre diameter by 3.0 metre long (5 foot diameter by 10 foot) ball mill in closed circuit with seven 102 mm (4 inch) cyclones.

Cyclone overflow is fed to a bank of five Denver 30 DR cleaner cells. Concentrate from this cleaner bank is treated with sodium hydrosulphide and is pumped to an OK-5 tank cell. Tails from the OK-5 cell flow back into the cleaner bank and the concentrate is next re-cleaned in two parallel 0.9 m diameter by 10.4 m high (2.9 foot diameter by 34 foot high) flotation columns. Tailings from the columns are pumped back to the cleaner bank. Column concentrates are thickened and pumped to the leach plant.

COPPER CONCENTRATE DRYING AND SHIPPING

Molybdenum plant tails constitute the copper concentrate, which is dewatered in a 30.5 metre (100 foot) diameter thickener. The underflow goes to a 7.3 metre diameter by 7.3 metre high (24 foot by 24 foot) stock tank which supplies feed to two 2.6 metre (8.5 foot) diameter seven-disc Dorr-Oliver-Long filters and a 2.7 metre (8.8 foot) diameter eight-disc Envirotech filter. Filter cake, normally at 12 percent moisture, is conveyed to a 3.1 metre (10 foot) diameter by 15.2 metre (50 foot) long natural gas fired, parallel-flow rotary dryer. Discharge, at 7 percent moisture, is conveyed to a 1400 tonne storage silo. A 20,000 tonne shed provides on-site surge capacity.

Concentrate is loaded directly from the silo into trucks which take it to the rail head 50 kilometers away in Ashcroft. From Ashcroft, it is moved by rail either 300 kilometers to Vancouver to await transportation to off-shore smelters, or to smelters in Western and Eastern Canada.

MOLYBDENUM LEACHING

The molybdenum concentrate, which contains approximately 2 percent copper, is reduced to less than 0.25 percent copper using a ferric chloride leach. The concentrate is first filtered using a 1.82 metre (6 foot) diameter Dorr-Oliver-Long disc filter equipped with six discs and then metered via screw conveyor into one of three Pfaudler glass lined, steam jacketed, 9 cubic metre (320 cubic foot) reactors. The vessel is closed, and leaching takes place for an hour at 105 degrees Celcius and 135 Kpa (20 psig) pressure. Following leaching, the slurry is transferred to a 18 cubic metre (635 cubic foot) water-jacketed glass lined cooling vessel. The cooled slurry is then pumped to one of two 1.2 metre (4 foot) Perrin filter presses, and the washed filter cake is dumped into 10 tonne surge hoppers under each press. Screw conveyors meter the cake into a five hearth 1.22 metre (4 foot) diameter Skinner furnace, where it is dried to 5 percent moisture and then sent to four 15 tonne produce bins using screw conveyors and a bucket elevator.

The filtrate from the filter presses is recycled back to the reactors by way of a storage tank. The ferric chloride, having been reduced to ferrous chloride in the leach reaction is oxidized to its original state with chlorine gas in the reactor before adding the next batch of concentrate. Chlorine arrives on-site in one tonne cylinders and is evaporated in a steam heated Wallace and Tiernan vapourizer.

Copper is recovered by cycling a portion of the leach solution through a 1.5 metre diameter by 2.4 metre (5 foot diameter by 8 foot) long neoprene-lined revolving drum containing scrap steel. The replacement reaction precipitates copper metal and serves to regenerate iron chloride.

The molybdenum concentrate is bagged in 1.8 tonne tote bags and transported to customers by truck and then by ocean vessel.

PROCESS CONTROL

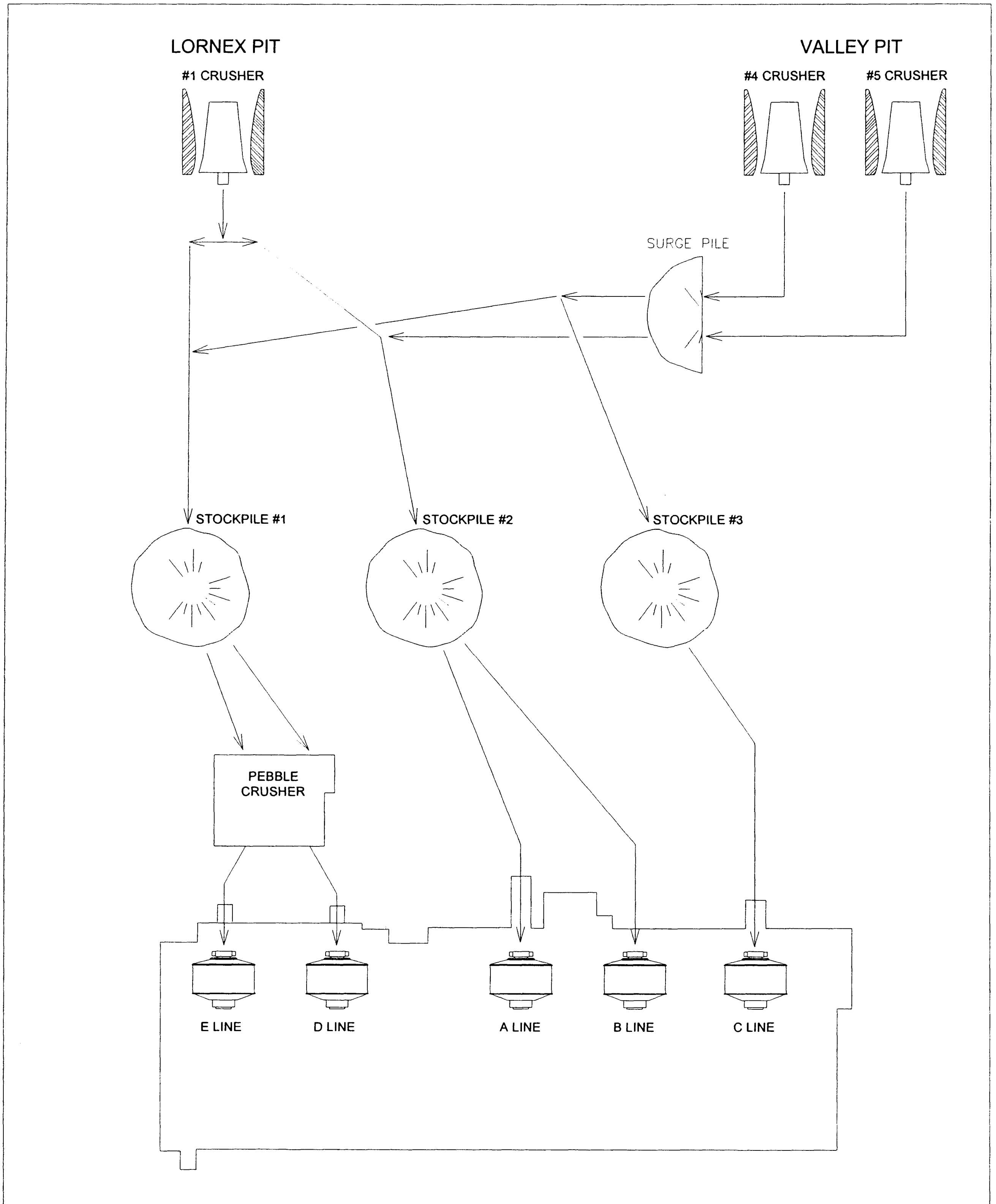
A Bailey Infi 90 distributed control system installed in 1988 handles all analog control in the Mill and Leach plant. A micro-computer network based on SCADA (supervisory control and data acquisition) system provides for the Bailey operator interface and also provides alarming and data logging functions. This system was installed in 1997 and has links to all of the control systems in the plant. It is based on Ci Technologies. Citect software run on an MS Windows NT network computer system.

A system of Modicon programmable logic controllers (PLC's) handle motor control and discrete logic in the mill and outside areas including crushing, conveying, and tailings disposal.

Additional real time systems include an expert control system for optimizing control on the C grinding line, a particle size analyser on C line to provide continuous cyclone overflow particle size information, an image analysis system that provides continuous information on feed particle size, on each grinding line,and three on-stream x-ray analyzers providing continuous assay information for various flotation streams in the Mill.

MILL PRODUCTION

2004 Production Figures		**Year Total**
Annual Tonnes Milled, dmtpy (000's)		50,600
Average Daily Throughput, dmtpd		138,300
Availability, %		94.6%
Head Grade	% Copper	0.38%
	% Molybdenum	0.016%
Recovery	% Copper	87.74%
	% Molybdenum	59.7%
Copper Concentrate		
Production, dmtpy		453,000
% Copper		37.6%
Pounds of Copper (000's)		363,000
Molybdenum Concentrate		
Production, dmtpy		9,655
% Molybdenum		52.4%
Pounds of Molybdenum (000's)		10,700

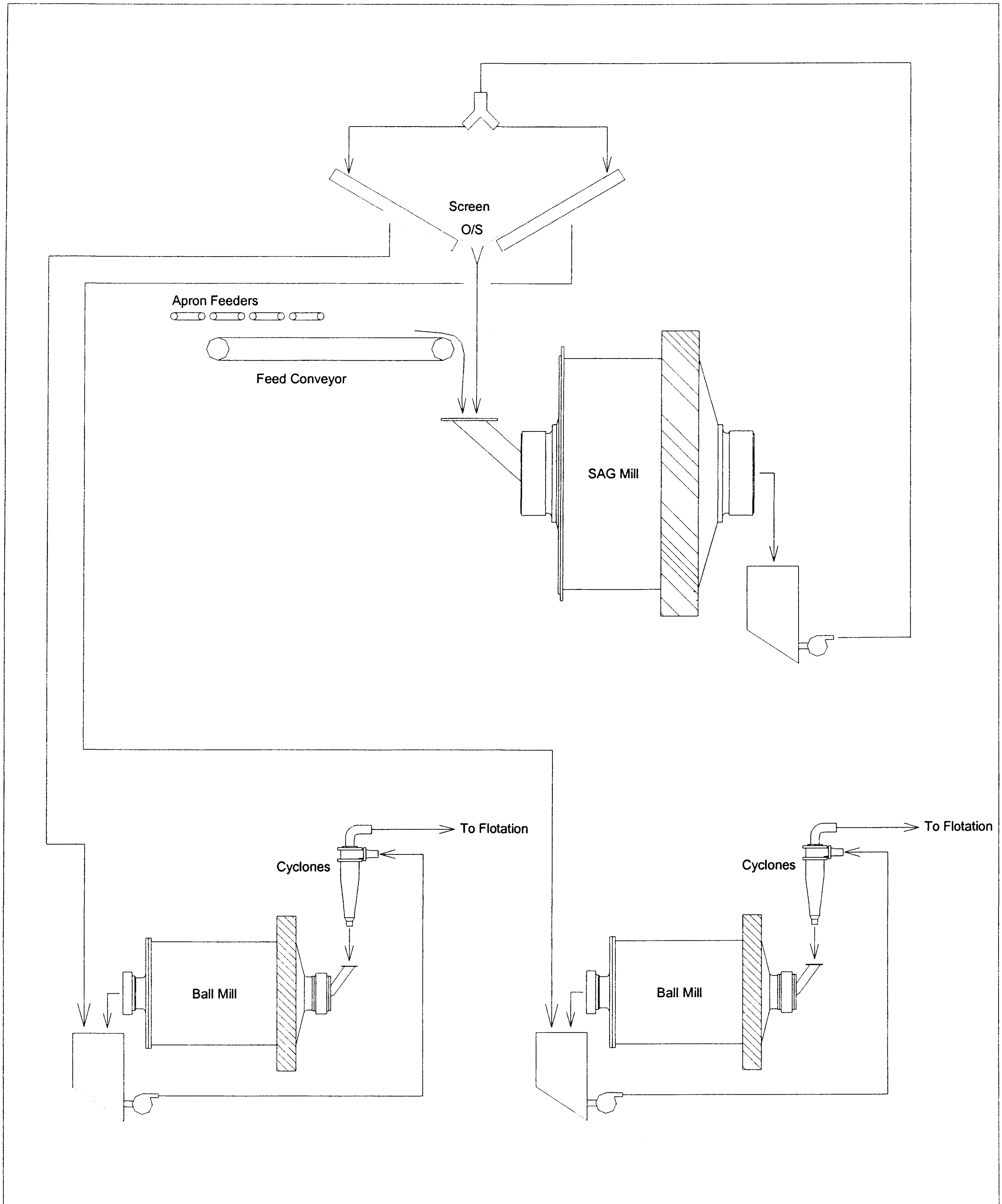


Highland Valley Copper

CRUSHING & CONVEYING FLOWSHEET

Revised February 2005

The information is believed to be accurate as of December 31, 2004 however, no warranty is expressed or implied.

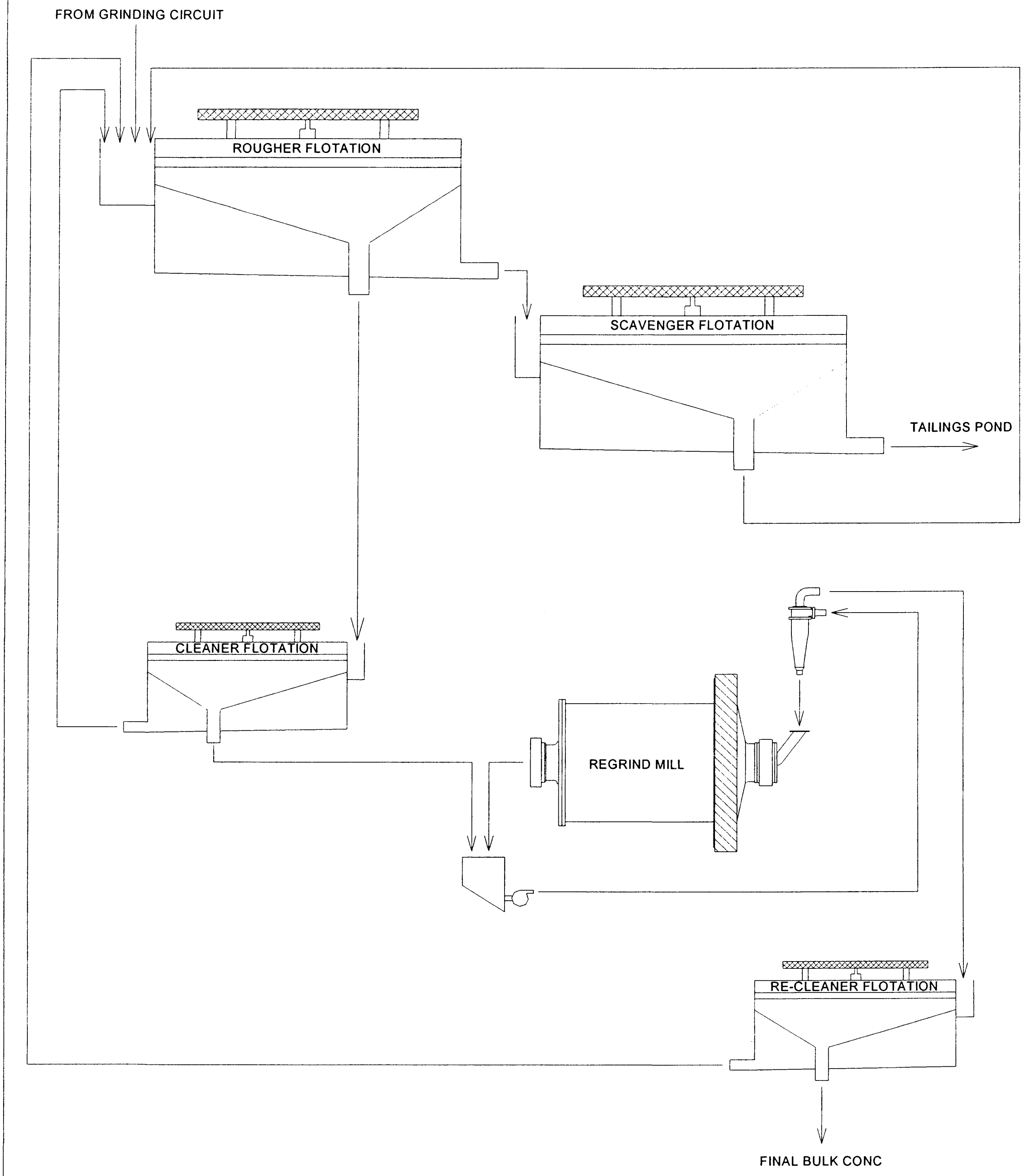


Highland Valley Copper

A, B, & C GRINDING CIRCUIT FLOWSHEET

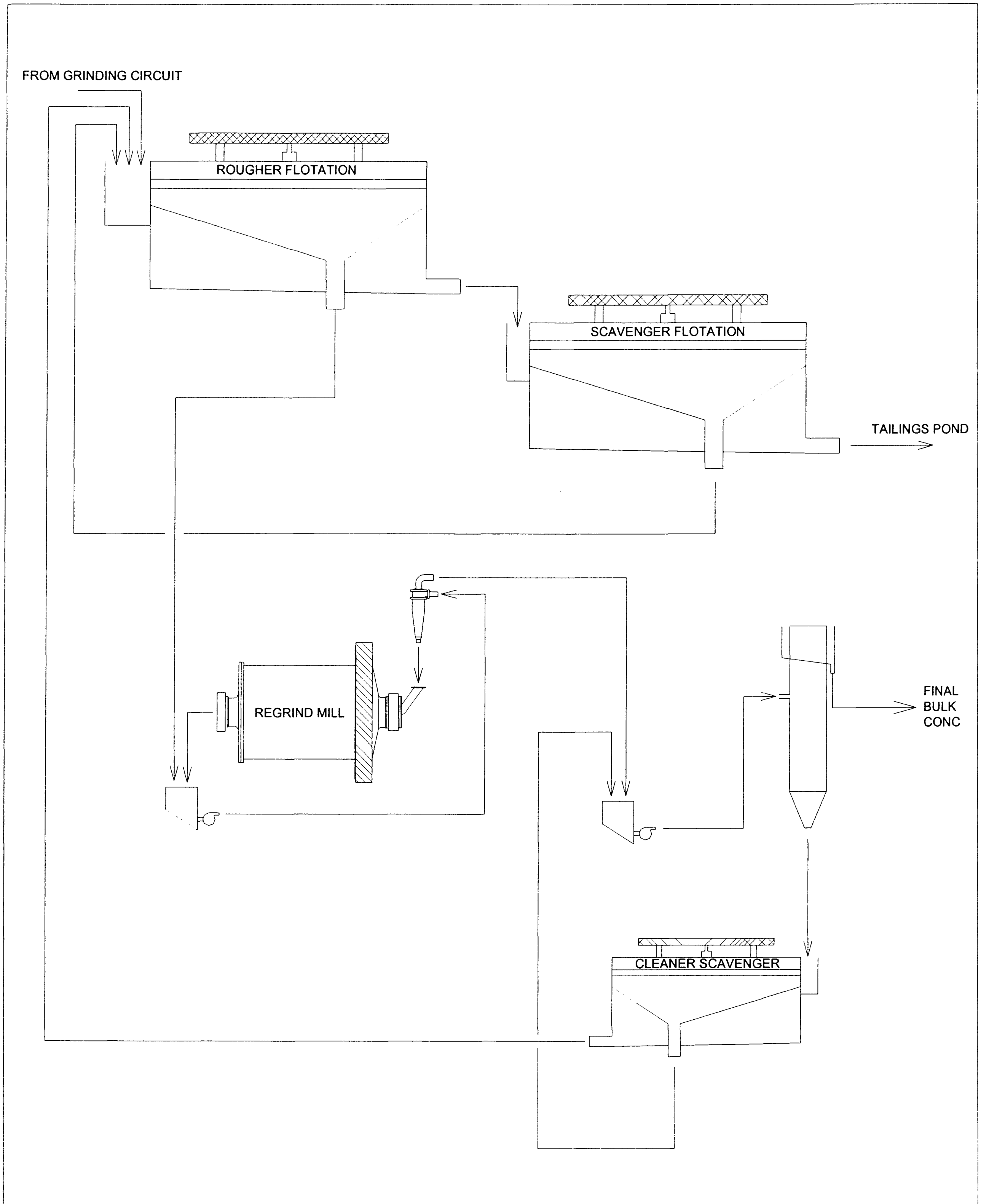
Revised February 2005

The information is believed to be accurate as of December 31, 2004 however, no warranty is expressed or implied.



Highland Valley Copper

A, B, & C FLOTATION CIRCUIT FLOWSHEET

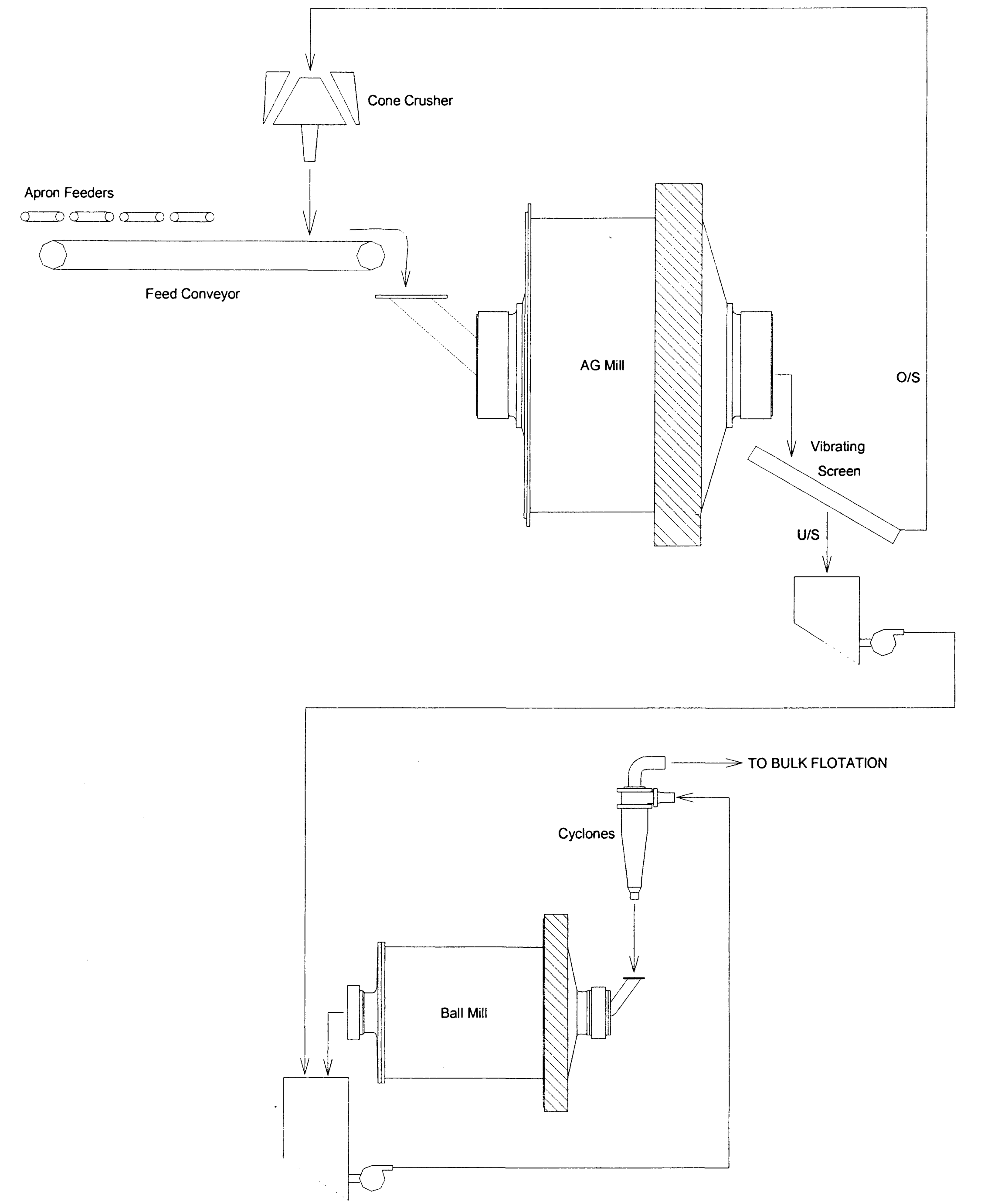


Highland Valley Copper

D & E FLOTATION CIRCUIT FLOWSHEET

Revised February 2005

The information is believed to be accurate as of December 31, 2004 however, no warranty is expressed or implied.



Highland Valley Copper

D & E GRINDING CIRCUIT FLOWSHEET

Highland Valley Copper

HIGHLAND VALLEY TAILINGS STORAGE FACILITY
& RECLAIM WATER SYSTEM

Tailings from the Highland Mill flow by gravity at the rate of 137,000 tonnes per day through three 910 mm dia. high density polyethylene (HDPE) tailings pipelines 7.3 km long to the H-H dam tailings pumphouse at the east end of the tailings storage pond. Cost of pipe is approximately $250 per meter.

The H-H tailings pumphouse, incorporates nine high efficiency pumps (six 1200 HP stepped resistor variable speed & three 800 HP variable frequency driven motors). These pumps are used to transport the tailings either over the crest of the H-H dam and into the tailings impoundment, or into the tailings transportation system to pump sand to the L-L dam for dam construction purposes. The pumps are synchronized to respond to mill production rates while operating at maximum hydraulic efficiency; and motor speeds are automatically varied to ensure that energy costs are kept to a minimum.

The tailings pond is approximately 10 km long and is located between two dams, H-H dam on the east end and L-L dam on the west end.

H-H DAM

Present height	~57.8 m	Present length	~ 1.8 km
2009 closure height	~ 64.8 m	2009 closure length	~ 1.8 km
Ultimate height	~ 80.2 m	Ultimate length	~ 2.0 km

From the H-H dam approximately 60,600 litres/min (16,000 USGPM) of tailings slurry is pumped by three 800 HP pumps through a 710 mm dia. HDPE pipeline, 4.0 km long to the J-J dam tailings pumphouse. Two 1,200 HP slurry pumps pump the tailings from the J-J dam to transport the slurry to the L-L dam cyclone house through a 710 mm dia. HDPE pipeline 7.3 km long.

L-L DAM

The L-L dam is built using cycloned sand over an impervious till core. Approximately 300,000 cubic meters of cycloned sand per month are placed in the dam. A total of approximately 2.0 million cubic meters of cycloned sand and till material per year go into the body of the dam.

Present height	- 143.9 m
Present length	- 2.7 km
2009 closure height	- 151.2 m
2009 closure length	- 2.7 km
Ultimate height	- 167.6 m
Ultimate length	- 2.8 km

At completion the L-L Dam will be amongst the larger earth filled dams in the world.

Approximately 20.3 million cubic meters of water are stored in the tailings pond and to date approximately 1.0 billion tonnes of tailings have been placed in the facility. The design capacity of tailings storage impoundment is 1.97 billion tonnes.

The tailings storage facility is closed to the environment, and no water discharges to Pukaist Creek.

RECLAIM WATER

Water is reclaimed from the tailings storage pond for mill process use by two barges, one with four (4) 600 HP pumps and the second with two (2) 1,000 HP pumps and four (4) 800 HP pumps. Water from the barges is pumped through the two booster stations containing a total of twelve (12) 1,000 HP pumps, that pump approximately 189,000 litres/min. (50,000 USGPM) to the raw water storage reservoir 8 km away. The reservoir has a storage capacity of 871,000,000 litres (230,000,000 USG). From the storage reservoir, water flows by gravity through two (2) 508 mm and two (2) 610 mm dia. steel reclaim waterlines. These water lines tie into a single 1220 mm dia. waterline about the Valley Pit to bring water back to the Mill.

Up to 37,800 litres/min. (10,000 USGPM) of make up water is provided to the Mill from the Valley Pit dewatering wells, Shula flats wellfield, Highmont wells, snow-melt and surface runoff.

The Mill uses approximately 272,000 cubic meters of process water per day. 200,000 litres/min. (53,000 USGPM) of water is used in the copper milling and flotation process; twice the amount used per day by the City of Kamloops – Population at 81,000.

Highland Valley Copper

TECHNICAL INFORMATION

PROPERTY

LAND USE

Mineral claims/leases: approximately 39,100 hectares

	Disturbed (ha.)	Revegetated (ha.)	Water Bodies Achieving Land Use Goals (ha.)	Total Active Area
Plant Sites	242	71		171
Pit Areas	957	95	57	805
Waste Dumps	2072	1317		755
Tailings Areas	2180	465	43	1672
Other	591	159	4	428
Total	**6042**	**2107**	**104**	**3831**

** 36.6% of Disturbed land has been revegetated or is achieving land use goals.*

Disturbed Land (Hectares) – December 31st, 2004

	Bethlehem	Highmont	Lornex	Valley	Highland	Total
Plant Sites	40	53	149	0	0	242
Pits	143	88	312	403	0	946
Waste Dumps	266	151	843	824	0	2084
Tailings Areas	374	302	0	0	1544	2220
Linear	79	90	36	42	344	591
Total	**902**	**684**	**1340**	**1269**	**1888**	**6083**

Revegetated Land (Hectares) – December 31st, 2004

	Bethlehem	Highmont	Lornex	Valley	Highland	Total
Plant Sites	20	31	20	0	0	71
Pits	22	24	35	14	0	95
Waste Dumps	176	125	752	291	0	1344
Tailings Areas	275	223	0	0	16	514
Linear	34	34	8	18	65	159
Water Bodies	72	26	0	0	0	98
Total	**599**	**463**	**815**	**323**	**81**	**2281**

MINE

PIT DATA

	LORNEX		VALLEY	
	CURRENT	ULTIMATE	CURRENT	ULTIMATE
Length (metres)	2,400	2,400	2,200	2,200
Width (metres)	1,600	1,600	1,800	2,100
High-wall Height (metres)	413	480	510	735
Low-wall Height (metres)	203	270	310	535
Tonnes (millions) remaining:				
Ore:	-	79	-	183
Waste:	-	5	-	15
Strip Ratio (Waste/Ore):		0.06 / 1		0.08 / 1
Ore Grade: % Copper		0.345		0.443
% Molybdenum		0.0109		0.0059

MAJOR EQUIPMENT

Drills:	3 – Bucyrus Erie 49-R	(12-1/4" dia., 311 mm)
Shovels:	1 – Bucyrus Erie 295-B1	(22 cu. yd., 16.8 cu. m)
	2 – P & H 2800XPA	(41 cu. yd., 31.3 cu. m)
	2 – P & H 2800XPB	(41 cu. yd., 31.3 cu. m)
Front End Loader:	1 – Letourneau L-1400	(28 cu. yd., 21.4 cu. m)
Haul Trucks:	18– Cat 789	(190 ton, 172 tonne)
	12 – Cat 793	(240 ton, 218 tonne)
Water Trucks:	3 – Cat 789 Truck	(160,000 litre capacity 35,000 Imperial gallons)
Tow Truck/Trailers:	1 – Cat 789 Truck	
	1 – 120 Tonne and 1 – 250 Tonne Trailers	
Track Dozers:	7 – Cat D10N/R	
Rubber-Tired Dozers:	3 – Cat 834	
	1 – Cat 824	
Graders:	7 – Cat 16G/H	

BLASTING INFORMATION

Typical Patterns: (Burden/Spacing)	Valley Ore	7.8 m x 9.0 m
	Valley Waste	8.0 m x 9.2 m
	Valley Overburden	8.2 m x 3.5 m
	Lornex Ore	11.5 m x 13.2 m
	Lornex Waste	8.6 m x 9.9 m
Powder Factor: (Kg/Tonne Blasted)	Valley Ore	0.35
	Valley Waste	0.32
	Valley Overburden	0.31
	Lornex Ore	0.18
	Lornex Waste	0.30

WATER MANAGEMENT INFORMATION
VALLEY MINE

No. of Active Dewatering Wells	30
Litres Pumped/Second	270

MILL/SERVICES
OUTSIDE EQUIPMENT

Crushers:	3 – Allis Chalmers	60 x 89" gyratory (1 fixed, 2 semi-mobile)
Conveyors: (In-Pit)	Size:	Width (1522 mm, 60 inch)
	Flight: Length/Lift:	
	L4/L5:	970 m / 980 m
	L1A/L1B:	550 m / 550 m
	L2A/B:	1250 m / 1250 m
	Capacity:	6000 tonnes/hour/system
	Connected Horsepower/Flight:	4500 HP (3 motors x 1500 HP) (L1A/B, L2A/B)
	6000 HP (4 motors x 1500 HP) L4/L5	

MILL
PRIMARY MILLS

GRINDING LINE PRIMARIES	(DIMENSIONS) (DIA X LENGTH)	CONNECTED HP (MOTOR/HP)	NOMINAL CAPACITIES (TONNES/HOUR)
A-SAG	32' x 15.5'	2 x 4500	1500
B-SAG	32' x 15.5'	2 x 4500	1500
C-SAG	34' x 16'	2 x 6250	1800
D-Autogenous	34' x 15.8"	2 x 4400	1000
E-Autogenous	34' x 15.8"	2 x 4400	1000

SECONDARY BALL MILLS

A1 Ball Mill	16.5' x 23'	1 x 4500	750
A2 Ball Mill	16.5' x 23'	1 x 4500	750
B1 Ball Mill	16.5' x 23'	1 x 4500	750
B2 Ball Mill	16.5' x 23'	1 x 4500	750
C1 Ball Mill	16.5' x 27'	1 x 4500	900
C2 Ball Mill	16.5' x 27'	1 x 6250	900
D Ball Mill	16.5' x 29'	1 x 5500	1000
E Ball Mill	16.5' x 29'	1 x 5500	1000

BULK FLOTATION

A & B Lines:	88 Denver 600-H-DR Flotation Cells (32 Rougher and 56 Scavenger Cells)
C Line:	32 Denver 1275DR Flotation Cells (12 Rougher and 20 Scavenger Cells)
D & E Lines:	36 Denver 1275DR Flotation Cells (12 Rougher and 24 Scavenger Cells)

DRYING

2 Copper Dryers:	1 x 8' dia. x 48' natural gas fired, parallel-flow rotary dryer 1 x 9' dia. x 60' natural gas fired, parallel-flow rotary dryer
1 Molybdenum Dryer:	Five hearth 1.22 m dia. Skinner furnace

THICKENERS

Concentrate:	Bulk Copper	1 x 38 m dia.
	Copper	1 x 30.5 m dia.
	(Standby)	1 x 26 m dia.
	Molybdenum	1 x 4.5 m dia.

CONCENTRATE PRODUCTION (2004 ANNUAL)

Copper:	453,000 Dry Metric Tonnes	Molybdenum:	9,500 Dry Metric Tonnes
	37.5% Grade		52.4% Grade
	363,000,000 Pounds Cu		10,700,000 Pounds Mo

TAILINGS

LINES

Plant to H-H Dam	3 Lines (Dia./Length)	(914 mm, 36") / 7.3 km.
H-H Dam to L-L Dam	1 Line (Dia./Length)	(Varies from 28" to 36") / 12.2 km.

DAMS

	HEIGHT		LENGTH	
	CURRENT	ULTIMATE	CURRENT	ULTIMATE
H-H	55.8 m (183.5ft.)	80.2 m (263 ft)	1.8 km (1.12 miles)	2.0 km (1.2 miles)
L-L	143.9 (472.1ft)	167.6 m (550 ft)	2.7 km (1.68 miles)	2.8 km (1.73 miles)

POND – HIGHLAND

Design Capacity:	1.97 Billion Tonnes
Ultimate Disturbed Area:	Approximately 1,650 Hectares
Centerline Distance between H-H and L-L Dams:	Approximately 10 km.

GENERAL INFORMATION

CONSUMPTION	2001	2002	2003	2004
Annual Electric Power	950,000 Megawatt hrs	949,000 Megawatt hours	948,000 Megawatt hours	952,000 Megawatt Hours
Annual Compressed Natural Gas	288,600 Gigajoules	317,000 Gigajoules	252,000 Gigajoules	273,000 Gigajoules
Annual Diesel Fuel	27,900,000 Litres	31,110,000 Litres	25,476,000 Litres	18,769,000 Litres
Annual Gasoline	1,430,000 Litres	1,407,000 Litres	1,219,000 Litres	1,360,000 Litres
U.S. Gallons Water Used/Tonne Milled	540	530	510	510
Amount of Mill Water Recycled	78%	78%	78%	78%