Corriente Resources Inc.
Form 6-K
December 14, 2007

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 6-K

Report of Foreign Private Issuer
Pursuant to Rule 13a-16 or 15d-16 of
the Securities Exchange Act of 1934

For the month of **December, 2007**

Commission File Number **001-32748**

CORRIENTE RESOURCES INC.

(Translation of registrant s name into English)

520 - 800 West Pender Street, Vancouver, British Columbia, CANADA V6C 2V6
(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F

£ Form 40-F Q

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ____

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ____

Indicate by check mark whether by furnishing the information contained in this Form, the registrant is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes £ No Q

If Yes is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82-_______________

DOCUMENTS INCLUDED AS PART OF THIS REPORT

PANANTZA & SAN CARLOS COPPER PROJECT

PRELIMINARY ASSESSMENT REPORT

Morona - Santiago, Ecuador

October 30, 2007

**Authors: John Drobe, P.Geo John Hoffert, P.Eng. Robert Fong, P.Eng.
Jeremy P. Haile, P.Eng. Joseph, P.Eng.**

PANANTZA & SAN CARLOS COPPER PROJECT

PRELIMINARY ASSESSMENT REPORT

Morona Santiago, Ecuador

Authors:

John Drobe, P.Geo.

John Hoffert, P.Eng.

Robert Fong, P.Eng.

Jeremy P. Haile, P.Eng.

Joseph Rokosh, P.Eng.

Effective Date:

October 30, 2007

Table of Contents

APPENDIX A

Letter Regarding the Status of Title to the Mining Concessions in Ecuador, For ExplorCobres, S.A. and EcuaCorriente, S.A., Trejo, R. 2006.

APPENDIX B

Capital Expenditures Table.

LIST OF FIGURES

LIST OF TABLES

1.0

SUMMARY

1.1

General

This Preliminary Assessment report identifies the economic potential and outlines an overall development plan for the Panantza and San Carlos porphyry copper deposits, located some 40 kilometres north of the Mirador copper-gold deposit, in southeast Ecuador. The Panantza and San Carlos projects would be developed as a single large copper development opportunity, a concept presented by Corriente Resources Incorporated (Corriente) initially in 2001, in a National Instrument (NI 43-101) Preliminary Assessment Technical Report (Makepeace, 2001). This report identifies current resource estimates and mining proposals that optimize the stakeholder returns, as well as provide social and economic benefits to the communities in the region. It is prepared as a Preliminary Assessment based on Inferred resources, as defined by NI 43-101.

1.2

Property Description and Location

The Panantza and San Carlos deposits are within the Panantza and San Carlos concessions, which together cover an area of 3200 hectares (32 square km) in the province of Morona-Santiago, in southeast Ecuador. The proposed project infrastructure would extend to parts of adjacent and contiguous concessions Panantza 2, San Carlos, Curigem 3, Curigem 7, and Curigem 8.

The project area is characterized by steep sided valleys, with elevations ranging from approximately 700 metres above sea level (masl) to over 1400 masl. The Rio Zamora flows northeast, through a canyon, bisecting the project area. Vegetation is predominantly dense rainforest cover. The climate is wet equatorial, with relatively small monthly variations in temperature and precipitation throughout the year.

1.3

History

Billiton Ecuador B.V. (Billiton), now BHP Billiton S.A. (BHP Billiton), discovered a number of porphyry copper deposit clusters in the Rio Zamora region of south eastern Ecuador in the mid to late 1990 s, during a five-year grassroots exploration programme. In 1999, Billiton announced a restructuring of its new business initiatives to maximise its investment returns in new ventures and projects. Consequently, a joint venture opportunity became available over a major part of the Pangui porphyry copper province. Billiton found a suitable JV participant in Vancouver-based Corriente. Agreements covering the north and south tenures, now called the Corriente Copper Belt , were announced on October 18, 1999 and April 7, 2000. BHP Billiton holds a 2% Net Smelter Royalty interest in the deposits.

Corriente advanced the Panantza deposit in 2006 by completing 25 additional drill holes totalling 8399 metres, as well as additional mapping and complete relogging of older core. This recent work has shown that the deposit is larger than previously defined, with mineralization extending farther south, west, and to depth than previously recognized.

1.4

Geology and Mineralization

The Panantza and San Carlos copper porphyry deposits of Corriente are the northern-most of the advanced deposits in the Corriente Copper Belt, which includes the Mirador and Mirador Norte copper-gold porphyry deposits about forty kilometres to the south. All the deposits contain mainly hypogene copper, with relatively minor overlying oxide and secondary enrichment horizons.

The host rocks are Late Jurassic granite of the Zamora batholith and associated slightly younger porphyritic intrusions. At Panantza there are also minor Tertiary-age dikes. Mineralization is mainly disseminated and finely veined chalcopyrite, with secondary chalcocite significant in thin and discontinuous overlying supergene zone.

1.5 Resource Estimation

The initial NI 43-101-compliant Preliminary Assessment Technical Report for the Panantza and San Carlos deposits, taken as a joint project, was completed by Geospectrum Consultants and was filed on SEDAR by Corriente in June, 2001. The report was written following the second phase of drilling at Panantza in year 2000.

The current Panantza resource was first released in August 2007 in the NI 43-101 Technical Report Update on Inferred Resource Estimate Panantza Project (Drobe, 2007). The updated resource is defined on the basis of 16,644 metres of drilling in 53 holes. Drilling previous to the last programme at Panantza in 2006 includes the initial 2984-metre drill programme by Billiton in 1998 and, subsequent to the joint venture agreement, additional drilling by Corriente in 2000 totalling 5262 metres.

The San Carlos resource presented here is defined on the basis of 5936 metres of drilling in 26 holes, all by Billiton.

Corriente engaged Mine Development Associates (MDA) in April 2007 to provide a block-model based mineral resource estimate for Panantza in order to provide a current resource estimate. In addition, MDA was asked to provide a block-model based mineral resource estimate for San Carlos so that the mining potential of both projects could be evaluated using block-model based mine scheduling and floating pit cones.

In working with MDA, Corriente re-estimated the resources of both deposits by developing block models incorporating the 2006 drill data for Panantza, and using new geology solid models for San Carlos. Unlike previous reporting, the new resource excludes oxide copper mineralization within the leached zone of the deposits. Grades and tonnages are reported over a range of copper cutoff grades. Inferred mineral resource estimates based on a cutoff of 0.4 % Cu, and including only sulphide-mineralized material, are 463 Mt at 0.66 % Cu (Inferred Resource category as per CIM, 2005) for Panantza, and 600 Mt at 0.59 % Cu at San Carlos.

Minor quantities of molybdenum, silver, and gold are associated with the copper and have limited economic interest in both deposits.

1.6

Mining

Moose Mountain Technical Services (MMTS) provided an assessment of the potential surface resource for the Panantza and San Carlos mineral deposits. MMTS used the Lerchs-Grossman pit optimization methodology to develop optimized pit shells and potential resource estimates. The ore and waste quantities, as well as copper content contained in the pit shells, were generated from the 3D block model provided by Corriente. The results are summarized in the Table 1-1. The design parameters for generating the pit shells are preliminary and based on those from a similar project belonging to Corriente. A more detailed assessment of these parameters is proposed for the next phase of study, and adjustments made where necessary.

Table 1-1: In-Pit Resources Estimate

Deposit	Ore, Mt	Cu, %	Waste, Mt	Strip Ratio
Panantza	395	0.63	542	1.4
San Carlos	284	0.61	208	0.7
Total	678	0.62	750	1.1

The resource that could be potentially mined at San Carlos was restricted due to the limited capacity of the currently designed Waste Management Facility (WMF). With an expanded design, the portion of the resource that could be mined would significantly increase.

For this level of study, designing detailed pits would be pre-mature, and therefore this work has not been carried out. Selected optimized pit shells were used as pit phases to develop a mine production forecast. Pit wall smoothing and incorporating haul roads from a pit design process would likely lower the potential resource generated from an optimized pit shell.

The mine would feed the crusher at a rate of 90,000 tonnes per day. Mining would commence in the Panantza pit, and then move over to the San Carlos pit. The San Carlos pit is a lower strip ratio pit than the Panantza pit, and there are potential economic benefits to commence mining in the San Carlos pit. However, co-disposal of the pit waste with tailings would require a haul road to be constructed over difficult terrain, including a crossing over the Rio Zamora. These challenges are difficult to assess at this stage of the project study. Therefore the option of commencing in the San Carlos pit should be evaluated in future studies.

Ore would be hauled out of the pits to a crusher located at the pit rim, and then conveyed overland to the mill. For the purpose of this conceptual level study, it is conservatively assumed that the pit waste rock would be potential acid generating (PAG) and would be co-disposed with tailings. Waste from the Panantza pit would be hauled to the WMF, while the majority of the waste from the San Carlos pit would backfill the Panantza pit when it is completed.

Electric powered, 26 m^3 shovels and 218 tonne haul trucks are proposed as the primary load and haul fleet. It is estimated that the fleet would consist of 4 shovels and 30 to 40 trucks during the first nine years when the average strip ratio would be higher and the haulage distances lengthy due to the tailings co-disposal plan for the Panantza waste rock. The fleet size would be reduced substantially in the subsequent years when the strip ratio decreases at the bottom of the Panantza pit and mining is shifted to the San Carlos pit.

The primary load and haul fleet would be complemented with production drills and pit support equipment such as graders and dozers. The fleet type and number of units are preliminary at this stage, and on-site evaluations of the site conditions would provide a better understanding for equipment selection in future studies.

At the proposed production rate, the potential life of mine would be 21 years.

1.7

Processing

The Panantza San Carlos process plant will be designed to process an estimated 90,000 tonnes per day (t/d) of copper ore containing 0.62% Cu, 0.008% Mo, 1.3 g/t Ag and 0.05 g/t Au over the life of the mine (Table 1-2). A total of 678 Mt of ore would be processed over the life of the mine. Recoveries are estimated to be 91% Cu to the copper concentrate and 43% Mo to the molybdenum concentrate. Copper concentrate production is expected to average 29.5% Cu and 57 g/t of Ag and molybdenum concentrate is expected to average 49% Mo. A total of 3.8 Mt of copper would be recovered to the copper concentrate over the mine s life.

In years 1 to 10, the primary crusher feed would come from the Panantza pit, then from years 11 to 13 the ore would transition to the San Carlos pit, with all the ore planned to come from the San Carlos pit until the end of the mine life.

The concentrator would have conventional primary gyratory crushing feeding a stockpile. Grinding would have a SAG-BM-pebble crusher configuration with approximately 77.2 MW available power for grinding to a flotation feed size of p80 = 150 µm. The flotation circuit would concentrate the copper to a final concentrate grade before feeding a thickener and then the molybdenum separation circuit. The molybdenum concentrate would be dewatered and dried on-site while the copper concentrate from the molybdenum separation circuit would be thickened and sent via a 420 km pipeline to the coast for dewatering before being shipped to the smelter.

Table 1-2: Mill Feed Grade and Recovery

Year	**Mine Life**			
	1-10	11-13	14-21	LOM
Head Grade				
%Cu	0.62%	0.72%	0.58%	0.62%
%Mo	0.009%	0.008%	0.007%	0.008%
Au (g/t)	0.072	0.051	0.030	0.053
Ag (g/t)	1.50	1.30	1.10	1.32
Recovery				
%Cu	92.4%	91.3%	89.4%	91.1%
%Mo	43.0%	43.0%	43.0%	43.0%
Au (g/t)	30.0%	Not Payable	Not Payable	N/A
Ag (g/t)	70.0%	70.0%	70.0%	70.0%

Results were based on preliminary drilling and test work carried out by BHP Billiton in 1998 and 1999. Further drilling and metallurgical test work is required to confirm the estimated ore hardness, throughput, metal recovery and concentrate quality as stated in the table above.

1.8

Onsite Infrastructure and Services

The Mill location is relatively close to the Zamora River, and the elevation of about 1100 m above sea level would allow gravity discharge of tailings to the Waste Management Facility (WMF) for the initial part of the mine life. Plant related facilities include administration building, access road, primary crusher, overland conveyors, coarse ore stockpile, coarse ore reclaim facilities, grinding plant, pebble plant, fresh water tank, process water tank, fire protection system, warehouse, storage yard, sewage treatment plant, water treatment plant and waste management facilities. Open pit mine support facilities would include mine roads, a truck shop, truck wash building, tire shop, warehouse, sample building and sewage treatment plant.

Access to the Mill site would primarily be by 15 km of new road into the Panantza site from the existing gravel road near the village of Rocafuerte. A bridge to the San Carlos deposits is required prior to the start of the Phase II of the project and has been included in the first phase of the project.

The proposed mine infrastructure layout includes optimized conveyor alignments for ore and waste rock, and gravity discharge of tailings from the Mill to the WMF during the initial years of operation. A conveyor is proposed to transport crushed waste rock from the San Carlos Pit to a transfer point near the Stockpile. A crusher has been located near the San Carlos Pit to reduce the waste rock to a conveyable size. During the initial crossover period in Years 11, 12, and 13, waste rock would be trucked from the transfer point to the WMF. When mining has concluded at the Panantza Pit in Year 13, a second conveyor would carry the waste rock from the transfer point to the inactive Panantza Pit. Ore would be conveyed from the two open pits to a common stockpile located north of the Mill.

A reclaim barge, booster pump station, and associated pipeworks would deliver process water from the WMF supernatant pond to the Mill, cyclone sand plant, and for treatment and release. The system would require adjustment throughout the project life, as the elevations in the facility, as well as the extent of the tailings beach and pond, would vary from year to year.

Fresh water would be collected at the outlet of the Panantza Open Pit diversion tunnel and pumped to a head tank at the Mill. This tank would supply the fresh water requirements at the Mill, as well as at other mine facilities.

1.9

Waste Management Facility

Knight Piésold Consulting Limited (KP) completed a preliminary assessment of a WMF for potential tailings and waste rock storage for the San Carlos and Panantza copper projects. Prospective WMF sites would be suitable for the co-storage of approximately 663 million tonnes (Mt) of tailings and 600 Mt of waste rock, generated throughout the 21 year life of the two deposits.

The mean annual rainfall at the site is estimated to be approximately 2,500 mm. Mean annual evaporation is estimated to be approximately 1,200 mm. Based on a preliminary review of the regional seismicity and tectonics, a conservative Magnitude 8.0 intraplate earthquake causing a maximum bedrock acceleration of 0.6g is considered to represent a reasonable Maximum Credible Earthquake event for the project. A preliminary review of the regional seismicity and tectonics suggests that ground motions at the project site would be significantly lower than the large magnitude interface subduction earthquakes, which occur along coastal Ecuador approximately 300 km west of the project site. The maximum bedrock acceleration determined for the project area from the Global Seismic Hazard Assessment Program (GSHAP, 1999) hazard map is approximately 0.2g with a 10% chance of exceedance in 50 years, corresponding to a return period of 475 years

Five potential WMF options were identified within a 10 km radius of the two deposits; one of these was preferable for its compatibility with the preferred mine layout option. The sites were assessed on criteria including volumetrics, distance from other mine facilities, and water management considerations. A number of mine development alternatives were considered, incorporating the two preferred WMF options, and other mine components.

The current mine plan proposal estimates a total 678 Mt of ore milled, and approximately 750 Mt of waste rock. Approximately 600 Mt of waste rock would be stored in the WMF while the remaining 150 Mt would be conveyed to the Panantza Pit beginning part way through Year 13, and continuing until the end of the mine life.

The confining embankment construction would begin with a starter dam, using pre-stripping material from the Panantza Pit, and suitable borrow, as required. The embankment would be continually raised using non-reactive cyclone sand tailings. Coarse cyclone sand would be deposited and compacted in cells to form the downstream embankment shell. The fine cyclone overflow would be deposited on the upstream side of the embankment, forming a low angle beach to serve as a low permeability upstream barrier between the supernatant pond and the embankment.

Two separate tailings streams would be produced at the Mill: Cleaner Scavenger Tailings (CST) and Rougher Scavenger Tailings (RST). The RST would flow by gravity to a cyclone sand plant located at approximately elevation 1070 masl, above the north abutment of the embankment. Coarse cyclone underflow, or cyclone sand, would be pumped along the embankment crest and deposited as fill for the downstream shell. Cyclone overflow would be discharged along the embankment crest, as well as for approximately two kilometres along each side of the facility. A reclaim barge, booster pump station, and associated pipeworks would deliver process water from the supernatant pond to the Mill and cyclone sand plant.

Waste rock would be hauled to the WMF for permanent storage. The rock would be placed in the facility, where it would be progressively submerged by the rising tailings solids and the supernatant pond. Subaqueous storage of the waste rock has the potential to significantly reduce or prevent the onset of acid rock drainage or metal leaching. It may also be possible to use non-reactive material for embankment construction.

A supernatant pond of approximately 6 million cubic metres would be accumulated for initial processing requirements, beginning approximately six to nine months before start-up. The WMF supernatant pond volume would be managed throughout operations to provide sufficient detention time for tailings solids to settle, as well as provide a buffering volume for process water requirements, while maintaining sufficient freeboard and providing cover for the cleaner tailings. The results of the water balance model suggest that the facility would operate at a mean surplus of up to approximately 2 m^3/s. Surplus water would be treated and released as required downstream of the WMF.

The effects on water quality resulting from construction and operation of the WMF would be significantly mitigated through subaqueous deposition of tailings and waste rock. While there would be a loss of land and associated flora and fauna habitat, portions of the WMF would be reclaimed at closure, replacing some of the lost vegetation and wildlife habitat. The remaining portions of the WMF would likely become marsh and wetlands, transforming some of the existing terrain to a new land use.

Quantity and cost estimates for the materials and work required for the initial construction and for ongoing operations of the WMF have been completed for the following areas:

- Earthworks, including foundation preparation
- Ground improvement in embankment footprint
- Seepage collection and recycle systems
- cyclone sand placement and compaction
- Tailings systems
- Cyclone sand systems
- Reclaim and fresh water systems
- Surplus water treatment and release systems
- Power supply to cyclone pump station and reclaim barge
- Instrumentation and monitoring

1.10

Offsite Infrastructure

1.10.1 Roads

The Pacific Coast can be reached via two routes starting from where the gravel access road from the mine intersects with the main highway: to the north through Cuenca, or to the south and through Loja. The southern route is shortest and is in better condition because it is mostly paved. Both routes have to pass through mountainous terrain to arrive at the port city of Machala, on the Pacific Coast. The Loja route is 473 km to the port at Machala. Farther north along the coast is the port of Guayaquil, a much larger centre, which could be used for the shipping of concentrates. However, it is an additional 200 km from the site, for a total of at least 673 km from the Panantza San Carlos property to Guayaquil.

1.10.2 Port

The Machala port selection was based on satisfying the criteria of low cost and convenient access through the city of Machala. The key advantages of this location include:

- A large buffer zone between the port facilities and the community;
- The potential for additional development; the potential for the construction of two new road accesses which would be paid for by the government;
- A history of industrial use for permitting issues; relatively little dredging would be required as compared to port requirements in Guayaquil;
- It is near deep waters that would enable anchoring of ships of about 33,000 t capacity;
- It is located within a port industrial area.

1.10.3 Concentrate Handling and Transportation

The process plant is estimated to produce approximately 1,730 t/d of dry concentrate over the life of mine. Three options were investigated for the concentrate handling: 1) trucking of approximately 1,900 t/d of wet concentrate to the coast, 2) constructing a pipeline and slurring the concentrate to a dewatering facility on the coast, and 3) constructing a Hydrometallurgical facility in the Copper Belt area and refining the concentrate locally. Option 2 is currently considered the most viable and used in the economic analysis in this report.

1.10.4 Power Supply

Corriente s strategic power plan includes utilizing low cost, environmentally friendly, and readily available hydropower to supply the Panantza San Carlos Project s power demand. The electrical demand of the Panantza San Carlos Project is estimated at 120 MW and 970 GWh/a. The average total energy cost for hydro power is typically around $0.057/kWh. Approximately 11 MW would be generated on the project site using the water diverted from the catchment west of the Panantza open pit. The design flow is 4.8 m^3/s and the gross head is 300 m.

The balance of power required can either be purchased from an existing hydro generator, or can be supplied by a project developed for the mine. Approximately 50% of Ecuador s power demand is supplied by hydroelectric generation, which is the least expensive form of energy commercially available in Ecuador. Many promising potential hydroelectric projects have been identified, and several are located near the Panantza San Carlos Project.

Whether Corriente develops its own hydro project or purchases power from an existing hydro generator, the strategy is to interconnect with the Ecuadorian electrical grid: Sistema Nacional Interconectado (SNI). This allows the mine to purchase power from an alternate source should the primary source be unavailable, and allows the sale of excess energy in the case of an Corriente owned hydro plant.

The conceptual design for the project to SNI interconnection is a new 111 km, 230 kV transmission line connecting Sinincay and the substation at the Panantza San Carlos project site. The transmission line route follows an existing 138 kV transmission line route connecting Cuenca to Limón, and then continues south to the project site. Sinincay is directly connected to the Paute generating complex through Zhoray at 230 kV and is one of the strongest, most stable SNI interconnections in Ecuador.

1.11

Closure

Final reclamation measures would be carried out as soon as final surfaces are created. Post operational reclamation would return the disturbed areas to the pre-mine conditions and habitat. Certain mine features may be left in place as permanent control measures to prevent environmental pollution, for long-term community use, or as a post-mining enhancement, which include the administration buildings, water treatment structures and water diversion/hydropower facilities.

Major closure activities after the end of mine life would include removal of all facilities and infrastructure that is not planned to be left for other uses or is needed for closure maintenance. The crushers, concentrator, conveyors, pipelines, and support facilities would be dismantled. Inert materials such as steel, iron, concrete, plastic and wood would be disposed of, buried in on-site disposal areas, or sold to scrap dealers for recycling.

The two open pit mines would be allowed to fill with water when mining operations cease. The Panantza Pit would be utilized to store the waste rock from the San Carlos Pit. The final elevation of the waste rock within the Panantza Pit would remain below the spill elevation so that the flooded pit would permanently saturate the waste rock. The San Carlos Pit would begin to fill with water once mining operations cease. The Panantza Pit is expected to fill to spill elevation some years prior to the San Carlos Pit.

Both open pits are expected to have some portion of their pit walls permanently exposed above flood elevation. Should the materials in these exposed portions be acid generating, some form of water treatment may be required. Once geochemical characterization data has been collected and interpreted for the San Carlos and Panantza Projects, it may be found that one or both of the pits may not require active water treatment, which would decrease the estimated Post-Closure Costs significantly.

A permanent tailings dam spillway would be constructed at an elevation that is suitable for a wetland to remain on a portion of the tailings surface, as well as provide for long-term stability of the embankment. The elevation of the water would be set so that the CST and reactive waste rock would remain permanently saturated. Soil would be placed across the remaining beach so that it can be reclaimed as a wetland, while the embankment crest and downstream slopes would be reclaimed to match the natural surrounding hillside vegetation.

Roads would be left in place to support community, military, and public access. Roads allow greater access to areas previously inaccessible by vehicle. Corriente would cooperate with the relevant authorities following mine closure to develop management plans that would regulate activities that are generated as a result of the new roads to ensure that lands adjacent to the roads are utilized at an appropriate level according to an established plan.

The Preliminary closure costs have been broken down into two periods: Years 1 to 10, and Years 11 to 21. While the Panantza Pit would continue to operate past Year 10, this is approximately the time that mining would commence at the San Carlos Pit. Hence, in the event of pre-mature closure at Year 10, there would be no reclamation associated with the San Carlos Pit.

Direct, Indirect and Contingency Costs are estimated at $12.3 M. Post-Closure Costs, including environmental monitoring, maintenance and operations of water treatment plants for both pits (for a period of 30 years) is estimated at $64.5 M. The Total Closure Costs (Direct, Indirect, Contingency and Post-Closure) is estimated at $76.7 M.

1.12

Environmental and Permitting

Two major types of licensing vehicles exist for Ecuadorian mine projects (1) Permits/Licenses/Permissions (generally referred to as permits), and (2) Environmental Impact Assessments (EIAs). Both permits and EIAs are required for a typical open pit mine operation in order to move from exploration through operations and closure.

Both the exploration phase and the operations phase of the project require approved EIAs. Various permits may be required for exploration. Exploration operations that propose to use significant surface or ground water resources during drilling, divert water for use, build roads etc. would require permits to address activities.

Of the total 39 permits identified as being necessary to commence activities, four (4) are considered Priority Permits (Table 1-3). Priority Permits would likely be required of most major mine operations.

Table 1-3: List of Priority Permits Required for a Major Mine Project in Ecuador

No.	LICENSES, PERMISSIONS AND AUTHORIZATIONS	GRANTING INSTITUTION	ESTIMATED TIME FOR APPROVAL	REMARKS
1	Environmental License (EIA and risk analysis approved)	Ministry of Mines and Petroleum, if the Project is not in Protected Areas, National Parks, Forest Reserves, in this case is the Ministry of Environment.	Up to 60 days, can take almost a year.	The Environmental Licenses is submitted once the EIA is approved and the payments of license fees have been paid.
2	License of forest Wood use	Ministry of Agriculture (MAG). Ministry of Environment (ME)	Submitted the application, up to 30 days in MAG. Submitted the application, up to 45 days in ME	In the case of MAG, they need Environmental Plans approved.
3	Water concessions	Nacional Council for Hydrological Resources (Consejo Nacional de Recursos Hídricos)	Up to 180 days	
4	Concession of water benefic right	Nacional Council for Hydrological Resources (Consejo Nacional de Recursos Hídricos)	From 45 up to 90 days.	Granted permission, any amendment must have the prior authorization of the National Council for Hydrological Resources.

Under Ecuadorian Mining Law and Mining Environmental Regulations, the Ministry of Mines and Petroleum handles the environmental approval system for new mining projects.

1.13

Socio-economic

The principal needs of the population are employment and infrastructure development. The communities suffer from a constant migration of able workers to other more prosperous regions in the country as well as overseas in order to find employment. Low levels of education and poor health care services also impact the region.

In December of 2006, the project was suspended due to local social unrest. The company is endeavouring to resolve this issue with ongoing discussions with all levels of government and the local communities. ExplorCobres S.A. has installed a local information office in San Juan Bosco to inform the local communities about aspects of modern mining and its capacity in social and environmental responsibilities.

1.14

Capital Costs

The total Capital Cost Estimate to build a 90,000 tpd ore plant capacity for Panantza San Carlos Project is US $1,229,594,000 within -5% / +35% accuracy range. It is estimated about 4,500,000 man-hours of direct construction labour, including mine predevelopment. Based on this preliminary analysis, the overall execution period to mechanical completion would be 41 months, and from the construction start to mechanical completion would be 24 months.

1.15

Operating Costs

The average total processing operating cost is $2.76/t ore processed (see Table 1-4).

Table 1-4:Estimated Processing Operating Cost Summary

	Processing Schedule	Processing Cost	
Year	**000s t/y**	**$000s/yr**	**$/t**
2	32,800	92,220	2.81
3	32,800	90,654	2.76
4	32,800	90,643	2.76
5	32,800	90,785	2.76
6	32,800	90,522	2.76
7	32,800	90,464	2.75
8	32,800	90,645	2.76
9	32,800	90,760	2.76
10	32,800	90,706	2.76
11	32,800	90,495	2.75
12	32,800	90,751	2.76
13	32,800	91,087	2.77
14	32,800	90,666	2.76
15	32,800	90,535	2.76
16	32,800	90,474	2.75
17	32,800	90,487	2.75
18	32,800	90,524	2.76
19	32,800	90,531	2.76
20	32,800	90,008	2.74
21	32,800	89,778	2.73
22	21,132	57,412	2.72
Total	**678,133**	**1,870,147**	
Average			**2.76**

1.16

Copper Concentrate Marketing

Samples of Panantza and San Carlos concentrate were not available to be tested by smelters. Future test work would be necessary to generate a concentrate for evaluation by the smelters for Cu grade, moisture and impurities. The specifications of concentrate from the Mirador porphyry copper-gold deposit, which are expected to be similar to those of the Panantza San Carlos concentrate, are provided in Table 1-5. It is a very clean concentrate (free of deleterious elements) and has copper, sulphur, gold and silver contents that make it saleable to all smelters and desirable as a blending concentrate. Mirador concentrate has shown to be dewatered at a fine grind produced by the mill cleaning circuit and moisture content is not expected to be a problem.

Table 1-5: EcuaCorriente Copper Concentrate Quality - Mirador (Dry Basis)

Parameter	**Maximum**	**Minimum**	**Average**
Cu, %	30	25	29.5
Fe %	32	25	29
S, %	35	26	32
Au, g/t	1.3	0.5	0.8
Ag g/t	62	35	48

Molybdenum concentrate as a by-product is expected to be between 48 to 50% Mo with impurities of silicate, iron and copper. Test work is required to confirm the molybdenum concentrate impurities and their affect on the roasting penalties.

1.17

Economic Evaluation

The economic analyses are preliminary in nature and are based entirely on Inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the operating and financial projections in this preliminary assessment will be realized. It is expected that the findings of this report will change as more information becomes available.

The economic evaluation provided uses a long term average treatment cost of US$75/t of dry concentrate and a refining charge of US$0.075/lb of copper, with price participation of +/- 10% at a breakpoint of 120 cents, with a cap of plus US$0.06/lb of copper. Gold refining costs are based on a 90% payable factor and a gold refining cost of US$5.00/oz. Silver refining costs are based on a 90% payable factor and a silver refining cost of US$0.30/oz. Flat line prices of US$1.50/lb copper, US$10/lb molybdenum, US$550/oz gold, and US$7.50/oz silver were used for this Preliminary Assessment report.

Other assumptions include:

- three months of estimated operating costs for working capital approximating $50 million
- no Government royalties
- 1% NSR payable to BHP Billiton after payment of US$2 million
- no salvage value for equipment
- yearly, straight-line depreciation
- no refund or credit for IVA tax paid on capital items; IVA is considered to be part of the total cost
- no allowance for inflation

Table 1-6 summarizes the parameters and economic outcomes of the Panantza San Carlos copper projects.

Table 1-6: Panantza - San Carlos Copper Project Summary

Item	Units
Year -2 and -1	
Mine, Mill and Infrastructure Capital cost (including Working Capital of $50.3 million)	$ 1,279,911,000
Years 1 21	
Mining throughput (total)	1,411,547,000 t
Processing throughput DMT (total)	678,133,000 t
Processing throughput DMT (annual average)	32,292,000 t
Concentrate production DMT	13,053,000 t
Concentrate production DMT (annual average)	621,600 t
Concentrate production DMT (Year 1-3 avg.)	661,535 t
Concentrate grade	29.5 %
Sustaining Capital and Closure Costs, net of recovery of Working Capital	$463,851,000
Life of Mine	21 years
Life-of-Mine total capital	$ 1,743,762,000
Copper production (total payable)	3,850,662 t
Gold production (total gold payable)	251,000 oz
Silver production (total silver payable)	20,189,000 oz
Molybdenum production (total payable)	52,162,000 lb
Net Smelter Return (total)	$ 10,402,817,000
Average Net Smelter Return ($/t Cu payable)	$ 2,707/t ($1.23/lb)
Average Copper cash cost (net of co-credits and inclusive of NSR royalties and asset-based taxes)	$0.43/lb
IRR (after tax)	15.1 %
NPV @ 8%(after tax)	$ 675,901,000

The effects of changes to commodity prices (copper and molybdenum), capital cost, operating cost, and copper recovered (via grade sensitivity) were examined in a sensitivity analysis (Figure 1-1 and 1-2). This analysis indicated a greater sensitivity of the project to the copper price and copper recovery. The project is much less sensitive to capital and operating cost fluctuations.

Figure 1-1: NPV Sensitivity

Figure 1-2: IRR Sensitivity

1.18

Conclusions and Recommendations

This Preliminary Assessment provides a summary of all work conducted at Panantza and San Carlos since the inception of the projects and presents a mine plan and financial model for a joint Panantza San Carlos mining operation.

The current Inferred resources at Panantza, at a 0.4% copper cutoff, are 463MT at 0.66% Cu, of only hypogene mineralization. Recent drilling has shown that significant mineralization is still open to the south, west, and north sides, as well as at depth.

The updated San Carlos Inferred resource estimate at the same copper cutoff is 600MT at 0.59% Cu, of only hypogene mineralization.

The Inferred resource estimates for Panantza and San Carlos were used to construct preliminary open pit shells and a unified preliminary mine schedule for the two deposits. A preliminary assessment of the economic potential of the project was then completed. The project has a net present value of $676M with an internal rate of return of 15.1%, based on US$1.50/lb copper, US$10/lb molybdenum, US$550/oz gold, and US$7.50/oz silver prices. A total of 668MT of ore would be mined over a 21 year mine life. The total capital costs are estimated at US$ 1229 million.

Based on the positive economic analysis, the authors recommend the following items to forward the project to a feasibility level. The total cost would be about $12 M, which would go mostly into diamond drilling to upgrade and increase the current resource estimates:

1.

Complete sufficient drilling at each project to further delimit and determine their depth extents, and also convert most of the resource to Indicated category. The above mentioned drilling would cost approximately $8M.

2.

Collect geotechnical data concurrent with the drilling mentioned above, with the aim of advancing the geotechnical character of the rock mass and how it would affect both pit design and environmental factors.

3.

Collect geotechnical data at the WMF site at the level required for feasibility level design.

4.

Collect detailed hydrogeological and hydrologic data in conjunction with the geotechnical drilling within the pit areas, as well is the WMF.

5.

Collect bulk samples for studying the acid rock drainage (ARD) issues associated with the future pit and waste dumps.

6.

Continue the metallurgical testing of core samples for conventional flotation, hardness, and for hydrometallurgical treatment of concentrates.

7.

Model molybdenum (Mo) distribution and include Mo in the next block model estimation.

8.

Conduct a more detailed seismicity study for future design work to confirm the seismic design parameters.

9.

Commence social and environmental baseline studies, and permitting, for development of Panantza and San Carlos.

10.

Commence negotiations with the Ecuador government regarding hydroelectric power and project taxation.

A Pre-Feasibility or Feasibility Study can be initiated once the above recommendations are complete, contingent on there not being any fatal flaws discovered.

2.0

INTRODUCTION AND PROJECT SCOPE

2.1

Scope of Study

This Preliminary Assessment study considers the economics of mining the Panantza and San Carlos deposits as a single large copper development opportunity with aggregate Inferred resources of 1.06 billion tonnes at a grade of 0.62% copper. This would potentially be mined at 90,000 tonnes per day, giving a mine life of 21 years. The study outlines the project s economic potential for investors, as well as provides a starting point for future engineering and development work proposed there.

The Panantza and San Carlos porphyry copper deposits are located some 40 kilometres north of Corriente s Mirador copper-gold deposit, in the province of Morona-Santiago, in southeast Ecuador. This study is compliant with international social and environmental standards and identifies options that would optimize the stakeholder returns and provide social and economic benefits to the communities in the region. The projects are held by two of Corriente s subsidiaries in Ecuador, EcuaCorriente S.A. and ExplorCobres S.A.

Corriente recently updated the estimate of the Inferred resources at the Panantza porphyry copper deposit following a third drill programme, relogging of core, and significant additional surface mapping. Corriente engaged Mine Development Associates (MDA) in the second quarter of 2007 to estimate a current mineral resource for the Panantza deposit based on this recent work, as well as re-estimate the resources at San Carlos using the same data set as previous estimates, but utilizing some new geology models to construct a new block model. MDA s contribution entailed constructing a block model and estimating grades and tonnes in compliance with the CIM 2005 Mineral Resource and Mineral Reserve definitions. Steven Ristorcelli, P.Geo, Principal Geologist for MDA, assisted in the preparation of these resource estimates. The block modeling and resource estimates were prepared by Steven Ristorcelli and Aaron Hanson based on data provided by Corriente. The NI 43-101 report for Panantza was issued in June 2007 (Drobe, 2007).

The present Preliminary Assessment uses the updated Panantza resource estimate from Drobe (2007) and an updated resource estimate for San Carlos, which is based on historical exploration work by Billiton Ecuador B.V. (Billiton) in 1997-1998 (Kirk, 1999), and uses the new MDA block model as presented for the first time in this report. Resources for both deposits are reported in a different manner to that from a previous Preliminary Assessment NI 43-101 Technical Report titled Corriente Copper Belt Project Southeast Ecuador - Order-of-Magnitude Study (Preliminary Assessment) , dated June 22, 2001 by David Makepeace, P.Eng, of Geospectrum Engineering (Makepeace, 2001). The historical exploration work on San Carlos by Billiton was reviewed, verified, and edited where necessary for consistency.

The geology and mineral resource sections of this Preliminary Assessment were prepared by John Drobe, P.Geo, Chief Geologist, Corriente Resources Inc. John Drobe visited the project in December 2002, June 2003, and January, June, July-August, and November 2006. The mine scheduling was by Robert Fong of Moose Mountain Technical Services (MMTS), the tailings management and closure sections were by Jeremy Haile of Knight Piésold Consulting (KP), the milling and process and economic evaluation sections were by John Hoffert of Hoffert Processing Solutions, inc. (Hoffert), and the infrastructure and capital cost were by Joseph Rokosh of Merit Consultants International Inc. (Merit). KP, Hoffert and Merit visited the area in the vicinity of the project.

2.2

Terms of Reference

Neither MDA, KP, Merit, Hoffert, nor MMTS are associated nor affiliated with Corriente Resources Inc., nor its subsidiaries EcuaCorriente S.A. (EcuaCorriente) and ExplorCobres S.A. (ExplorCobres , formerly named Minera Curigem S.A.), nor any related companies. Any fees paid to these entities for the work done and reported on in this Technical Report are not dependent in whole or in part on any prior or future engagement or understanding resulting from the conclusions of this report. The fees are in accordance with industry standards for work of this nature.

The sections of this report that discuss other aspects of the project rely on information set out in the following reports:

Hawthorne, Gary, 2003: Status Report On Mineral Processing Characteristics Of Corriente Copper Belt Ecuador, Prepared for Corriente Resources, July 22, 2003.

Trejo, R., 2006: Letter Regarding the Status of Title to the Mining Concessions in Ecuador for ExplorCobres S.A. and EcuaCorriente S.A., Trejo, Rodriguez y Asociados, Abogados Cia. Ltda., Prepared for Corriente Resources Inc, November 27 2006.

The report is also based in part on personal communications with Mr. Ken Shannon, P. Geo., C.E.O. of Corriente Resources Inc, and Dr. Darryl Lindsay, P.Geo, geologist and General Manager of ExplorCobres S.A.

In September 2006, Steve Ristorcelli of MDA visited the Panantza project for two days (Ristorcelli, 2006). His time was spent reviewing core, taking duplicate check core samples and walking over the deposit checking drill-hole locations with a GPS. Two surface samples and 20 core splits (1/4 core) were taken and delivered to Acme Analytical Laboratories (Acme) preparation lab. Mr. Ristorcelli also inspected the overall QA/QC of the core logging and sampling procedures at camp.

All currency is expressed in US dollars unless stated otherwise. The coordinate system in use on the property and in all maps and references in this report is UTM zone 17S, Provisional South American Datum (PSAD) 1956. The estimated costs in the Recommendations section include Ecuadorian taxes where applicable.

3.0

RELIANCE ON OTHER EXPERTS

This preliminary assessment has been assembled by a group of consultants on behalf of Corriente with assistance and information from:

- Officers, contractors and employees of Corriente,
- Reports and memoranda prepared for Corriente on operating costs, metallurgical information (Carretero, 1999) and offsite infrastructure, and environmental and socioeconomic subjects

The independent Ecuadorian law firm of Trejo, Rodríguez y Asociados, Abogados Cia. Ltda. provided legal opinions on land tenure, environmental liabilities, and the status of permits.

This report contains the expressions of the professional opinions of the contributors to this Report and other consultants, based upon information available at the time of preparation. The quality of the information, conclusions and estimates contained herein is consistent with the intended level of accuracy as set out in this report, as well as the circumstances and constraints under which the report was prepared which are also set out herein.

This report is intended to be read as a whole, and sections should not be read or relied upon out of context.

4.0

PROPERTY DESCRIPTION AND LOCATION

4.1

Location

The Panantza and San Carlo projects lie near the north end of the Corriente Copper Belt, which runs north along the valley of the Rio Zamora in the Morona Santiago and Zamora Chinchipe provinces of southeast Ecuador, near the border with Peru (**Figure 4-1**). The area is centered about 340 kilometres south of Quito and 70 kilometres east-south-east of the city of Cuenca. The Copper Belt has dimensions of about 80 kilometres (north-south) x 40 kilometres (east-west) and comprises several advanced and exploration stage porphyry copper prospects, as well as a couple of sediment-hosted copper targets.

4.2

Mineral and Land Tenure

Billiton began exploration in south-eastern Ecuador in 1994 and identified a number of possible porphyry copper targets in the region (Billiton, 1999a). Since April 2000, under various agreements signed and completed with certain Ecuadorian subsidiaries of Billiton, Corriente earned a 100% interest in Billiton s mineral properties located in the Rio Zamora copper porphyry district in Ecuador (Billiton, 1999b). This required issuing shares to Billiton and expending exploration funds under the terms of these agreements. Additionally, these mineral properties are subject to a 2% Net Smelter Royalty (NSR) payable to BHP Billiton, though the company has options to reduce the NSR to 1% for the Mirador/Mirador Norte, Panantza and San Carlos mineral properties upon the payment of US$2 million to BHP Billiton for each such option exercised.

Corriente also entered into an exploration management arrangement where Lowell Mineral Exploration (Lowell) could earn up to 10% of Corriente s interest in certain properties in exchange for managing the exploration of the properties. In December 2003, Corriente granted Lowell the option to exchange its 10% interest in the Corriente mineral concessions, including San Carlos, for a 100% interest in the Warintza property. In June 2004, Lowell exercised that option, and Corriente now holds a 100% interest in the Panantza and San Carlos properties through its wholly-owned subsidiary companies in Ecuador: EcuaCorriente S.A. and ExplorCobres S.A.

According to Ecuadorian Mining Law, registered concessions have a term of 30 years, which can be automatically renewed for successive 30-year periods, provided that a written notice of renewal is filed by the registered concession holder before the expiry date (Trejo 2006). The state code numbers, area in hectares, property registration dates and ownership of the concessions are as indicated in Table 4-1 (Trejo 2006). The company listed in Table 4-1, ExplorCobres S.A., is fully owned by Corriente (Trejo 2006; Appendix A). The San Carlos deposit, as currently defined by drilling, is located wholly within the San Carlos concession. The Panantza deposit, as currently defined by drilling, is located wholly within the Panantza concession.

Table 4-1: San Carlos Area Concession Data

Concession	Code Number	Hectares	Owner	Registration Date
San Carlos	102211	2,000	ExplorCobres S.A.	March 26 2003
Panantza	102212	1,200	EcuaCorriente S.A.	March 26 2003
Panantza 2	102278	900	ExplorCobres S.A.	December 3 2003
Curigem 2	100074	4,500	ExplorCobres S.A.	May 8 1996
Curigem 3	100075	3,300	ExplorCobres S.A.	March 8 1996
Curigem 7	100079	5,000	ExplorCobres S.A.	May 9 1996
Curigem 8	100080	3,000	ExplorCobres S.A.	March 8 1996

Figure 4-1: Location Map

Figure 4-2: Concession Map

In 2006, Corriente hired Segundo Toledo of Topcon Survey S.A. to survey in the land parcels around Panantza. A surveyor was brought in because previous land title maps acquired from the municipality were found to have poor correlation with geographic features that bound the land parcels. The current surface rights holdings in the Panantza area are shown in Figure 4-3. These parcels cost from $200 to $400 per hectare which is generally equal to or higher than current prices for farm land in this area. With these purchases Corriente has secured surface rights over the Panantza deposit and established a framework for continued land acquisition in the area. Additional surface rights would have to be purchased for construction sites, dumps and mill sites.

At the time of writing, Corriente holds no land title in the San Carlos concession. The land over the mineralization and where the camp located is rented from a local land owner. Purchasing of titles is expected to commence with the next drill programme.

Although Corriente acquires the rights to some or all of the minerals in the ground subject to the tenures that it acquires, or has a right to acquire, in most cases it does not thereby acquire any rights to, or ownership of, the surface to the areas covered by its mineral tenures. In such cases, applicable mining laws usually provide for rights of access to the surface for the purpose of carrying on mining activities, however, the enforcement of such rights can be costly and time consuming. In areas where there are no existing surface rights holders, this does not usually cause a problem, as there are no impediments to surface access. However, in areas where there are local populations or land owners, it is necessary, as a practical matter, to negotiate surface access.

There can be no guarantee that, despite having the legal right to access the surface and carry on mining activities, the company would be able to negotiate a satisfactory agreement with any such existing landowners/occupiers for such access, and therefore it may be unable to carry out mining activities. In addition, in circumstances where such access is denied, or no agreement can be reached, the company may need to rely on the assistance of local officials or the courts in such jurisdiction.

Figure 4-3: Panantza Land Title Map

4.3 Permits and Agreements

For the exploration phase of the projects, all the required permits for exploration are included on file with the Ecuadorian Government. For any mine development, an amended Environmental Impact Assessment (EIA) report must be filed and approved by Government authorities. EIA amendment for advanced exploration in project Panantza San Carlos has been approved (official letter No. 058 SPA-DINAMI-UAM 0700127, dated July 26, 2007).

The following discussion of the Ecuadorian environmental permitting and approval process, including Table 4-2, is paraphrased from the report titled Feasibility Study Report, Mirador Project, Ecuador , by AMEC Americas Limited (AMEC 2005), to include recent modifications to the permitting processes.

Ecuador s environmental legislation is extensive and their requirements for operations, including initial and advanced stages of exploration, are well defined. Ecuador is one of the few Latin American countries that have adopted an EIA process for exploration activities. Argentina, Chile, and Peru have adopted a similar process to conduct environmental assessments for earliest stages of exploration.

Under Ecuadorian Mining Law, the Ministry of Mines and Petroleum handles the environmental approval system for new mining projects. Mineral concession holders are required to complete environmental impact studies and environmental management plans to prevent, mitigate, rehabilitate, and compensate for environmental and social impacts as a result of their activities. Annual audits of compliance with regard to the environmental management plans are required as a formal monitoring mechanism by the State. These studies are approved by the Sub secretary of the Environment within the Ministry of Mines and Petroleum.

The environmental approval process is summarized as follows:

- *Proponent publishes in local media details of the mineral concessions comprising the project.*
- *Proponent holds a minimum of 2 public information sessions, within the communities in/or adjacent to the project area, where the Project Description and Terms of Reference (ToRs) regarding how the EIA will be developed are open to community comment. A community committee is formed to observe the process and progress of the EIA.*

- *Proponent files the Project Description and Terms of Reference, which now includes the received public comments and observations, with the Ministry of Mines and Petroleum (MMP) and Ministry of the Environment (MoE).*
- *These ToRs need to be approved by MMP and published.*
- *Environmental baseline studies, environmental impact assessment and environmental management plan are completed by independent consultants registered with the Environmental authorities and contracted by the proponent in accordance with the ToRs.*
- *The draft version of the EIA is presented to the local communities in the area of direct influence and input to the EIA is requested. ExplorCobres will have community meetings in Santiago de Pananza, San Carlos, San Juan Bosco, San Miguel de Conchay, and at the Ministries of Mines and of the Environment. The EIA is updated to acknowledge community input.*
- *The EIA is submitted to MMP who reviews within a 45-day period after which the ministry will request ExplorCobres to respond to any comments and questions regarding the EIA.*
- *ExplorCobres will have a 30-day period to submit responses to all comments and questions.*
- *The MMP will then take another 30-day period to revise the documentation and make a pronouncement on the EIA. An approval for the EIA will be obtained on meeting the MMP s satisfaction with the all the information provided for the EIA and the associated Environmental Management Plan.*
- *Once the EIA is approved, and a financial guarantee, or insurance policy, in an amount determined by the Ministry and based on the Environmental Management Plan is registered, proceedings towards granting of the Environmental License starts. It is estimated that another 30-day period is needed to prepare and grant the Environmental License.*
- *Submission of EIA to the Ministry of the Environment will take place at the same time as with the Ministry of Mines and Petroleum. Approval times are expected to be less than MMP.*

Table 4-2: List of Major Permits required for the Project at the Mining Stage (based on AMEC, 2005; Mirador Project)

No.	LICENSES, PERMISSIONS AND AUTHORIZATIONS	GRANTING INSTITUTION	ESTIMATED TIME FOR APPROVAL	REMARKS
1	Environmental License (EIA and risk analysis approved)	Ministry of Mines and Petroleum, if the Project is not in Protected Areas, National Parks, Forest Reserves, in this case is the Ministry of Environment.	Up to 60 days, can take almost a year.	The Environmental Licenses is submitted once the EIA is approved and the payments of license fees have been paid.
2	License of forest Wood use	Ministry of Agriculture (MAG). Ministry of Environment (ME)	Submitted the application, up to 30 days in MAG. Submitted the application, up to 45 days in ME	In the case of MAG, they need Environmental Plans approved.
3	Water concessions	Nacional Council for Hydrological Resources (Consejo Nacional de Recursos Hídricos)	Up to 180 days	
4	Concession of water benefic right	Nacional Council for Hydrological Resources (Consejo Nacional de Recursos Hídricos)	From 45 up to 90 days.	Granted permission, any amendment must have the prior authorization of the National Council for Hydrological Resources.

5.0

ACCESSIBILITY, CLIMATE, INFRASTRUCTURE, AND PHYSIOGRPAHY

5.1

Access

Access to the area is by scheduled air services of less than one hour from Quito to Cuenca. Road access from Cuenca to the village of Santiago de Pananza is via the towns of Gualaceo, Indanza and San Juan Bosco, mostly by reasonable-quality gravel roads over a distance of about 150 kilometres, or about four hours travel (Figure 4-1 and Figure 5-1). From Santiago de Panantza, access is via a newly established gravel road that continues past the Panantza project camp to the village of 27 de Noviembre, about six kilometres farther south. A mule trail leads east across a footbridge over the Rio Zamora canyon and then 0.5 kilometres north and above the canyon through the village of San Carlos de Limon, and a further three kilometres to the San Carlos field camp.

The coordinates of the Panantza and San Carlos Project and adjacent copper prospects are given in Table 5-1 below:

Table 5-1: Property Locations

Prospect	Latitude	Longitude	UTM Northing	UTM Easting	Elevation ASL
San Carlos	03º 11´19´´S	78º 25´ 11´´W	9 647 200 N	786 800 E	1000
Panantza	03º 09´ 15´´S	78º 26´ 58´´W	9 651 000 N	783 500 E	1000
Panantza Este	03º 09´ 48´´S	78º 26´ 09´´W	9 650 000 N	785 000 E	1050
Trinidad	03º 08´ 10´´S	78º 26´ 48´´W	9 653 000 N	783 800 E	1300
San Miguel	03° 06´ 33´´S	78° 26´ 32´´W	9 655 974 N	784 313 E	1400
La Florida	03° 06´ 06´´S	78° 26´ 39´´W	9 656 816 N	784 249 E	1200

A new, shorter trail and new footbridge are planned to link the San Carlos camp with the new 27 de Noviembre road directly west of camp. This would cut several kilometres off the current access.

5.2 Climate

The area has a wet equatorial climate with relatively small monthly variations in temperature and precipitation throughout the year. The mean annual rainfall is estimated to be approximately 2,500 mm but with individual events of over 60 mm in 24 hours. Due to variations in local topography there is a wide range in rainfall levels and the area could be characterized as having numerous microclimates. Mean annual evaporation is estimated to be approximately 1,200 mm.

Fieldwork is possible year round. The optimum period for collecting satellite imagery, airborne surveys or running helicopter supported drilling programmes is from November to January because of the drier weather conditions at this time.

5.3 Physiography

Elevations at the project in the immediate vicinity of the mineralization range from 800 to 1500 metres above sea level (ASL) (see Figure 5-1). The Panantza deposit is crossed by the Rio Panantza, which flows east into the Rio Zamora, entering the gorge at an elevation of about 700 metres ASL.

The San Carlos deposit is bisected by the Quebrada Gorra, which flows west into the Rio Zamora, entering the gorge just northwest of the deposit. The Rio Akerones cuts the northeast corner of the deposit. Both drainages expose the porphyry mineralization.

The Cordillera Oriental on the west and the Cordillera de Condor on the east rise to maximum elevations of 4200 and 1800 metres ASL, respectively. The area is covered by disturbed primary tropical forest and minor rangeland for subsistence-level cattle ranching and agriculture.

Figure 5-1: Access and Physiography Map

5.4

Infrastructure

The closest city is Cuenca with a population of approximately 420,000. There are a number of small towns and communities in the area of the project such as Indanza, San Juan Bosco, Santiago de Pananza, San Carlos de Limon, San Miguel de Conchay, and 27 de Noviembre. Figure 5-1 shows the infrastructure within the immediate area of the Panantza deposit.

The larger regional centre of Gualaquiza, 40 kilometres to the south, has a population of approximately 15,000 and includes banks, hotels and basic infrastructure. A paved highway now links Gualaquiza with towns to the south, including Pangui, Yanzatza, Zamora and onward to Loja.

There is currently a sub transmission 69kV power line between Cuenca and Limon, some 20 km north of the project; with a planned 138kV transmission line between Cuenca and Gualaquiza. The Panantza camp, five kilometres to the northwest, is now joined by a high tension line from the town of Santiago de Pananza to a 25kV transformer in the camp. The town of San Carlos is connected by a high tension line that runs from the town of 27 de Noviembre. The camp at San Carlos is not yet connected to this line. A diesel generator flown in with helicopter provided power at camp for the exploration in 1997-1998; this has since been moved to the Mirador camp.

There is no established land-based communication system at the site. Communication is currently by high-frequency (VHF) and FM two-way radios.

The closest existing airstrip is just southeast of the town of Gualaquiza, off the paved highway. It has an asphalt runway approximately 2100 metres (6900 ft) long. If warranted, it could be extended by about 300 metres for use by aircraft the size of a Hercules L100.

6.0 HISTORY

6.1 Exploration History

Billiton discovered a number of porphyry copper deposit clusters in the Pangui region of south eastern Ecuador during a five-year grassroots exploration programme in the mid 1990 s (Billiton, 1999a). A brief history of Billiton s involvement in the Panantza and San Carlos Project follows:

1993-1994: decision to commence gold exploration in Ecuador, establishment of the Quito exploration office and application for concessions in the Pangui area, commencement of regional exploration and application for the concessions containing San Carlos.

1995: definition of six porphyry copper targets in the Pangui area from regional geochemistry and geological mapping.

1996: identification of the pan concentrate and large Cu-Mo soil geochemical anomaly at San Carlos, leading to the recognition of San Carlos as a large porphyry copper system.

1997: identification of alteration and porphyry mineralization in the area from Panantza to the San Miguel porphyry prospects, completion of five diamond drill holes at the San Carlos prospect with the intersection of significant copper mineralization.

1998: completion of initial IP survey at Panantza and San Miguel, and 11 diamond drill holes intersecting significant mineralization at Panantza, drilling of 4 diamond drill holes intersecting low to moderate grade mineralization at San Miguel, followed by drilling 21 more diamond drill holes at San Carlos.

1999: completion of a helicopter magnetic and electromagnetic survey over the Pangui project area, and completion of an induced polarisation survey at San Luis and IP sounding at Panantza and San Carlos.

In 1999, Billiton announced a restructuring of its new business initiatives to maximise its investment returns in new ventures and projects. Consequently, a joint venture opportunity became available over a major part of the Pangui porphyry copper province. Billiton found a suitable joint venture participant in Vancouver based Corriente Resources Inc., and agreements covering the north and south tenures were announced on October 18, 1999 and April 7, 2000 respectively. These agreements were structured to expedite the continuing exploration and development of what is now called the Corriente Copper Belt of which the Panantza and San Carlos porphyries were the most advanced deposits.

Corriente Resources began a 17-hole drill programme at Panantza in October, 2000, directed by David Lowell and under the joint venture agreement with Billiton. Core drilling totalled 5262.08 metres and was completed with a man-portable Hydracore drill rig, transported via a series of hand-excavated trails and platforms. In addition to much lower drill-associated costs, this system allowed more flexibility in the sequencing and spacing of drill holes than the helicopter supported method used by Billiton. The drill spacing was about 100 metres and concentrated on the north side of the Rio Panantza, which bisects the deposit. The drill trail cuts also provided much needed geological exposure, as natural outcrops are limited to the few creeks which cross the prospect. All drill core was stored at camp, together with the core from the Billiton programme. Limited surface mapping was also completed.

The topography and all collars were surveyed using differential GPS equipment, and a contour map with four-metre contours was produced over the area of known mineralization. The road from the nearby village of Santiago de Panantza was extended into the camp.

Four holes (PE01 to 04, total 647m) drilled in November 2000 tested the adjacent Panantza Este soil anomaly, located one kilometre to the east of Panantza; the holes returned low-grade copper results, which did not warrant an immediate follow-up programme.

An internal report for EcuaCorriente S.A. was written at the end of the year 2000 drilling, (Vaca and León, 2001). A polygonal resource estimate was included therein but never reported publicly. This resource estimate was not done in compliance with NI 43-101 and CIM 2000, nor was it ever intended or reported to be.

The ridge immediately northeast of Panantza received another nine holes (PE05 to 14, total 1207m) in October-November 2004. This ridge is included within the western limit of the Panantza Este Mo-Zn soil anomaly, which appeared to be a faulted (sinistrally) extension of the Panantza soil anomaly. The drilling was to test whether mineralization extended northeast of Panantza and connected with the main Panantza East anomaly across a fault. The results were not encouraging and exploration switched to the San Miguel prospect to the north.

For San Carlos, the only other exploration activities in the area since 1999 were reviews of the drill core and limited remapping of the trail system and creek outcrops.

7.0

GEOLOGICAL SETTING

7.1

Regional Geology

The porphyry copper deposits of the Corriente Copper Belt are associated with porphyritic intrusive phases of the Late Jurassic calcalkaline batholiths of the Cordillera del Condor and other sub-Andean regions of Ecuador. The Zamora Batholith, a granitic intrusion which hosts all the known porphyry deposits, is part of the Abitigua Subdivision.

Radiometric dating by Billiton suggests that the porphyry mineralization is associated with the younger Upper Jurassic porphyry intrusive phases of the Zamora granite, with ages of 152 to 157 million years (Ma), with radiometric ages suggesting the intrusion of the actual batholith took place as early as 190 Ma (Gendall et. al., 2000; Coder, 2001).

The intrusions are emplaced within a package of marine sedimentary and volcanic rocks of the mid-late Jurassic Misahualli Formation, and possibly also older rocks of the Triassic Piuntza Formation. These units are exposed mostly along the east side of the batholith, but a small panel occurs southwest of Panantza. The western contact is covered unconformably by Cretaceous arenaceous sandstone of the Hollin Formation, which is conformably overlain by more calcareous shales, limestone, and sandstone of the Napo Group (Figure 7-1).

Tertiary dioritic to rhyolitic dikes, sills, and plugs intrude the overlying sedimentary rocks and Zamora granite along the western edge of the batholith. It is generally observed that later, post-mineral dikes at the deposits trend northeast, while the earlier dikes trend northwest.

A regionally important fault in the area strikes northeast along the base of the main Cordillera Occidental, juxtaposing the Cretaceous units against older rocks to the west. The Cretaceous units are intensely folded and sheared along the fault.

Figure 7-1: Regional Geology

7.2 Local Geology Panantza

The mineralization is wholly contained within the Zamora batholith and related porphyritic intrusions (Figure 7-1). The granite consists mainly of fine-grained aplite and coarse graphic-textured leucogranite, characterized by absent to sparse mafic content. Medium-grained, equigranular granite and quartz monzonite with 20-30% biotite and hornblende occurs at the limits of mineralization and is more typical of the Zamora batholith.

Hornblende-orthoclase porphyry intrudes the granitic rocks in the form of dikes and tabular plugs. There appear to be two generations of dikes: one slightly predating mineralization, and the other late in the mineralization sequence. The former is typically more seriate in texture, forms larger dikes, and has less quartz eyes than the latter. To date they have been distinguished more on how well mineralized they are, rather than lithologic differences. They may form a continuous series of intrusions that co-evolved with the mineralizing fluids and were emplaced over the entire mineralizing event. Alternatively, they represent a single intrusive event, and differences in mineralization are related to how well-fractured and thus open to fluids the units were, relative to the host granite. More drilling and trenching is required to clarify the sequence of intrusion and mineralization.

Hydrothermal breccia occurs adjacent to the one of the late-mineral porphyry dikes on the southwest edge of the deposit. Fragments include unmineralized porphyry and mineralized granite. Copper grades are overall lower in this unit.

The youngest units are Tertiary in age and intrude the Cretaceous Hollin sandstone. They consist of a single northeast-striking, northwest-dipping rhyolite dike in the southeast corner of the deposit, and several narrow (1-2m) diabase dikes, all of which parallel the rhyolite dike and some cutting it.

Alluvial deposits cover the valley of the Rio Panantza, and slide-related colluvium forms a fan under the current camp (south of PA014 to the river).

Potassic alteration predominates in the granite and leucogranite host rocks and the mineralized porphyries. The late-mineral dikes have moderate chlorite-epidote alteration. Argillic alteration extends down from the supergene zone and overprints the potassic alteration along structures. Pervasive quartz-sericite-pyrite alteration zone is marginal to the potassic alteration, extending far to the east into the Panantza Este prospect, and for at least one kilometre west, where it is well exposed in the new road cuts on either side of the bridge over the Rio Panantza. Quartz-sericite alteration is also confined to structural zones within the potassic zone.

7.3 Local Geology San Carlos

As at Panantza, the mineralization at San Carlos is within the Zamora batholith and related porphyritic intrusions (Figure 7-2). The granite consists mainly of medium-grained, equigranular granite and quartz monzonite with 20-30% biotite and hornblende. Aplite and leucogranite are minor, slightly younger intrusive phases.

Billiton (Kirk, 1999) identified three mineralized porphyries, which were differentiated mostly on their state of mineralization and alteration, rather than rock type. The same designations were used at Panantza and Mirador. The porphyries were divided into 1) early mineral monzodiorite porphyry (Corriente s unit Jefp), 2) intramineral granodiorite porphyry, and 3) late mineral granodiorite porphyry (Corrientes unit Jhbp). These porphyries show a progressive decrease in hypogene copper grades, from up to 1% Cu to less than 0.2% Cu, and a progressive decrease in the intensity of hypogene alteration in successive intrusions.

The early mineral porphyry (Jefp) is observed only in the extreme southern part of the system, in drill holes SC1 and SC2 (Kirk, 1999). Billiton also noted a broad though minor occurrence of monzodiorite porphyry dykes of similar composition to the early mineral porphyry within the mineralized envelope. This differs from the other porphyry deposits in the belt, which have significant quantities of early porphyry coincident with the main hypogene mineralization. In the geology map of Kirk (1999), this unit appears to be a strike extension of the central late-mineral dike; the contact is not defined and it is more likely the same unit as the late-mineral dike, albeit more mineralized.

The most volumetrically significant of the porphyritic dikes is the central, late-mineral dike. It bisects the higher-grade hypogene mineralization and is only weakly mineralized in the hypogene zone, though with significant exotic copper oxides at shallow depths, within the lateritic profile (or leached zone, as used in this report). Corriente now interprets this central dike as early porphyry, unit Jefp, for reasons given below.

Partial re-logging of the lithologies at San Carlos, and intensive re-logging and logging of Panantza core, suggests that the porphyritic dikes form a continuum that can not be unequivocally mapped/logged and divided into units. All are essentially hornblende-feldspar porphyries with minor quartz phenocrysts. The less intense mineralized (and altered) dikes tend to be more quartz phyric.

At San Carlos, as at the other porphyry deposits in the copper belt, the porphyritic dikes and stocks have been distinguished more on how well mineralized they are, rather than on lithologic differences. As was proposed by Kirk (1999), they may form a continuous series of intrusions that co-evolved with the mineralizing fluids and were emplaced over the entire mineralizing event. However, there is evidence suggesting they represent a single intrusive event, and differences in mineralization are related to how well-fractured and thus open to fluids the units were, relative to the host granite. The evidence is how grades change across the dike contacts: typically it is not sharp, and Zamora granite adjacent to or within the lower-grade late dikes is often also lower grade. The central dike was probably less fractured than the Zamora granite it intrudes, and therefore was less receptive to mineralizing fluids. More drilling and trenching is required to clarify the sequence of intrusion and mineralization.

Clearly post-mineral, weakly porphyritic microdiorite is a volumetrically minor dike phase. These dikes are unaltered and unmineralized. The same dikes are also a common but minor unit at Panantza, and probably related to large Tertiary diorite intrusions farther west.

Potassic alteration, in the form of abundant secondary biotite replacing primary mafic minerals, predominates in the granite and leucogranite host rocks and the mineralized porphyries. The retrograde phyllic and intermediate argillic alteration assemblages overprint the mineral porphyries but the post mineral diorite porphyries are unaffected. The late-mineral dikes have moderate chlorite-epidote alteration. Argillic alteration extends down from the supergene zone and overprints the potassic alteration along structures. In its simplest form, the interpreted alteration sequence from oldest to youngest is:

1)

potassic (biotite)

2)

chlorite

3)

potassic (pale pink K feldspar)

4)

chlorite + epidote + orange-red K feldspar

5)

intermediate argillic (illite + carbonate + chlorite ± smectite ± hematite)

6)

phyllic (quartz + sericite + pyrite)

7)

smectite + carbonate (associated with faulting)

Figure 7-2: San Carlos Project Geology

8.0 DEPOSIT TYPES

The host rock, alteration, and mineralization of the Panantza and San Carlos deposits are typical of calc-alkaline porphyry copper systems. Copper deposits of a similar style are widespread in the Cordilleras of North and South America. The lateritic weathering profile, and resultant mineral zonation of leached, supergene, and hypogene, is also typical of porphyries exposed in a tropical climate.

9.0

MINERALIZATION

9.1

Panantza

The mineralization at Panantza is mostly typical porphyry hypogene with disseminated chalcopyrite; molybdenite occurs mostly as selvages within quartz veins. Higher grades of hypogene copper averaging about 0.8% are restricted to zones of more concentrated and veinlet-controlled chalcopyrite-pyrite ± magnetite. Mineralization has an approximate dimension of 900 metres by 600 metres and remains open at depth. The primary sulphides in the potassic alteration zone are chalcopyrite, molybdenite and pyrite. Anhydrite and gypsum are present locally. An intense, texture-destroying quartz stockwork runs through the centre of the deposit, from southeast to northwest.

Supergene (also called enriched) mineralization consists of both oxide and sulphide enrichment blankets, best developed just north of the river in an area roughly 600 metres long by 200 metres wide. Oxide copper mineralization is preserved in the leached, saprolite zone over the chalcocite mineralization and consists of mainly disseminated and fracture-controlled malachite and chrysocolla. Minor minerals are cuprite, pitch limonite and neotocite. The copper oxide is underlain by thin horizons of chalcocite coating chalcopyrite and pyrite in strongly argillic-altered host rock.

Mineralization drops relatively sharply (within about 50-100m) across a northwest-striking lineament on the east side of the deposit, and more gradually on the south, west, and north sides. Drill holes PA005 and PA006 intersected considerable low-grade, hypogene copper mineralization (about 0.4% Cu average) extending at least 400 metres northwest from the main mineralization modelled in this report. Adjacent drill holes and the soil anomaly suggest the width of this material is on the order of 200-250 metres.

9.2 San Carlos

San Carlos mineralization is very similar to that at Panantza, and is mostly typical porphyry hypogene, with mainly disseminated chalcopyrite; molybdenite occurs mostly as selvages within quartz veins. Mineralization has an approximate dimension of 1500 metres by 900 metres and remains open at depth. The primary sulphides are chalcopyrite, molybdenite and pyrite and are associated with the potassic alteration event. Minor subsequent copper mineralisation is vein controlled rather than disseminated (Kirk, 1999). Anhydrite and gypsum are present locally.

Oxide copper mineralization is best developed northeast of Quebrada Gorra, near drill holes SC013-015 and extends into the central dike. The oxide copper mineralization is preserved in the leached, saprolite zone over the chalcocite mineralization and consists of mainly disseminated and fracture-controlled malachite and chrysocolla. Minor minerals are cuprite, pitch limonite and neotocite. The oxide copper mineralisation formed *in situ* over low-pyrite, primary-sulphide mineralization, and as exotic-oxide copper mineralization transported laterally and precipitated by neutralisation by mafic minerals in late mineral or post mineral porphyries.

Supergene (also called enriched) mineralization consists of sulphide enrichment blankets or horizons, which are best developed under the ridge southwest of Quebrada Gorra, and extending from drill holes SC001 at the southeast end to SC006 at the northwest end. Mineralization consists of chalcocite and minor covellite replacing chalcopyrite and to a lesser degree pyrite. Relict pyrite and chalcopyrite is common reflecting the immaturity of the secondary enrichment zones. The upgrading of the supergene copper grade over the hypogene grade is variable from zero to a maximum of about three times the primary grade depending on the pyrite content.

10.0 EXPLORATION

A second phase of exploration drilling at Panantza commenced in June 2006, starting at the south end and moving north, expanding and infilling the previous drilled area. The objective of this programme was to extend mineralization outward, defining at 100 metre centres a 0.4% copper cutoff, as well as to infill previous drilling, bringing the overall drill spacing to 100 metres or less. Holes were also run to greater depths than in previous programmes, to test the vertical limit of mineralization. A total of 8398 metres was drilled in 25 holes by December, when the project was suspended due to social unrest in the area. Remapping of the main creek outcrops and additional mapping of the new drill trails, new road exposures, together with relogging of all drill core, significantly increased the understanding of the geology and mineralization at Panantza.

No further field work has been done at San Carlos since the last work by Billiton in 1999, other than a brief programme of new trail construction in 2003 for a drill phase that was never undertaken. Corriente s work on the project has consisted of data compilation and review, relogging of several key drill holes, and limited mapping along the west edge of the concession.

11.0

DRILLING

11.1

Panantza

The Panantza deposit has been tested by 53 diamond drill holes totalling 16,644 metres, arranged in a rough grid on approximately 100-metre centres. A summary of the drill-hole information is given in Table 11-1.

Table 11-1: Summary of Drilling - Panantza

Operator	Year	Start	Holes	# of Holes	Total Length	Down-hole Survey
Billiton	1998	Feb	PA001-008	8	1870.0	No
Billiton	1998	Aug	PA009-011	3	1112.8	Yes
Corriente	2000	5-Oct-00	PA012-029	17	5262.08	No
Corriente	2006	13-Jun-06	PA030-54	25	8397.69	Yes

In 1998, Billiton completed the initial eleven drill holes using a Long-year 25A rig, beginning with HW-size casing and standard HQ size core (6.35 cm), and ending with NQ-size core down to depths of approximately 250-300m. The rigs were moved by means of a Lama helicopter which utilized a 170m Long-line. Subsequent drilling by Corriente utilized Hydracore hydraulic diamond drills belonging to the contractor Kluane International Drilling Inc. (Kluane). These were man-portable wireline drill rigs, and recovered standard NTW (5.7 cm) and BTW (4.2 cm) core. The smaller BTW core was recovered from the lower parts of the deeper drill holes. All platforms were accessed from the central camp via hand-built trails or the new road.

Core recoveries are good, averaging 95%. No significant assay bias is expected for core losses in these zones because of the dominantly disseminated character of the mineralization. The Rock Quality Designation (RQD) values measured from the core indicate that rock quality is moderate through most of the deposit. The average RQD value from the drilling over the whole of the deposit is 40.

The drill-hole collars were surveyed by Topcon S.A. using differential GPS equipment with reported instrument accuracy of

r 1 metre (X-Y) and r 2 metres (Z). As some of these surveys were done on the excavated pads before drilling, the accuracy would be somewhat less than the accuracy of the equipment. It is expected that the accuracy would be of the order of r 3 metres.

Down-hole surveys using Tropari (1998) and Sperry-Sun (2000 and 2006) instruments were completed on 28 of the 53 holes. Vertical holes drilled in 1998 (PA001-008) and 2000 (all holes) were not surveyed because the deviation was not expected to be significant; this agrees with deviation data from surveyed holes drilled in 2006. For these holes, the deviations are mostly minimal, with average dip deviations of 1.7 degrees for vertical holes, versus 1.8 degrees for angle holes.

The following field procedures were used in all of the Corriente drilling campaigns:

- Core is stored in wooden boxes each holding five metres of core. When picked up at the drill, all core box lids were secured and the boxes were packed out on foot by workers to the road, then loaded onto trucks and delivered to the camp. Corriente staff opened the boxes and converted the drill hole depth markers from feet to metres. The core boxes were then placed on a stand and photographed in natural light.
- The core was marked at one-metre intervals by a geotechnician, who then measured the core recoveries and RQD. Technicians completed a preliminary drill log, wherein they recorded the core recovery, structural features, fracture density and orientation, and RQD.

After the drill holes were completed, the collar locations were marked with a large PVC pipe capped with a plastic cover.

Most of the early drill holes at Panantza were drilled vertically. As the geological knowledge of the deposit increased, it was recognized that there exist various geologic features with sub-vertical geometry, such as syn-mineral to post-mineral dikes and quartz-sulphide stockwork.

Accordingly, in the 2006 drilling programme, a greater percentage of holes with angles of -60° to -80° were drilled to help define such features. No orientated geotechnical drilling has been done at Panantza.

Specific gravity measurements were made on pieces of core that weighed from 10 grams to 30 grams each, collected at 20- to 30-metre intervals. For drill programmes prior to 2006, specific gravity was determined by the displacement method, where the sample was weighed dry, then immersed in water. The amount of water displaced by the sample was measured in order to determine its volume. The specific gravity was calculated by dividing the dry sample weight by the weight of the displaced water. This is not a particularly accurate method, since some water is lost because the sample always retains moisture, and it is difficult to measure the volume of the displaced water with much accuracy. Data for the Billiton drill programme (PA001-011) are erratic, suggesting poor methodology, and are not included in the resource estimation. Data from the 2000 Corriente programme are better, but only eight of the 17 holes from this phase have density data recorded.

For the 2006 drilling programme, the procedure was changed to the more accurate immersion method, where samples weighing between 100 to 400 grams were suspended with thin nylon monofilament and weighed dry, then immersed in water and weighed wet. Porous samples from the leached and supergene zones were sealed with paraffin. There are 394 specific gravity measurements in the present database which were used in tonnage estimations.

11.2

San Carlos

The San Carlos deposit has been tested by 26 diamond drill holes (including one short, abandoned hole) totalling 5936 metres, on irregular-spaced, approximately 200-250 metre centres. A summary of the drill-hole information is given in Table 11-2.

Table 11-2: Summary of Drilling San Carlos

Operator	Year	Period	Holes	# of Holes	Total Length	Down-hole Survey
Billiton	1997	April - Sept	SA001-005	5	1477.05	No
Billiton	1998	April - Sept	SA006-025	8	2167.63	Yes
Billiton	1998	Oct - Nov	SA012-025	13	2290.96	Yes

Billiton completed the drilling using the same methods employed at Panantza in 1998. Core recoveries are good, averaging 95%. No significant assay bias is expected for core losses in these zones because of the dominantly disseminated character of the mineralization. The RQD values measured from the core indicate that rock quality is low to moderate through most of the deposit. The average RQD value from the drilling over the whole of the deposit is 27 per cent.

The drill hole collars were surveyed using differential GPS equipment to a reported instrument accuracy of ±1 metres horizontally and ±2 metres vertically. Some of the surveys were done on the excavated pads before drilling, and for those the accuracy is less than the accuracy of the equipment; it is expected that the accuracy would be of the order of ±3 metres.

Down-hole surveys using Tropari instruments were completed on the last 13 of the 26 holes. Vertical holes drilled in the first two phases were not surveyed because the deviation was not expected to be significant.

The drill core at the drill platform was sealed in wooden core boxes and moved to the camp logging facility by helicopter. Staff then opened the boxes and converted the drill-hole depth markers from feet to metres. The core boxes were then placed on a stand and photographed in natural light. The core was marked at one-metre intervals by a geotechnician, who then measured the core recoveries and RQD. Technicians completed a preliminary drill log, wherein they recorded the core recovery, structural features, fracture density and orientation, and RQD.

After the drill holes were completed, the collar locations were marked with a large PVC pipe capped with a plastic cover.

Specific gravities were determined at about 20-metre intervals from selected drill holes in the last programme (SC013 to 025). The samples were of half core averaging about 10 cm in length. An Ohaus Dec-o-gram beam balance was used for measuring the mass of the sample to an accuracy of 0.01g. Specific gravity was determined using Archimedes Principle and water immersion (Kirk, 1999). These determinations look reasonable to Corriente. Limited and possibly incomplete data from the first drill programme (SC001 to 005) discovered by Corriente in the Billiton digital database are grossly in error and were apparently not used in the Billiton resource estimates.

12.0

SAMPLING METHOD AND APPROACH

Each one-metre interval of core was assigned a sample number by the sample technicians. Based on the style of mineralization, the individual one-metre samples were physically combined into composite samples of different lengths. The sample intervals are taken to the nearest metre and, therefore, extend across geologic boundaries. During the Corriente drill programmes at Panantza, the categories of mineralization used and the corresponding composite sample lengths depended on the rock type and were as follows:

- Leached zone (cap): five metres;
- Enriched (supergene) zone: two metres;
- Primary (hypogene sulphide) zone: three metres;
- Post-mineral dike: five metres. This leads to minor dilution at the contacts of post-mineral dikes.

At Panantza, for the 2006 drilling, some sample intervals were adjusted to coincide with dike contacts. Some of the larger, clearly post-mineral dikes were not sampled, and whole core remains in the boxes.

The use of non-random sample lengths in the database does introduce a certain degree of bias, but with compositing and length weighting, the effect is minimized or eliminated.

The sample intervals were recorded and assigned sample numbers. The core was split longitudinally using a diamond saw. In cases where the core fragments were too small to be sawn, core fragments representing one-half of the core volume were randomly picked out of the core boxes by hand. Each core sample was placed in its own double plastic bag, and each bag was weighed and marked with the sample number. Batches of samples were then placed in sealed rice bags for shipment.

For San Carlos and the first two phases of Panantza drilling, the samples were sent to a preparation laboratory in Quito, Ecuador. During the third phase of drilling at Panantza, ExplorCobres used the Acme Analytical Laboratory (Acme) preparation laboratory in Cuenca, Ecuador. Technicians at site prepared a list for the insertion of the duplicate and standard reference material (SRM) and quality assurance / quality control (QA/QC) samples, and this list accompanied the sample shipment form to the manager of the preparation facility. The lab manager confirmed the sample shipment and the work orders, and lab batch numbers were scanned and forwarded to both ExplorCobres and to Corriente via email.

13.0

SAMPLE PREPARATION, ANALYSES AND SECURITY

13.1

Sample Preparation and Analyses Billiton

Sample pulps from the Billiton programmes in 1997 and 1998 were prepared, processed and analyzed by Bondar-Clegg, prior to the merging of Bondar-Clegg and Chemex. Both of these preparation laboratories were independent from Billiton and Corriente and their Ecuadorian subsidiary companies. Each one-metre sample was crushed to -10 mesh using a TM Rhino primary jaw crusher and split into two equal fractions (Kirk, 1998). Three consecutive (3 x 1metre) core samples of -80 mesh, each weighing about 1.2 or 2.1 kg in size (NQ or HQ core), were then composited by mixing in a vertical axis mixer. The composite sample was then split to approximately 1 kg at -80 mesh and pulverized to -150 mesh, while the remaining -80 mesh composite was stored by Bondar-Clegg Ecuador.

Three 100 g pulp (-150 mesh) samples were taken from the 1 kg sample, and two of these were sent immediately to the quality control officer at Billiton in Ecuador. The officer gave the original 100g pulp, any duplicate 100g pulps, and the 100g internal standards new analytical sample numbers and these were then sent to the Bondar-Clegg laboratory in Vancouver for analysis. If not sent to Bondar-Clegg Vancouver as a pulp duplicates or for re-assay, the second and third 100g pulps were stored by Billiton in Quito. The samples were assayed for gold using the fire assay technique on a 30 g sample with an atomic absorption spectroscopy (AAS) finish, and analyzed for copper, silver, molybdenum, lead, and zinc using four acid digestion followed by AAS. In addition, the samples were analyzed for acid soluble copper using citric acid in a one hour agitated leach, and AAS finish.

13.2

Sample Preparation and Analyses Corriente 2000

Panantza sample pulps from 2000 were prepared at Bondar-Clegg laboratories in Quito by laboratory personnel. The whole sample was crushed to 75% passing 10 mesh, and then a one-kilogram sub-sample (split) was pulverized to 95% passing 150 mesh. A 100 g split (pulp sample) was taken from the 1 kg pulverized sample and shipped to the Chemex laboratory in Vancouver, Canada. Here the pulp samples were fire assayed for gold with an

AAS finish (using a 30 g aliquot), and were analyzed for copper, molybdenum and zinc using four-acid digestion and AAS methods.

13.3

Sample Preparation and Analyses Corriente 2006

The 2006 Panantza drill core samples were prepared at the Acme preparation facility in Cuenca, Ecuador. The sample preparation procedures were the same as were used in 2000 by Bondar-Clegg and Chemex, except that final sample pulverization was to 85% passing -200 mesh. The -200-mesh 100 g split material (pulp sample) was shipped to the Acme lab in Vancouver, Canada, for final analysis. Coarse rejects and remaining pulp from the samples are stored in Quito by ExplorCobres.

For the copper, molybdenum, silver, lead, and zinc determination, 0.5 g of material was digested using a four-acid solvent, followed by inductively coupled plasma/atomic emission spectrometric (ICP-AES) analysis. Gold was determined by 30 g fire-assay fusion followed by ICP-AES analysis. All sample preparation procedures are appropriate and well done, and the assays and analyses are of good quality.

13.4

Sample Security

In all phases of drilling at Panantza and San Carlos, drill core samples remained under the control of authorized Billiton or Corriente personnel from the time they left the drill platforms until they were delivered to the preparation laboratory (Kirk, 1998). The individual sample bags were put into woven polypropylene bags for shipment, and these bags were marked with the project number, the drill-hole number and a number identifying its place in the sequence of bags in the sample shipment. The shipment bags were secured with tape and rope, and were sent to the preparation laboratory in a contracted vehicle.

In 2006, the practice of marking the shipment bags with the drill hole number was discontinued, and shipment bags were secured by number-coded nylon zip ties before shipment.

14.0 DATA VERIFICATION

14.1 Introduction

Quality control and quality assurance (QA/QC) changed from drill phase to drill phase but basically followed procedures set up by Billiton in 1998. Table 14-1 summarizes the QA/QC procedures by drill phase.

Table 14-1: QA/QC Sample Insertion by Year

Year	Holes	Standards	Duplicates	Checks
1997	SC01-05	1:20	1:10	None
1998	PA001-011; SC06-25	1:20	1:10	None
2000	PA012-029	None	None	1:10
2006	PA030-54	1:20	1:10	PA049-52

14.2 Quality Control 1997- 1998

Billiton initiated a quality control protocol in 1997 for the San Carlos sample stream which included internal blind standard reference materials (standards, or SRMs) and assay duplicates. McIver 1999 describes the QA/QC procedure as check samples (replicates sent to another lab) inserted after every 20th sample composite and duplicates after every 10th sample composite.

In addition, one of three internal SRMs was inserted after every 20th composite. The Billiton internal SRMs were made from compositing drill core sample rejects from San Carlos. Three SRMs representative of low, medium, and high-grade mineralization were prepared and subjected to a round robin survey of five reputable laboratories in Canada and Chile.

Quality control graphs for the internal standards show acceptable precision and accuracy for the drill-hole assays with no significant deviations from the second standard deviation confidence limits.

The precision of the pulp duplicate samples is also satisfactory. Approximately 87% of the sample pairs have a precision (mean of pair versus difference in pair) better than 5%, with only three pairs having precisions worse than 10%.

14.3

Quality Control 2000

For the Panantza 2000 drill programme, the only QA/QC sample inserted into the sample shipments was a 100 g lab check. This sample was taken on a 1 in 10 basis and was shipped to Chemex in Vancouver for analysis. Results show a 12% positive bias in the Bondar-Clegg average values for copper and 7% bias in the molybdenum values relative to the Chemex check samples. Gold values were at parity. The best explanation for such a bias is that a multi-element ICP package analytical package was used at Chemex, whereas the Bondar Clegg assays were done with an AAS package. This is indicated by the Chemex >1% copper assays, which show no bias between labs: the over-limit or ore-grade copper analytical method at Chemex was the same as the primary analytical method at Bondar.

As a further check on the apparent lab bias, duplicate 100 g pulps representing about 10% of the samples from holes PA012 PA029 were sent to Acme in Vancouver for assaying. The accuracy of these audit assays was tested with inserted SRM blind samples.

The results duplicated to a lesser extent the positive bias towards the Bondar-Clegg lab for the year 2000 samples for copper and molybdenum, and lesser so for gold. The most likely cause of the bias between the 2000 data and the audit samples, which is unrelated to the original bias between Chemex and Bondar Cleg, is attributed to a negative or low lab bias in the Acme results, as indicated by the low copper and molybdenum assays on the inserted SRMs and confirmed by a subsequent round robin programme.

In conclusion, the original copper bias between Bondar Clegg primary assays and the Chemex check assays in the drill programme from 2000 is due to the difference in analytical methods between the primary and check labs, rather than any systematic over-estimation of copper by the primary lab.

14.4

Quality Control 2006

A more comprehensive QA/QC programme was adopted by Corriente at Panantza in 2006, following procedures recommended by AMEC during their review of the Mirador project in 2004. In 2004, Corriente prepared two bulk SRMs from drill core sample reject material from Mirador and submitted these to a five laboratory round-robin. A description of these standards can be found in the Mirador 2005 feasibility study (AMEC, 2005). The SRMs consist of a high-grade (MS1) and low grade (MS2) 100 g pulps, one of which was inserted every 20 samples; which SRM was inserted depended usually on the visually estimated grade of the adjacent samples.

When the standards returned values greater or less than two standard deviations from the mean, Corriente requested reruns of ten samples prior to and ten samples following the failed inserted standard of a SRM. If another standard occurred within ten samples, then the rerun interval was half way to the next standard. This programme ensured all assays are within acceptable accuracy limits for copper and gold.

Duplicates were inserted at the coarse fraction (-10 mesh) every 20 samples and at the fine fraction (-100 mesh) every 20 samples, for an overall 1 in 10 insertion rate. The results showed acceptable precisions with 90% of sample pulps having better than 4% precision (absolute difference from the mean of the duplicate pair) for copper.

Based on recommendations from MDA, a blank programme was initiated in late 2006 and only two drill holes had blanks inserted into the sample stream before the project was suspended.

15.0 ADJACENT PROPERTIES

Other than the mineral prospects and exploration activities of Corriente itself, there are no known mineral deposits or advanced mineral exploration projects immediately adjacent to the Panantza and San Carlos properties.

16.0

MINERAL PROCESSING AND METALLURGICAL TESTING

The majority of the metallurgical flotation and oxide leach test work was done in 1998 by CIMM Technical Services in Santiago, Chile for Billiton on a total of fifteen composite samples representing Panantza and San Carlos mineralization (Carreterro, 1999). The test results from the composites were used in this preliminary assessment to infer average recoveries and flotation concentrate grades consistent with porphyry deposits of this type (calcalkaline, granite hosted) in Ecuador and elsewhere globally. The preliminary grinding and flotation flow sheets were developed using conventional copper-gold porphyry milling practices at typical grinds and with typical reagent addition types and dosages.

As shown in Table 16-1, San Carlos ore was represented by one composite from the oxide zone, two composites from the supergene zone, and eight composites from the hypogene zone. Panantza was represented by one composite each from the oxide and supergene zones and two composites from the hypogene zone. In 2001, Corriente conducted three flotation tests and a comparison work index test on a single sulphide composite from Panantza at PRA in Vancouver, BC (Hawthorne, 2003). Figure 16-1 and Figure 16-2 are included to show the approximate location of the DDH collars for the Panantza San Carlos metallurgical sampling programmes.

Table 16-1: 1999 Panantza San Carlos Composites Source

1999 Panantza - San Carlos DDH Source

No.	Sample	Zone	DDH	Depth From	To	Analysis TCu%	ACu%	ACu/TCu	AFe%	Mo%
1	SC-1	Primary	SC01	63	90	0.82	0.072	8.8%	3.54	0.006
2	SC-2	Primary	SC02	114	162	0.78	0.023	2.9%	3.80	0.014
3	SC-3	Enrichment	SC03	87	147	1.42	0.170	12.0%	2.36	0.011
4	SC-4	Primary	SC04	63	88	0.57	0.018	3.2%	2.14	0.023
5	SC-5	Enrichment	SC05	132	165	0.67	0.150	22.4%	2.18	0.008
6	M-01	Oxide	PA03	6	27	1.36	1.110	81.6%	2.13	0.001
			PA09	12	57					
7	M-02	Enrichment	PA04	63	69	0.82	0.080	9.8%	2.17	0.007
			PA07	48	69					
			PA09	78	87					
			PA10	24	36					
			PA11	21	24					
8	FT-03	Primary	PA02	114	303	0.63	0.008	1.3%	1.83	0.007
9	M-03		PA03	27	228	0.64	0.009	1.4%	1.88	0.008
			PA04	225	300					
			PA05	39	186					
			PA06	105	249					
			PA09	6	402					
			PA10	36	135					
			PA10	147	186					
			PA11	33	393					
			PA11	333	393					
10	M-04	Oxide	SC05	18	48	0.77	0.410	53.2%	2.31	0.001
			SC05	54	87					
			SC07	3	60					
			SC08	6	81					
			SC09	12	63					
			SC10	6	39					
11	M-05	Primary	SC01	6	273	0.55	0.018	3.3%	2.49	0.008
12	FT-05 A		SC02	9	300	0.56	0.017	3.0%	2.62	0.009
13	FT-05 B		SC03	156	300	0.54	0.012	2.2%	2.33	0.008
14	FT-05 C		SC04	69	300	0.56	0.012	2.1%	2.48	0.010
15	FT-05 D		SC05	12	300	0.55	0.011	2.0%	2.47	0.008
			SC06	114	300					
			SC09	72	306					
			SC10	39	303					

16	Mean	0.75	0.141	13.9%	2.45	0.009
17	Median	0.64	0.018	3.2%	2.33	0.008
18	Stdev	0.28	0.289	23.1%	0.54	0.005
19	Number	15	15	15	15	15
20	Maximum	1.42	1.110	81.6%	3.80	0.023
21	Minimum	0.54	0.008	1.3%	1.83	0.001
22	75th Percentile Est Error ±	0.33	0.345	27.6%	0.65	0.006
23	90th Percentile Est Error ±	0.49	0.506	40.4%	0.95	0.009
24	90 Percentile % Rel Error ±	65.4%	357.9%	290.0%	38.9%	105.3%

Figure 16-1: Panantza Metallurgical Test Hole Locations

Figure 16-2: San Carlos Metallurgical Test Hole Locations

Based on the estimated abundance of sulphide minerals, flotation test work indicated 96% of the copper mineralization contained in the Panantza and 92% of the copper mineralization contained in the San Carlos deposit was recoverable with conventional grinding and flotation. Material containing non-recoverable oxide copper and leach cap would be considered uneconomic and sent to waste. A summary of the Billiton tests is given in Table 16-2. The flow sheet developed to provide the metallurgical results was based on a 60% minus 200 mesh grind and conventional copper-gold porphyry flotation reagent types and dosage rates.

Table 16-2: 1999 Panantza San Carlos Flotation Test Summary

1999 Panantza - San Carlos Flotation Test Summary

No.	Sample	Zone	Tonnages	Head Analysis							Rougher Flotation Recovery		
				TCu%	ACu%	ACu/TCu	Mo%	AFe%	Au %	Ag%	Cu %	Mo %	Fe %
Panantza													
15	M-01	Oxide	3.4%	1.36	1.110	81.6	0.004	2.13	0.19	1.7	11.8	7.7	10.2
14	M-02	Enrichment	2.1%	0.80	0.080	10.0	0.008	2.17	0.12	1.5	90.0	57.4	51.8
12	FT-03	Primary		0.60	0.008	1.3	0.009	1.83	0.09	1.1	94.9	61.8	57.1
13	M-03			0.64	0.009	1.4	0.010	1.88	0.28	1.9	95.9	63.9	58.8
	Mean		94.0%	0.62	0.009	1.4	0.009	1.86	0.19	1.5	95.4	62.8	58.0
San Carlos													
11	M-04	Oxide	7.4%	0.77	0.410	53.4	0.004	2.31	0.05	1.0	18.1	11.4	15.9
9	SC-3	Enrichment		1.42	0.170	12.0	0.011	2.36	0.05	1.2	89.8	66.3	45.7
10	SC-5			0.65	0.150	23.0	0.008	2.18	0.03	0.9	73.1	55.7	31.9
	Mean		9.7%	1.04	0.160	17.5	0.010	2.27	0.04	1.1	81.4	61.0	38.8
1	SC-1	Primary		0.83	0.072	8.7	0.006	3.54	0.03	1.3	89.6	42.3	62.3
2	SC-2			0.76	0.023	3.0	0.014	3.80	0.04	1.7	91.9	74.5	63.1
3	SC-4			0.56	0.018	3.2	0.023	2.14	0.04	0.7	95.1	83.9	54.7
4	M-05			0.55	0.018	3.3	0.010	2.49	0.07	1.2	93.8	66.8	58.3
5	FT-05 A			0.52	0.017	3.3	0.010	2.62	0.04	1.7	93.9	67.2	57.2
6	FT-05 B			0.55	0.012	2.2	0.010	2.33	0.08	0.9	94.2	65.9	59.1
7	FT-05 C			0.54	0.012	2.2	0.012	2.48	0.05	0.7	94.5	70.3	64.7
8	FT-05 D			0.54	0.011	2.1	0.009	2.47	0.06	0.9	94.5	64.2	64.3
	Mean		82.0%	0.60	0.023	3.5	0.012	2.73	0.05	1.1	93.4	66.9	60.5

The rougher flotation test work resulted in an estimated copper recovery of 83% for the supergene (enriched) zone material and 95% recovery for the hypogene (primary) zone material. A strong negative relationship was indicated between flotation recovery and the acid soluble copper ratio in the feed.

There were no regrind-size, cleaner flotation tests or locked cycle tests performed on the Panantza or San Carlos ore zones to estimate the regrind power requirements or the final concentrate grade and recovery. For the preliminary assessment, good pyrite rejection and a concentrate grade of 29.5% Cu was assumed to be obtainable with three stages of cleaning, similar to the Mirador ore test results at a regrind size of 80% passing 30 microns. A summary of the Billiton test work combined with the zone tonnages estimated by MMTS is given in Table 16 3. Based on the Mirador test work, copper cleaner recovery is assumed to be 97% resulting in a final copper recovery of 92% for Panantza and 89% for San Carlos. The concentrate grade-recovery relationship of the ore would be evaluated during subsequent drilling and metallurgical test programmes.

Table 16-3: Copper Circuit Recovery Estimates

Copper Circuit Recovery Estimates

Product	Zone	Tonnage x 1000	Flotation Cu %Rec	Mo %Rec	Au %Rec	Ag %Rec
Panantza						
1	Primary	386,082	95.4	62.8	62	75
2	Enrichment	8,436	90.0	57.4	50	65
Bulk		394,518	95.3	62.7	62	75
Cleaner			97.0	95.0	50	95
Final			92.5	59.6	31	71
San Carlos						
1	Primary	253,503	93.4	66.9	60	75
2	Enrichment	30,112	81.4	61.0	50	65
Bulk		283,615	92.2	66.2	59	74
Cleaner			97.0	95.0	50	95
Final			89.4	62.9	29	70
Combined Final						
Panantza		394,518	92.5	59.6	31	71
San Carlos		283,615	89.4	62.9	29	70
Total		678,133	91.2	61.0	30	71

Zone Copper Circuit Recovery Estimate

Zone	Tonnage x 1000	Flotation Cu %Rec	Mo %Rec
Primary			
Panantza	386,082	95.4	62.8
San Carlos	253,503	93.4	66.9
Bulk	639,585	94.6	64.4
Cleaner		97.0	95.0
Total		91.8	61.2
Enrichment			
Panantza	8,436	90.0	57.4
San Carlos	30,112	81.4	61.0
Bulk	38,548	83.3	60.2
Cleaner		97.0	95.0
Total		80.8	57.2

The Panantza San Carlos ore contains small quantities of gold (Au), silver (Ag) and molybdenum (Mo). Average Au grades are 0.072 g/t and 0.030 g/t for Panantza and San Carlos respectively where Cu > 0.4%. The average molybdenum (Mo) grade for samples with >0.4% Cu is 90 ppm (0.009%) at Panantza and 70 ppm (0.007%) at San Carlos. Test work to-date, without fuel oil to enhance Mo flotation, indicated Mo recoveries in the bulk circuit were approximately 61% for hypogene material. A typical porphyry molybdenum separation circuit usually operates with about 70% separation efficiency and an overall molybdenum recovery of 43% was assumed based on 64% rougher recovery. An estimate of the molybdenum recovery calculation is given in Table 16-4. It is expected with molybdenite flotation enhancers added to the rougher flotation stage that Mo recovery would be improved. The grade distribution and recovery of Mo would be evaluated during subsequent studies.

Table 16-4: Molybdenum Separation Recovery Estimate

Moly Separation Recovery Estimate

Product	Mo %Rec
Bulk	64
Cleaner	95
Moly Cct Feed	61
Separation Efficiency	70
Mo Flotation	43

The Billiton Au and Ag precious metal flotation concentrate analyses were of insufficient precision to estimate the rougher flotation recovery of these metals. Some concentrate grade analyses resulted in recoveries above 100% when the mass balances were reconciled. Because of this issue with the Billiton precious metal results, the Mirador test work was used as a reference to predict the precious metal behaviour of the Panantza San Carlos deposit.

The Mirador deposit average Ag head grade is between 1.4 and 2.0 g/t, which is slightly higher than the Panantza San Carlos average Ag grade of 1.1 and 1.5 g/t respectively. The Mirador Ag reported to the concentrate in recoverable quantities resulting in a copper concentrate grade of 54 to 160 g/t of Ag. Copper recoveries to the bulk concentrates in both deposits are relatively similar. It was assumed for the purposes of the Panantza San Carlos preliminary assessment the Ag would be recovered in equivalent amounts to the copper concentrate and result in a final Ag recovery of approximately 70%.

The Mirador deposit average Au head grade is between 0.16 and 0.23 g/t, which is higher than the Panantza San Carlos average Au grade of 0.030 and 0.072 g/t respectively. The Mirador Au recovery test work indicated approximately 70% recovery to the bulk rougher flotation concentrate and 67% recovery in the cleaner circuit resulting in a total recovery of 47% Au to the copper concentrate. Due to the lower Panantza San Carlos Au head, the recovery estimate was reduced to approximately 60% to the bulk flotation circuit concentrate. Similarly the copper cleaner circuit Au recovery was also reduced to 50% with the rejection of the pyrite resulting in an estimated overall Au recovery for the Panantza San Carlos deposit of approximately 30% (see Table 16-3, Copper Circuit Recovery Estimates).

Test work is required to confirm the Au and Ag precious metal recovery and grade assumptions when Panantza and San Carlos samples are available.

There was insufficient data from the test work to define the grinding circuit parameters. A single comparison ball mill work index performed by PRA on the Panantza hypogene material indicated an ore hardness of 21.5 kwh/t. Geotechnical and geological characteristics indicated the composite sample used for hardness testing were typical of the main mineralization found in the Panantza deposit.

The Billiton flotation test work was done at 60% passing minus 200 mesh. There were no mineral liberation studies to optimize the grind size so a primary grind of 80% passing 150 microns consistent with the flotation test feed size was assumed for the purpose of this study. Also, there were no regrind tests done to optimize the cleaner separation and grade to estimate the regrind power requirements. A regrind product size was assumed to be 80% passing 30 microns consistent with the Mirador ore flotation concentrate grind. The size-liberation relationship would be defined in future metallurgical studies.

To estimate the SAG and BM specific power requirements for the plant design it was assumed the Panantza ore would behave similarly to ore found in calcalkaline, granite-hosted copper porphyry deposits globally. Historical plant scale-up factors were used to determine the mill power requirements from the Panantza ball mill work index. Softer material is expected in the San Carlos deposit based on the lower RQD observed in the core samples. Additional work is necessary to define the overall work index variability and SAG / BM specific power requirements for the two deposits.

No dewatering information was available from the Panantza San Carlos ore zones. Concentrate dewatering tests from the Mirador test programme were used to estimate the flocculent dosage rate, thickener size and filter capacity. Rapid settling was observed for all Mirador concentrate samples under flocculent dosages of 10 g/t of Magnafloc 10, the average rise rate was 214 m^3/m^2/day. Larox conducted an additional filtration tests on a Mirador concentrate sample in Finland. Ceramic filter testing indicated filtration capacity ranging from 154 to 500 kg/m^2/h. Additional thickening and filter press test work is recommended to ensure the filter design.

SGS Canada Inc measured the transportable moisture limit for the Mirador concentrate as 10.9% and test work is necessary to determine if the Panantza and San Carlos concentrates would behave similarly.

The mineralization at both deposits contains small quantities of gold (Au), silver (Ag) and molybdenum (Mo). While average Au grades appear too low to be of interest, there may be sufficient Mo to justify the recovery of a separate Mo concentrate. The average Mo grade for samples with >0.4% Cu is 102 ppm (0.01%) at Panantza and 80 ppm (0.008%) at San Carlos. Testwork to date indicates Mo recoveries in the order of 63% and 67% for hypogene material from these deposits. The grade distribution and metallurgy of Mo will be evaluated during subsequent studies. Similarly, average Ag grades are close to that of the Mirador deposit, where Ag reported to the concentrate in recoverable quantities. Therefore, Ag distribution would also be estimated in future studies.

17.0

MINERAL RESOURCE AND RESERVE ESTIMATE

17.1

Scope and Background

Mine Development Associates (MDA), of Reno, Nevada, was asked to produce a block model resource estimate for the Panantza and San Carlos deposits. MDA received SURPAC generated files for drill data, topography, geology, and solids (3D models) of the interpretations. MDA took care to use reasonableness and believes this resource represents a fair assessment for Inferred classification. For this to be an Independent resource classified as Indicated or higher, those tasks lacking are an independent database audit, detailed geologic review, remaking of the solids, explaining the relatively well-mineralized leached material, detailed statistics and geostatistics, estimating multiple models, examining the density data in greater detail, and increasing the verification process.

This report uses the classification scheme accepted by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definitions Adopted by CIM Council August 20, 2000 and the revisions adopted on December 11, 2005, which defines an Inferred Mineral Resource as that part of a Mineral Resource for which:

. . . quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

Due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parametres or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral Resources must be excluded from estimates forming the basis of feasibility or other economic studies.

17.2

Procedures

After receiving database and discussing procedures with John Drobe, MDA coded the samples by the interpreted grade shell solids provided by Corriente. MDA then composited the drill samples down-hole into 6-metre composites while requiring at least 50% of the sample interval to be within the composite in order to be used for estimation. Capping was done before compositing, as shown in Table 17-1. Estimation used inverse-distance squared interpolation for San Carlos and inverse-distance the power of three for Panantza, using other parameters very similar to those used for the geologically similar Mirador and Mirador Norte deposits.

17.3

Panantza Block Model Coding and Estimation Parameters

Assays were coded by the solids provided by Drobe. An order of precedence was required due to overlapping solids:

- If a block was in solid tqfp, it was coded as tqfp (5000),
- blocks in the enriched zone solid were coded as enriched (2000),
- blocks in the leached zone solid were coded as leached (4000),
- blocks within the Cu_30 grade shell were coded as higher-grade hypogene (1030),
- blocks within the Cu_20 grade shell were coded as lower-grade hypogene (1020), and
- blocks outside the Cu_20 grade shell were coded as outside hypogene (1000).

Model coding was based on the solids, calculated as partial percentages for each code listed above. The exception to this was excluding 1000 because nothing was estimated outside the Cu_20 solid. Because the solids were made with overlaps and gaps (non-coded space), some fudging was required and applied to normalize the percentages. Coding methodology was as follows (see Figure 17-1 for schematic illustration):

- Percents of 1030 and 1020 were calculated, with 1020 being adjusted to have 1030 removed.

- 2000, 4000 and 5000 were calculated, each limited by the XY extents of 1020 projected vertically.

- Blocks that had some percent of 2000, 4000, or 5000 (meaning not 100% hypogene blocks) were normalized to have all percentages sum to 100%. This was done with block maths of: [%code = %code / (%1020 + %1030 + %2000 + %4000 + %5000)].

This corrects the percentages for cases of both overlaps and separations in the solids triangles, while maintaining an overall volume change of less than 5% for all solids volumes.

- Blocks that were only coded as 1020 and/or 1030 were not normalized, so the modeled internal un-mineralized areas as well as partial blocks on the edge of the shell would remain only partially coded.

Note that all estimation was limited to above the 0.2% Cu shell and 0.3% shell for Panantza, even though mineralization, albeit poorly understood, does extend beyond the limits of these shells.

Figure 17-1: Schematic Illustration of Estimation Coding Scheme for Panantza

The specific gravity attribute was estimated into the hypogene coded blocks, using a spherical search of 200m with an inverse distance cubed interpolation. All hypogene blocks that did not estimate were assigned a specific gravity of 2.66. The specific gravity of the block was then calculated as a volume weighted average of all domains, where: 2000 was assigned 2.455, 4000 was assigned 2.267, and 5000 was assigned 2.56 (leached and enriched were adjusted down by 1% for humidity).

Compositing was down-hole, with 6-metre composites that required 50% of the sample interval in order to composite, and was done with the above assay coding used as hard boundaries. The leached blocks were estimated from a 200-metre search, with 1/3 vertical anisotropy (i.e. flattened in the vertical), and with all composites available for selection (Table 17-1).

Blocks were estimated by inverse distance cubed (ID^3) and nearest neighbour (NN) for all material types in or above the 1020 shell. All estimations were isotropic in the X-Y, with flattening of the search ellipse only occurring in the vertical axis. For all block partial percentage codes, only composites coded to the same zone were used in estimation (hard boundary estimation). The estimation parameters are given in Table 17-1:

Table 17-1: Estimation Parameters

code	**search distance**	**anisotropy factor in the vertical**	**minimum composites**	**maximum composites**	**maximum composites per drill hole**
1020	200	1	1	14	4
1030	200	1	1	14	4
2000	200	4	1	14	4
4000	150	3	1	14	4
5000	(not estimated)				

Blocks contain various attributes related to each solid code. Each block contains:

- Percent of each code 1020, 1030, 2000, 4000, and 5000 (lower hypogene, higher hypogene, enriched, leached, and Tqfp, respectively).
  - Estimated grade by inverse distance cubed, for each domain code.
  - Estimated grade by nearest neighbour, for each domain code.
  - Anisotropic distance to nearest composite used to estimate by ID^3 for each code.
  - Number of composites used to estimate the ID^3 grade for each code.
  - Isotropic distance to nearest composite for each domain code (the nearest neighbour distance).
  - Block classification attribute.
  - Coincident down-hole composite grade (non-coded composite grades falling within a block).
  - Block diluted ID^3 grade (volume weighted average grade of all codes estimated grades).

- Specific gravity (as a density multiplier with air taken into account).
- Percent below topography.

The model contains Inferred resources of 463,000,000 tonnes grading 0.66% Cu, when using a cutoff of 0.4% Cu (Table 17-2). This resource excludes blocks above this cutoff that are more than half within the leached solid (blocks dominated by leached volume) because metallurgical recovery has not been demonstrated for this copper-oxide bearing, leached material. These excluded blocks total only 2-5% of the Inferred resource tonnage over a 0.3-0.5% Cu cutoff range.

Rounded numbers for the Inferred resource at Panantza at various copper cutoffs are given in Table 17-2. Note that, since the block model tonnes are diluted, minor amounts (0.3%) of leached, mineralized material (copper oxides) report to the tonnes in Table 17-2. Two sections through the block model are given in Figure 17-2 and Figure 17-3.

Table 17-2: Inferred Resources Blocks with >50% Hypogene and Enriched

%Cu Cutoff	tonnes	%Cu (ID^3)	lbs Cu
0.00	616,000,000	0.54	7,386,000,000
0.20	547,000,000	0.60	7,266,000,000
0.25	531,000,000	0.61	7,190,000,000
0.30	510,000,000	0.63	7,058,000,000
0.35	490,000,000	0.64	6,912,000,000
0.40	463,000,000	0.66	6,688,000,000
0.45	436,000,000	0.67	6,439,000,000
0.50	403,000,000	0.69	6,091,000,000
0.55	353,000,000	0.71	5,516,000,000
0.60	290,000,000	0.74	4,708,000,000
0.65	219,000,000	0.77	3,736,000,000
0.70	158,000,000	0.81	2,827,000,000
0.75	107,000,000	0.85	2,025,000,000
0.80	64,000,000	0.91	1,291,000,000
0.85	41,000,000	0.96	864,000,000
0.90	26,000,000	1.01	570,000,000
0.95	17,000,000	1.06	395,000,000
1.00	12,000,000	1.09	287,000,000

Figure 17-2: Panantza Block Model Section NW SE

Figure 17-3: Panantza Block Model Section East-West, 9650500mN

17.4

San Carlos Block Model Coding and Estimation Parameters

Assays were coded by the solids provided by Drobe. An order of precedence was required due to overlapping solids:

- If a block was in unit Jefp, it was coded as Jefp (5000),
- blocks in the enriched 0.4% Cu shell were coded as enriched (2040),
- blocks in the leached 0.4% Cu shell were coded as leached (4040),
- blocks in the enriched 0.3% Cu shell were coded as enriched (2030),
- blocks in the leached 0.3% Cu shell were coded as leached (4030),
- blocks within the hypogene 0.4% Cu shell were coded as higher-grade hypogene (1040),
- blocks within the hypogene 0.3% Cu shell were coded as lower-grade hypogene (1030).

Model coding was based on the solids, calculated as partial percentages for each code listed above. The density of the block was calculated as a volume weighted average of all domains, where: 1000=2.66, 2000=2.455, 4000=2.267, and 5000=2.56 (leached and enriched were adjusted down by 1% for humidity).

Blocks were estimated by inverse distance squared (ID^2) and nearest neighbour (NN) for all material types. All estimations were isotropic in the horizontal, with flattening of the search ellipse only occurring in the vertical axis. For all block partial percentage codes, only composites coded to the same zone were used in estimation (hard boundary estimation). The estimation parameters were searching 400m with a minimum of one composite, maximum of 18 composites, and a maximum of 4 composites per drill hole. The search was isotropic in the dike and hypogene, with vertical anisotropy factors of 4 for the enriched and 3 for the leached. Blocks with their nearest composite being greater than 300m away were flagged as such, so they could be removed from the reporting of Inferred resources.

Coding methodology was as follows (see Figure 17-4 for schematic illustration):

- Percent of each code 1030, 1040, 2030, 2040, 4030, 4040, and 5000.
- Estimated grade by inverse distance squared, for each domain code.
- Estimated grade by nearest neighbour, for each domain code.
- Anisotropic distance to nearest composite used to estimate by ID^2 for each code.
- Number of composites used to estimate the ID^2 grade for each code.
- Isotropic distance to nearest composite for each domain code (the nearest neighbour distance).
- Block classification attribute.
- Coincident down-hole composite grade (non-coded composite grades falling within a block).
- Block diluted ID^2 grade (volume weighted average grade of all codes estimated grades).
- Specific gravity.
- Percent below topography.

Note that all estimation was limited to above the 0.3% shell for San Carlos, even though mineralization, albeit poorly understood, does extend beyond the limits of these shells.

Figure 17-4: Schematic Illustration of Estimation Coding Scheme for San Carlos

Blocks were estimated by inverse distance cubed (ID^3) and nearest neighbour (NN) for all material types in or above the 1020 shell. All estimations were isotropic in the X-Y, with flattening of the search ellipse only occurring in the vertical axis. For all block partial percentage codes, only composites coded to the same zone were used in estimation (hard boundary estimation). The estimation parameters are given in Table 17-3.

Table 17-3: San Carlos Estimation Parameters

Code	**Search distance**	**Anisotropy factor in the vertical**	**Minimum composites**	**Maximum composites**	**Cu % Cap**	**# of Capped Samples**	**Maximum composites per drill hole**
1030	400	1	1	18	0.55	4	4
1040	400	1	1	18	1.3	3	4
2030	400	4	1	18	0.4	3	4
2040	400	4	1	18	2.5	1	4
4030	400	3	1	18	0.4	10	4
4040	400	3	1	18	-	0	4
5000	400	1	1	18	0.4	6	4

Blocks contain various attributes related to each solid code. Each block contains:

- Percent of each code 1030, 1040, 2030, 2040, 4030, 4040, and 5000
- Estimated grade by inverse distance cubed, for each domain code.
- Estimated grade by nearest neighbour, for each domain code.
- Anisotropic distance to nearest composite used to estimate by ID^3 for each code.
- Number of composites used to estimate the ID^3 grade for each code.
- Isotropic distance to nearest composite for each domain code (the nearest neighbour distance).
- Block classification attribute.
- Coincident down-hole composite grade (non-coded composite grades falling within a block).
- Block diluted ID^3 grade (volume weighted average grade of all codes estimated grades).
- Specific gravity (as a density multiplier with air taken into account).
- Percent below topography.

The model contains Inferred resources of 600,000,000 tonnes grading 0.59% Cu, when using a cutoff of 0.4% Cu. This resource excludes blocks above this cutoff that are more than half within the leached solid (blocks dominated by leached volume) because metallurgical recovery has not been demonstrated for this copper-oxide bearing, leached material. These excluded blocks make up only approximately 7% of the material mineralized above a 0.4% Cu cutoff. It also excludes those blocks outside the 300-metre search radius (less than 2% of the total blocks).

Rounded numbers for the Inferred resource at San Carlos at various copper cutoffs are given in Table 17-4. Numbers for the mineralized leached material and blocks outside the 300-metre search radius, but inside the 0.3% Cu grade shell, are given in Table 17-5 and Table 17-6, respectively. Note that, since the block model tonnes are diluted, minor amounts of leached mineralized material (copper oxides) report to the tonnes in Table 17-4. Two sections through the block model are given in Figure 17-5 and Figure 17-6.

Table 17-4: San Carlos Inferred Resources   Blocks with >50% Hypogene and Enriched

%Cu Cutoff	tonnes	%Cu (ID^3)	lbs Cu
0.00	882,000,000	0.47	9,088,000,000
0.20	764,000,000	0.52	8,754,000,000
0.25	711,000,000	0.54	8,503,000,000
0.30	650,000,000	0.57	8,112,000,000
0.35	620,000,000	0.58	7,898,000,000
0.40	600,000,000	0.59	7,738,000,000
0.45	570,000,000	0.59	7,451,000,000
0.50	507,000,000	0.61	6,789,000,000
0.55	364,000,000	0.64	5,125,000,000
0.60	194,000,000	0.70	2,978,000,000
0.65	102,000,000	0.76	1,719,000,000
0.70	57,000,000	0.84	1,056,000,000
0.75	33,000,000	0.92	672,000,000
0.80	17,000,000	1.08	387,000,000
0.85	12,000,000	1.17	306,000,000
0.90	9,000,000	1.23	266,000,000
0.95	8,000,000	1.29	238,000,000
1.00	8,000,000	1.33	219,000,000

Table 17-5: San Carlos - Blocks Farther than 300m to Nearest Composite

%Cu Cutoff	tonnes	%Cu (ID^3)	lbs Cu
0.00	62,000,000	0.24	330,000,000
0.20	40,000,000	0.33	286,000,000
0.25	27,000,000	0.38	226,000,000
0.30	18,000,000	0.43	167,000,000
0.35	12,000,000	0.47	129,000,000
0.40	9,000,000	0.50	104,000,000
0.45	6,000,000	0.54	75,000,000
0.50	4,000,000	0.58	51,000,000
0.55	3,000,000	0.60	39,000,000
0.60	1,000,000	0.63	20,000,000
0.65	330,000	0.67	5,000,000
0.70	10,000	0.83	210,000
0.75	10,000	0.91	130,000
0.80	10,000	0.91	130,000
0.85	10,000	0.91	130,000
0.90	10,000	0.91	130,000
0.95	0	0.00	-
1.00	0	0.00	-

Table 17-6: San Carlos Inferred Resources Blocks with >50% Leached

%Cu Cutoff	tonnes	%Cu (ID^3)	lbs Cu
0.00	83,000,000	0.44	807,000,000
0.20	65,000,000	0.54	777,000,000
0.25	61,000,000	0.56	759,000,000
0.30	58,000,000	0.58	739,000,000
0.35	52,000,000	0.61	692,000,000
0.40	45,000,000	0.64	641,000,000
0.45	39,000,000	0.67	586,000,000
0.50	33,000,000	0.71	523,000,000
0.55	27,000,000	0.76	447,000,000
0.60	22,000,000	0.79	391,000,000
0.65	19,000,000	0.82	341,000,000
0.70	16,000,000	0.85	301,000,000
0.75	13,000,000	0.87	260,000,000
0.80	10,000,000	0.90	204,000,000
0.85	7,000,000	0.93	154,000,000
0.90	4,000,000	0.97	96,000,000
0.95	2,000,000	1.03	47,000,000
1.00	1,000,000	1.07	30,000,000

Figure 17-5: San Carlos Block Model Section NW -SE

Figure 17-6: San Carlos Block Model Section East-West, 9650500mN

17.5

MDA Discussion

The solids were not completely clean and correct in their representation of spatial domains, so some minor assumptions and factoring needed to be applied.

All block estimation was made inside or above the extents of the 0.20% copper gradeshell solid for Panantza and only inside the 0.3% copper solid for San Carlos.

The block-diluted (reporting) grades were diluted with 0% Cu for the portions of blocks that were outside the copper gradeshell solids. This dilution is clearly illustrated in Figure 17-5 and Figure 17-6 as a low-grade rind around the deposit, shown in darker blue.

There were blocks, mostly at the base of the model, where low-grade hypogene (1020 at Panantza, 1030 at San Carlos) was coded, but did not estimate because of a lack of assays being close enough to be found in the search distance; these volumes have a 0% Cu grade assigned to them.

The material in the leached solid is not strictly a leached zone; it contains significant oxidized copper mineralization.

17.6

Corriente Discussion

Corriente conducts its mineral exploration and development activities in compliance with applicable environmental protection legislation, and in consideration of exploration best practise. Corriente is not aware of any existing environmental problems related to any of its current or former properties that may result in material liability to the company.

The Panantza - San Carlos Project is located in Ecuador and therefore is subject to certain risks, including currency fluctuations and possible political or economic instability, which may result in the impairment or loss of mineral concessions or other mineral rights. In recent history, Ecuador has undergone numerous political changes at the presidential and congressional levels. Also, mineral exploration and mining activities may be affected in varying degrees by political instability and government regulations relating to the mining industry. Any changes in regulations or shifts in political attitudes are beyond the control of the company and may adversely affect its business. Exploration may be affected in varying degrees by government regulations with respect to restrictions on future exploitation and production, price controls, export controls, foreign exchange controls, income taxes, expropriation of property, environmental legislation and mine and/or site safety.

In November 2006, Rafael Correa won the Ecuador Presidential run-off election over Alvaro Noboa, but did not officially take office until January 15, 2007. During this transition period, the administration of President Alfredo Palacio experienced a number of protests in southeast Ecuador which eventually resulted in the suspension of the company s exploration in general and development activities at the Mirador Project.

Since President Correa s January 15, 2007 inauguration, his administration has focused primarily on exacting electoral and governmental reforms, which would result in the creation of a Constitutional Assembly and eventual re-writing of the Ecuador Constitution. These reforms are being met with substantial opposition from Congress.

While management believes that the current political climate in Ecuador will stabilize, there can be no certainty that this will be the case in the near future. Presently, management believes that the company s Ecuador operations will not be affected in the long-term and that any disruption to its projects will be resolved.

18.0

OTHER RELEVANT DATA AND INFORMATION

18.1

Purpose of the Panantza San Carlos Preliminary Assessment

This Preliminary Assessment was carried out on the Panantza San Carlos project to quantify the project s cost parameters and provide guidance on future engineering and development work. Cost estimates have been developed to an order of magnitude level. Full documentation is available upon request from Corriente.

This assessment has been based on Inferred resources for Panantza and San Carlos as described in Section 17 of this report, and previous metallurgical test work as described in Section 16. The fundamental assumptions are:

- A 90,000 tpd mill feed and mining operation
- Metal price of $1.50 copper
- Cost estimate accuracy, order of magnitude only, of -5%/+35%

For the purposes of this evaluation, methods, processes and costs were obtained from:

- Knight Piésold Ltd. (KP), a specialized independent consulting firm, which has provided input into the waste tailings co-disposal strategy and facilities, water management, power development, process facilities layouts and closure;
- Moose Mountain Technical Services (MMTS), which provided the mining methods, pit optimization, production rates and material quantities;
- Hoffert Processing Solutions Inc. (Hoffert) has provided the processing strategy and processing equipment requirements and costs;
- Merit Consultants International (Merit), an established project and construction management consulting group provided capital cost estimates from quotations and in-house cost databases;

- EcuaCorriente S.A. (ECSA) personnel and contractors provided mine and mill operating costs and mine equipment costs from quotations and from recent study work from projects of a similar nature;
- ECSA provided economic assessments using modeling programmes that were modified to incorporate Panantza-San Carlos project data.

18.2

Mining

18.2.1 Pit Shell Optimization and Layout

The potential resources for the Panantza and San Carlos mining areas were estimated from pit optimization studies carried out on the geological models using the Lerchs Grossman algorithm. Valuation was only applied on the copper mineralization of the deposits. Gold and silver values were not used in the economic assessment.

A base case was established using the design parameters provided by ECSA developed for the Mirador project, which is similar geologically and metallurgically. These parameters are summarized in Table 18-1.

Table 18-1: Base Case Design Parameters

BASE CASE DESIGN PARAMETERS	Units	Value
Cu price, LME	US $/lb	1.35
Cu mill recovery	%	91.2
Processing cost	US $/tonne	3.23
G&A cost	US $/tonne	0.38
Mining cost - ore	US $/tonne	1.14
Mining Cost - waste	US $/tonne	1.20
Concentrate grade	%	29.8
Concentrate moisture content	%	8.0
Land concentrate freight	US $/wmt	32.00
Port charges	US $/wmt	3.35
Ocean freight	US $/wmt	42.00
Total freight charges	US $/wmt	79.52
Total freight charges	US $/dmt	86.43
Concentrate Losses	%	0.25
Concentrate treatment charge	US $/dmt	75.00
Cu refining charge	US $/lb rec	0.075
Cu pay factor	%	96.5
Cu unit deduction	%	1.0
Cu Cutoff grade	%	0.251
Netback Cu Price at Mine	US $/lb	0.941
Overall Pit Slope Angle w Ramp	Degrees	40

The resulting copper cutoff grade at US$1.35/lb is calculated to be 0.25%, and the netback copper price at the mine is US$ 0.94/lb.

Sensitivities on the potential resource for each area were tested against the variability of the copper price, resulting in development of a series of pit shells. The results for both Panantza and San Carlos are summarized in Table 18-2 to Table 18-3. Figure 18-1 and Figure 18-2 graphically illustrate the sensitivity of the potential resource to the copper price.

Table 18-2: Panantza Pit Optimization Summary

PANANTZA PIT OPTIMIZATION SUMMARY - 0.25% Cu CUTOFF
(TONNAGE ARE IN THOUSANDS)

Pit	LME Cu Price, $US/lb	TOTAL ORE Tonnes	Cu%	TOTAL Cu Millions lbs	% OF TOTAL CU IN MODEL	Waste Tonnes	Stripping Ratio
Pit-01	0.75	25,551	0.762	429	6	20,289	0.79
Pit-02	0.80	133,717	0.671	1,979	28	70,860	0.53
Pit-03	0.85	179,659	0.659	2,610	36	109,846	0.61
Pit-04	0.95	284,609	0.638	4,005	56	254,023	0.89
Pit-05	1.10	394,519	0.634	5,511	77	541,865	1.37
Pit-06	1.20	420,826	0.632	5,867	82	640,599	1.52
Pit-07	1.35	450,025	0.629	6,242	87	771,597	1.71
Pit-08	1.60	483,368	0.625	6,661	93	972,378	2.01
Pit-09	2.00	502,825	0.622	6,895	96	1,134,330	2.26
Pit-10	3.00	516,533	0.619	7,050	99	1,311,191	2.54
Total Model		527,040	0.616	7,153			

Figure 18-1: Panantza Contained Cu *vs*. Price

Table 18-3: San Carlos Pit Optimization Summary

SAN CARLOS PIT OPTIMIZATION SUMMARY - 0.25% Cu CUTOFF
(TONNAGE IN THOUSANDS)

Pit	LME Cu Price $US/lb	TOTAL ORE Tonnes	Cu%	TOTAL Cu Millions lbs	% OF TOTAL CU IN MODEL	Waste Tonnes	Stripping Ratio
Pit-01	0.75	13,097	1.075	310	4	33,295	2.54
Pit-02	0.85	283,618	0.608	3,800	45	208,081	0.73
Pit-03	1.00	577,596	0.563	7,175	85	405,753	0.70
Pit-04	1.20	653,754	0.553	7,964	94	523,081	0.80
Pit-05	1.35	675,438	0.548	8,156	96	562,752	0.83
Pit-06	1.55	688,584	0.546	8,289	98	618,456	0.90
Pit-07	1.75	693,957	0.545	8,339	99	667,364	0.96
Pit-08	2.00	698,827	0.544	8,388	99	701,857	1.00
Pit-09	2.50	702,752	0.544	8,425	100	740,833	1.05
Pit-10	3.00	704,167	0.543	8,437	100	758,994	1.08
Total Model		707,068	0.543	8,463			

Figure 18-2: San Carlos Contained Cu Vs. Price

The ultimate pit selected for the Panantza deposit is the Pit-05 pit shell. It consists of 5.5 billion lbs contained copper, recovering approximately 77% of the total copper in the geological model. The incremental copper between this pit shell and the next larger pit shell, Pit-06, sharply drops off. The incremental ore, waste tonnages and contained copper between pit shells for Panantza are in Table 18-4.

The San Carlos pit shell Pit-03 would be selected for the ultimate pit. This pit shell consists of 7.2 billion lbs contained copper, recovering approximately 85% of total copper in the geological model. The incremental copper between this pit shell and the next larger pit shell, Pit-04, drops significantly. The incremental ore, waste tonnages and contained copper between pit shells for San Carlos are in Table 18-5.

However, for the purpose of this study, Pit-02 was selected as the ultimate pit for San Carlos because of the limited tailings disposal capacity identified in the current study.

Table 18-4: Panantza Pit Optimization Incrementals

PANANTZA PIT OPTIMIZATION INCREMENTALS - 0.25% Cu CUTOFF
(TONNAGE IN THOUSANDS)

Pit	TOTAL ORE Tonnes	Cu%	TOTAL Cu Millions lbs	Waste Tonnes	Stripping Ratio
Pit-01	25,551	0.762	429	20,289	0.79
Pit-02 Incr	108,167	0.650	1,549	50,571	0.47
Pit-03 Incr	45,942	0.624	632	38,985	0.85
Pit-04 Incr	104,950	0.603	1,395	144,177	1.37
Pit-05 Incr	109,910	0.622	1,506	287,842	2.62
Pit-06 Incr	26,307	0.612	355	98,734	3.75
Pit-07 Incr	29,199	0.583	375	130,999	4.49
Pit-08 Incr	33,343	0.570	419	200,781	6.02
Pit-09 Incr	19,456	0.544	233	161,952	8.32
Pit-10 Incr	13,708	0.518	156	176,861	12.90
TOTALS	516,533	0.619	7,051	1,311,191	2.54

Table 18-5: San Carlos Pit Optimization Incrementals

SAN CARLOS PIT OPTIMIZATION INCREMENTALS - 0.25% Cu CUTOFF
(TONNAGE IN THOUSANDS)

Pit	LME Cu Price $US/lb	TOTAL ORE Tonnes	Cu%	TOTAL Cu Millions lbs	Waste Tonnes	Stripping Ratio
Pit-01	0.75	13,097	1.075	310	33,295	2.54
Pit-02 Incr	0.85	270,521	0.585	3,489	174,784	0.65
Pit-03 Incr	1.00	293,977	0.521	3,375	197,672	0.67
Pit-04 Incr	1.20	76,158	0.470	789	117,327	1.54
Pit-05 Incr	1.35	21,684	0.402	192	39,672	1.83
Pit-06 Incr	1.55	13,146	0.457	132	55,703	4.24
Pit-07 Incr	1.75	5,373	0.433	51	48,908	9.10
Pit-08 Incr	2.00	4,869	0.446	48	34,491	7.08
Pit-09 Incr	2.50	3,925	0.433	37	38,966	9.93
Pit-10 Incr	3.00	1,415	0.384	12	18,172	12.84
TOTALS		704,165	0.543	8,437	758,990	1.08

The pit shells from the pit optimization study are used for the pit layouts in lieu of designed pits. There is insufficient geotechnical information to determine pit slope angles. Selected pit shells from the pit optimization study were used for pit phasing. Consideration was given to maintaining a sufficient push back offsets to the previous phase where possible. The initial phase in Panantza was chosen to minimize the strip ratio at the start of the project. An intermediate pit shell (Pit-11) was created in San Carlos to add a phase between Pit-01 and Pit-02 due to the large separation between the two pit shells.

These pit shells and their phasing designations are given in Table 18-6.

Table 18-6: Pit Phases

PIT PHASES			
Mine Area	**Optimized Pit Shell**	**Pit Shell Increment**	**Pit Phase**
Panantza	Pit-01	-	Phase 1 Starter Pit
Panantza	Pit-02	Pit-02 - Pit-01	Phase 2
Panantza	Pit-04	Pit-04 - Pit-02	Phase 3
Panantza	Pit-05	Pit-05 - Pit-04	Phase 4
San Carlos	Pit-01	-	Phase 1
San Carlos	Pit-11	Pit-11 Pit-01	Phase 2
San Carlos	Pit-02	Pit-02 Pit-11	Phase 3

18.2.2 Waste and Ore Tonnage Estimates

The optimized pits were used for estimating the potential resource for both Panantza and San Carlos mining areas as no pit designs are available at this stage of the project. The estimates from these pit shells would represent the maximum potential resource that can be extracted. Detailed pit designs incorporating highwall ramps and smoothing would reduce the ore quantities and likely result in a higher strip ratio. For this level of study, the practice of using pit shells from pit optimization studies is commonly used and is generally acceptable.

The potential resource estimates by phase are summarized in Table 18-7. No mining dilution or ore losses have been applied to the estimate. These factors would be assessed and implemented in the future evaluations.

Table 18-7: Potential Resources Estimate

POTENTIAL RESOURCE ESTIMATE					
Mine Area	**Pit Phase**	**Ore, Mt**	**Cu, %**	**Waste, Mt**	**SR**
Panantza	Phase 1 Starter Pit	26	0.76	20	0.8
Panantza	Phase 2	108	0.65	51	0.5
Panantza	Phase 3	151	0.61	183	1.2
Panantza	Phase 4	110	0.62	288	2.6
Total Panantza		395	0.63	542	1.4
San Carlos	Phase 1	13	1.08	33	2.5
San Carlos	Phase 2	13	0.70	12	0.9
San Carlos	Phase 3	258	0.58	163	0.6
Total San Carlos		284	0.61	208	0.7
Total Panantza and San Carlos		**678**	**0.62**	**750**	**1.1**

18.2.3 Mine Plan

A mine production schedule was developed using the pit phases from the pit optimization study. Ore production rate from the mine would be 90,000 tonnes per day to the crusher, based on the mill throughput design.

The general sequence is to commence mining in Panantza and continue until its resources are depleted in Year 13. The strategy is to complete the Panantza pit as soon as possible and have it ready for backfilling with San Carlos PAG waste The San Carlos pit would commence in Year 11 and be completed by Year 21. This sequencing strategy would minimize the PAG material that would be hauled to the Waste Management Facility (WMF), thereby minimizing haulage costs. However, this strategy would compromise the optimization of copper grades and the operating strip ratios in the mine schedule. All ore would be hauled to a crusher at the edge of their respective pits, and conveyed overland to a stockpile pad adjacent to the mill.

The production forecast is summarized in Table 18-8.

Table 18-8: Production Forecast

	Units	0	1	2	3	4	5	6	7	8	9	10	11	12	13	
TOTAL PANANTZA																
Ore Feed	k-tonnes	-	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,173	24,540	9,305	
Cu	%	-	0.677	0.628	0.624	0.686	0.570	0.545	0.624	0.675	0.651	0.559	0.671	0.717	0.630	
LEACH	k-tonnes	7,374	17,749	2,945	115	327	396	-	-	-	-	-	-	-	-	
WASTE	k-tonnes	9,146	17,991	54,469	57,447	56,134	57,216	57,365	57,533	57,651	58,181	21,912	6,389	1,494	22	
TOTAL WASTE	k-tonnes	16,520	35,740	57,413	57,562	56,461	57,612	57,365	57,533	57,651	58,181	21,912	6,389	1,494	22	
TOTAL MATERIAL MOVED	k-tonnes	16,520	68,590	90,264	90,412	89,311	90,462	90,215	90,383	90,501	91,031	54,762	38,562	26,034	9,327	
ORE FEED STRIP RATIO		-	1.1	1.7	1.8	1.7	1.8	1.7	1.8	1.8	1.8	0.7	0.2	0.1	0.0	
TOTAL SAN CARLOS																
Ore Feed	k-tonnes	-	-	-	-	-	-	-	-	-	-	-	677	8,310	23,545	32,8
Cu	%	-	-	-	-	-	-	-	-	-	-	-	0.732	1.158	0.656	0.5
LEACH	k-tonnes	-	-	-	-	-	-	-	-	-	-	-	335	1,005	1,440	12,1
WASTE	k-tonnes	-	-	-	-	-	-	-	-	-	-	-	20,348	24,565	46,145	37,2
TOTAL WASTE	k-tonnes	-	-	-	-	-	-	-	-	-	-	-	20,683	25,570	47,585	49,4
TOTAL MATERIAL MOVED	k-tonnes	-	-	-	-	-	-	-	-	-	-	-	21,360	33,880	71,131	82,3
ORE FEED STRIP RATIO		-	-	-	-	-	-	-	-	-	-	-	30.6	3.1	2.0	1
TOTAL ALL PITS																
Ore Feed	k-tonnes	-	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,850	32,8
Cu	%	-	0.677	0.628	0.624	0.686	0.570	0.545	0.624	0.675	0.651	0.559	0.672	0.829	0.649	0.5
LEACH	k-tonnes	7,374	17,749	2,945	115	327	396	-	-	-	-	-	335	1,005	1,440	12,1
WASTE	k-tonnes	9,146	17,991	54,469	57,447	56,134	57,216	57,365	57,533	57,651	58,181	21,912	26,737	26,059	46,167	37,2
TOTAL WASTE	k-tonnes	16,520	35,740	57,413	57,562	56,461	57,612	57,365	57,533	57,651	58,181	21,912	27,072	27,064	47,607	49,4
TOTAL MATERIAL MOVED	k-tonnes	16,520	68,590	90,264	90,412	89,311	90,462	90,215	90,383	90,501	91,031	54,762	59,922	59,914	80,457	82,3
ORE FEED STRIP RATIO		-	1.1	1.7	1.8	1.7	1.8	1.7	1.8	1.8	1.8	0.7	0.8	0.8	1.4	1

18.2.4 Waste Material Handling

Based on preliminary test work, it is anticipated that the majority of the waste material mined would be potential acid generating (PAG). This waste material would be co-disposed with the tailings and submerged under a water cap within 12 months of placement.

All PAG waste from Panantza would be hauled from the pit to the Waste Management Facility (WMF) for co-disposal. The majority of the PAG waste from the San Carlos pit would be disposed of in the Panantza pit once it has been mined out. It is anticipated that the waste would be submerged from groundwater infiltration, direct precipitation and runoff.

There would be approximately a two year period Years 11 and 12 when the San Carlos and Panantza pits are both active and the PAG waste from San Carlos would have to be co-disposed with tailings in the WMF. During this period, San Carlos PAG waste would be transported by an overland conveyor that would parallel the ore conveyor from the pit rim across the Rio Zamora to a location nearby the ore crusher stockpile. It would then be picked up and hauled to the WMF. When the Panantza pit is mined out, a conveyor leg would be added from the stockpile area to the Panantza pit, and all PAG waste from San Carlos would be conveyed directly for backfilling.

Potentially, saprolite waste material from Panantza and San Carlos can be categorized as non potential acid generating (NPAG), and therefore may be placed in waste dumps adjacent to the pits. However, for the purpose of this study, it would be placed together with other waste types in the WMF for co-disposal. Table 18-9 summarizes the destination and quantities of the waste material types.

Table 18-9: Waste Disposal Destinations

WASTE DISPOSAL DESTINATIONS

Pit	Waste Type	Quantities, M-tonnes	Destination
Panantza	PAG	513.0	WMF
	Saprolite	28.9	WMF
Total Panantza		541.9	
San Carlos	PAG	44.9	WMF
	PAG	116.6	Panantza pit backfill
	Saprolite	46.5	WMF
Total San Carlos		208.0	

18.2.5 Mining Equipment

This section describes the mine equipment fleet for the mine operation from the pit to the tipping point at the ore/waste crushers, and to the waste dump at the in-pit backfill site. Equipment associated with ore/waste crushing, conveying, and co-disposal of waste at the WMF is described later in this report.

The primary load and haul equipment fleet would consist of 26 m^3 electric cable shovels (P&H 2800 XP) loading 30-40, 218 tonne trucks (CAT 793C). The size of the shovels was selected to meet the annual ore and waste production requirements from the pits. Each unit has the capacity to produce an average of 25 M-tonnes per year. It is estimated that a maximum of 3 to 4 shovels would be required during production Years 2 to 9. From Year 10 onwards, the total material mined would decrease because of low strip ratios, and the loading fleet would be reduced by half. Electric cable shovels were chosen over hydraulic excavators due to their lower operating costs. It would be necessary to have power supplied to the Panantza and San Carlos pit areas.

The size of the trucks was selected to match the shovel output, so that no more than 4 passes are necessary to fully load the truck. The size of the fleet was determined by estimating the haulage productivities for ore and waste. Haulage profiles were developed for selected routes from the pit to the crushers and WMF to estimate the truck productivities. These productivities were then extrapolated for other ore and waste haul routes.

It is estimated that the drill fleet would consist of three 311 mm diameter electric blast-hole drills for production drilling during the high strip ratio Years 2 to 9. One 155 mm diameter diesel track drill would be required for pre-shear holes.

The pit support equipment would consist of a rubber tire dozer for pit floor maintenance around the shovel faces, and 4 track dozers (493 kW, or CAT D10R equivalent) for road development and maintenance. The road maintenance fleet would also include motor graders and water trucks. It is anticipated that a track dozer equivalent to a CAT D11R (698 kW) may be required for pushing waste to facilitate the pit backfill operation commencing in Year 13. A wheel loader was included in the fleet for stockpile handling as well as backup to the loading fleet.

The ancillary equipment fleet was estimated from those previously developed for a similar project.

18.2.6 Drilling, Blasting and Explosives

Drilling and blasting are necessary in the bedrock. Saprolite would be drilled for ore-grade sampling but should not require blasting. Bedrock material would be blasted using two products, an emulsion and straight ANFO, and because of the expected amount of water in the pits, it is anticipated that 20% of the holes would require the emulsion and 80% would be loaded with straight ANFO, assuming that effective water control practices are implemented.

Bedrock drilling is done using up to three 311 mm rotary drills completing 14 m deep drill holes on 7 m spacing. One 155 mm drill would be used to drill pre-split holes for controlled blasting close to the pit walls and ore-control holes in saprolite.

18.2.7 Open Pit Water Management

Open pit development of the San Carlos and Panantza open pits would have a significant impact on the local hydrogeological regimes, as the open pits would become groundwater discharge areas. The existing groundwater table may be at or near surface, and progressive development of the pits would result in a gradual lowering of the groundwater table in the vicinity of the excavations. Significant surface water diversions would be required at the Panantza open pit, given that the Rio Panantza flows through the centre of the proposed excavation.

A tunnel would divert water around the Panantza open pit; part of this diverted water would be used for hydroelectric power generation. Fresh water would be collected at the outlet of the Panantza Open Pit diversion tunnel and pumped to a head tank at the Mill.

Depressurization systems may comprise a combination of techniques including surface water diversion ditches, vertical pumping wells, horizontal wall drains and water collection systems. These measures would be implemented as a staged observational approach during pit development, involving the installation of depressurization measures and associated monitoring of groundwater pressures. This would enable an assessment of the pit slope drainage capability and the requirements for additional installations.

The pit drainage systems should include allowances for diversion ditches, deep pumping depressurization wells and perimeter and/or in-pit pumping wells, horizontal drains installed in both the interim and final pit walls, and a series of pumps and collection systems which transfer water from the pit excavations to surface sumps for treatment and release.

18.3

Process Design Criteria

Over the life of mine, the Panantza San Carlos process plant is designed to process an estimated 90,000 t/d of copper ore containing 0.62% Cu, 0.008% Mo, 1.3 g/t Ag and 0.05 g/t Au for approximately 20 years. A total of 678.1 Mt of ore would be processed over the life of the mine. Recoveries are estimated to be 91% Cu to the copper concentrate and 43% Mo to the molybdenum concentrate. Copper concentrate production is expected to average 29.5% Cu and 57 g/t of Ag and molybdenum concentrate is expected to average 49% Mo. A total of 3.8 Mt of copper would be recovered to the copper concentrate over the mine s life.

Processing operations are scheduled for 24 h/d, 365 d/y at 92% utilization. The major units operations are primary crushing, SAG and ball mill grinding with a pebble crushing plant, flotation and regrinding, concentrate thickening and molybdenite separation. The copper concentrate would be transported by pipeline and dewatered at the port.

Detailed mass balances and flow sheets were developed covering all process streams based on a throughput of 90,000 t/d. The annual mine production plan provided by MMTS is shown in Table 18-10. A simplified schematic process diagram is shown in Figure 18-3 to Figure 18-5.

Table 18-10: Panantza San Carlos Estimated Production Schedule

Panantza San Carlos Estimated Production Schedule

	Mine Plan			**Head Grade**				**Payable Metal**				Cu Conc		Mo Conc
Year	Panantza	San Carlos	Total			Au	Ag	Cu lb/y	Mo lb/y	Au troy oz	Ag troy oz	Dry	Wet	Dry
	t/y x 1000	**t/y x 1000**	**t/y x 1000**	%Cu	%Mo	**(g/t)**	**(g/t)**	**x 1000**	**x 1000**	**x 1000**	**x 1000**	**t/y**	**t/y**	**t/y**
1	32,850	-	32,850	0.68	0.009	0.072	1.50	452,946	2,803	22.8	1,109	696,457	767,024	2,594
2	32,850	-	32,850	0.63	0.009	0.072	1.50	420,389	2,803	22.8	1,109	646,397	711,891	2,594
3	32,850	-	32,850	0.62	0.009	0.072	1.50	417,366	2,803	22.8	1,109	641,749	706,772	2,594
4	32,850	-	32,850	0.69	0.009	0.072	1.50	459,068	2,803	22.8	1,109	705,871	777,391	2,594
5	32,850	-	32,850	0.57	0.009	0.072	1.50	381,677	2,803	22.8	1,109	586,873	646,336	2,594
6	32,850	-	32,850	0.54	0.009	0.072	1.50	364,613	2,803	22.8	1,109	560,635	617,439	2,594
7	32,850	-	32,850	0.62	0.009	0.072	1.50	417,891	2,803	22.8	1,109	642,556	707,661	2,595
8	32,850	-	32,850	0.68	0.009	0.072	1.50	451,804	2,803	22.8	1,109	694,701	765,089	2,594
9	32,850	-	32,850	0.65	0.009	0.072	1.50	435,600	2,803	22.8	1,109	669,786	737,650	2,595
10	32,850	-	32,850	0.56	0.009	0.072	1.50	373,762	2,803	22.8	1,109	574,703	632,933	2,594
11	32,173	677	32,850	0.67	0.009	0.072	1.50	449,240	2,803	22.8	1,109	690,759	760,748	2,594
12	24,540	8,310	32,850	0.83	0.008	0.051	1.30	548,171	2,491	-	961	842,877	928,279	2,306
13	9,305	23,545	32,850	0.65	0.007	0.030	1.10	424,004	2,180	-	813	651,956	718,013	2,018
14	-	32,850	32,850	0.60	0.007	0.030	1.10	385,405	2,180	-	813	592,605	652,649	2,018
15	-	32,850	32,850	0.57	0.007	0.030	1.10	367,548	2,180	-	813	565,147	622,409	2,018
16	-	32,850	32,850	0.57	0.007	0.030	1.10	371,278	2,180	-	813	570,883	628,726	2,018
17	-	32,850	32,850	0.59	0.007	0.030	1.10	382,067	2,180	-	813	587,472	646,996	2,018
18	-	32,850	32,850	0.59	0.007	0.030	1.10	384,260	2,180	-	813	590,845	650,710	2,018
19	-	32,850	32,850	0.58	0.007	0.030	1.10	375,979	2,180	-	813	578,112	636,687	2,018
20	-	32,850	32,850	0.59	0.007	0.030	1.10	380,944	2,180	-	813	585,746	645,095	2,018
21	-	21,132	21,132	0.59	0.007	0.030	1.10	245,237	1,402	-	523	377,080	415,287	1,298
Total	394,518	283,615	678,133					8,489,247	52,162	250.9	20,189	13,053,211	14,375,783	48,287
Average				0.62	0.008	0.05	1.32							

Figure 18-3: Crushing and Grinding Flow Sheet

Figure 18-4: Copper Flotation Flow Sheet

In years 1 to 10, the primary crusher feed would come from the Panantza pit, then from years 11 to 13 the ore would transition to the San Carlos pit, with the remainder to come from the San Carlos pit until the end of the mine life. The Panantza primary crusher would have a 5,000 t/h capacity, through a 60 x 110 gyratory crusher in open circuit, which reduces the ore from 100% passing 1,000 mm (40) to 100% passing 250 mm (10). The crusher is fed with ROM ore by 240 t trucks. Crushed ore is transported onto an 180,000 t capacity stockpile by one apron feeder, one intermediate belt conveyor (72 wide x 30 m long) and one overland belt conveyor (72 x 1300 m). A similar crusher and overland conveyor would be used in year 10 to transport material across the Rio Zamora to the stock pile.

The nominal 80% passing 90 mm rock from the stockpile is fed to twin 38

20 EGL SAG mills driven with 19.4 MW ring motors. Each SAG mill discharge passes over 2 8 20 single deck vibrating screens which take out the coarse material through 2 MP 1000 crushers then for recycle back to the SAG mills. The grinding circuit configuration is SABC-A, where the pebble crusher product is returned to the SAG mill. There would be two options to bypass the pebble crushing plant, which would be either returning the uncrushed pebbles to SAG mill or discharging them onto the floor. The fines from the SAG discharge screens are pumped with the ball mill discharges to twin Krebs 26 GMAX cyclopacs with 11 cyclones in each cyclopac to feed the flotation circuit with approximately 80% passing 150 µm material. The cyclone underflow is returned to 4 22.5 36 ball mills with 4.8 MW dual drive motors apiece. The primary grinding circuit has 77.2 MWatts available power for grinding.

The flotation circuit consists of two lines of rougher-scavengers, regrinding and three cleaner flotation stages in counter current configuration. Flotation includes the following major equipment:

- Two rougher-scavenger lines, with eight 300 m^3 tank cells in a (1+2+2+2+1) arrangement;
- Two regrind cyclopacs, with nine 15 cyclones each;
- Three 930 kW Vertimill VTM1250 s for regrinding;
- One line of cleaner and scavenger cleaner flotation cells with eight 200 m^3 tank cells in a 1+2+1 and 1+2+1 arrangement; the first four cells operate on the first cleaner stage and the final four cells are for the scavenger cleaner flotation stage; and
- One line with nine 30 m^3, flotation cells in a 1+1+1+1 and 1+1+1+1+1 arrangement. The first four cells operate as the third cleaner stage and the following five cells operate as the second cleaner flotation stage.

Copper concentrate thickening includes one 38 m diameter conventional thickener which feeds the molybdenum flotation circuit.

Figure 18-5: Molybdenum Flotation Flow Sheet

Fresh water is provided by the diversion inlet structure and tunnel. Reclaim water is provided from the tailings pond barge through a booster station each with by six Peerless 4 stage 20HH vertical turbine pumps, each rated 9,700 US gpm at 420   TDH, (2,200 m3/hr at 128m) cast iron, bronze fitted. Design is for 5 to run, 1 as standby.

Installations are provided for the storage, preparation and distribution of milk of lime. This includes a compact plant with a storage bin (3 days operating capacity), slaking-mill system and dilution tank. The distribution system includes one tank with a distribution loop to feed the consumption points on the SAG grinding and flotation plant.

A solid reagents storage and preparation plant is included. For liquid reagent storage tanks are provided with pumping systems to feed the dosing tanks at the concentrator.

The reagents included are the principal copper collector (Cytec 3894), a secondary copper collector (PAX, xanthate), and a frother (MIBC).

18.4

Waste Management Facility Location Selection

KP identified, assessed, and provided cost estimates for potential Waste Management Facility (WMF) options in the project area. The study area was limited to a 10 km radius from the two deposits, and used the available 40 m contour topographic mapping. Conceptual mine development alternatives, which include crusher and mill locations, and conveyor and haul road alignments, were developed in conjunction with the waste management options. The best alternative for both WMF and mine layout were then chosen.

Five potential WMF options were identified[1] and summarized in Table 18-11. These sites were assessed using factors including volumetrics, distance from other mine facilities, and water management considerations. KP also reviewed tailings delivery, water reclaim and fresh water systems, and conducted a preliminary assessment of environmental impacts. Costs for the preferred WMF option were estimated based on the conceptual design. Costs developed under this scope include:

- Earthworks
- Foundation preparation
- Seepage collection and recovery systems
- Tailings delivery, cyclone sand, reclaim, discharge, and fresh water systems
- Electrical power, instrumentation and control systems
- Detailed engineering and construction supervision.

1 Details of all alternative are available in an internal KP report

The first criterion to be assessed was volumetrics. This includes the total dam height to provide the required storage capacity, and storage efficiency, which relates the storage capacity with the required embankment volume. The second consideration was water management, which includes the size of the contributing catchment, and potential water surplus or deficit. Water management is of critical importance when considering a facility of this size in an area of relatively high mean annual precipitation.

Table 18-11: Summary of Waste Management Facilities Options Assessment

Options A and C are clearly preferable from a volumetrics perspective, as they are the only two with the requisite storage capacity. Option C, although requiring a taller embankment, has slightly better storage efficiency than Option A. Option C has a smaller catchment area, making it preferable from a water management perspective. Option C is also much closer to the centre of gravity of the two deposits, making roads, conveyors, and pipelines shorter.

18.5

Mine Development Alternatives Assessment

Four potential mine development alternatives were developed following the WMF Option identification and assessment. The chosen alternative has a mill location that results in the shortest pipeline and conveyor alignments, while still allowing for gravity discharge of tailings to the WMF for the initial part of the project life. A conveyor would be used to transport crushed waste rock from the San Carlos Pit to a transfer point near the Stockpile, thus avoiding the potentially prohibitive expense associated with constructing a haul road across the Rio Zamora from the San Carlos Pit to the WMF. A second crusher has been located near the San Carlos Pit to reduce the waste rock to a conveyable size. Waste rock would be trucked from the transfer point to the WMF during the initial crossover period in Years 11, 12 and 13. When mining has concluded at the Panantza Pit in Year 13, a second conveyor would carry the waste rock from the transfer point to the inactive Panantza Pit.

All design and costing have been carried out on the arrangement shown in Figure 18-6. It is likely that further refinement of this layout is possible, following more detailed studies.

Figure 18-6: General Arrangement

18.6 Site Characteristics

18.6.1 Geology

A thin veneer of colluvium is expected on the hill slopes, with most of the stream beds cut down to bedrock. Moving up the hill slopes towards the ridge tops, it is expected that the colluvium veneer would give way to an increasingly deep profile of residual soil, or saprolite. Areas of lesser relief, particularly under steep ridges, are likely landslides. Bedrock is expected to generally be Zamora Granodiorite to Quartz Monzonite.

18.6.2 Seismisity

The project site is located in a region of high seismicity. The seismicity of southern Ecuador is associated with interplate subduction earthquakes, intraplate (intraslab) earthquakes in the subducted oceanic plate and shallow crustal earthquakes within the continent. Numerous large magnitude earthquakes have been recorded over the last 400 years. Figure 18-7 presents the regional seismicity of Ecuador and surrounding regions and shows the locations of recorded earthquakes (of Magnitude 4 and greater). The approximate location of the interplate subduction zone is also included on Figure 18-7. The historical earthquake record includes earthquakes from 1541 to 2005. However, the large majority of the data are for events occurring in the last 40 years. Prior to this time, generally only large magnitude events (M > 6) are included in the historical earthquake record.

Several large magnitude intraplate earthquakes have been recorded in the region over the last century, including an earthquake in 1906 with an estimated magnitude of approximately 7.5 to 7.9. Another large intraplate earthquake of about Magnitude 7.5 occurred in 1971. Both of these events occurred at focal depths of approximately 100-150 km, within the subducting slab.

Numerous moderate to large shallow crustal earthquakes have occurred within Ecuador and surrounding regions, particularly along the Andean range. A large number of Quaternary faults have been identified in the region (USGS, 2003). The majority of these faults trend approximately NE-SW or N-S through Ecuador and accommodate the compressional stresses produced by convergence of the Nazca and South American tectonic plates.

Based on a preliminary review of the regional seismicity and tectonics, a conservative Magnitude 8.0 intraplate earthquake causing a maximum bedrock acceleration of 0.6g is considered to represent a reasonable Maximum Credible Earthquake event for the project. A large magnitude (M7-M7.5) crustal earthquake close to the project site could produce similarly high maximum accelerations, but would likely be less damaging than a Magnitude 8.0 intraslab earthquake. Ground motions from a large magnitude interface subduction earthquake along coastal Ecuador would be significantly lower due to the greater distance from the project site (maximum bedrock accelerations at the site likely less than 0.2g).

A detailed probabilistic seismic hazard analysis has not been completed to date for the project. A seismic hazard map that includes Ecuador was prepared for the Global Seismic Hazard Assessment Programme (GSHAP, 1999). This hazard map presents the probabilistic maximum bedrock acceleration with a 10% chance of exceedance in 50 years, corresponding to a return period of 475 years. The maximum bedrock acceleration determined for the project area from this hazard map is approximately 0.2g.

Figure 18-7: Regional Seismicity

18.7

Waste Management Facility Design

18.7.1 General

The principal design objective of the WMF is to store the required volume of mine waste, in a manner which minimizes impacts to the surrounding environment. Of particular importance is protection of downstream groundwater and surface waters, to the extent possible. The design basis is summarized in Table 18-12, and the starting configuration is shown in Figure 18-8.

Table 18-12: Waste Management Facility Design Basis and Operating Criteria

Table 18-12: Waste Management Facility Design Basis and Operating Criteria

The facility is designed to store an ultimate volume of approximately 657 Mm^3 of mine waste. This corresponds to the current mine plan, which estimates a total 678 Mt of ore milled, and approximately 750 Mt of waste rock. Approximately 600 Mt of waste rock would be stored in the WMF while the remaining 150 Mt would be conveyed to the Panantza Pit beginning part way through Year 13, and continuing until the end of the mine life.

Figure 18-8: Waste and Water Management Facilities Year -1 (Starter) General Arrangement

18.7.2 Embankment

The confining embankment construction would begin with a starter dam, using pre-stripping material from the Panantza Pit, and suitable borrow, as required. The starter embankment would be built as a full width, water retaining dam with 2:1 upstream and downstream slopes. A typical schematic cross section is shown on Figure 18-8. Suitable material would be placed and compacted to achieve the required permeability and stability criteria. The embankment would be required to impound an initial fresh water pond prior to the start of processing operations.

The confining embankment would be continually raised using non-reactive cyclone sand tailings. Coarse cyclone sand would be deposited and compacted in cells to form the downstream embankment shell, with downstream slopes of 3:1. The centreline method of embankment construction would be used, with a minimum final crest width of 10 m. The fine cyclone overflow would be deposited on the upstream side of the embankment, forming a low angle beach to serve as a low permeability upstream barrier between the supernatant pond and the embankment. A final raise of lower permeability material may be required prior to closure, to allow for complete surface flooding of the waste management facility.

It is assumed that a basin liner would not be required to control seepage. Geotechnical investigations have not been conducted, but are necessary to verify this assumption.

18.7.3 Tailings Delivery Systems

Two separate tailings streams would be produced at the Mill, Cleaner Scavenger Tailings (CST) and Rougher Scavenger Tailings (RST). The RST would flow by gravity to a cyclone sand plant located at elevation 1070 masl, above the north abutment of the embankment. Coarse cyclone underflow, or cyclone sand, would be pumped along the embankment crest and deposited as fill for the downstream shell. Given the large extent of the WMF, it would not be possible to discharge the fine cyclone overflow from the embankment crest alone, as the beach would not reach the upstream end of the impoundment. Cyclone overflow would be discharged along the embankment crest, as well as for approximately two kilometres along each side of the facility. Pumping of the cyclone overflow would be required in the later stages of the project life. CST would be flow by gravity to a subaqueous deposition point in the supernatant pond. A layout of the tailings distribution pipeworks for various stages in the project life is shown on Figure 18-8 to Figure 18-10.

18.7.4 Waste Rock Deposition

Waste rock would be hauled to the WMF for permanent storage. The rock would be placed in the facility in approximately 10 m lifts, where it would be progressively submerged by the rising tailings solids and the supernatant pond. Subaqueous storage of the waste rock has the potential to significantly reduce or prevent the onset of acid rock drainage or metal leaching. It may also be possible to use non-reactive material for ongoing embankment construction.

Figure 18-9: Waste and Water Management Facilities Year 11 General Arrangement

Figure 18-10: Waste and Water Management Facilities Year 21 (Final) General Arrangement

18.7.5 Reclaim, Discharge and Fresh Water Systems

The reclaim barge, booster pump station, and associated pipeworks shown on Figure 18-8 through to Figure 18-10, would deliver water from the supernatant pond to the Mill, cyclone sand plant, and for treatment and release. The system would require adjustment throughout the project life, as the elevations in the facility, as well as the extent of the tailings beach and pond, would vary from year to year. Provisions have been made for relocation of the booster pump station in Year 8.

Fresh water would be collected at the outlet of the Panantza Open Pit diversion tunnel and pumped to a head tank at the Mill. This tank would supply the fresh water requirements at the Mill, as well as other mine facilities. Sufficient storage for periods of low precipitation would be provided in the diversion intake head ponds.

18.7.6 Preliminary Embankment Stability Analyses

Preliminary static and seismic stability analyses were completed for the proposed embankment. The results of the modelling indicate that, given the current assumptions, the embankment would be stable under static conditions. Given the uncertainty of the foundation conditions and embankment material strength parameters, the modelling must be viewed as proof-of-concept, rather than actual design. Further studies, including geotechnical investigations and construction materials testing, must be completed before more detailed stability analyses can be done. Preliminary analysis of embankment stability under seismic loading conditions indicates that embankment deformation under the maximum design earthquake is approximately four metres. Sufficient freeboard will need to be provided to allow for potential deformation.

18.8

Water Management

A water balance was completed to estimate the mean annual water surplus or deficit at the Waste Management Facility (WMF) over the 21 year project life. Estimated mean annual hydrologic conditions were used as the basis for the modeling.

A supernatant pond of approximately 6 million cubic metres would be accumulated for initial processing requirements, beginning approximately six to nine months before startup. The WMF supernatant pond volume would be managed throughout operations to provide sufficient detention time for tailings solids to settle, as well as provide a buffering volume for process water requirements, while maintaining sufficient freeboard and providing cover for the CST.

The results of the water balance model suggest that the facility would operate at a mean surplus of up to approximately 2 m^3/s given the known climatic factors. It is assumed that surplus water would be treated and released downstream of the WMF. Further studies should address water quality considerations to more accurately determine the extent of required treatment prior to discharge. For the purpose of this study, surface water diversions have not been considered.

The freeboard requirement for the facility has been set at five metres. No surface water diversions have been considered around the WMF impoundment. Although the opportunity exists to reduce the surplus inflows to the facility through the use of diversions, construction and operational viability has not been assessed at this level of design. Future work should address the feasibility of upstream surface water diversions, and the relative benefits when compared with a downstream water treatment and release system.

The Rio Panantza would bisect the Panantza open pit, necessitating a diversion system. There is potential for a hydropower development in the order of 11 MW using the water diverted from the catchment west of the Panantza Open Pit. This translates into approximately 33 GWh of annual energy generation, which would be economically justified as an addition to the required surface water diversion system. A layout of the scheme is shown in the section on power requirements, in Figure 18-16. Further details of the

Panantza Open Pit diversion and hydropower scheme may be seen in KPL Letter VA07-00896, date July 5, 2007, and available from Corriente.

18.9

Environmental Impact Assessment

18.9.1 History

Environmental Impact Statements (EIS) have been presented and approved by the National Direction of Environmental Protection (DINAPA) for the initial exploration phases of the San Carlos and Panantza Projects. The environmental and social studies in support of the various EIS were conducted prior to December 1998 under the guidance of the previous property owners, Billiton Ecuador B.V. (Billiton), and are summarized in the Linea Base Area Proyecto Pangui , Caracteristicas de la Situation Preproyecto document produced in December 1998 (Billiton, 1998).

The mineral concessions that are included within the San Carlos and Panantza mining project region are listed in Table 18-13, together with a summary of their memorandum numbers and approval dates. The EIS approvals for these concessions were issued between August 1996 and February 1997.

Table 18-13: Waste Management Facility Concession Environmental Approval Status

The specific focus of this environmental impact assessment is on the WMF illustrated in Figure 18-11, which also shows the historic water sampling points. The Yangunza River runs through the base of the valley in which the proposed WMF is situated.

Figure 18-11: Regional Water Quality Sample Locations

18.9.2 Socioeconomic and Land Use Impacts

In order to proceed with the development of the WMF in this proposed location, approximately 56 residents of San Luis de Miachi and 48 residents of La Veintisiete de Noviembre would need to be relocated. San Luis de Miachi is located on a ridge immediately adjacent and above the proposed WMF, and La Veintisiete de Noviembre is located within the main embankment footprint. Other settlements within the project area would also be directly and indirectly affected by the development of a mine at this location, and would need to be included within the broader socio-economic assessment scope.

The resettlement of families within the impact area of the WMF would need to be addressed in a Resettlement Action Plan (RAP), which would be prepared prior to negotiations and moving the people.

There are no records available pertaining to specific social or economic information gathered from either San Luis de Miachi or La Veintisiete de Noviembre. Baseline social studies have been conducted in the region for the Mirador Project, which is located approximately 45 km south of the San Carlos and Panantza Projects. This information is provided in the Mirador Project Environmental Impact Assessment authored by Terrambiente Consultores Compania Ltda. in 2005, for EcuaCorriente S.A.

18.9.3 Biotic Environment Flora and Fauna

Remnants of the native flora encompassed within the proposed area of disturbance for the WMF would be directly impacted by the development of the mine. A majority of the vegetation and the shallow organic soils would be cleared, grubbed, and stripped from the approximately 700 hectare WMF area so that the encompassing land can be prepared for the construction of the tailings embankment and deposition of the waste rock and tailings. The loss of the forested habitat would directly impact local fauna, though the impacts would not be extensive due to the vast quantities of similar habitat found in the surrounding areas. Aquatic impacts are anticipated to occur as a large section of the Yangunza River would no longer exist, though these impacts would also not be extensive due to the presence of numerous similar watersheds in the immediate area, all of which are tributaries to the Zamora River.

The environmental and social studies conducted prior to 1998, which includes flora and fauna, are summarized in the Linea Base Area Proyecto Pangui , Caracteristicas de la Situation Preproyecto for a larger regional scale that encompasses portions of the existing project boundaries (Billiton, 1998).

The flora and fauna within the region are considered highly endemic and the Cordillera del Condor is considered to be a very significant region of great importance for conservation due to its vast biological diversity and endemism, as well as its role as a refuge for many species (Conservation International, 1997) (Terrambiente, 2005). A detailed Social and Environmental Baseline Assessment (SEBA) would need to be undertaken in order to provide the necessary background information to conduct an accurate impact assessment specifically related to the San Carlos and Panantza Projects. Furthermore, this information would be key to the development of an Environmental Management Plan, which would detail monitoring and mitigation measures to be implemented to ensure that the project is sustainable.

18.9.4 Physical Environment

The proposed WMF would be situated at the base of the Yangunza River valley, which is tributary to the Zamora River. The Yangunza River basin encompasses approximately 4000 hectares of land, comprising approximately 0.4% of the Zamora River basin, which encompasses approximately 1 Million hectares of land. The final footprint of the WMF is estimated to encompass approximately 700 hectares of land within the Yangunza River valley, accounting for only 23% of the valley area.

The hydrology and quality of water in the Yangunza River have not been studied and would need to be investigated as part of the baseline environmental assessment process, both upstream and downstream of the proposed WMF. Studies would also be required in the Zamora River, upstream and downstream of the Yangunza River valley. One baseline water quality sample was collected from the Zamora River (Water Quality Site 108, Figure 18-11) and the chemistry of this sample is reported in the Linea Base Area Proyecto Pangui , Caracteristicas de la Situation Preproyecto (Billiton, 1998). Also included in the Billiton report are the water quality chemistry results for numerous other samples collected throughout the greater study area. The locations of these water sample sites are shown on Figure 18-11. A more extensive baseline water quality and hydrology data collection programme would need to be developed for the Yangunza and Zamora rivers; the assessment of these rivers would likely be part of the greater baseline assessment programme for the project as a whole.

Likewise, no groundwater hydrology and quality, soils, or geology data have been collected within the region of the proposed WMF. These essential data would be collected during the geotechnical investigations in the WMF footprint. Baseline groundwater quality would need to be monitored downstream of the WMF embankment through the installation and sampling of groundwater monitoring wells. The baseline groundwater hydrology and quality investigations, in combination with the results of the geochemical characterisation of the tailings and waste rock, would provide the basis for the impact assessment of the potential effects of seepage from the WMF on both the surface and ground waters in the downstream environment.

18.9.5 Conclusions

The effects on water quality resulting from construction and operation of the WMF would be significantly mitigated through sub-aqueous deposition of tailings and waste rock. While there would be a loss of land, and associated flora and fauna habitat, portions of the WMF would be reclaimed during operations and at closure, replacing some of the lost vegetation and wildlife habitat. The remaining portions of the WMF would likely become marsh and wetlands, transforming some of the existing terrain to a new land use. The potential for the beneficial use of diverted or treated water, or creation of new habitat may also be explored in future studies.

18.10

Onsite Infrastructure and Services

The plant site location has been selected as show on Figure 18-12. This site would service the initial Panantza development and would be utilized as much as practical in the San Carlos development. The Mill location is relatively close to the Zamora River, and the elevation of about 1100 m above sea level would allow gravity discharge of tailings to the Waste Management Facility (WMF) for the initial part of the mine life.

All plant facilities would be positioned within the existing contours to take advantage of the natural drainage course available to minimize the bulk cut and fill operation. The plant site layouts assume a balanced cut and fill design. Plant related facilities include administration building, access road, primary crusher, overland conveyors, coarse ore stockpile, coarse ore reclaim facilities, grinding plant, pebble plant, fresh water tank, process water tank, fire protection system, warehouse, storage yard, sewage treatment plant, water treatment plant and waste management facilities.

Open pit mine support facilities would include mine roads, a truck shop, truck wash building, tire shop, warehouse, sample building and sewage treatment plant. Mine offices would be centrally located in the Administration Building complex. Permanent mine staff would be accommodated in a permanent camp sized for 400 operating personnel. The camp would include a major kitchen and recreation areas, both indoor and outdoor.

Construction contractors would provide camp facilities for their workers. The cost of providing these services has been included in the construction labour rates. Construction management staff and Corriente staff required during the project implementation phase would be housed in the permanent camp facilities. This permanent camp would be an early constructed facility.

Figure 18-12: Plant Site Location

Offices for mine technical and operating personnel would be located in the Administration offices at the Mill site facility. Only the truck shop and mine maintenance offices would be located near the open pit.

The truck and mobile equipment maintenance shop includes truck bays (5), dozer repair bay, wash bay, welding bay, tire repair bay, machine shop and an electrical and instrument repair area. A separate light-duty vehicle building would be adjacent to the mobile equipment shop and would incorporate the maintenance offices. Two 50 t overhead bridge cranes are included in the complex. The building also includes the main warehouse, tool storage, small part storage, mine dry and emergency vehicle storage.

Access to the Mill site would primarily be by 15 km of new road into the Panantza site from the existing gravel road near the village of Rocafuerte (see Figure 18-6). The gravel road from Gualaquiza to San Juan Bosco may require upgrading; this work has been started by the national ministry and is expected to be completed prior to the project s development. To cover any uncertainty of upgrade completion, costs for completion of the upgrade have been included in the project s capital cost estimate. A bridge to the San Carlos deposits is required prior to the start of the Phase II of the project and has been included in the first phase of the project. Approximately 15 km of the new road would be constructed in the Phase II of the project to complete the access to the San Carlos mine area.

As a consequence of the heavy precipitation, it would be necessary to provide good erosion control for roads, plant site, overland conveyors and tailings dam construction through the use of controlled drainage and collection/settling ponds, before final release of the water to the environmental.

18.11

Water Supply

A reclaim barge, booster pump station, and associated pipeworks would deliver water from the supernatant pond to the Mill, cyclone sand plant, and for treatment and release (see Figure 18-8 to Figure 18-10). The system would require adjustment throughout the project life, as the elevations in the facility, as well as the extent of the tailings beach and pond, would vary from year to year. Provisions have been made for relocation of the booster pump station in Year 8.

Fresh water would be collected at the outlet of the Panantza Open Pit diversion tunnel and pumped to a head tank at the Mill. This tank would supply the fresh water requirements at the Mill, as well as other mine facilities. Sufficient storage for periods of low precipitation would be provided in the diversion intake head ponds. Potable water would be supplied from the fresh water source, following disinfection treatment.

18.12

Conveyors

Overland conveying systems and a suspension bridge would be required for the two phases of the mining operation. Mining from the Panantza pit would require single overland conveyors (72 wide x 1300 m), from the Panantza ore Crusher to Coarse Ore Stockpile at the Mill location. Production from the San Carlos pit would be initiated in year 11 and the following overland conveyors would be required:

- Overland conveyor (72 wide x 1 964 m) from the San Carlos pit to the coarse ore stockpile, crossing the Zamora River
- Overland conveyor (72 wide x 2197 m), from the San Carlos waste rock crusher to the transition point, crossing the Zamora River.
- Overland conveyor (72 wide x 1248 m) from the transition point to Panantza pit.

These additional conveyors (in Year 11 and Year 13) are not included in the initial capital cost of the project. These costs have been accounted for in the operating capital requirements for the project s economic analysis.

18.13

Organization and Workforce

A summary of the total workforce for year one is provided in Table 18-14.

Table 18-14: Estimated Total Workforce Requirements for Year 1

Description	Number
Head Office:	
G&A Quito Head Office	42
Minesite:	
G&A Minesite	
Minesite Administration	49
Mill Staff	15
Mine Staff	29
Maintenance Staff	46
Sub-Total G&A Minesite	139
Mill Hourly	103
TMF Hourly	5
Mine Hourly	288
Total Minesite	535
Total Project	577

All mine operating and maintenance personnel would be EcuaCorriente employees. Manpower requirements change with production rate variations. All salaried supervisory and technical positions are included in G&A and are not included in this mining work. Employees would live in the camp or local community and be transported to the mine by a contractor. Some hourly employees would be employed on a day-shift basis only.

The Mill Department organization would be managed by a Mill Manager. Mill Department staff employees are included in G&A. A total of 13 mill maintenance workers would be required.

Minesite administration would consist of an operating organization with all of the capabilities required to function as an independent unit. The organization would include both operating and administrative personnel to manage all site administration activities of the mine, and would total about 140 people. The Minesite is the only location where hourly personnel would be employed.

A camp is required at the Minesite because of its remoteness to large communities, the rugged terrain, and the poor quality of the roads. In general, EcuaCorriente expects that most of the skilled labour force (about 400 supervisors, tradesmen, technical support and administration) would live in this camp while they are on-shift. They would primarily be based in Cuenca or Quito, which are the nearest large cities to the Minesite. The vast majority of the personnel residing in the camp would be the local hourly workers that would live there during their 4 days-on, following which they would return to their homes during their 4 days-off. The majority of the operating labour would work a 12 hours-on and 12 hours-off shift cycle.

The camp facility would either be built and operated by EcuaCorriente, or subcontracted to a local Ecuadorian firm with experience in camp construction and operations. The camp would include a major kitchen and recreation areas, both indoor and outdoor, for the employees. A gymnasium would be built for both hourly and management staff.

Housing in Cuenca or transportation to other destinations would be left for the employees to provide. Employees for positions such as equipment operators, camp support, and labourers would be supplied from villages in the vicinity of the Minesite. These local employees would live in the villages after work, which would require bussing services from the site to their respective villages at the beginning and end of each shift.

EcuaCorriente intends to maximize its sourcing of employees from the surrounding local areas. Training of local employees would be a key ingredient in the success of EcuaCorriente s community-relations plan. It is anticipated that the majority of the administrative and technical staff would come from the major cities of Zamora, Cuenca and Loja where there are established universities. There is a mining engineering curriculum offered at universities in each of the major cities of Loja and Cuenca. In the principal Polytechnical University of Quito, there is a programme for metallurgical engineers and laboratory chemists. Most of the mine s management personnel would have to be sourced from outside of Ecuador due to the low level of mining activity inside the country.

Environmental Health and Safety personnel would be located at the Minesite. The objective of the environmental programme would be to implement appropriate company policies and programmes to maintain the highest Ecuadorian and international environmental standards.

Safety staff would consist of one Senior Safety Training Coordinator (an expatriate trainer) and one Safety Coordinator. The objective of the Safety programme is to implement a programme that meets both Ecuadorian and International standards. This would include moving from a basic safety programme to a more proactive safety programme in a relatively short time frame. The safety staff would be stationed at the Minesite.

Security personnel would work both at Head Office and the Minesite. Management of the security programme through the first year of operation would be by a senior expatriate with international experience in both training and directing security programmes.

18.14

Offsite Infrastructure

The initial road would start at the project mill site and would be a 7.2 metre wide, well-maintained, gravel road, and would run west approximately 15 km until it intersects the main highway (currently loose surface) running along the Amazon frontier.

The Pacific Coast can be accessed via two routes starting from where the gravel access road intersects with the main highway (see Figure 18-13): to the north through Cuenca, or to the south and through Loja. The northern routes to Cuenca and Guayaquil are limited to very light vehicles and subject to closure at night. The southern route is shortest and is in better condition. Both routes have to pass through mountainous terrain to arrive at the port city of Machala, on the Pacific Coast. The Loja route is 473 km to the port at Machala. Farther north along the coast is Guayaquil, another Port City on the Pacific Coast that could be used for the shipping of concentrates. However, it is an additional 200 km from the site, for a total of 673 km from the Panantza San Carlos property to Guayaquil, traveling via the shortest and best route.

Ecuador s southern road system is adequate for light loads and would handle the concentrate trucks which are estimated to weigh 52 t (truck and concentrate). However, the total weight for loaded trucks associated with construction could exceed 100 t. All bridges along this route have been evaluated for the heavier cargo.

EcuaCorriente plans to use the Guayaquil port to receive the majority of equipment for the project because this port facility is better equipped to handle the off-loading of heavy items.

Figure 18-13: Access Road from Coast to Site

18.15

Air Transportation

The closest airport is an airstrip in Gualaquiza, about a two hour drive from the Panantza San Carlos project. This asphalt airstrip is 2,075 m long and is capable of being used by Hercules and 737 type aircraft. The strip is not Instrument Flight Rules (IFR) rated. Flights into and out of Gualaquiza are permitted only during the day because of the lack of night lights on the runway. Due to the location of the airstrip in the valley floor, it is prone to fogging and early morning flights are routinely delayed until the sun can burn-off the fog. There is also daily routine air service from Quito and Guayaquil to Loja and Cuenca, about 6 hours from the camp.

Helicopter service is available from two locations that are approximately 2.00 2.25 hours flight time from the Property. This can service field activities when required. The helicopters routinely service the oil fields in Ecuador. Additionally, the military has a suite of helicopters that can be used if necessary.

18.16

Port Selection

The port selection was based on satisfying the criteria of low cost and convenient access through the city of Machala. The key advantages of this location include:

- A large buffer zone between the port facilities and the community;
- The potential for additional development;
- The potential for the construction of two new road accesses which would be paid for by the government;
- A history of industrial use for permitting purposes;
- Relatively little required dredging compared to port requirements in Guayaquil;
- Proximity to deep waters, enabling anchoring of ships of about 33 000 t capacity;
- Located within a port industrial area.

The Machala port is approximately 480 km from the Panantza San Carlos project. Historically, the port land was used for shrimp farming and large semi-filled water ponds exist throughout the 27 hectares. There is over 500 m of water front property and no industrial development exists adjacent to it, even though an existing main port facility is located within 2 km to the south. The main Machala Port is served by the same shipment channel. This channel does not require routine dredging. Based on port reviews by the local engineering firms and EcuaCorriente, this is the most practical location for its concentrate shipping port.

In July 2006, EcuaCorriente purchased 27 ha at Machala, sufficient for installation of the port facilities (see Figure 18-14). EcuaCorriente has obtained legal opinions on its ownership of the required land, and has found that the land is in good legal standing and has unencumbered access.

Figure 18-14: Picture Showing EcuaCorriente s Land Holdings at Machala Port

The port facility would be developed for a loading rate of 1,000 t/h and storage capacity of 45,000 t of concentrate. A small laboratory would be located on-site for quick testing of the concentrate for critical physical and chemical properties.

18.17

Concentrate Handling

Several scenarios were investigated for the concentrate handling. They included trucking the concentrate to the coast, constructing a pipeline and slurring the concentrate to a receiving facility on the coast, and constructing a Hydrometallurgical facility in the Copper Belt area and refining the concentrate locally.

Mamut Andino (Mamut), a local transportation company, did a road study from the Machala and Guayaquil Ports to the Copper Belt region, and estimated that it would take about 48 hours for a concentrate haulage truck to make a round trip to and from the port. Trucks would haul an average of about 32 t of concentrate per trip. The gross weight of each truck is estimated to be 52 t.

The number of trucks required to haul the daily concentrate production to the Port facility, round trip would be 120. Mamut has estimated the cost to haul concentrate to the port at US$32.00 from the Panantza San Carlos project. This estimate also applies to material and supplies being transported on the back haul; however, this may vary depending upon the type of material being transported.

Three possible pipeline routes were investigated for transporting the concentrate slurry from the project to the Machala Port. The selected route, which is considered the most cost effective, and perhaps the easiest alternative to permit, starts from the Panantza San Carlos mill, follows the ridge west to the existing Limón Gualaquiza road, heads south along this dirt road until Gualaquiza. It then continues south along the existing paved highway, past the Mirador Project access, to El Pangui. From there it continues along the paved highway to Zamora Loja Balsas Santa Rosa until Machala.

The highest elevation pass is 2900 metres and the total length is approximately 420 km. Except for the initial 15 km, this route would follow existing paved highway. The final pipeline length may be shorter if the route bypasses some curves in the present highway.

The concentrate would have to be dewatered at or near the port facility prior to stockpiling for shipment.

Costs for the Loja route alternative including permitting, securing the right of way, and port receiving modifications is estimated to be $66,000,000 and is included in the capital cost estimate.

Metallurgical studies completed on laboratory produced Mirador Cu concentrate were referenced to determine the feasibility of a hydrometallurgical refinery for the Panantza - San Carlos Project showed the Copper Belt copper concentrates are amenable to the Galvanox leaching process. The report by David G Dixon, Ph.D., P.Eng. Associate Professor, Department of Materials Engineering, University of British Columbia;   Bench-Scale Testing the New UBC Galvanox Leaching Process on Mirador Concentrates   indicated in excess of 96% copper extraction from the copper concentrate:

Based on these tests, it would appear that Mirador Concentrate is amenable to the Galvanox leaching process, and that the pyrite in the Mirador Tails is an effective leaching catalyst. Further testing on a larger sample is required to determine the extent to which leaching kinetics may be improved by increasing the Py:Cp ratio with Mirador pyrite.

The refinery addition is a high capital cost option, however, the long term benefits could be very appealing for the Corriente Copper Belt as well as potential clients from properties throughout Ecuador and perhaps adjacent countries. With the installation of a Refinery, trucking costs are reduced to the production of pure metal. A concentrate pipeline could be utilized just between properties, reducing greatly the pipeline costs. The port facility could be substantially reduced, or eliminated. The Panantza - San Carlos Project shows the Galvanox process is estimated to have a CapEx of $USD 492.3 million with an operating cost benefit of $USD 124.5 million per year yielding a 3.2 year payback compared to trucking and smelting.

18.18 Power Supply

Approximately 50% of Ecuador s power demand is supplied by hydroelectric generation. Hydropower is the least expensive form of energy commercially available in Ecuador. In addition to those currently operating, many promising hydroelectric projects have been identified; several located near the Panantza San Carlos Project. EcuaCorriente reports that its strategic power plan includes utilizing low cost, environmentally friendly, and readily available hydropower to supply the Panantza San Carlos Project power demand.

Approximately 11 MW would be generated on the project site using the water diverted from the catchment west of the Panantza open pit. The water diversion around the open pit and mine facilities can be achieved by collecting the water from the Rio Panantza and Rio Narintza with the use of two diversion dams, connected by a short, low pressure, concrete-lined tunnel. The collected water would then be diverted around the open pit via a concrete lined drill and blast tunnel, 4 metres in diameter, and approximately 2.5 km long. The proposed scheme layout is shown in Figure 18-15. The tunnel is aligned to provide adequate cover, while maintaining a reasonable overall length and a grade of approximately 1.5%, sufficient for self-cleaning.

At the outlet of the diversion tunnel, an intake structure would route the generating design flow into a penstock, aligned along the proposed haul road and down a ridge to the powerhouse, which is set at elevation 590 m, 300 m below the intake. The diverted water would be returned to the lower reach of the Rio Panantza, immediately upstream of its confluence with the Rio Zamora. The facility has been sized for a design flow for 4.8 m^3/s. Diversion flows in excess of the hydropower design flow would be discharged down an erosion protected channel, and returned to the Rio Panantza. No inter-basin water transfers would occur.

Figure 18-15: Onsite Hydropower Generation Layout

The balance of power required can either be purchased from an existing hydro generator, or can be supplied by a project developed for the mine.

The electrical demand of the Panantza San Carlos Project is estimated at 120 MW and 970 GWh/a. The average total energy cost for hydro power is typically around $0.057/kWh as calculated in the following Table 18-15.

Table 18-15: Wheeling Cost

WHEELING COST TRANSMISSION AND DISTRIBUTION

Hours per year	8760	Hours
Average hours per month	730	Hours
Average utilization factor Mine	92%	
Average PPA Hydropower Cost	0.035	$/kWh
Generator Demand Charge	5.7	$/kW month
Generator Demand Charge	0.0085	$/kWh
Tariff Transmission	3.32	$/kW month
Tariff Transmission	0.0049	$/kWh
Tariff Distribution	1.7	$/kW month
Tariff Distribution	0.0025	$/kWh
Charge for losses	0.0004	$/kWh
Ferum (10% tax on energy)	0.0051	$/kWh
Total Energy Cost	0.0565	$/kWh

Whether EcuaCorriente develops its own hydro project or purchases power from an existing hydro generator, the strategy is to interconnect with the Ecuadorian electrical grid Sistema Nacional Interconectado (SNI).

Interconnecting to the SNI offers several strategic advantages over a dedicated or standalone power supply configuration. Under a dedicated power supply scenario the availability of the mine is dependent on the availability of a single power supply. By connecting to the electrical grid, the mine would have the option to purchase power from another generator or from the spot market in the event that the primary source of power is unavailable.

If EcuaCorriente develops its own hydroelectric project, the preferred configuration is to connect both the mine and the hydro project to the SNI. This allows the mine to purchase power from a third party when the hydro project is down and permits the sale of excess energy generated by the hydro project in the Ecuadorian power market. This strategy offers the additional benefits of lowering losses for the SNI, and any excess power sold in the market decreases the marginal cost of energy for the entire SNI.

In the past, the stability and reliability of the Ecuadorian SNI has been questionable. Because 50% of the power in Ecuador is generated with hydroelectric plants, extreme dry seasons have had severe effects on the power system including brown-outs and black-outs. In the last decade, however, considerable improvements have been made to increase the quality of service. The SNI has been interconnected with both Colombia and Peru allowing the purchase of power during hydraulic shortages and the last blackouts were in 1997. Additionally, several new hydro projects have come online, and several more are planned for the coming years (see Table 18-16).

Table 18-16: Ecuador Hydro Power Projects

Already Online	
Project	Capacity
ABANICO I	15 MW
SIBIMBE	15 MW
CALOPE	15 MW
SAN FRANSISCO	112 MW
Planned for next 5 Years	
SAN FRANSISCO Phase 2	112 MW
ABANICO II	22.5 MW
PRONACA	75 MW
BABA	40 MW
MAZAR	160 MW
HIDROGEN	31.5 MW
COPAL	50 MW
SAN BARTOLO	50 MW
SOPLADORA	312 Mw
DELSI TANISAGUA	115 MW

These hydro projects would further increase the availability and reliability of power in Ecuador.

HIDROPAUTE, the largest power generator in Ecuador at 1.1 GW, is expanding its Paute generation facility by constructing the cascaded 160 MW Mazar project. Mazar would not only add hydro power to the grid, its dam would help regulate water flow and increase Paute s production by 12% annually. To interconnect Mazar to the SNI, Transelectric is constructing the Zhoray substation. Transelectric is also in the process of completing a new 230 kV, 340 MVA single circuit transmission line between Zhoray and the new 230/69 kV Sinincay substation outside of Cuenca.

The conceptual design for the Panantza San Carlos SNI interconnection is a new 111 km, 230 kV transmission line connecting Sinincay and the substation at the Panantza San Carlos project site. The transmission line route (Figure 18-16) follows an existing 138 kV transmission line route connecting Cuenca to Limón, and then continues south to the project site.

Because Sinincay is directly connected to the Paute generating complex through Zhoray at 230 kV, it is one of the strongest, most stable SNI interconnections in Ecuador.

Figure 18-16: Transmission Line Layout

18.19

Project Implementation Plan

A project team would be established by Corriente to manage the execution of the project. The team would consist of engineering and procurement consultants for distinct areas of the project, a construction management consultant and the Owner s Team. Engineering consultants would be selected on the basis of the technical expertise required for the particular project area of work.

It is planned to have the construction contractors originating from Ecuador and investigations indicate that there is a great interest and ability of the contractors. It is estimated there are about 4,500,000 man-hours of direct construction including pre-development of the mine. There would be a peak of about 1600 persons during the construction phase of the project.

The project construction schedule begins with the activity of ordering of the long lead items (grinding mills and crushers) and proceeds through facilities construction. A feasibility study has been assumed to be completed and financing is in place to proceed with project execution. The overall project execution period to mechanical completion is 41 months starting with early ordering of the grinding mills (32 month delivery). From start of construction in the field to mechanical completion is 24 months. The 41 month project execution duration assumes financing is in place to allow all phases of the project to proceed at their projected start times and it assumes that all permits are in place for the work to proceed as planned and without stoppages.

The schedule assumes material and equipment deliveries and availability of labour as they exist at the second half of year 2007. The schedule is an aggressive schedule and it assumes the implementation of a fast-track approach to project development whereby construction begins prior to 100% design completion with major earthworks and site development starting as soon as those components of the design are complete.

The Panantza and San Carlos Master Construction Schedule is shown in Figure 18-17.

18.20

Closure Plan

18.20.1 Progressive and Final Reclamation Measures

18.20.1.1 Operations Phase

During operations, areas would be regraded, revegetated, and stabilized, as soon as possible. Soil salvage would be incremental and concurrent with each phase of pit and waste management facility (WMF) development. Soil stockpiles would be located as close as feasible to areas of reapplication. Stockpiles would be constructed with stable side slopes and access ramps. Stockpiles would be stabilized and seeded as soon as practical to prevent erosion and reduce leaching of soil nutrients. An annual inventory would be maintained of disturbed areas, volumes of topsoil accumulated and volumes distributed.

A revegetation plan would be developed to determine species, planting schemes, seeding and planting rates, seedbed preparation, seeding and planting methodology and treatments, as necessary.

The WMF would be utilized until the mine ceases operations. Should the opportunity present itself, the tailings cover would be constructed in stages, with the initial cover constructed on the sandy beaches around the perimeter of the impoundment. This would minimize the potential for dust generation from the tailings surface, although dust generation from the tailings beaches is not anticipated to occur due the high rainfall typical for this area. Tailings dam borrow pits would be resloped as necessary, covered with stockpiled topsoil and vegetated as soon as they are depleted or no longer necessary.

18.20.1.2 Closure and Reclamation Phase

Final reclamation measures would be carried out as soon as final surfaces are created. The final tailings dam slope for the WMF would be ready for reclamation after the last dam raise is completed, which would occur near or at the end of mining operations.

Major closure activities after the end of mine life would include removal of all facilities and infrastructure that is not planned to be left for other uses or is needed for closure maintenance. A permanent tailings dam spillway would be constructed at an elevation that is suitable for a wetland to remain on a portion of the tailings surface, as well as provide for long-term stability of the embankment. Post operational reclamation would return the disturbed areas to the pre-mine conditions and habitat. Certain mine features may be left in place as permanent control measures to prevent environmental pollution, for long-term community use, or as a post-mining enhancement.

18.20.1.3 Open Pit Mine

The two open pit mines would be allowed to fill with water when mining operations cease. The Panantza Pit would be utilized to store the waste rock from the San Carlos Pit. It would be allowed to fill with water at a rate slower than the placement of waste rock, so as not to interfere with the dumping operations. The final elevation of the waste rock within the Panantza Pit would remain below the spill elevation so that the flooded pit would permanently saturate the waste rock.

The San Carlos Pit would begin to fill with water once mining operations cease. The Panantza Pit is expected to fill to spill elevation some years prior to the San Carlos Pit for several reasons. First, it would begin to fill with water several years before the San Carlos Pit, as mining operations cease at Panantza first. Secondly, the waste rock from the San Carlos Pit would displace a significant volume of water, leading to a faster rate of rise.

Both open pits are expected to have some portion of their pit walls permanently exposed above flood elevation. Should the materials in these exposed portions be acid generating, some form of water treatment may be required. At this stage of mine planning, it is not possible to develop precise models of the anticipated pit lake water quality that may result from oxidation or neutral pH metal leaching of the exposed wall rock.

A preliminary pit lake study would be conducted as part of the Social and Environmental Impact Assessment (SEIA), with a more comprehensive study completed after five years of operations for each pit, once the ultimate mine life and pit configurations are better known and after more extensive geochemical characterization of the pit wall rocks have been carried out.

18.20.1.4 Infrastructure

After mining and ore processing are complete, the crushers, concentrator, conveyors, pipelines, and support facilities would be dismantled. Inert materials such as steel, iron, concrete, plastic and wood would be disposed of, buried in on-site disposal areas, or sold to scrap dealers for recycling. Power lines would be left in place as a component of the hydropower facility. Any hazardous materials or chemicals would be treated to render non-hazardous, or transported off-site to an authorized treatment and disposal facility. As the facilities are removed, the areas would be ripped as necessary, covered with an adequate depth of overburden and revegetated.

Roads would be left in place to support community, military, and public access. Roads allow greater access to areas previously inaccessible by vehicle. Corriente would cooperate with the relevant authorities following mine closure to develop management plans that would regulate activities that are generated as a result of the new roads to ensure that lands adjacent to the roads are utilized at an appropriate level according to an established plan.

Surface pipelines would be dismantled and either sold as scrap or buried on site. Buried pipelines would be flushed with clean water and left in place, or removed and sold as scrap, or disposed of in an on-site disposal area.

18.20.1.5 Waste Management Facility

Upon completion of the mining operations the WMF would be designed for closure such that a portion of the tailings surfaces are rapidly made trafficable, and the potential for wind and water erosion is minimized. Closure and reclamation activities would be carried out with the objective of providing for long-term stability and an appropriate end use that requires minimal maintenance.

During the final years of operation, the extent of the supernatant pond on the WMF would be adjusted based on the elevation of the permanent spillway. This would allow for both long-term stability of the WMF and provide for a wetland/lake system over the surface of the tailings mass. The WMF has been designed so that CST tailings and reactive waste rock would remain permanently saturated. The other main components of the WMF closure plan are as follows:

- Revegetate the crest and upstream and downstream embankment faces;
- Construct diversion ditches around the perimeter of the WMF;
- Construct a closure spillway;
- Decommission and revegetate (for access control) all roads not required for servicing of the WMF would be; and
- Leave drainage collection pipework and sumps in operation where required.

As required, ongoing maintenance of the above systems would continue.

The tailings beach would be covered with native soils excavated from local borrow sources or from stockpiles created during initial construction of the site. The tailings cover would be constructed on the sandy beaches around the perimeter of the impoundment. This would minimize the potential for dust generation from the tailings surface. The tailings cover would be approximately 500 mm thick and re-vegetated directly after placement.

18.20.2 Post Closure Monitoring and Maintenance

All monitoring systems that were established during the operations phase would be maintained for at least five years beyond the date of mine closure. At that time, the need for ongoing monitoring of each component of the mine would be assessed.

Where there is ongoing water quality or other concerns, the systems would be maintained, and where the environmental systems are stable and have no negative impacts, monitoring would be discontinued or the frequency of monitoring would be reduced. The need for ongoing monitoring would then be reviewed at annual increments to assess further needs.

In addition to the environmental monitoring of water flows and quality, the following regular inspection work would be continued in the long term:

- Open Pit diversion ditches that are designated as permanent would be inspected on at least a monthly basis;
- Water Quality from the WMF and Open Pits would be monitored to ensure that the discharges meet the permitted targets;
- The progress of plant growth in replanted areas would be inspected annually by a qualified agronomist responsible for the site reclamation work, until such time the plantings are judged to be stable and self-sustaining; and

- Air quality would continue to be monitored for contaminants following closure. After the pre-mine ambient air quality is achieved, PM10 monitoring would be discontinued.

Post-closure maintenance would consist of:

- Timely repairs to diversion ditches when any slope stability or erosion are noted to be threatening ditch integrity;
- Any remedial works noted to be required for the waste management facilities;
- Repairs of any eroded reclaimed areas and any additional works to maintain growth in reclaimed areas; and
- Annual maintenance costs associated with the water treatment plant(s) and/or passive water treatment systems.

18.21

Environmental and Permitting

Two major types of licensing vehicles exist for Ecuadorian mine projects: (1) Permits/Licenses/Permissions (generally referred to as permits), and (2) Environmental Impact Assessments (EIAs). Both permits and EIAs are required for a typical open pit mine operation in order to move from exploration through operations and closure.

Both the exploration phase and the operations phase of the project require approved EIAs. Various permits may be required for exploration. Exploration operations that propose to use significant surface or ground water resources during drilling, divert water for use, build roads etc. would require permits to address activities.

Numerous permits are required in order to conduct major mine operations. The type and number of permits that are required is dependent upon the type of exploration and operations that are to be conducted. Up to 40 individual permits may be required for operation of a large mine. Of these, four are considered Priority Permits and are given in Table 18-17**.** Priority Permits would be required in order to operate a large mine operation in Ecuador.

The number or permits that are required is dependent on the types of activity that are conducted (e.g. some operations may not have water diversion structures and would not therefore require water diversion permits). Some of these permits can be acquired after operations have been initiated.

Table 18-17: List of Priority Permits Required for a Major Mine Project in Ecuador

No.	LICENSES, PERMISSIONS AND AUTHORIZATIONS	GRANTING INSTITUTION	ESTIMATED TIME FOR APPROVAL	REMARKS
1	Environmental License (EIA and risk analysis approved)	Ministry of Mines and Petroleum, if the Project is not in Protected Areas, National Parks, Forest Reserves, in this case is the Ministry of Environment.	Up to 60 days, can take almost a year.	The Environmental Licenses is submitted once the EIA is approved and the payments of license fees have been paid.
2	License of forest Wood use	Ministry of Agriculture (MAG). Ministry of Environment (ME)	Submitted the application, up to 30 days in MAG. Submitted the application, up to 45 days in ME	In the case of MAG, they need Environmental Plans approved.
3	Water concessions	Nacional Council for Hydrological Resources (Consejo Nacional de Recursos Hídricos)	Up to 180 days	
4	Concession of water benefic right	Nacional Council for Hydrological Resources (Consejo Nacional de Recursos Hídricos)	From 45 up to 90 days.	Granted permission, any amendment must have the prior authorization of the National Council for Hydrological Resources.

Under Ecuadorian Mining Law and Mining Environmental Regulations, the Ministry of Mines and Petroleum handles the environmental approval system for new mining projects.

In addition to the production of EIAs, mining concession holders are also required to complete environmental management plans (EMPs) to address the methods that are proposed to be used in order to prevent, mitigate, rehabilitate, and compensate for any environmental and/or social impacts that may result from exploration and mining activities. These studies would be approved by the Ministry of Mines and Petroleum Sub-secretary of the Environment.

Roughly seven months are required in order to prepare, publicly disclose, finalize and legally authorize an EIA according to Ecuadorian regulations. This schedule does not include the baseline collection phase. Most regulatory agencies prefer to have two years of baseline data to document conditions prior to mining. Though the regulatory community recognizes that two years of baseline collection may not be achievable, the preference for a two year baseline collection phase should be recognized.

This EIA time frame can be extended by missing intended deadlines at any stage of the process. One of the EIA steps that can prolong the process is the public hearing phase.

It is advisable to conduct educational seminars, meetings and discussions to educate the public about mining for a significant period of time prior to the public hearing. These programmes are designed to present a realistic picture of the mine and how the mine project would affect their community. They would neutralize any anti-mining sentiments that may surface in a public meeting that might negatively impact the EIA process.

Anticipated costs for all environmental tasks that are required in order to gain required approvals for mine start-up in the Copper Belt study area are presented in Table 18-18. These tasks are the minimum anticipated to be required in order to establish the baseline character of the study area and produce a standard social EIA that meets or exceeds Ecuadorian standards.

Costs are based on baseline collection labour and lab costs to collect and present the minimum number of samples at the standard number of sample sites. These costs assume one year of baseline data collection. Regulators prefer two or more years of baseline data collection. However one year of baseline data has become standard.

Production of EIAs is based on average costs for production of EIAs by North American contractors with Ecuadorian contractors collecting baseline data and assisting with social evaluations and programmes. North American contractors would have a home base in North America but have offices in Quito and be registered with the MMP to produce EIAs in Ecuador. Costs for both the Ecuadorian and the North American EIA contractors is based on past proposal costs and final invoice costs for similar projects with ECSA.

Table 18-18: Costs Anticipated for Baseline and EIA Approval

No.	Work	Notes	Cost with IVA USD
1	Baseline Surface Water*	10 Sites for one year	40,000.00
2	Baseline Air	4 Sites for one year	5,000.00
3	Baseline Springs	Based on number	4,000.00
4	Waste Rock	75$ for 50 samples	3,500.00
5	Ecuadorian Permits	No. To initiate mining	5,000.00
6	Enviro. Impact Assess.	Ecua. & No. Am. Firms	200,000.00
	Total Cost USD		$ 257,500.00

18.22

Socio-Economic

The county of San Juan Bosco is located in the southern sector of the Morona Santiago province with the following administrative borders: Limón Indanza County (San Miguel de Conchay parish) to the north, Gualaquiza County and Peru to the south, to the east Peru and Limón Indanza County, and to the west the counties of Sigsig and Gualaceo of the Azuay Province. The San Juan Bosco County comprises the parishes of Pan de Azucar, San Juan Bosco, Wakamebeis, Santiago de Pananza and San Carlos de Limon.

Figure 18-18: Political Divisions of San Juan Bosco

Source:

Strategic Development Plan for the San Juan Bosco Count

The Panantza and San Carlos Project are located principally in the Santiago de Pananza and San Carlos de Limon parishes. A small portion of the Panantza project is located in the San Miguel de Conchay parish of the Limon Indanza county.

Of the 3630 inhabitants (year 2004) in the county, 49% are men and 51% are women. Within the project area, inhabitants total 448 in San Carlos de Limon and 512 in Santiago de Pananza; of these, some 450 live in direct or indirect impact areas of the project site. Shuar comprise 16% of the total population, of which approximately half live in the San Carlos de Limon parish. The level of education is low overall.

The main cause of disease is due to parasites, which affects all ages. Next are acute respiratory illnesses, diarrhoea, colds, and the fifth reason for hospitalization includes extreme cases, including work accidents, traffic accidents, cuts and stab wounds, and drownings (Figure 18-19). The San Juan Bosco County has the lowest index of health development compared with the province and the nation as a whole.

Figure 18-19: Main causes of illness (mother infant diseases)

Source:

Strategic Development Plan for the San Juan Bosco County

The main activity in the county is cattle breeding, since grasses are one of the few crop plants that grow consistently, and the production of domestic animals and their derivatives have come to represent 85% of the county s economy. Recently, this percentage has been dropping.

A number of projects for agro-production have been researched. These include fish farming projects, poultry, orchards and green house crops, agro-forestry systems with implementation of cocoa and citrus fruits, as well as experimental projects for non-traditional crops such as rice and pitaya fruit.

One of the most acute problems affecting the economics of the region is migration. The migratory exodus includes professionals, agricultural producers, craftsmen, young people, and women, and is only growing, despite the difficulties that must be overcome. Remittances sent by emigrants have created financial opportunities that otherwise may never have been achieved in the province. The impact would not be so serious if the entire family was to migrate, but only one or two family members do so.

18.23

Capital Cost Estimate

18.23.1 Summary

The total estimated cost to design and build the Panantza San Carlos Project described in this report is US$ 1229 million. A summary overview of the estimate is presented in Table 18-19 and details are in Appendix B. The capital costs are considered to be within a -5% / +35% accuracy range.

Table 18-19: Cost Estimate Summary

Area	Cost ($x000)
Direct Costs	
Mining	205,524
Plant Site Infrastructure	128,490
Process (includes concentrate pipeline)	275,330
Ancillaries	20,014
Power Supply & Distribution	64,342
Tailings & Water Reclaim	61,531
Total Direct Costs	755,231
Indirect Costs	
Owner s	68,242
Project	228,709
Total Indirect Costs	296,951
Subtotal	1,052,182
Contingency	177,412
Total Project	1,229,594

All costs are expressed in second quarter 2007 US dollars (US$), with no allowance for escalation, interest during construction, cost of financing, sustaining capital, or permitting costs. Allowances have been considered for items such as:

- Piping, Electrical & Instrumentation bulk factors directly related to the cost of capital equipment,
- Spare parts,
- Freight on imported equipment,
- Duties and Taxes

The estimate covers the direct field costs of executing this project, plus the indirect costs associated with design, procurement and construction efforts.

Details of the capital cost estimate are available from Corriente upon request.

18.23.2 Basis

Costs within the capital cost estimate are based on the following information and project data:

- Limited quantity estimates provided by the owner (Corriente). Other quantity estimates from previous studies (SNC Mirador-feasibility) and from in-house historical data.
- Limited capital equipment costs provided by the owner. Some of the pricing of this list was based on budget quotations. Other equipment costs from in-house data and data from similar projects.
- Field erect steel tanks supply was priced based on Merit s in-house database
- Actual current costs of bulk materials (rebar, formwork & steel) from contractors and fabricators. Concrete supply price was based on Merit s in-house 2004 database from a local contractor and escalated 5% annually.

- Actual Pre-engineered building costs were provided by Canadian reputable suppliers from similar size projects and are adjusted accordingly to Ecuadorian standards.
- Using Owner s Costs established by the Owner.
- Construction Management cost was calculated based the project implementation schedule and the associated management personnel requirements, and from experience and previous projects of similar size.
- The exchange rate is $1 Canadian equals $0.85 US dollars.
- Labour rates based on EcuaCorriente-SNC in-house database have been derived as a discipline composite for a 70 hours per week, 7-10 hours days per week schedule including travel is current and based on local subcontractor conversant with this kind of work. Turnaround times are based on a 20 days in and 8 days out basis.
- The all-in labour rates are based on the following criteria:
  - base labour wage rate
  - overtime premiums
  - Ecuadorian benefits and burdens
  - Indirect labour & supervision
  - appropriate crew mixes
  - on site housing, catering & offices
  - mobilization / demobilization
  - temporary facilities
  - consumables & fuels
  - construction equipment (cranes up to 15 tonnes)
  - small tools

- QA/QC, Safety and health
- site expenses
- contractors overhead & profit @ 20% overall

All due allowances have been considered for items such as:

- A 3% allowance of the estimated mechanical equipment cost has been added to account for miscellaneous equipment not included on the preliminary equipment list.
- Allowances for Piping, Electrical and Instrumentation were based on historical bulk factors data of similar projects. Components such as labour and material in unit rates have been re-allocated.
- Piping allowances are broken into 20% labour and 80% materials.
- Electrical and Instrumentation allowances are broken into 20% labour and 80% materials.
- Civil earthworks costs are broken into 30% labour and 70% subcontracts.
- Assuming an allowance for Engineering and Procurement costs based on Merit s in house data, Knight Piésold EPCM costs and other engineering costs as provided for the Power line and Port Facility design costs.
- Assuming a spares allowance of 5% of the equipment costs.
- Using Corrientes freight allowances of the capital equipment and imported materials except earthworks, concrete and structures supply materials as follows:
  - 1.5% for overseas inland freight
  - 5.5% for overseas ocean freight and insurance
  - 1.5% for domestic inland freight

- Using EcuaCorriente s duties and taxes allowances as follows:
  - 0.5% for overseas port handling fees
  - 0.5% for overseas fees
  - 5.0% for Ecuador customs fees
  - 1.0% for broker fees o Taxes:

- 00.0% for labour
- 12.0% for materials
- 12.0% for equipment
- 12.0% for subcontracts
- 12.0% for others, all except for professional services and labour

In keeping with the nature of a preliminary estimate and the limited information available, a greater number of assumptions have been used than would be used for a feasibility-level estimate. A list of assumptions follows:

- Using actual productivity factors and unit prices from similar ongoing and previous projects
- Using experienced construction management supervision during construction
- Assuming that the backfill for the crusher structure is provided by the mine operations from the pit.
- Actual soil bearing conditions would be adequate for the requirements of foundations included in the estimate.
- The WMF basin contains suitable and adequate borrow sources for the embankments to be constructed.

- Understanding of the material resources of Ecuador for building materials.
- Concrete is batched on site and suitable aggregate is available locally.
- Construction Management would be out-sourced to a competent company that specializes in such work.
- Understanding of the productivity of the labour force estimated to be in the order of half that experienced in North America provided experienced supervision is included. The productivity factors used in the estimate are as follows:
    - Civil Earthworks = 1 (Most of this work is based on EcuaCorriente and Knight Piésold estimates)
    - Concrete = 2 o Structural = 2
    - Mechanical = 1.5
    - Piping = 2
    - Electrical = 1.5
    - Instrumentation = 1.5
- Availability of in-country labour and the prospect of initiating training programmes
- Adequate experienced supervision during construction to supplement contractors
- Understanding of the degree of heavy construction that is ongoing in Ecuador through the oil industry resulting in good, well run companies experienced in the type of terrain and activities that are required to build the Panantza-San Carlos Project.
- Logistics of freighting components from the ports to the site is typical for a country with reasonably well established infrastructure.

- High level of information availability and quality of in-country consultants and contractors.
- Degree of difficulty of the area in which the plant would be constructed, including wet weather productivities and remote location,
- Environmental guidelines and restrictions to be built in to the construction programme.

In carrying out the work of preparing the preliminary assessment estimate, it was determined that a preliminary estimate would be developed from the engineering data prepared to date and that relied heavily on the data and details developed in previous study work for mine projects in the vicinity (Corriente s Mirador Copper Project) and on data base and historical information of other mineral extraction projects.

Pre-stripping and pre-production earthwork quantities were determined from the mine production plans. Estimated earthmoving costs for the preproduction earthworks were derived from the mine plan used as the basis for pre-stripping estimates. The pre-stripping cost basis assumes Owner operator mining of the pre-stripping volumes and would require mine equipment to be purchased early in the project and would require mine operations to be involved at the project s start.

Mine equipment costs have been estimated from supplier budget quotations and historical database.

Equipment lists were developed from the flow-sheets in Figure 18-3 (Crushing & Grinding), **Figure 18-4** (Copper Flotation) and Figure 18-5 (Molybdenum Flotation) and are the basis for the 90,000 tpd plant design. Limited budget price quotations were solicited for important equipment, including, but not limited to crushers, grinding mills, flotation machines and filters and reclaim barge. Current budget price quotations comprise approximately 13% of the total cost of the process equipment capital cost estimate. For other equipment, costs were obtained from previous projects of a similar nature. Allowances are included for the minor cost centres.

Sketches of the 90,000 tpd primary crushing, grinding, flotation and reagent areas were prepared by B. Ross Design Inc. to facilitate estimates of building dimensions and conveyor lengths. No layout sketches were prepared for the remaining areas of the plant.

The battery limits for the process equipment costs estimates commence at the primary crusher. Process area cost estimates extend to the concentrate thickening and filtering facility (dewatering). The dewatering equipment is located at the port facility but costs for this equipment have been included within the scope of the mill costing. The cost estimate is strictly limited to the cost of the principal items of process equipment.

Quantity and cost estimates for the materials and work required for the initial construction of the Waste Management Facility have been completed for the following areas:

- Foundation preparation
- Yangunza River construction diversion
- Ground improvement under the embankment (to improve seismic stability)
- Seepage collection and recycle systems
- Fill Placement
- Starter dam
- Rougher tailings delivery line from the mill to the cyclone sand plant
- Cleaner tailings delivery line from the mill to the WMF
- Reclaim system from the WMF to the mill, cyclone sand plant, treatment and discharge system, including reclaim barge and discharge pipeline, and booster pump stations
- Cycloned sand plant including head tank, feed and discharge pipelines, and booster pump stations
- Fresh water supply system, including booster pump station
- Instrumentation and monitoring

Preliminary quantities were measured on the basis of the designs and dimensions shown on the relevant figures in this report. Quantity estimates for capital expenditure items are available from Corriente upon request.

18.23.3 Direct Costs

18.23.3.1 Off-site Roads

The access road has been priced based on the basis of budget pricing for mine access road works in Ecuador at the Mirador Project. An estimated 15 Km of access road would have to be constructed in order to connect the mine with the main road. An estimated cost per Km is $400,000 for a 7.2 m wide road cut through the difficult terrain. Total estimated construction cost is $6,000,000 and is included in the capital cost estimate.

18.23.3.2 Bridge

The Zamora Bridge has been priced based on the basis of budget pricing for bridge construction in Ecuador at the Mirador Project. The bridge would have to span approximately 100 m over the Zamora River. This bridge would connect the Panantza with the San Carlos deposits and is capable of handling loads up to 150 t total weight. Estimated cost to construct the bridge is $29,045 per metre or approximately $4,850,000 and is included in the capital cost estimate.

18.23.3.3 Power Supply

Estimates for power supply and distribution are based on details provide by national consulting companies experienced in power installations in Ecuador. Details are available from Corriente upon request. The estimated total cost is $64,342,000.

18.23.3.4 Concentrate Pipeline

The cost for the concentrate pipeline from the project area to the coast is estimated at approximately $65,793,000 and is included in the capital cost estimate.

18.23.3.5 Port Facilities

Estimates for the Port facilities are based on details provide by national consulting companies experienced in marine installation in Ecuador. Details are available from Corriente upon request.

18.23.4 Indirect Costs

18.23.4.1 Owner s Costs

Owner s costs have been developed from manpower estimates of pre-operations personnel required for the engineering and construction phases of the project. Salary rates and benefits have been estimated from experience with EcuaCorriente s experience with similar mine development projects. Transportation, materials and supplies for this group is included in the Owner s costs.

Land purchases and community relations experience with ExplorCobres and EcuaCorriente s Mirador project are included in the Owner s costs.

18.23.4.2 Engineering, Procurement & Construction Management

Costs for the engineering, procurement and construction management services for the 90,000 tpd facility were derived from calculations based on estimating the number of personnel required for a project of this magnitude and using a mix of industry rates for nationals and expatriate personnel performing these services. Transportation, supplies and communication components required for these services have been factored based on the estimated cost of personnel. The engineering and procurement estimate includes all the disciplines and areas of design expertise typically required for a project of this nature.

18.23.4.3 Construction Temporary Facilities, Services and Construction Equipment

Construction services include construction equipment, temporary construction facilities and temporary services such as yard and road maintenance, temporary warehouse facilities, site safety and first aid, etc. Construction equipment includes the major equipment to be supplied by the Owner for common use by all general construction contractors. Cost allowances has been applied and used for this cost category.

18.23.4.4 Construction Accommodation & Permanent Camp

An allowance within the labour rate is used for the construction and operation of a permanent camp designed for the final operating staff. This camp would be constructed early in the project and would be used for construction managers, vendor reps, and operations project staff.

Costs for the contractors   accommodations on the site have been included using an allowance of $2.00 per man-hour included in the labour rate or about $7 million assuming peak manpower of 1600 contractor personnel. It is anticipated that some contractors would house their people in surrounding communities. Others would be housed in contractor-built camps on the project as is typical for this area. The labour rate includes all meal allowances for contractor   s personnel.

18.23.4.5 Freight

Using Corriente   s freight allowances of the capital equipment and imported materials except earthworks, concrete and structures supply materials as follows:

-

1.5% for overseas inland freight

-

5.5% for overseas ocean freight and insurance

-

1.5% for domestic inland freight

Equipment freight costs include packing, freight to port, marshalling costs, ocean freight, demurrage, and land freight to site.

18.23.4.6 Start-up and Commissioning

An allowance has been made for retention of vendor representatives for start-up, as well as a small group of contractors crews and the construction management staff.

18.23.4.7 First Fills & Capital Spares

Capital spares and commissioning spares have been priced and 5% of direct cost of equipment.

18.23.5 Contingency

Contingencies are included separately for the civil works, equipment and materials and the labour. Earthworks are considered to have the greatest risk and an allowance of 30% of the costs has been assigned as a consequence. Studies have not been done to identify areas of suitable materials and no geotechnical information is available to determine if the bundled unit rate used is reflective of the mix of earth types to be excavated. Material quarries have not been located to validate haul distances.

A summary of the project contingencies is:

- 30% for the earthworks
- 25% for the pre-production mining
- 05% for the mine equipment
- 35% for the Knight Piésold direct cost areas
- 20% for the power line
- 15% for the capital equipment
- 15% for direct labour except civil earthworks, pre-production mining and power line
- 20% for other direct costs
- 15% for indirect costs

18.23.6 Sustaining Capital

18.23.6.1 Waste and Tailings Management Facility

Sustaining capital is required for raising the Waste Management Facility (tailings and waste) for year 1 10 for Panantza and for tailings management for San Carlos years 10 21. As it is described in other chapters, waste from San Carlos would be hauled to Panantza Pit. Sustaining Capital for open pit dewatering both for Panantza and San Carlos has also been addressed by Knight Piésold. Sustaining capital estimates for both waste management and open pit dewatering were provided by Knight Piésold, and are summarized annually in Table 18-20 and details are provided in Table 18-31.

Table 18-20: Estimated Sustaining Capital for Waste Management

	Waste Management Facilities Cost Summary (USD)
Year	**Capital**
1	10,014,290
2	6,001,710
3	6,204,770
4	5,864,430
5	5,828,680
6	6,150,430
7	5,785,780
8	9,124,830
9	6,193,330
10	4,974,970
11	4,467,320
12	4,503,070
13	4,796,220
14	4,467,320
15	4,377,230
16	4,455,880
17	4,354,350
18	4,550,260
19	4,307,160
20	4,264,260
21	4,151,290
TOTAL	**$114,837,580**

Table 18-21: Open Pit Dewatering Cost Summary

	Open Pit Dewatering Cost Summary (USD)		
Year	Panantza Capital	San Carlos Capital	Total
1	2,432,000	0	2,432,000
2	333,000	0	333,000
3	812,000	0	812,000
4	291,000	0	291,000
5	748,000	0	748,000
6	602,000	0	602,000
7	890,000	0	890,000
8	1,378,000	0	1,378,000
9	438,000	0	438,000
10	1,250,000	1,208,000	2,458,000
11	592,000	2,432,000	3,024,000
12	835,000	333,000	1,168,000
13	393,000	812,000	1,205,000
14	0	291,000	291,000
15	0	748,000	748,000
16	0	602,000	602,000
17	0	890,000	890,000
18	0	1,378,000	1,378,000
19	0	438,000	438,000
20	0	1,250,000	1,250,000
21	0	592,000	592,000
TOTAL	$10,994,000	$10,974,000	$21,968,000

18.23.6.2 Mine Equipment

Mine sustaining capital is required for equipment replacements and purchase of additional equipment throughout the mine life. The most significant replacement and purchasing occur in year 2 with 7 new haul trucks and 1 new cable shovel. Late in year 10 it is required the replacement of different units on the mine support equipment. Sustaining capital is summarized annually in Table 18-22.

Table 18-22: Estimated Sustaining Capital for Mine

Sustaining Capital on Mine (KUSD) Year	TOTAL Capital Costs
1	
2	43,550
3	3,580
4	3,580
5	0
6	50,140
7	0
8	0
9	0
10	25,530
11	4,220
12	8,270
13	6,260
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
TOTAL KUSD	**$145,130**

18.23.6.3 Mill

Mill sustaining capital is required for capital improvements and some services throughout the mine life. The most significant investment occurs in year 10 and 11 of the production when it is required to pay for the installation of the San Carlos crusher and conveyor systems. Also it has been assumed 1.2% per year to cover capital improvements in the mill to accommodate process changes. Sustaining capital is summarized annually in Table 18-23.

Table 18-23: Estimated Sustaining Capital for Mill

Year	Sustaining Capital on Mill (USD) TOTAL Capital Costs
1	1,106,640
2	1,087,840
3	1,087,720
4	1,089,420
5	1,086,260
6	1,085,560
7	1,087,740
8	1,089,120
9	1,088,470
10	50,000,000
11	50,000,000
12	1,093,050
13	1,087,990
14	1,086,420
15	1,085,680
16	1,085,850
17	1,086,290
18	1,086,370
19	0
20	0
21	0
TOTAL USD	$117,420,420

The total sustaining capital estimate for the operations phase of Panantza and San Carlos Project is summarized in Table 18-24.

Table 18-24: Sustaining Capital Cost Estimate Summary

Item	Estimated Cost (US$)	IVA TAX* (US$)	TOTAL (US$)
Mine Equipment (IVA by EcuaCorriente)	145,125,160	12,189,050	157,314,210
Waste Management Facility (by Knight Piésold) (IVA by EcuaCorriente)	136,805,580	12,312,500	149,118,080
Mill Sustaining (IVA by EcuaCorriente)	117,420,420	10,567,840	127,988,260
Total Sustaining Cost Estimate	**399,351,160**	**35,069,390**	**434,420,550**

*All IVA Taxes were estimated by EcuaCorriente. Closure costs are not considered in this summary

18.23.7 Closure

A preliminary closure cost estimate for the San Carlos and Panantza Projects is provided as Table 18-25. The costs have been broken down into two periods: Years 1 to 10, and Years 11 to 21. While the Panantza Pit would continue to operate past Year 10, this is approximately the time that mining commences at the San Carlos Pit. Hence, in the event of pre-mature closure at Year 10, there would be no reclamation associated with the San Carlos Pit.

Table 18-25: Closure Cost Estimate Summary

Direct, Indirect and Contingency Costs are estimated at $12.3 M. Post-Closure Costs, including environmental monitoring, maintenance and operations of water treatment plants for both pits (for a period of 30 years) is estimated at $64.5 M. The Total Closure Costs (Direct, Indirect, Contingency and Post-Closure) is estimated at $76.7 M.

Once geochemical characterization data has been collected and interpreted for the San Carlos and Panantza Projects, it may be found that one or both of the pits may not require active water treatment, which would decrease the estimated Post-Closure Costs significantly. However, at this stage, it is prudent to include the costs for such active treatment.

Assuming that the funds for closure would be generated throughout the life of the operations (21 Years), an annual breakdown of the contribution has been estimated. For Period 1 (Years 1 to 10), an annual contribution of ~$1.3 M is required, while Period 2 (Years 11 to 21) would require an annual contribution of ~$2.1 M. This equates to a total of ~$36.1 M to be set aside during the 21 Years of mining operations, which would cover all closure costs (Direct, Indirect, Contingency and Post-Closure).

18.24

Operating Cost Estimate

18.24.1 Summary

A summary of estimated annual operating costs per tonne of ore processed is provided in Table 18-26. The estimated operating cost averages $5.22/t of ore processed over the life of the mine (excluding shipping and handling of concentrates from the minesite to the smelter and refining charges and IVA).

The labour component of both the mine and processing operating cost estimates include only hourly personnel. All staff operations personnel are included in the G&A operating cost estimate.

Table 18-26: Annual Operating Cost Summary as $/t Processed

Year	Processing Schedule	Mining Cost		Processing Cost		TMF Cost		G&A Cost		Other Cost (Ins)		Total Cost	
	000 t/y	$000/y	$/t	$000/y	$/t	$000/y	$/t	$000/y	$/t	$000/y	$/t	$000/y	$/t
1	-												
2	32,850	61,072	1.86	92,220	2.81	5,000	0.15	14,896	0.45	2,928	0.09	176,115	5.36
3	32,850	76,701	2.33	90,654	2.76	5,090	0.15	13,922	0.42	2,928	0.09	189,294	5.76
4	32,850	77,965	2.37	90,643	2.76	5,180	0.16	13,922	0.42	2,928	0.09	190,639	5.80
5	32,850	78,992	2.40	90,785	2.76	5,271	0.16	14,209	0.43	2,928	0.09	192,185	5.85
6	32,850	77,974	2.37	90,522	2.76	5,361	0.16	14,209	0.43	2,928	0.09	190,994	5.81
7	32,850	79,164	2.41	90,464	2.75	5,252	0.16	14,505	0.44	2,928	0.09	192,312	5.85
8	32,850	81,668	2.49	90,645	2.76	4,015	0.12	14,505	0.44	2,928	0.09	193,761	5.90
9	32,850	84,163	2.56	90,760	2.76	3,805	0.12	14,809	0.45	2,928	0.09	196,336	6.07
10	32,850	86,736	2.64	90,706	2.76	4,158	0.13	14,809	0.45	2,928	0.09	199,336	6.07
11	32,850	54,414	1.66	90,495	2.75	4,116	0.13	15,123	0.46	2,928	0.09	167,076	5.09
12	32,850	61,576	1.87	90,751	2.76	4,391	0.13	15,123	0.46	2,928	0.09	174,768	5.32
13	32,850	61,962	1.89	91,087	2.77	4,466	0.14	15,445	0.47	2,928	0.09	175,888	5.35
14	32,850	72,986	2.22	90,666	2.76	4,551	0.14	15,445	0.47	2,928	0.09	186,575	5.68
15	32,850	60,977	1.86	90,535	2.76	3,612	0.11	15,778	0.48	2,928	0.09	173,830	5.29
16	32,850	46,076	1.40	90,474	2.75	3,603	0.11	15,778	0.48	2,928	0.09	158,859	4.84
17	32,850	38,100	1.16	90,487	2.75	3,595	0.11	16,121	0.49	2,928	0.09	151,230	4.84
18	32,850	33,090	1.01	90,524	2.76	3,582	0.11	16,121	0.49	2,928	0.09	146,243	4.45
19	32,850	24,433	0.74	90,531	2.76	3,573	0.11	16,473	0.50	2,928	0.09	137,937	4.20
20	32,850	25,406	0.77	90,008	2.74	3,564	0.11	16,121	0.49	2,928	0.09	138,027	4.20
21	32,850	25,065	0.76	89,778	2.73	3,556	0.11	16,121	0.49	2,928	0.09	137,447	4.18
22	21,132	20,276	0.96	57,412	2.72	3,547	0.17	14,566	0.69	2,928	0.09	98,728	4.67
TOTAL	**678,133**	**1,228,795**		**1,870,147**		**89,288**		**318,000**		**61,478**		**3,567,708**	
AVG.			**1.81**		**2.76**		**0.13**		**0.47**		**0.09**		**5.26**

18.24.2 Mining Operating Cost Estimate

Mine operating costs are based on consumable quotes from Ecuadorian vendors (except for tires), hourly wages supplied by EcuaCorriente, salaried wages estimated from other South American mine estimates, repair and maintenance parts from a Caterpillar quote and operating hours and equipment requirements from the production schedule. Haul-truck and loader tire costs were estimated from North American prices with 33% (based on quotes) added for landed costs in Ecuador. Mine operating costs do not include the Ecuadorian 12% IVA tax.

Mine maintenance costs are based on using EcuaCorriente employees for all functions with no outside maintenance contracts. The mine department would maintain only haul roads with other road maintenance contracted to outside groups. Dewatering costs are based on preliminary water-flow estimates and would require adjustment when more definitive water-flow amounts are available.

The life-of-mine operating costs (excluding preproduction mining) are summarized in Table 18-27. Annual mine operating costs are provided in Table 18-28. Preproduction mining costs are considered to be capital costs and are included in the capital cost estimate.

Table 18-27: Life-of-Mine Operating Cost Estimate by Activity

Category	Mined $/t	Ore $/t	Total* ($000s)
General Mine Expense	$0.00	$0.00	$0
Drilling	$0.05	$0.11	$75,447
Blasting	$0.19	$0.40	$271,333
Loading	$0.11	$0.24	$163,306
Hauling	$0.42	$0.89	$600,799
Support	$0.10	$0.20	$137,520
Dewatering	$0.01	$0.02	$11,785
Total Mine Operations	$0.88	$1.86	$1,337,693

*Preproduction operating costs are included in the totals, but are considered to be capital costs

Table 18-28: Annual Mine Operating Cost Summary

Year	**Mining Plan Total Material 000s t/y**	**Total Ore 000s t/y**	**Mining Cost Total Cost $000s/yr**	**$/t Total Material Mined**	**$/t Ore Mined**	**$/t Ore Processed**
1	-					
2	68,590	32,800	61,072	0.89	1.86	1.86
3	90,264	32,800	76,701	0.85	2.33	2.33
4	90,412	32,800	77,965	0.86	2.37	2.37
5	89,311	32,800	78,992	0.88	2.40	2.40
6	90,462	32,800	77,974	0.86	2.37	2.37
7	90,215	32,800	79,164	0.88	2.41	2.41
8	90,383	32,800	81,668	0.90	2.49	2.49
9	90,501	32,800	84,163	0.93	2.56	2.56
10	91,031	32,800	86,736	0.95	2.64	2.64
11	54,762	32,800	54,414	0.99	1.66	1.66
12	59,922	32,800	61,576	1.03	1.87	1.87
13	59,914	32,800	61,962	1.03	1.89	1.89
14	80,457	32,800	72,986	0.91	2.22	2.22
15	82,319	32,800	60,977	0.74	1.86	1.86
16	60,889	32,800	46,076	0.76	1.40	1.40
17	51,439	32,800	38,100	0.74	1.16	1.16
18	44,590	32,800	33,090	0.74	1.01	1.01
19	36,506	32,800	24,433	0.67	0.74	0.74
20	35,123	32,800	25,406	0.72	0,77	0,77
21	35,325	32,800	25,065	0.75	0.76	0.76
22	21,132	21,132	20,276	0.96	0.96	0.96
Total	**1,428,067**	**678,133**	**1,228,795**			
Average				**0.87**	**1.81**	**1.81**

18.24.3 Processing Operating Cost Estimate

The average total processing operating cost is $2.76/t ore processed (see Table 18-29).

Table 18-29: Estimated Processing Operating Cost Summary

	Processing Schedule	**Processing Cost**	
Year	**000s t/y**	**$000s/yr**	**$/t**
2	32,800	92,220	2.81
3	32,800	90,654	2.76
4	32,800	90,643	2.76
5	32,800	90,785	2.76
6	32,800	90,522	2.76
7	32,800	90,464	2.75
8	32,800	90,645	2.76
9	32,800	90,760	2.76
10	32,800	90,706	2.76
11	32,800	90,495	2.75
12	32,800	90,751	2.76
13	32,800	91,087	2.77
14	32,800	90,666	2.76
15	32,800	90,535	2.76
16	32,800	90,474	2.75
17	32,800	90,487	2.75
18	32,800	90,524	2.76
19	32,800	90,531	2.76
20	32,800	90,008	2.74
21	32,800	89,778	2.73
22	21,132	57,412	2.72
Total	**678,133**	**1,870,147**	
Average			**2.76**

Assumptions used as the basis for estimating the processing operating costs are listed below:

l

Concentrator areas, including general, Primary Crusher, Grinding (SAG, Balls Mill, Pebbles Crusher), Flotation Plant, Concentrate Thickening and Filtering, and Infrastructure & Services (Lime plant, Reagent plant, Flocculent plant, fresh water).

l

Operating Schedule: 365 day/year 24 hours/day;

l

Concentrator capacity: 90,000 t/d;

l

Operating shifts: 2 shifts of 12 hours/day;

l

Accuracy: ±15%;

l

Cost Items:

Consumables: Includes all materials required for normal operation as well as minor materials and safety items;

Electrical power consumption;

Labour: Includes hourly personnel for operations and maintenance;

External Services: Includes all services related to communications, sampling and operational quality control, environmental monitoring and control, industrial cleaning, personal transport and others (excluding operational services); and

Maintenance: Includes materials, tools and spares parts and external services required in equipment and installations maintenance.

18.24.4 Electrical Power

Power consumption was estimated considering the total installed power, energy consumption factor and effective utilization time for each unit of electrical equipment. Table 18-30 provides a summary of power consumption and costs for each area of the concentrator. As directed by EcuaCorriente, the unit cost of electrical power has been estimated at $57.00/MWh.

Table 18-30: Estimated Processing Power Costs

Area	**Consumption MWh/y**	**Average Hourly Demand MW***	**Power Cost $/y**
Primary Crushing	42,373	4.45	2,415,249
Grinding	621,629	65.29	35,432,870
Flotation	71,753	7.54	4,089,896
Dewatering Plant	14,544	1.53	829,033
Reagents & Lime Plant	3,588	0.38	204,495
Water Supply	55,269	5.80	3,150,325
Air Supply & Distribution	16,969	1.78	967,205
Sand Plant	121,204	12.73	6,908,608
General	22,301	2.34	1,271,184
Total	969,630	101.83	55,268,865

92% availability

18.24.5 Annual Labour and Maintenance Supply Costs

Annual processing labour costs are estimated at $926,891,000 and this is based on salaries and burdens provided by EcuaCorriente (see Table 18-31). The annual cost of major consumables, including maintenance parts, would total $44,913,000.

18.24.6 Waste Management Facility

Estimated annual Waste Management Facility (WMF) operating costs have been provided by Knight Piésold as shown in Table 18-31. These costs include the dewatering costs for the Panantza Pit and San Carlos Pits and the Co-disposal facility. When operations begin the estimated costs start at $0.15/t processed for Years 1 and 2. WMF costs increase to $0.16/t processed in Years 3 thru 6. Costs decrease to an average $0.12/t processed per year for the duration of the project with the exception of the final year of operation when cost rises to $0.17/t processed.

Table 18-31: Waste Management Facility Estimated Annual Operation Cost

Annual Operating Cost	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**
1.1 Manpower - Operations	$ 600,000	$ 600,000	$ 600,000	$ 600,000	$ 600,000	$ 600,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
1.2 Equipment	$ 54,000	$ 54,000	$ 54,000	$ 54,000	$ 54,000	$ 54,000	$ 27,000	$ 27,000	$ 27,000	$ 27,000	$ 27,000
1.3 Power[2]	$ 3,787,560	$ 3,607,027	$ 3,426,494	$ 3,245,962	$ 3,065,429	$ 2,884,896	$ 2,704,363	$ 2,523,830	$ 2,805,970	$ 2,693,477	$ 2,798,712
1.4 Maintenance and Replacement	$ 400,000	$ 600,000	$ 800,000	$ 1,000,000	$ 1,200,000	$ 1,200,000	$ 400,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
1.5 Environmental Compliance	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
1.6 Engineering Support and Reporting	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000
1.7 Panantza Pit DW	$ 98,000	$ 169,000	$ 240,000	$ 311,000	$ 382,000	$ 453,000	$ 524,000	$ 594,000	$ 665,000	$ 736,000	$ 807,000
1.8 San Carlos Pit DW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 98,000
Total (WITHOUT CLOSURE)	**$ 4,999,560**	**$ 5,090,027**	**$ 5,180,494**	**$ 5,270,962**	**$ 5,361,429**	**$ 5,251,896**	**$ 4,015,363**	**$ 3,804,830**	**$ 4,157,970**	**$ 4,116,477**	**$ 4,390,712**

Annual Operating Cost	**Year 12**	**Year 13**	**Year 14**	**Year 15**	**Year 16**	**Year 17**	**Year 18**	**Year 19**

Year 20

Year 21 1.1 Manpower - Operations

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000 1.2 Equipment

$

27,000

$

27,000

$

27,000

$

27,000

$

27,000

$

27,000

$

27,000

$

27,000

$

27,000

$

27,000 1.3 Power[2]

$

2,731,579

$

2,674,879

$

2,613,643

$

2,534,263

$

2,454,883

$

2,370,967

$

2,291,587

$

2,212,207

$

2,132,827

$

2,053,447 1.4 Maintenance and Replacement

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000

$

300,000 1.5 Environmental Compliance

$

20,000

$

20,000

$

20,000

$

20,000

$

20,000

$

20,000

$

20,000

$

20,000

$

20,000

$

20,000 1.6 Engineering Support and Reporting

$

40,000

$

40,000

$

40,000

$

40,000

$

40,000

$

40,000

$

40,000

$

40,000

$

40,000

$

40,000 1.7 Panantza Pit DW

$

878,000

$

949,000

$

-

$

-

$

-

$

-

$

-

$

-

$

-

$

- 1.8 San Carlos Pit DW

$

169,000

$

240,000

$

311,000

$

382,000

$

453,000

$

524,000

$

594,000

$

665,000

$

736,000

$

807,000	**Total (WITHOUT CLOSURE)**
	$
	4,465,579
	$
	4,550,879
	$
	3,611,643
	$
	3,603,263
	$
	3,594,883
	$
	3,581,967
	$
	3,572,587
	$
	3,564,207
	$
	3,555,827
	$
	3,547,447

Notes:

1. Operating costs estimated as 200% of estimates for Rio Quimi Tailings Management Facility (KPL Report Ref. No. VA201-78/09-06).

2. Power at $54/MWhr

18.24.7 General Administration

EcuaCorriente provided estimated General & Administration (G&A) operating costs as shown in Table 18-32. EcuaCorriente has reported that the G&A costs were based on the assumption that inflation, escalation, project insurance, furniture and computer equipment replacement, and financing charges are excluded.

Table 18-32: G&A Operating Cost Summary

Item	Year 1 $000s/yr	Years 2-20 $000s/yr	Year 21 $000s/yr
Total G&A and Operations Labour	14,896	15,187	14,566
Total $/t Processed	0.45	0.47	0.69

18.25

Concentrate Marketing

18.25.1 Concentrate Production

Estimated annual concentrate production from the Panantza San Carlos Project is provided in Table 18-33.

Table 18-33: Estimated Concentrate Production

Year	Payable Metal Cu lb/y x 1000	Mo lb/y x 1000	Au troy oz x 1000	Ag troy oz x 1000	Cu Concentrate Dry t/y	Wet t/y	Mo Con. Dry t/y
1	452,946	2,803	22.8	1,109	696,457	767,024	2,594
2	420,389	2,803	22.8	1,109	646,397	711,891	2,594
3	417,366	2,803	22.8	1,109	641,749	706,772	2,594
4	459,068	2,803	22.8	1,109	705,871	777,391	2,594
5	381,677	2,803	22.8	1,109	586,873	646,336	2,594
6	364,613	2,803	22.8	1,109	560,635	617,439	2,594
7	417,891	2,803	22.8	1,109	642,556	707,661	2,595
8	451,804	2,803	22.8	1,109	694,701	765,089	2,594
9	435,600	2,803	22.8	1,109	669,786	737,650	2,595
10	373,762	2,803	22.8	1,109	574,703	632,933	2,594
11	449,240	2,803	22.8	1,109	690,759	760,748	2,594
12	548,171	2,491	-	961	842,877	928,279	2,306
13	424,004	2,180	-	813	651,956	718,013	2,018
14	385,405	2,180	-	813	592,605	652,649	2,018
15	367,548	2,180	-	813	565,147	622,409	2,018
16	371,278	2,180	-	813	570,883	628,726	2,018
17	382,067	2,180	-	813	587,472	646,996	2,018
18	384,260	2,180	-	813	590,845	650,710	2,018
19	375,979	2,180	-	813	578,112	636,687	2,018
20	380,944	2,180	-	813	585,746	645,095	2,018
21	245,237	1,402	-	523	377,080	415,287	1,298
Total	8,489,247	52,162	250.9	20,189	13,053,211	14,375,783	48,287

18.25.2 Concentrate Quality

The expected quality of concentrate, based on the Mirador copper concentrate specifications is shown in Table 18-34. The Mirador copper concentrate was deemed to be very desirable by the smelting community. It was a clean concentrate (virtually free of deleterious elements) and had copper, sulphur, gold and silver contents that would make it saleable to all smelters and desirable as a blending concentrate. Mirador concentrate has shown to be dewatered at a fine grind produced by the mill cleaning circuit and moisture content is not expected to be a problem. Samples of Panantza and San Carlos concentrate were not available to be tested by smelters. Future test work would be necessary to generate a concentrate for evaluation by the smelters for Cu grade, moisture and impurities.

Table 18-34: EcuaCorriente Copper Concentrate Quality - Mirador (Dry Basis)

Parameter	**Maximum**	**Minimum**	**Average**
Cu, %	30	25	29.5
Fe %	32	25	29
S, %	35	26	32
Au, g/t	1.3	0.5	0.8
Ag g/t	62	35	48

Molybdenum concentrate as a by-product is expected to be between 48 to 50% Mo with impurities of silicate, iron and copper. Test work is required to confirm the molybdenum concentrate impurities and their affect on the roasting penalties.

18.25.3 Copper Concentrate

Forecasts for copper prices are provided in Table 18-35.

Table 18-35: Copper Price Forecasts

Item	**Copper Price**							
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014+**
BME[1]	3.26	3.73	4.07	3.56	2.57	2.31	1.35	1.35

1

Bloomsbury Mineral Economics Limited forecast September 2007

The custom smelter market represents approximately 40% of the total copper concentrates market. The balance is the integrated / captive market representing mines and smelters which are linked. For example, Xstrata Plc (Xstrata) has a number of copper mines and copper smelters in both Canada and Chile. However, Xstrata is a net buyer of copper concentrate from independent copper mines and, thus, would be considered a partially integrated copper producer. The custom smelters market would be the market EcuaCorriente targets for the sale of its copper concentrate, but it should be noted that if EcuaCorriente sells concentrate to a trading company, then in turn, that trading company would also be selling to the same copper custom smelters that EcuaCorriente would sell to.

Copper concentrate treatment charges (TC) and refining charges (RC) for the last six years are provided in Table 18-36 and Table 18-37. Spot contract terms are more volatile than long term smelter contracts but, on average, are lower than long term smelter contracts. EcuaCorriente concentrate is an ideal concentrate for the spot market because of its good quality. Long term smelter contracts are more desired by bank financiers as they are seen to be more secure and less volatile than spot contracts. EcuaCorriente plans to sell a minimum of 50% of its concentrates under long term smelter contracts and the remainder under short term spot market contracts.

Table 18-36: Smelter Long Term Contracts

Item	Rate	Year 2002	2003	2004	2005	2006	2007
TC	US $ / dmt	69	58	46	85	95	60
RC	US ¢ / lb	6.9	5.8	4.0	8.5	9.5	6.0
PP	US ¢ / lb	-1.8	0.3	3.6	9.6	23.5	0

Table 18-37: Smelter Spot Contracts

Item	Rate	Year 2002	2003	2004	2005	2006	2007
TC	US $ / dmt	32.9	17.3	55.8	149.6	68.5	41.3
RC	US ¢ / lb	3.3	1.7	5.6	15.0	6.9	4.1

The high copper prices in 2005 and 2006 resulted in high treatment charges on long term smelter contracts as a result of the typical price participation clause in these contracts. This clause states that the TC/RC terms would be adjusted plus or minus 10% of the difference in the actual copper price and breakpoint copper price of 90 cents. Some 2006 mid-year smelter contracts increased the breakpoint from 90 to 120 cents and capped the price participation at 6 cents a pound. Recent settlements for 2007 smelter contracts have completely removed price participation but have changed payment terms and gold refining charges.

The economic evaluation provided in Section 18.15 uses a long term average treatment cost of US$75/t of dry concentrate and a refining charge of US$0.075/lb of copper, with price participation of +/- 10% at a breakpoint of 120 cents, with a cap of plus US$0.06/lb of copper.

Gold refining costs are based on a 90% payable factor and a gold refining cost of US$5.00/oz. Silver refining costs are based on a 90% payable factor and a silver refining cost of US$0.30/oz.

A flat line copper price of US$1.50/lb, US$ 10/lb Molybdenum, a gold price of US$550/oz and a silver price of US$7.50/oz was used for the Panantza San Carlos Preliminary Assessment.

18.25.4 Molybdenum Concentrates

Figure 18-20: Molybdenum Price History

Molybdenum consumption strongly depends upon stainless steel production. According to the recently published U.S. Geological Survey, Mineral Commodities Summaries, producers of iron, steel and super-alloys consumed 74% of the molybdenum mined in 2006. Movements in stainless steel demand can impact the molybdenum price.

Over the last 3 years the molybdenum price has been trending anywhere between US$20/lb and US$45/lb. During the previous molybdenum price booms, primary molybdenum mines produced 75% of the world s supply. Currently, about 65% of molybdenum supply is a by-product of copper with the balance coming from primary mines. Primary producers are now the swing producers, filling the supply gaps when there is increased demand for molybdenum. Derek Raphael & Company indicated additional molybdenum supply from both by-product and primary mines is expected to come on-stream starting in 2008 and then increasing in 2009/2010. Prices are expected to fall back to a long term average of US$10/lb which is anticipated to be the future cost of primary production.

Table 18-38: Derek Raphael & Company Molybdenum price Forecast

Rate	**Molybdenum Price**			
	2008	**2008**	**2010**	**2011 onwards**
US $ / lb	30	20	15	10

Molybdenum concentrate would be consigned directly to the roasting facilities. Molybdenum conversion costs include transportation to the roasting facility in 2 tonnes supersacs via Puerto Cobre. For the purpose of the Panantza San Carlos Preliminary Assessment the conversion cost of molybdenum concentrate was estimated based on typical payment terms to copper producers with molybdenum as a by-product as shown in Table 18-39. An overall conversion cost including transportation was estimated to be $2.00/lb of Mo.

Table 18-39

: **Typical Molybdenum Concentrate Terms**

Packaging:	2.0 MT Bags on Pallets			
Shipped:	20.0 MT Container			
Delivery:	FOB Container - Puerto Cobre, Ecuador			
Quality:		Typical	Specification	
Copper	% Cu	1.5 - 2.0%	<2.5%	
Molybdenum	% Mo	48 - 50%	>48%	
Zinc	% Zn	N/A	<0.05%	
Lead	% Pb	<0.05%	<0.10%	(<0.05% for Cu below 0.5%)
	% Insol	5.0 - 7.0%	<8.0%	
	% Oil+H_2O	6.5 - 8.5%	<10.0%	
Calcium	% Ca	0.6 - 0.8%	<0.8%	
Bismuth	% Bi	N/A	<0.05%	
Phosphorus	% P	<0.05%	<0.05%	
Arsenic	% As	N/A	<0.05%	
Tungsten	% W	N/A	<0.05%	
Antimony	% Sb	N/A	<0.05%	

Copper Penalty:			
Discount:		$US/lb Mo	% Cu
		$0.72	<0.2%
		$0.77	<0.5%
		$0.82	<1.0%
		$0.87	<1.5%
		$0.97	<2.0%
		$1.07	<2.5%
	To Be Mutually	Agreed	>2.5%

18.26

Economic Evaluation

This section has been provided in its entirety by HPS and Corriente. It has been reviewed by Merit Consultants International for content and consistency with the format of the report. Merit Consultants International has relied on HPS and Corriente for completeness and accuracy of the information provided and has not verified the data, calculations or opinions expressed by HPS and Corriente herein.

18.26.1 Summary

The economic analyses are preliminary in nature and are based entirely on Inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the operating and economic projections in this preliminary assessment would be realized. It is expected that the findings of this report would change as more information becomes available. Users should not rely on the findings herein, but rather make their own analysis of development, operating and financial parameters of the Panantza San Carlos Project.

Table 18-40 summarizes the parameters and economic outcomes of the Panantza - San Carlos Copper Project.

Table 18-40: **Panantza - San Carlos Copper Project Summary**

Item	Units
Year -2 and -1	
Mine, Mill and Infrastructure Capital cost (including Working Capital of $50.3 million)	$ 1,279,911,000
Years 1 21	
Mining throughput (total)	1,411,547,000 t
Processing throughput DMT (total)	678,133,000 t
Processing throughput DMT (annual average)	32,292,000 t
Concentrate production DMT	13,053,000 t
Concentrate production DMT (annual average)	621,600 t
Concentrate production DMT (Year 1-3 avg.)	661,535 t
Concentrate grade	29.5 %
Sustaining Capital and Closure Costs, net of recovery of Working Capital	$463,851,000
Life of Mine	21 years
Life-of-Mine total capital	$ 1,743,762,000
Copper production (total payable)	3,850,662 t
Gold production (total gold payable)	251,000 oz
Silver production (total silver payable)	20,189,000 oz
Molybdenum production (total moly payable)	52,162,000 lb
Net Smelter Return (total)	$ 10,402,817,000
Average Net Smelter Return ($/t Cu payable)	$ 2,890/t ($1.31/lb)
Average Copper cash cost (net of co-credits and inclusive of NSR royalties and asset-based taxes)	$0.43/lb
Copper price (long-term)	$1.50/lb
Molybdenum price (long-term)	$10/lb
Gold price (long-term)	$550/oz
Silver price (long-term)	$7.50/oz
IRR (after tax)	15.1 %
NPV @ 8%(after tax)	$ 675,901,000

All assumptions and information included in the project model were extracted from the relevant sections of the study and are referenced where applicable.

All risk factors and applicable assumptions referred to elsewhere in the study are equally applicable to the economic model and scenario outcomes discussed in this section.

No inflation was accounted for in the economic model for the Panantza - San Carlos Copper Project and all data costs (capital and operating) are presented in US$ dollars. Key parameters in terms of economics have been kept constant throughout the cash flow model.

Estimated project cash flows were used to determine both pre-tax and post-tax net present value (NPV) and pre-tax and post-tax internal rate of return (IRR) for the base case (see explanation of discounted cash flow (DCF) in Section 18.15.2).

18.26.2 Valuation Methodology

A DCF analysis was used to evaluate the Panantza - San Carlos Copper Project. Using this methodology, mine revenues and costs are projected into the future (in the case of Panantza - San Carlos, the projections have been completed on an annual basis).

Net revenues to the project are determined by calculating the gross value of metals (copper, molybdenum, gold and silver) contained in concentrates and deducting all applicable smelter charges, transport and related costs.

Net annual cash flow is calculated by deducting capital costs, operating costs, royalties, taxes (income, municipal and local) and duties from net revenues. In addition, a statutory requirement for the payment of a net profit share to the Ecuadorian work-force is accounted for in the cash flow. The resulting stream of net cash flow is assumed to be available for distribution to the project sponsor.

The net annual cash flows are discounted back to the date of valuation at a chosen discount rate, and totaled to determine the project s NPV.

The NPV in DCF analysis traditionally involves the application of a Weighted Average Cost of Capital (WACC) applicable to a project or company to the cash flow as the discount rate.

At the date of this study, the precise funding plan for the Panantza - San Carlos Copper Project was still being determined by the company. In anticipation of the funding plan involving a significant tranche of some form of debt finance (and reflecting the consequential influence of this on WACC), it was determined that a discount rate of 8% per annum would be applied to the project cash flows to establish an NPV.

The date of valuation is normally assumed to be when the decision is made to proceed with project development, which is sometimes identified as the commencement of detailed engineering. Due to some complexity in the timing of project approval for development (primarily caused by the project approval framework in Ecuador and consequent impacts on the final approval and permitting process for Panantza - San Carlos Copper Project), there are some difficulties with establishing a definitive start date for the project.

With this in mind and factoring in a 2 year construction period for the project, construction and development expenditure has been allocated across 2 years prior to operations commencing in the financial model. For the avoidance of doubt, NPV s have been established as at the commencement of Year -2, with operations commencing in Year 1 (after the 2 year construction period, referred to as Years -2 and -1).

An IRR is also calculated for the project, equivalent to the rate of return at which the NPV equals zero. The payback period is stated in terms of the number of years from the production start date required to pay back the initial capital investments made in Years -2 and -1, excluding sunk costs, based on the undiscounted cash flow.

18.26.3 Other Assumptions

18.26.3.1 Exchange Rates

The cash flow and economic model is presented in US$. All revenues are generated in US$.

18.26.3.2 Working Capital

An allowance of up to 3 months estimated operating costs has been made for Working Capital. This amount totals $50,291,000 as being needed for Year 1. It is assumed that this amount of Working Capital would be recovered at the end of Year 21.

18.26.3.3 Royalties

At this time of the report, no Government royalties are payable in respect of the projected output or revenues from the Panantza - San Carlos Copper Project. However this may change as a result of the government intent to revise mining legislation.

A 1% NSR based royalty is payable to BHP Billiton in respect of the project. The royalty agreement states the royalty at 2% NSR; however Corriente has the contractual right, in exchange for a payment of US$2 million to BHP, to reduce the royalty to 1%. Corriente intends to make such a payment upon a formal decision to mine. Consequently, the NPVs reflect this payment.

18.26.3.4 Salvage Value

No salvage value has been assumed from mine and field equipment, buildings and infrastructure and mobile equipment.

18.26.3.5 Depreciation

Depreciation has been calculated in a yearly basis when an asset is purchased or completed.

Property, plant and equipment have been depreciated using the straight line method using annual depreciation rates shown in Table 18-41. Using this method, the cost of the asset (all assets are not considered to have salvage value) is pro-rated over the estimated useful life of the asset over the following estimated economic lives according to the local tax regulations enforce in Ecuador:

Table 18-41: Depreciation Percentages

Item	**Annual Depreciation**
Building and Infrastructure	5%
Barge	10%
Fixed - Equipment	10%
Furniture and fixtures	10%
Vehicles / Mobile Equipment	20%
Computer equipment and software	33%
Mine Development (Earth Movement)	20%

The principal amortization method used for mining property expenditures (exploration, development and production costs) is the straight line method over a period of 5 years. The depreciation charge for each period has been recognized in profit or loss in the financial model.

18.26.3.6 Taxes and Statutory Charges

Table 18-42 summarizes the major taxes and statutory payments required to be made by the sponsors and/or the Panantza San Carlos Copper Project when in operation.

Table 18-42: Taxes and Statutory Charges Summary

Item	Basis	Referable % or calculation
Export Tax	Net Smelter Return (NSR)	0.50% of NSR
IVA Tax	Refer to separate summary on IVA below	Payable on capital, operating costs and closure costs (12% payable on material, equipment & subcontracted services)
Superintendent of Companies and Municipal taxes	Written down value of assets	0.25% of WDV of assets
Statutory Employee Profit Sharing	Operating profit less Depreciation	15%
Income Taxes	Operating profit less depreciation less statutory profit sharing	25%

18.26.3.7 IVA Summary

The Ecuadorian IVA Tax is the equivalent to the VAT in other countries. Ecuadorian law establishes that all services and products are subject to IVA Tax except labour provision and transport services. The percentage applicable to estimate IVA on goods and services is 12%.

In order to estimate the real amount of IVA to apply both to capital expenditure and operating expenditures for Panantza San Carlos Copper Project, the costs have been split into labour, material, equipment, transport and subcontractor. The cost for labour and transport are not subject to IVA.

The total costs are the result of cost being estimated for all the resources plus the IVA applied to materials, equipment and subcontractor.

It is assumed that the IVA tax is not reimbursed based on the past experience of petroleum companies operating in Ecuador. IVA Tax is therefore considered as part of the total costs.

18.26.3.8 Inflation

No allowance was made for inflation of revenues or costs.

18.26.4 Economic Analysis Results

18.26.4.1 Base Case

Base Case financial outcomes are summarized in Table 18-43.

Table 18-43: Base Case Financial Outcomes Summary

Pre-tax NPV (US$ 000s)	**Pre-tax IRR (%)**	**Post-tax NPV (US$ 000s)**	**Post-tax IRR (%)**
$ 1,023,716	19.2	$ 675,901	15.1

The Base Case scenario has a projected payback period of approximately 4.7 years of operation.

18.26.4.2 Forward Case Results

Results of the Forward Case scenario are summarized in Table 18-44. The Forward Case scenario has a projected payback period of approximately 3.0 years of operation.

Table 18-44: Forward Case Financial Outcomes Summary

Pre-tax NPV (US$ 000s)	**Pre-tax IRR (%)**	**Post-tax NPV (US$ 000s)**	**Post-tax IRR (%)**
$ 1,013,359	27.5	$ 1,025,577	20.5

18.26.5 Sensitivity Analysis

Effects of changes to commodity prices (copper and molybdenum), capital cost, operating cost and copper recovered (via grade sensitivity) were examined in a sensitivity analysis. This analysis indicated the greater sensitivity of the project to the copper price and recovered copper. These results are consistent with the overall copper grade of the Panantza - San Carlos Copper Project.

The project is much less sensitive to capital and operating cost fluctuations. The project is relatively insensitive to molybdenum price movements (reflecting relatively low revenue contribution of by-product).

The spider diagrams below (Figure 18-21 and Figure 18-22) summarize the key sensitivity outcomes in respect of NPV and IRR in the context of the major sensitivities outlined above.

Figure 18-21: NPV Sensitivity

Figure 18-22: IRR Sensitivity

18.26.5.1 Base Case Sensitivity Results

Base Case Sensitivity NPV and IRR outcomes (post-tax) are summarized in Table 18-45.

Table 18-45: Base Case Sensitivity NPV and IRR Outcomes ($US)

Sensitivity Analysis	Base	-30.0%	-20.0%	-10.0%	0.0%	10.0%	20.0%	30.0%
Cu Price								
Net Present Value	**675,901**	(340,914)	27,200	366,292	675,901	978,384	1,280,866	1,616,958
DCF Rate of Return	**15.1%**	3.9%	8.3%	12.0%	15.1%	17.9%	20.5%	23.3%
	1.50	1.05	1.20	1.35	1.50	1.65	1.80	1.95
Mo Price								
Net Present Value	**675,901**	631,841	646,527	661,214	675,901	690,588	705,274	719,961
DCF Rate of Return	**15.1%**	14.6%	14.8%	14.9%	15.1%	15.2%	15.4%	15.5%
	10.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00
CapEx								
Net Present Value	**675,901**	1,099,834	958,523	817,212	675,901	534,590	393,279	251,968
DCF Rate of Return	**15.1%**	23.4%	20.0%	17.3%	15.1%	13.2%	11.6%	10.1%
	1,279,911	1,279,911	1,279,911	1,279,911	1,279,911	1,279,911	1,279,911	1,279,911
OpEx								
Net Present Value	**675,901**	1,041,032	919,322	797,611	675,901	552,834	426,102	297,486
DCF Rate of Return	**15.1%**	18.5%	17.4%	16.2%	15.1%	13.9%	12.6%	11.3%
	6.31	4.41	5.04	5.67	6.31	6.94	7.57	8.20
Cu (mt)								
Net Present Value	**675,901**	(418,914)	(22,369)	344,490	675,901	993,443	1,306,461	1,619,478
DCF Rate of Return	**15.1%**	2.9%	7.7%	11.8%	15.1%	18.0%	20.7%	23.3%
	3,850,697	2,695,488	3,080,558	3,465,628	3,850,697	4,235,767	4,620,837	5,005,906

19.0 INTERPRETATION AND CONCLUSIONS

This Preliminary Assessment provides a summary of all work conducted at Panantza and San Carlos since the inception of the projects. For Panantza, it summarizes the last NI 43-101 Technical Report filed in August 2007, which reported updated Inferred resources based on 25 additional drill holes totaling 8399 metres, additional mapping and remapping of surface exposures, complete re-logging of older core, and construction of a block model used for the estimation of the updated resource. This report provides a summary of work conducted at San Carlos since the inception of the Project, and an update and review of the activities that took place subsequent to the filing of the last Technical Report, which was prepared by Geospectrum Consultants and filed on SEDAR in June 2001. Since that time, Corriente has advanced knowledge of the San Carlos Project geology and mineralization by completing a block model resource estimate, including related geologic solid modeling.

This current resource estimate increases the Inferred resources at Panantza from those released by Makepeace (2001), which were reported at a 0.65% copper cutoff and included mineralized leached material with hypogene and enriched material. Using the same 0.65% copper cutoff, the current Inferred resources are 219MT at 0.77% Cu, of only hypogene mineralization. Comparing these numbers with Makepeace (2001), which reported 148 Mt at 0.82 % Cu, this is an increase of 48% in tonnes and decrease of 6% in copper grade over the previous reported Inferred resource. This current resource estimate justifies completing a preliminary assessment of the economic potential of the project.

The San Carlos resource estimate presented here decreases the Inferred resources at San Carlos from those released by Makepeace (2001), which were reported at a 0.65% copper cutoff and included mineralized leached material with hypogene and enriched material. Using the same 0.65% copper cutoff, the current Inferred resources (from Table 17-4) are 102MT at 0.76% Cu, of only hypogene mineralization. If the blocks with >50% leached material are included, the unclassified material above a 0.65% cutoff would be 121MT at 0.76% Cu.

Comparing these numbers with Makepeace (2001), which reported 148 Mt at 0.82 % Cu, this is an decrease of 18% in tonnes and 7% in copper grade over the previous reported Inferred resource. The drop in resources is attributable to the more rigorous estimation and geological modeling employed in the current block model estimate.

The updated resource estimates for Panantza and San Carlos were used to construct preliminary open pit shells and a unified preliminary mine schedule for the two deposits. A preliminary assessment of the economic potential of the project was then completed. The project has a net present value of $676M with an internal rate of return of 15.1%, based on US$1.50/lb copper, US$10/lb molybdenum, US$550/oz gold, and US$7.50/oz silver prices. A total of 668MT of ore would be mined over a 21 year mine life.

20.0

RECOMMENDATIONS

The Panantza San Carlos Project is a property of merit and ExplorCobres should continue working on expanding the resources and optimizing the mine plan. The recommendations listed below would ready the project for a Feasibility Study, and would cost in total approximately $12M.

1.

Complete approximately 14 000 metres of drilling at Panantza, and 42,000 metres at San Carlos. This would delimit the Panantza mineralization to the west, north and south as well as determine its depth extents, and also convert most of the resource to Indicated category. In addition to further delimiting San Carlos mineralization, the drilling would upgrade most of the San Carlos resource to the Indicated category, as well as potentially expanding the resource at depth. The above mentioned drilling would cost approximately $8M.

2.

Collect geotechnical data concurrent with the resource drilling, with the aim of advancing the geotechnical character of the rock mass and how it would affect both pit design and environmental factors. A geotechnical orientated core programme would cost approximately $2M.

3.

Collect detailed hydrogeological and hydrologic data in conjunction with the geotechnical drilling within the pit areas, as well is the WMF, so that an estimate of inflow can be calculated for the pits, and inflow design flood and the required freeboard estimated for the life of the WMF. This would cost an estimated $300,000.

4.

Collect bulk samples for studying the acid rock drainage (ARD) issues associated with the future pit and waste dumps. To construct 10-12 ARD cells loaded with composite samples for *in situ* humidity tests would cost approximately $10,000.

5.

Continue the metallurgical testing of core samples for conventional flotation, hardness, and for hydrometallurgical treatment of concentrates. A complete metallurgical testing programme, using about 4000kg of sample from each deposit, would cost approximately $500,000.

6.

Model molybdenum (Mo) distribution and include Mo in the next block model estimation. Mo occurs at concentrations averaging 90 ppm in samples grading >0.4% copper. The preliminary metallurgy indicates Mo is the most significant minor metal associated with copper.

7.

Conduct a more detailed seismicity study for future design work to confirm the seismic design parameters. This would require a detailed probabilistic seismic hazard analysis. The cost for this study would be about $15,000.

8.

Commence social and environmental baseline studies, and permitting, for development of Panantza and San Carlos. This would require the implementation of a project socialization and community sustainable development programme. The estimated cost for the combined Social and Environmental needs is $500,000.

9.

Commence negotiations with the Ecuador government regarding hydroelectric power and project taxation.

A Pre-Feasibility or Feasibility Study can be initiated once the above recommendations are complete, contingent on there not being any fatal flaws discovered. The study should include, among other things:

1.

Further optimization of the mining sequence to improve the net present value of the project.

2.

Re-evaluation of the selection of the ultimate pit so that the potential resource would be maximized.

3.

Further studies on increasing the tailings disposal capacity.

4.

A detailed Social and Environmental Baseline Assessment (SEBA); from this a Social and Environmental Management System (SEMS) would need to be created prior to proceeding with the development. All studies and plans would be developed using the methods outlined in the Equator Principles.

21.0

REFERENCES

Billiton 1998: Linea Base Area Proyecto Pangui , Charateristicas de la Situation Preproyecto, Internal Report, December, 1998

Carretero, Enrique, 1999: Metallurgical Testwork, samples from San Carlos/Panantza, Internal Memorando for Billiton Ecuador B.V., June 23, 1999.

Coder, Joshua, 2001: Geologic Setting, Geochronologic Relationships, and Lithogeochemistry of the Pangui Porphyry Copper District, Southeast Ecuador, Thesis submitted to the University of Alberta, 2001.

Drobe, John, 2007: Panantza Copper Project, Southeast Ecuador, Update on Inferred Resource Estimate, NI 43-101 Technical Report, July 2007.

Gendall, I.R., Quevedo, L.A., Sillitoe, R.S., Spencer R.M., Puente, C.O., León, J.P., and Povedo, R.R., 2000, Discovery of a Jurassic porphyry copper belt, Pangui area, southern Ecuador, SEG Newsletter no. 43, p. 215-239

Kirk, Bruce, 1998: Sample Preparation, Chemical Analysis and Quality Control for the San

Carlos Drill Core, Memorandum for Billiton Ecuador B.V., December 1, 1998.

Kirk, Bruce, 1999: The Rio Zamora Joint Venture Summary Report, Ecuador, Bruce Kirk, June 1, 1999.

Lomas, S., 2004: Technical Report, Mirador Project. Morona Santiago Province, Ecuador. AMEC Americas Limited Technical Report prepared for Corriente Resources Inc, October 22 2004.

Makepeace, D.K., 2001: Corriente Copper Belt Project, Southeast Ecuador, Order-of-Magnitude Study (Preliminary Assessment Technical Report), June 22, 2001.

Trejo, R., 2006: Letter Regarding the Status of Title to the Mining Concessions in Ecuador for ExplorCobres S.A. and EcuaCorriente S.A., Trejo, Rodriguez y Asociados, Abogados Cia. Ltda., prepared for Corriente Resources Inc., November 27 2006.

22.0

DATE AND SIGNATURES

Effective Date of the report:

October 30, 2007

The information upon which the contained resource estimates are based was current as of the Effective Date of June 7, 2007.

For the concession data in this report, the Effective Date is November 27, 2006.

The execution date is November 19, 2007.

CERTIFICATE of AUTHOR

I, John Drobe, P. Geo., do hereby certify that:

1.

I am currently employed as Chief Geologist by:

Corriente Resources Incorporated
#520 800 West Pender Street,
Vancouver, British Columbia, V6C 2V6
Phone: 604-687-0449
Fax: 604-687-0827
E-mail: jdrobe@corriente.com

2.

I graduated with a Bachelor of Science degree in Geology from University of British Columbia in 1987 and a Master of Science degree in Geology from Queen s University in Kingston, Ontario in 1991.

3.

I have been a registered member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia since 1992.

4.

I have practiced my profession continuously since 1991, since my graduation from graduate university.

5.

I have read the definition of qualified person set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101, and have prepared sections 4 through to 15 and 17.

6.

I visited the Panantza deposit on several occasions between 2003 and 2006 and have reviewed all diamond drill core and mapped the geology on the property. Although I have not visited the San Carlos deposit in the area of mineralization, I did enter the west side of the property in 2006 and have reviewed representative intervals of diamond drill core.

7.

I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

8.

I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

9.

I consent to the filing of the Technical Report with any securities regulatory authority, stock exchange and other regulatory authority and any publication by them, including electronic publication of the Technical Report in the public company files on their websites accessible by the public.

Dated at Vancouver, British Columbia, this 19th day of November, 2007.

____

John Drobe, P.Geo.

Hoffert Processing Solutions Inc.
Metallurgical Services

785 Uplands Court
Kamloops, BC, Canada
V2C 6M8

Tel: (250) 573-7589
Cell: (250) 303-0545
E-mail: jhoffert@shaw.ca

CERTIFICATE of AUTHOR

I, John R. Hoffert, P.Eng., do hereby certify that:

1.

I am currently an independent Metallurgical Engineer, president and owner of:

Hoffert Processing Solutions Inc.
785 Uplands Court
Kamloops, B.C., Canada
V2C 6M8

2.

I graduated from the University of British Columbia in 1984 with a Bachelor of Applied Science degree in Mining and Mineral Processing and also hold a Diploma of Technology in Extractive Metallurgy from the British Columbia Institute of Technology obtained in 1975.

3.

I am a registered Professional Engineer in the province of British Columbia, Canada (#16726) and a long time member of the Canadian Institute of Mining and Metallurgy

4.

I have worked as a metallurgical engineer for a total of 23 years since my graduation from university and have served in various roles in the mining industry for 32 years.

5.

I have read the definition of Qualified Person set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of NI 43-101.

6.

I am responsible for or was involved with the preparation of Sections 16.0, 18.3, 18.12 through to 18.18 and 18.24 through to 18.26 of this technical report titled Panantza and San Carlos Preliminary Assessment Report for Corriente Resources Inc., October 2007.

7.

I have read the technical report for the Panantza Copper Project, Southeast Ecuador, Update on Inferred Resource Estimate, dated July 2007 and I am familiar with the metallurgical statements made in the report. I have visited the

Mirador project in Ecuador on May 1, 2 and 3, 2006 which is 40 KM south of the Panantza and San Carlos site. I have not examined drill core from Panantza and San Carlos to confirm its appearance or the mineral occurrence and rely on the information provided by the project geologist who has visited the site and examined the core to be factual.

8.

I am not aware of any material fact or material change with respect to the subject matter of the Preliminary Assessment Report that is not reflected in the Preliminary Assessment Report, the omission of which to disclose would make the Preliminary Assessment Report misleading.

9.

I have read NI 43-101 and Form 43-101F1, and this Technical Report has been prepared in compliance with that instrument and form.

10.

I consent to the filing of the Preliminary Assessment Report with any securities regulatory authority, stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Preliminary Assessment Report.

Dated this 19th day of November, 2007.

John R. Hoffert, P.Eng.

CERTIFICATE of AUTHOR

I, Robert H. Fong, P. Eng., do hereby certify that:

1.

I am an associate of Moose Mountain Technical Services (MMTS), P.O. Box 797, Elkford, B.C. Canada.

2.

I am a registered professional engineering in good standing with the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA).

3.

I am a graduate of McGill University, Montreal, Quebec, and hold a Bachelor of Engineering Degree - Mining, 1979.

4.

I have worked as a mining engineering since graduation from university, and have provided over 12 years of engineering consulting services to projects in Canada, United States, South America, Mexico, Africa and Asia.

5.

I have read the definition of Qualified Person set out in National Instrument 43-101 (NI 43-101) and certify that, by reason of my education, relevant work experience, and affiliation with APEGGA, I fulfill the requirements to be a Qualified Person as set out by NI 43-101.

6.

I am the sole and principal author of Section 18.2.1 to 18.2.5 of this report, and am responsible for the technical information described only in these sections.

7.

I have not visited the project site at the time of issuance of this report.

8.

I have not had prior involvement with companies that are the subject of this report, nor have a beneficial interest in the mineral properties that are the subject of this report, nor any adjacent or nearby properties.

9.

I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose, which makes the Technical Report misleading.

10.

I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

11.

I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.

Dated at Calgary, Alberta, this19th day of November, 2007.

Robert H. Fong, P.Eng.

Knight Piésold Ltd.
Suite 1400
750 West Pender Street
Vancouver, British Columbia
Canada V6C 2T8

Telephone:

604-685-0543

Facsimile:

604-685-0147

E-mail:

vancouver@KnightPiésold.com

CERTIFICATE of AUTHOR

I, Jeremy P. Haile, P.Eng., do hereby certify that:

1.

I am the President of: Knight Piésold Ltd.

Suite 1400, 750 West Pender Street,
Vancouver, B.C. Canada V6C 2T8

2.

I graduated with a degree in Engineering Science and Economics from the University of Oxford in 1972. In addition, I have obtained a Master of Science in Soil Mechanics from Imperial College, London University in 1978.

3.

I am a member of the Association of Professional Engineers and Geoscientists of British Columbia.

4.

I have worked as an engineer for a total of 35 years since my graduation from university.

5.

I have read the definition of qualified person set out in National Instrument 43-101 (NI43 101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.

6.

I am responsible for the preparation of sections 18.4 through to 18.8, and section 18.11 of this report, and am responsible for the technical information described in these sections only.

7.

I have not visited the project site at the time of issuance of this report.

8.

I have not had prior involvement with the property that is the subject of the Technical Report.

9.

I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

10.

I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.

11.

I have read NI 43-101 and Form 43-101 F1, and the Technical Report has been prepared in compliance with that instrument and form.

12.

I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated at Vancouver, British Columbia, this 19th day of November, 2007

Jeremy P. Haile, P.Eng.

MERIT CONSULTANTS INTERNATIONAL INC.

#401 - 750 West Pender Street
Vancouver, B.C., V6C 2T8
Tel: 604-669-8444
Fax: 604-669-8434
Email: joe.rokosh@gmail.com

CERTICATE of AUTHOR

I, Joe Rokosh, P.Eng., do hereby certify that:

1.

I am Vice President of:

Merit Consultants International Inc.
#401 - 750 West Pender Street,
Vancouver, B.C. Canada, V6C 2T8.

2.

I graduated with a degree in Applied Science, Mechanical, from the University of British Columbia in 1973. In addition, I have obtained a Master of Engineering, Mining, from McGill University in 1979.

3.

I am a member of the Association of Professional Engineers and Geoscientists of British Columbia.

4.

I have worked as an Engineer for a total of 30 years since my graduation from university.

5.

I have read the definition of qualified person set out in National Instrument 43 101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a qualified person for the purposes of NI 43-101.

6.

I am responsible for managing the study team in preparation of the technical report titled Panantza & San Carlos Preliminary Assessment and for the preparation of sections 18.10 Onsite Infrastructure and Services, 18.19 Project

Implementation Plan, and 18.23 Capital Cost Estimate of this report and for the technical information described in these sections only. I have not visited the project site at the time of issuance of this report.

7.

I have not had prior involvement with the property that is the subject of the Technical Report.

8.

I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

9.

I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.

10.

I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

11.

I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated at Vancouver, British Columbia, this 19th day of November, 2007

Joseph K. Rokosh, P.Eng.

APPENDICES

APPENDIX A

Letter Regarding the Status of Title to the Mining Concessions in Ecuador, For ExplorCobres, S.A. and EcuaCorriente, S.A., Trejo, R. 2006

APPENDIX B

Capital Expenditures Table.

APPENDIX A

Letter Regarding the Status of Title to the Mining Concessions in Ecuador,
For ExplorCobre, S.A. and Ecuacorriente, S.A., Trejo, R. 2006

APPENDIX B

Capital Expenditures Table

Doc. No.: 706\1.7\APPENDICES

CORRIENTE RESOURCES INC.
Panantza - San Carlos Project - 90K tpd
Capital Cost Estimate - FINAL

Check
$0.00 **07-Sep-07**
2007 Technical Assessment

											US Dollars				
			Labor Cost					-	Materials		Equipment		Sub		Othe
Item	S	Description	Qty	Unit	Hrs-Unit	Hrs-Total	**Total LaborCost**	Unit Cost	**Total Mat. Cost**	Unit Cost	**Total EQ. Cost**	Unit Sub	**Total Sub Cost**	Unit Other	**Tot**
1000 - 9900		**Summary**													
1		**Mining**				796,250	$ 8,962,870		$ 5,754,800		$ 158,156,647		$ 32,649,774		$
2		**Plant Site Infrastructure**				205,531	$ 4,860,225		$ 47,880,047		$ 10,896,000		$ 64,854,148		$
3		**Process**				1,352,613	$ 25,917,666		$ 56,910,114		$ 191,174,604		$ 1,328,129		$
4		**Ancillaries**				198,013	$ 3,762,884		$ 12,662,366		$ 3,283,242		$ 305,534		$
5		**Power Supply & Distribution**				196,924	$ 3,470,698		$ 14,484,432		$ 28,588,856		$ 16,808,528		$
6		**Tailings & Water Reclaim**				580,513	$ 13,605,390		$ 9,967,511		$ 11,440,000		$ 26,517,865		$
7		**Owner s Costs**				0	$ -		$ 10,000,000		$ -		$ -		$ 58
8		**Indirects**				76,950	$ 1,625,238		$ 100,000		$ 4,383,033		$ -		$ 222
9		**Contingency**				0	$ -		$ -		$ -		$ -		$ 177
Total Directs & Indirects (With Contingency)						3,406,794	$ 62,204,970		$ 157,759,270		$ 407,922,382		$ 142,463,979		$ 459
															% c
1000 - 6500		**Direct Costs**													
1 **1110**		**Mine Preproduction Development (CORRIENTE)**				480,426	$ 2,296,611		$ -		$ -		$ 17,669,503		$
1 **1120**	**KP**	**Mine Water Diversion (Knight Piesold)**				266,838	$ 5,570,733		$ 4,556,150		$ -		$ 9,454,704		$
1 **1130**	**KP**	**Pit Dewatering (Knight Piesold)**				15,119	$ 362,400		$ -		$ -		$ 845,600		$
1 **1140**		**Mine Equipment (CORRIENTE)**				0	$ -		$ -		$ 156,890,647		$ 3,783,262		$
1 **1150**		**Explosive Storage (CORRIENTE)**				12,516	$ 300,000		$ -		$ -		$ 700,000		$
1 **1160**						0	$ -		$ -		$ -		$ -		$

Direct Costs
Owner s
Costs/Indirects/Continge
Owner s
Costs/Indirects

			An Storage & Emulsion Plant						
			(CORRIENTE - Allowance included above)						
1	1170		Truck Fuel Station	21,352	$ 433,126	$ 1,198,649	$ 1,266,000	$ 196,705	$
3	2110		Crushing	118,853	$ 2,122,851	$ 3,598,416	$ 8,162,970	$ 672,466	$
3	2120		Conveying - Crushing to Stockpile 72 - 1,300 m	111,226	$ 2,232,546	$ 2,354,213	$ 8,034,000	$ 21,451	$
3	2130		Coarse Ore Storage	157,569	$ 2,994,442	$ 4,886,855	$ 9,765,430	$ 177,944	$
3	2220		Grinding	344,498	$ 6,460,948	$ 12,849,777	$ 111,187,470	$ 65,995	$
3	2225		Pebble Crushing	43,494	$ 861,333	$ 1,116,875	$ 7,314,854	$ 25,394	$
3	2230		Flotation	143,808	$ 2,895,541	$ 7,545,093	$ 21,271,788	$ 8,341	$
3	2240		Concentrate Dewatering	32,325	$ 668,401	$ 1,376,750	$ 6,047,989	$ -	$
3	2250		Concentrate Loadout	22,542	$ 416,832	$ 886,672	$ 1,230,898	$ 54,850	$
3	2260		Reagents	29,845	$ 617,098	$ 1,902,262	$ 3,835,205	$ -	$
3	2270		Molybdenum Separation Circuit	96,529	$ 1,967,847	$ 4,536,000	$ 13,500,000	$ -	$
3	2290		(CORRIENTE) Concentrator Building	251,925	$ 4,679,827	$ 15,857,203	$ 824,000	$ 301,690	$
6	3110	KP	Tailings (Knight Piesold)	494,578	$ 11,789,112	$ 2,662,188	$ 286,000	$ 26,517,865	$
6	3120	KP	Reclaim System (Knight Piesold)	52,789	$ 1,105,445	$ 4,112,823	$ 6,387,333	$ -	$
6	3130	KP	Cyclone Plant (Knight Piesold)	33,146	$ 710,833	$ 3,192,500	$ 4,766,667	$ -	$
5	4110	KP	Power Generation 11.2 MW (Knight Piesold)	113,801	$ 1,976,814	$ 2,926,354	$ 6,128,606	$ 136,500	$
5	4120		Power Line 230 kV - 99 km	0	$ -	$ 9,405,000	$ -	$ 12,235,000	$
5	4130		(CORRIENTE) Primary Substation and Distribution	83,123	$ 1,493,884	$ 2,153,078	$ 22,460,250	$ 4,437,028	$
2	5110		Port Facility (CORRIENTE)	0	$ -	$ -	$ -	$ 22,939,750	$
2	5115		Concentrate Pipeline 6 - 300 km	0	$ -	$ 46,220,000	$ -	$ 19,572,720	$
2	5120		(CORRIENTE) Plant Site Preparation and Site Road	169,699	$ 4,067,681	$ -	$ -	$ 9,491,256	$
2	5130		Access Road 7.2 m - 15 km & Bridges	0	$ -	$ -	$ -	$ 12,850,422	$
2	5140	KP	(CORRIENTE) Water Systems (Knight Piesold)	26,082	$ 587,702	$ 316,797	$ 10,296,000	$ -	$
2	5150		Sewer Collection & Treatment	255	$ 4,813	$ 7,375	$ 400,000	$ -	$
2	5160		Solid Waste Disposal	655	$ 12,529	$ 23,375	$ 200,000	$ -	$

2	5170	Underground Piping	8,840		$	187,500	$	1,312,500	$	-	$	-	$
4	6110	Shops & Warehouse	147,176		$	2,746,054	$	8,404,302	$	1,831,100	$	263,713	$
4	6120	Plant Miscellaneous Equipment & Shop Tools	0		$	-	$	-	$	669,000	$	-	$
4	6200	Cold Storage	4,839		$	86,571	$	168,656	$	-	$	28,250	$
4	6300	Administration Offices	25,227		$	490,088	$	2,715,444	$	-	$	8,312	$
4	6400	Assay Lab	19,922		$	423,196	$	1,357,494	$	733,142	$	2,501	$
4	6500	Guard House / Weigh Scale	848		$	16,974	$	16,470	$	50,000	$	2,759	$
	1000-6500	Total Direct Costs	3,329,844	$ 18.19	$	60,579,732	$	147,659,270	$	403,539,348	$	142,463,979	$

CORRIENTE RESOURCES INC.

Panantza - San Carlos Project - 90K tpd

Capital Cost Estimate - FINAL

Check

$0.00 **07-Sep-07**

2007 Technical Assessment

Item	S	Description	Qty	Unit	Hrs-Unit	Hrs-Total (Labor Cost)	Total LaborCost	Unit Cost (-)	Total Mat. Cost (Materials)	Unit Cost	Total EQ. Cost (Equipment)	Unit Sub	Total Sub Cost (Sub)	Unit Other	Total Other Cost (Other)
		Summary													
7000-9400		**Indirect Costs**													
8	8110	Construction Management				0	$ -		$ -		$ -		$ -		$ 20,385,083
8	8120	Construction Temporary Facilities and Services (included in Labour Rates & Owners Costs except for CM)				43,200	$ 858,438		$ -		$ 1,590,000		$ -		$ 340,000
8	8130	Construction Equipment (partially included in Labour Rates)				0	$ -		$ -		$ 2,793,033		$ -		$ -
8	8140	Construction Camp (included in Labour Rates)				0	$ -		$ -		$ -		$ -		$ -
8	8150	Construction Accommodation and Catering (included in Labour Rates except for CM)				0	$ -		$ -		$ -		$ -		$ 635,441
8	8210	Engineering & Procurement (Merit / Knight Piesold)				0	$ -		$ -		$ -		$ -		$ 35,700,116
8	8220	Start-up & Commissioning				33,750	$ 766,800		$ 100,000		$ -		$ -		$ 2,040,000
8	8310	Freight (CORRIENTE)				0	$ -		$ -		$ -		$ -		$ 35,987,698
8	8320	Duties, Customs Charges & Taxes (CORRIENTE)				0	$ -		$ -		$ -		$ -		$ 127,512,415
7	9110	Owners Costs (CORRIENTE)				0	$ -		$ -		$ -		$ -		$ 37,005,000
7	9120	First Fills and Capital Spares (WAREHOUSE INVENTORY) (CORRIENTE)				0	$ -		$ -		$ -		$ -		$ 21,236,563
7	9130					0	$ -		$ 10,000,000		$ -		$ -		$ -

Permanent Camp

(CORRIENTE)

7000-9400	**Total Indirects**	76,950	$ 1,625,238	$ 10,100,000	$ 4,383,033	$ -	$ 280,842,316
Total Directs & Indirects (No Contingency)		3,406,794	$ 62,204,970	$ 157,759,270	$ 407,922,382	$ 142,463,979	$ 281,832,316
9 **9500**	**Contingency**	0	$ -	$ -	$ -	$ -	$ 177,411,904
Total Directs & Indirects (With Contingency)		3,406,794	$ 62,204,970	$ 157,759,270	$ 407,922,382	$ 142,463,979	$ 459,244,220

520-800 W. Pender St., Vancouver, BC V6C 2V6
Phone: (604) 687-0449
Fax: (604) 687-0827
www.corriente.com

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CORRIENTE RESOURCES INC.
(Registrant)

Date: December 14, 2007

By: /S/ DARRYL F. JONES
Name: Darryl F. Jones
Title: Chief Financial Officer