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15.0 OPERATING COST

15.1 Introduction

This section presents a summary of the operating costs for the project. The information is based on the calculations performed for each specific operation: mining (Section 5), process (Section 6), infrastructure (Section 8), and general and administration (included in Section 6).

The areas or operating units used in this section are shown in Table 15.1-1.

Table 15.1-1: Project Areas for Operating Cost

Area	Description
000	General
200	Crushing
300	Grinding & Thickening
340	Tailings Deposit
360	Heap Leach Pad
400	Agitation Leach
500	CCD
600	Carbon Adsorption Circuit
650	Elution & Regeneration
670	EW & Gold Room
700	Filtration & Tailings
800	Reagents
900	Site Utilities & Infrastructure

Operating costs are based on unit operations and include labour (direct and contractors), materials, fuel, power, reagents, water, and consumables required to perform each activity.

Unit rates costs are based on the mine and process production plans stated in Section 5, Mining, and Section 6, Process.

15.2 UG Mine Operating Cost

The underground mine operating cost was prepared by GCM. Estimates are based in the items as described below.

15.2.1 Labour Cost

It is estimated that the underground contractor will have 84 operating personnel for preparation, development, benching, and ore haulage to the crusher. It is assumed that there will be two shifts per day, and that four operating teams will cover the continuous operation of the underground mine. The contractor will also have 24 administrative

personnel working five days per week. The total labour expense is shown in Table 15.2-1.

Table 15.2-1: UG Mine Labour Cost

Cost Item	Unit	Year						
		2010	2011	2012	2013	2014	2015	2016
Labour	kUS\$	655	2,619	2,619	2,619	2,619	1,746	655

GCM will provide food and lodging at a cost of US\$20 per person per day on site. This cost is included in the general expense item.

15.2.2 Preparation Cost

Includes the activities of drilling, blasting, and material extraction for horizontal tunnels and galleys required to mine the ore.

15.2.3 Benching Cost

Includes the activities of drilling, blasting, and material extraction for vertical shafts used for mine ventilation.

15.2.4 Electrical Power

The electrical power required to operate mining equipment, mine ventilation, and illumination. It will be provided by the contractor through diesel generators. GCM will provide diesel fuel for generators and contractor's mobile equipment.

15.2.5 Diesel

Includes the diesel fuel required for mobile equipment and electrical generators. This will be provided by GCM. The fuel cost is included in each activity unit rate based on equipment performance and fuel consumption rates.

15.2.6 Material, Spare Parts, Tires, and Consumables

These are included in each activity unit rate based on historical data and benchmarking of similar operations.

15.2.7 Explosive and Blasting Subcontract

This cost is included in each activity unit rate based on quotations requested by GCM and contractor's data.

15.2.8 Total UG Mine Opex

The total underground mine operating cost is shown in Table 15.2-2. Electrical power, fuel oil, material, spare parts, tires and consumables, and explosive and blasting subcontract cost are included in preparation and benching activities.

Table 15.2-2: Total UG Mine Operating Cost

Description	Unit	2010	2011	2012	2013	2014	2015	2016
Labour Cost	kUS\$	655	2,619	2,619	2,619	2,619	1,746	655
Preparation	kUS\$	2,175	6,250	5,306	1,293	0	0	0
Benching	kUS\$	0	223	2,358	3,508	4,010	2,771	864
Electrical Power								
Electrical Power Consumption	kWh	7,481	97,821	195,935	231,046	233,420	161,325	50,316
Electrical Power Cost	kUS\$	Included in Preparation and Benching cost						
Diesel								
Diesel Consumption	m ³	173	528	730	560	522	361	113
Diesel Cost	kUS\$	Included in Preparation and Benching cost						
Material, Spare Parts, Tires and Consumables	kUS\$	Included in Preparation and Benching cost						
Explosive and Blasting Subcontract	kUS\$	Included in Preparation and Benching cost						
Total UG Operating Cost	kUS\$	2,830	9,092	10,283	7,420	6,629	4,518	1,519

15.3 Open Pit and Heap Leach Operating Cost

The operating cost estimates for the open pits and mining of the old leach pads was prepared by AMEC using the Runge Xeras software financial modelling package. Xeras is a cost modelling tool that can be utilized to generate costs for the entire mine, though in this case its use was limited to the operating costs associated with drilling, blasting, and ancillary activities for the surface mining. Operating costs for loading, hauling, and support unit operations were based on a quotation for contract mining services from Santa Marta Mining. A detailed explanation of the operating cost estimate for the surface mining is included in Section 5, Mining.

15.3.1 Drilling Cost

Drilling on the Guanaco site will be carried out with one Sandvik DX700 production drill. A value for drilling unit operation costs of US\$0.445/t was obtained. To account for the fact that the drilling will be done with contract labour an escalation factor of 25% was applied to the operating costs, less the diesel costs which will be supplied by GCM. Thus an overall factor of 13.1% was applied to the base drilling unit costs to provide a final value of US\$0.504/t.

15.3.2 Blasting Cost

Blasting operations will be performed by a contractor and Guanaco will supply all consumable materials. Thus the contractor, Enaex S.A., will be responsible only for the administration of explosives and blasting. A final overall value of US\$0.242/t for blasting was obtained.

15.3.3 Loading, Hauling, and Support

Santa Marta Mining provided GCM with a quotation to carry out all loading, hauling, and support activities related to the mining of both open pits and the Phase II Leach Pad. A summary of the costs is provided in Table 15.3-1.

Table 15.3-1: Summary of Life of Mine Loading, Hauling, and Support Operating Costs

Unit Process	Cost (US\$/t)
Loading	0.338
Hauling	0.583
Support	0.423

15.3.4 Ancillary Costs

Ancillary costs were estimated based upon a fleet of:

- 1 boom truck
- 1 flat bed truck
- 1 small forklift
- 4 pickup trucks
- 5 portable lighting towers.

With the defined equipment fleet Xeras produced a base number of US\$0.128/t. This number was then increased by 25% to account for contractor operations and equipment supply, giving final ancillary costs of US\$0.160/t.

15.3.5 Mining Overhead

The mining overhead costs are personnel costs for management and engineering of surface mining operations at Guanaco. Xeras calculated a cost for overhead of US\$0.278/t. The general expenses from the Santa Marta contract mining quotation add US\$0.142/t. Thus the total overhead cost was estimated to be US\$0.420/t.

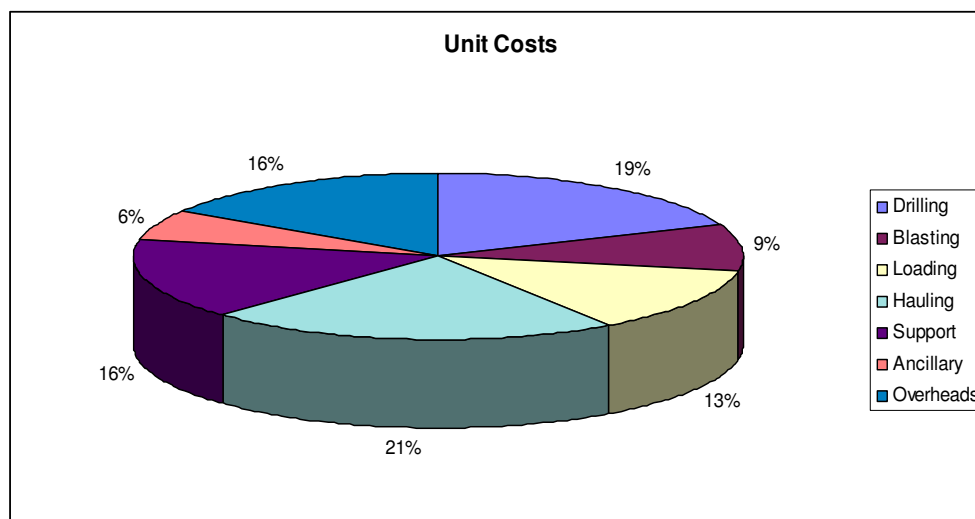
15.3.6 Surface Mining Operating Cost Summary

Table 15.3-2 shows the breakdown of the surface mining operating costs per tonne as a life of mine average by unit operation. Figure 15.3-1 shows the percentage contribution that each unit operation makes to the total operating cost.

Table 15.3-2: Surface Mining Operating Costs

Unit Operation	Cost (US\$/t)
Drilling	0.50
Blasting	0.24
Loading	0.34
Hauling	0.58
Support	0.42
Ancillary	0.16
Overhead	0.42
Total	2.67

Figure 15.3-1: Breakdown of Open Pit Unit Operating Costs



15.3.7 Open Pit and Heap Total Operating Cost

The total open pit and heap mining costs are shown in Table 15.3-3. Electrical power is not required, costs for fuel oil, materials, spare parts, tires and consumables, and explosive and blasting subcontract are included.

Table 15.3-3: Open Pit and Heap Total Operating Cost

Description	Unit	2010	2011	2012	2013
Labour Cost	kUS\$	411	1,088	1,128	213
Electrical Power:		Not required			
Diesel					
Diesel Consumption	m ³	362	874	864	166
Diesel Cost	kUS\$	300	724	716	138
Material, Spare Parts, Tires, and Consumables	kUS\$	548	1,480	1,609	267
Explosive and Blasting Subcontract	kUS\$	173	431	399	40
Others (contractor)	kUS\$	630	1,513	1,512	358
Total Operating Expenses	kUS\$	2,063	5,237	5,363	1,015

15.4 Mine Overhead

The mine overhead costs (Table 15.4-1) include all GCM personnel in charge of mining contractors, supervision, and administration. The Mine Manager is excluded and is considered in the G&A cost. Camp costs for GCM personnel are included.

Table 15.4-1: Mine Overhead Operating Costs

Description	Unit	2010	2011	2012	2013	2014	2015	2016
GCM Personnel	kUS\$	152	607	607	607	607	405	152
Camp costs GCM Personnel	kUS\$	14	58	58	58	58	38	14
Camp cost UG Personnel	kUS\$	104	418	418	418	418	278	104
Camp costs OP Personnel	kUS\$	70	185	192	36	0	0	0
Camp costs Heap II Personnel	kUS\$	43	100	105	194	194	194	150
Total Overhead Operating Cost	kUS\$	383	1,367	1,379	1,312	1,276	916	420

15.5 Process Plant Operating Cost

Process plant operating costs consolidation was prepared by AMEC, with contribution of GCM and Contractors according to the following:

- Crushing plant: AJG Ingenieria y Construcccion
- Heap leach phase II and dry tailings deposit: Vector Chile Limitada
- Electrical systems and control: Ceyge Ingenieria y Construcccion
- Infrastructure: GCM

15.5.1 Labour

This includes the process plant operating and maintenance staffing and associated costs for the crushing plant, process plant, Phase III heap, filter plant, and ADR plant. Labour costs were included for the following:

- Operating labour: defined by area
- Operating supervision: a proportion of the overall supervision cost, the percentage applied for each area was defined by GCM.
- Maintenance labour: a proportion of the overall maintenance staffing, the percentage applied for each area was based on the expected maintenance requirements (defined by GCM)

15.5.2 Operating Materials and Supplies

Table 15.5-1 summarizes the operating supplies used in the operating costs estimate.

Table 15.5-1: Operating Materials and Supplies

Item	Criteria		Source
	Consumption	Value	
0100 Crushing			
Primary crusher liners		0.240 US\$/t	GCM spreadsheet "costos pila (300+1000)02.10"
secondary crusher liners		0.200 US\$/t	GCM spreadsheet "costos pila (300+1000)02.10"
tertiary crusher liners		0.300 US\$/t	GCM spreadsheet "costos pila (300+1000)02.10"
Vibratory screen decks		0.200 US\$/t	GCM spreadsheet "costos pila (300+1000)02.10"
Crushing wear plates and materials		0.120 US\$/t	
Dust suppression	0.03 g/t	3.100 US\$/t	
Crushers liners	7.3 g/t	3900 US\$/t	Consumption: GCM Document "Criterios de Diseño"; Price: AMEC Data bases
0200 Heap Leach			
NaCN	600.0 g/t	2200 US\$/t	GCM Document "Criterios de Diseño"
Cal (100% CaO)	1,200.0 g/t	150 US\$/t	GCM Document "Criterios de Diseño"
Antifouling	0.040 kg/t	3040 US\$/t	Consumption: AMEC data bases; Price: GCM
0300 Grinding and Pre-Leach Thickener			
Lime (100% CaO)	1,500.0 g/t	150 US\$/t	Consumption: Design Criteria; Price: GCM
Flocculants	15.0 g/t	3450 US\$/t	Consumption: Design Criteria; Price: AMEC Data bases, approved by GCM
Ball mill liners	60.0 g/t	2170 US\$/t	Consumption: Design Criteria; Price: AMEC Data bases
Balls 3"	2,300.0 g/t	1000 US\$/t	Consumption: Design Criteria; Price: GCM Quotation SABO
0400 Agitated Leaching			

Item	Criteria		Source
	Consumption	Value	
NaCN	1,000.0 g/t	2200 US\$/t	Consumption: Design Criteria; Price: GCM Phone Quotation
0500 CCD			
Flocculants	45.0 g/t	3450 US\$/t	Consumption: Design Criteria; Price: AMEC Data bases, approved by GCM
0700 Filters and Tailings			
Filter mesh	4,5mesh/1000t	64 US\$/mesh	Consumption and price: AMEC Data bases, approved by GCM
0800 Reagents			
NaOH		800 US\$/t	Info GCM
0000 General			
Personal protection elements	US\$400/man/year		AMEC Data bases

15.5.3 Spare Parts and Maintenance Materials

The parts and maintenance materials are estimated as 3% of the major equipment purchase based on the mechanical equipment list.

15.5.4 Electrical Power and Water

The annual average power consumption was estimated based on the mechanical list of equipment and the operating time of the different circuits. The value in MWh/year is based on an average operating rate of 1,000 tpd of ore for grinding and 4,000 tpd for heap leaching. The specific consumption is measured in kWh/t.

Plant water consumption was obtained from flowsheets and the plant general water balance. A factor was used for human water consumption.

The costs of electrical power and fresh water were provided by GCM.

15.5.5 Overhead and Administration

The items and costs associated with plant overhead and administration (G&A costs) are shown in Table 15.5-2. For the third party services a preliminary value of US\$600 /month/person was assumed.

Table 15.5-2: Overhead and Administration Costs

Item	Value	Source
Third party services catering, camp, cleaning, etc)	US\$20 /man/day	Info GCM (spreadsheet)
Chemical analysis	US\$100,000 /year	Info GCM
External laboratory	US\$24,000 /year	Info GCM

Item	Value	Source
R&D (consultants, software)	US\$60,000 /year	Info GCM
Transport	US\$0 /year	Info GCM
Other administrative costs		
Vendor Representative expenses	US\$44,000 /year	Info GCM
Equipment and vehicle rental	US\$48,000 /year	Info GCM (spreadsheet)
Vehicle permits and taxes	US\$6,000 /year	Info GCM (spreadsheet)
Building maintenance	US\$2,000 /year	Info GCM (spreadsheet)
Procurement costs	US\$36,000 /year	Info GCM Meeting 14-04-10)
Importation costs	US\$12,000 /year	Info GCM Meeting 14-04-10)
Subscriptions, travel, publications	US\$18,000 /year	Info GCM
Access road maintenance	US\$60,000 /year	Info GCM (07-06-10)
Internal roads maintenance	US\$20,000 /year	Info GCM (07-06-10)
Fresh water system maintenance	US\$20,000 /year	Info GCM (07-06-10)
Sewage system maintenance	US\$24,000 /year	Info GCM (07-06-10)
Light vehicle maintenance and fuel	US\$0.03 /t	Info GCM (spreadsheet)

15.6 Process Plant Overall Operating Cost

Table 15.6-1 summarizes the overall process plant operating costs for both process lines (fresh ore treatment and leached material treatment) by cost item.

Table 15.6-1: Process Plant Total Operating Cost

Description	Unit	Year						
		2010	2011	2012	2013	2014	2015	2016
Labour	kUS\$	614	2,214	3,416	3,416	3,416	3,416	1,385
Maintenance materials	kUS\$	123	1,447	1,839	838	838	839	354
Operation materials	kUS\$	1,626	4,608	6,121	6,156	6,221	5,501	2,982
Power	kUS\$	437	1,660	3,391	3,435	3,506	2,757	654
Water	kUS\$	35	92	110	110	111	103	64
Other	kUS\$	734	1,750	1,752	1,752	1,752	1,752	1,350
G&A	kUS\$	171	1,269	2,987	2,985	2,985	2,983	856
Total Process Plant Operating Cost		3,739	13,040	19,615	18,692	18,829	17,353	7,645