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## **12.0 PROJECT IMPLEMENTATION**

### **12.1 Introduction**

This implementation plan for the Guanaco project covers the activities required to design and build a facility to produce metal doré as the final product. The plant is designed for an average production capacity of 1,000 tpd of ore containing gold and silver.

Process facilities include mine infrastructure (described in Section 5, Mining), crushing plant, heap loading and leaching, agitation leaching and CCD plant, tailings filter plant, ADR plant, and electro-winning (described in Section 6, Process), and dry tailings deposition facilities (described in Section 7, Tailings).

Infrastructure facilities include power supply and distribution, water supply and distribution, platforms and access roads, construction camp, buildings and ancillaries (these facilities are described in Section 8, Infrastructure).

The project will be developed in two stages:

#### ***Stage 1***

This stage consists of the refurbishing and construction of facilities to allow the operation of Phase III heap leach which will process ore from the existing Phase II leach pad and the open pit. This material will be processed in the existing crushing plant, leached on the new heap, and the resulting solutions will be treated in the ADR plant. Facilities and work in this stage include:

- Underground mine access ramp (pre-mining activities)
- Existing crushing plant refurbishing
- Existing ADR plant reconditioning
- Phase III heap construction
- Pond and solution handling system construction
- Electrical system refurbishing
- Existing infrastructure refurbishing.

Existing facilities will be used to the largest possible extent, refurbishing existing facilities and replacing equipment where the process requires new capacities.

#### ***Stage 2***

This is the construction of new facilities to process underground mine ore (of higher grade) in a grinding, agitation leach, CCD circuit, and filter plant followed by dry tailings deposition. The integrated operation is expected to start up in late 2011 and operate until 2016.

Facilities included are:

- Grinding plant
- Agitation leach and CCD plant
- Tailings filter plant
- Dry tailings deposit
- Reagent system
- Additional power supply.

***Project Work Plan***

The project work plan considers the execution of Stage 1 during 2009 and 2010 to start production of doré from the processing of material from the Phase II heap on the Phase III heap in September 2010. Stage 2 implementation will follow and it is planned that this will start operations in December 2011. The project milestones are shown in Table 12.1-1.

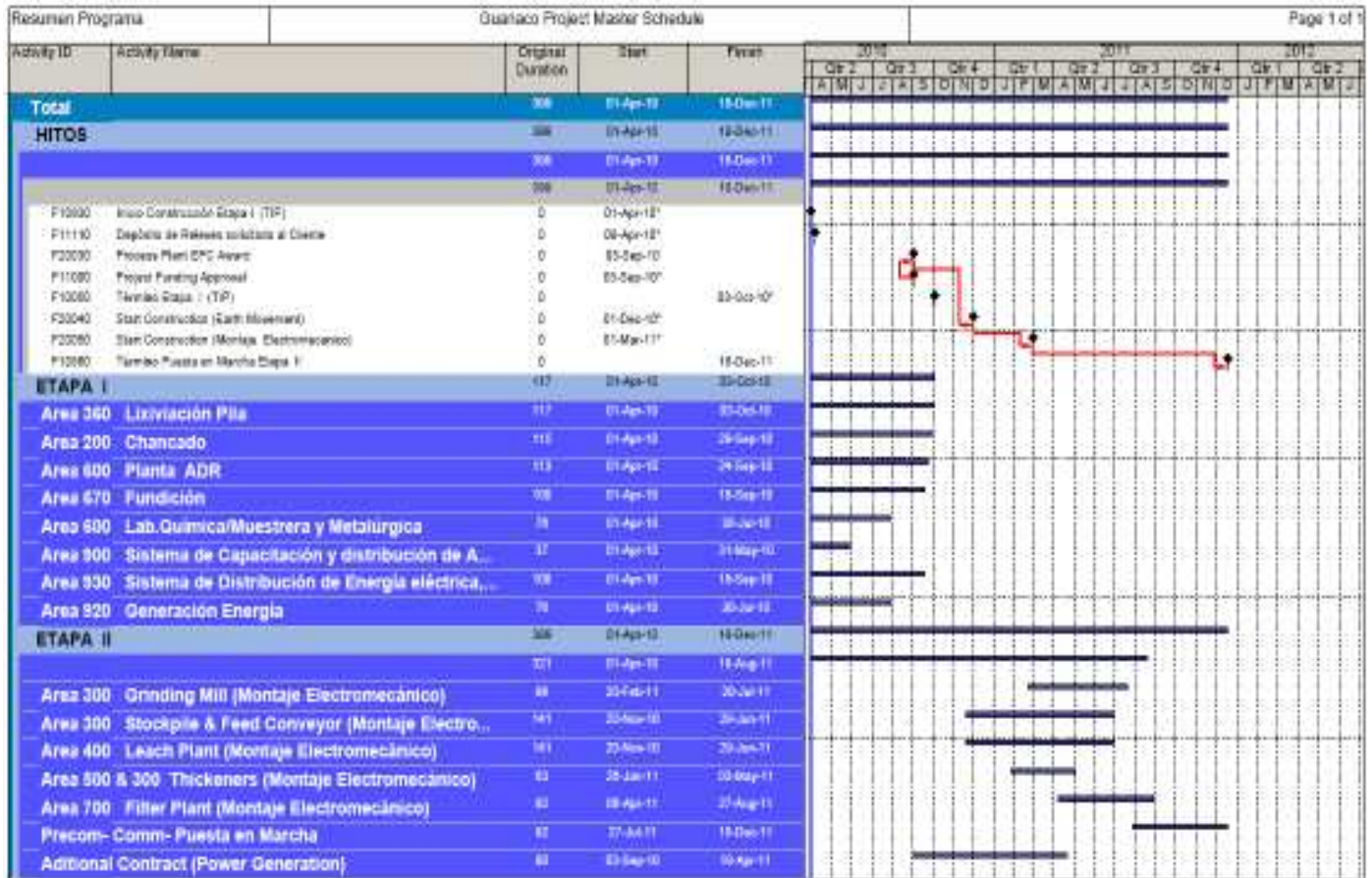
**Table 12.1-1: Project Milestones**

<b>Milestone</b>	<b>Date</b>
<b>Stage 1</b>	
Completion of ADR plant engineering, Phase 3 pad and ponds, electrical generation and distribution.	March 30, 2010
Start of construction	April 01, 2010
Start-up of the electrical generation and distribution system	July 15, 2010
Start-up of the crushing plant	July 25, 2010
Start-up of the Phase 3 heap loading	July 01, 2010
Start-up of the ADR plant	July 30, 2010
Start of heap leaching	July 30, 2010
First doré bar pour	September 19, 2010
<b>Stage 2</b>	
Award EPC (process plant, filter plant, and electrical system expansion)	September, 2010
Start of construction	December, 2010
Mechanical completion	October, 2011
Commissioning	November, 2011
Start-up of Stage 2	December, 2011

### Project Schedule

The project schedule is summarized in Figure 12.1-1, showing milestones and Stages 1 and 2.

**Figure 12.1-1: Project Schedule**



## 12.2 Current Project Status – Stage 1

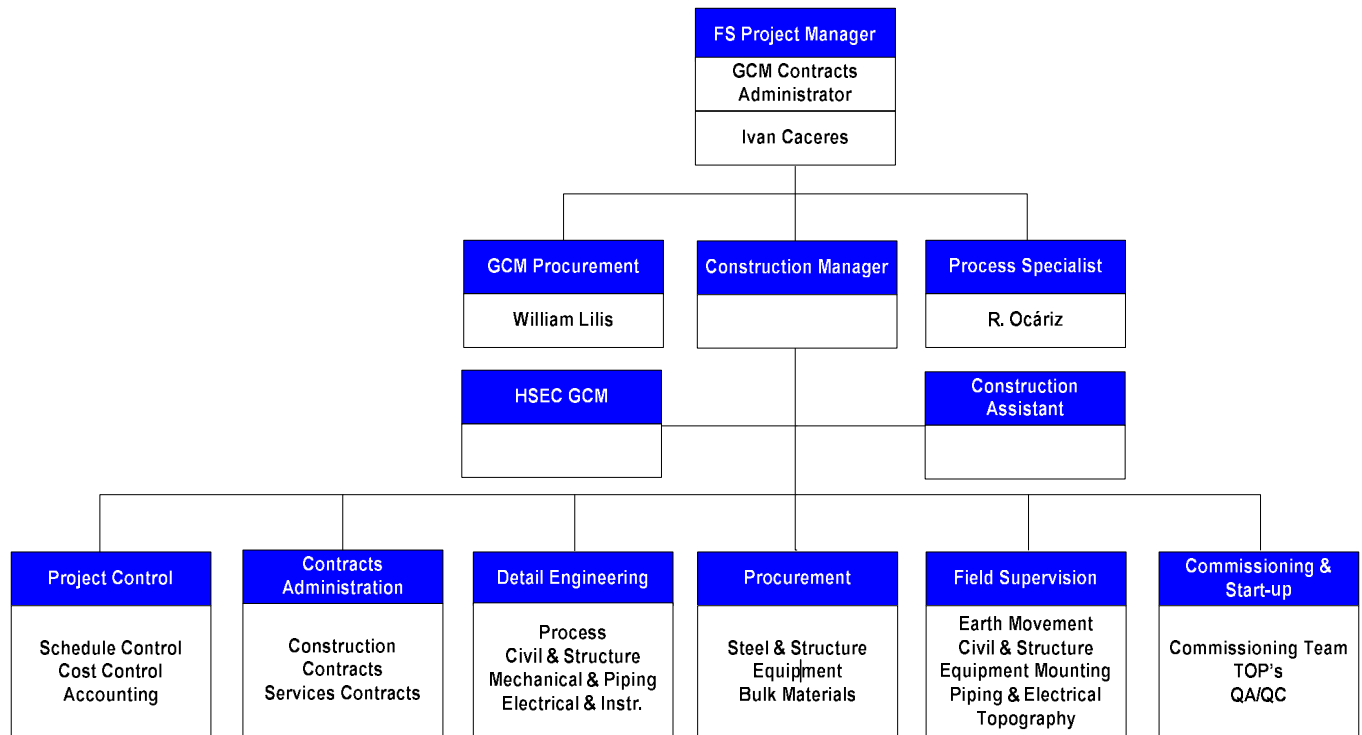
As at Q2 2010 several Stage 1 project activities have been completed. This section provides an update of these activities related to project organization, engineering development, procurement, contracts, and construction.

### 12.2.1 Project Organization

The GCM project team leader is Ivan Cáceres, Feasibility Study Project Manager. A Senior Metallurgist, Rafael Ocariz, is providing support as process specialist and Rodrigo Ramirez, Mine Engineer, has provided mine development support. Rodrigo Ramirez is also GCM's General Manager and the overall Project Manager. GCM personnel have provided safety, procurement, contracts, and administration support to this team during the Stage 1 activities. The project organization chart for this stage is shown in Figure 12.2-1.

This team has been involved in the selection, management, and administration of the engineering companies that provided designs for the Guanaco facilities refurbishment and remodelling, or new design.

**Figure 12.2-1: GCM Stage 1 Organization Chart**



### 12.2.2 Project Work Breakdown Structure

Early in the Stage 1 activities the project physical areas and sub-areas were structured according to the Work Breakdown Structure provided in Table 12.2-1.

**Table 12.2-1: Project Breakdown Structure**

Area	Sub-area	Description
000		General
100		Mine
	110	Underground Mine
	120	Open Pit & Leach Pad 2
200		Crushing
250 <sup>1</sup>		Heap Leach Pad
300		Grinding & Thickening
400		Agitation Leach
500		CCD
600		Carbon Adsorption Circuit
650		Elution & Regeneration
670		EW & Gold Room
700		Filtration & Tailings
750 <sup>2</sup>		Tailings Deposit
800		Reagents
900		Site Utilities & Infrastructure
	910	Water Supply
	920	Power Supply
	930	Power Distribution
	940	Communication and Control
	950	Internal Roads
	960	Miscellaneous Site Development
1000		Plant Modification and Tie-ins
	1010	Tie-ins
1100		Indirect Costs
	1110	Indirect Costs General
	1120	Temporary Facilities
	1130	Service Contracts
	1140	Freight
	1150	Duties
	1160	EPCM
	1170	Pre-Commissioning
	1180	Vendors Reps
	1190	Spare Parts
1200		Owner Cost
1300		Others
	1310	Contingency
	1320	Escalation
	1330	Foreign Exchange

<sup>1</sup> Vector used 360 as WBS Area number

<sup>2</sup> Vector used 340 as WBS Area number

### 12.2.3 Engineering Development

#### *Introduction*

Stage 1 engineering and procurement started in October 2009 when GCM requested AMEC to develop the Feasibility Study (FS) for the Guanaco project. The FS describes the engineering development performed to date including facilities designed by AMEC and other companies. The scope of facilities for each engineering contractor by WBS is provided in Table 12.2-2.

The engineering provided by each company is described briefly below.

**Table 12.2-2: Scope of Facilities by Engineering Contractor**

Area	Sub-area	Description	Engineering Contractor
100		Mine	
	110	Underground Mine	GCM
	120	Open Pit	AMEC
200		Crushing	AJG
300		Grinding & Thickening	AMEC
250 <sup>3</sup>		Heap Leach Pad	VECTOR
400		Agitation Leach	AMEC
500		CCD	AMEC
600		Carbon Adsorption Circuit	AMEC
650		Elution & Regeneration	AMEC
670		EW & Gold Room	AMEC
700		Filtration & Tailings	AMEC
750 <sup>4</sup>		Tailings Deposit	VECTOR
800		Reagents	AMEC
900		Site Utilities & Infrastructure	
	910	Water Supply	GCM
	920	Power Supply	CEYGE
	930	Power Distribution	CEYGE
	940	Communication and Control	CEYGE
	950	Internal Roads	GCM
	960	Miscellaneous Site Development	GCM

<sup>3</sup> Vector used 360 as WBS Area number

<sup>4</sup> Vector used 340 as WBS area number

### ***Refurbishing of the Existing Crushing Plant (AJG Ltda.)***

AJG Ingeniería y Construcción was contracted by GCM to perform the engineering for the repair of the crushing plant between October 2009 and February 2010.

The work included determination of the plant capacity and preparation of the engineering documents necessary for the implementation of civil and structural repairs. The work also included quantities take-offs for construction and raw materials necessary for the work. The scope included the repair of all the structures for the crushing plant. The grizzly and bin including the support of the rock breaker over the primary crusher required particular attention. An existing conveyor was modified and made reversible for feeding the future grinding plant.

A hopper and conveyor were designed to feed material from the existing Phase II heap to the secondary crushing plant. However, AJG recommends that this material be fed through primary crushing rather than feeding secondary crushing.

Table 12.2-3 shows the type and quantity of documents prepared by AJG for the refurbishment of the plant. Appendix B contains the detailed list of these documents. Appendix B also contains the AJG crushing plant engineering drawings and documents.

**Table 12.2-3: Crushing Plant Repair Documents**

<b>Document Type</b>	<b>Quantity</b>
Design Criteria	1
Calculations	5
Lists	2
Specifications	3
Reports	8
Standard Drawings	9
Design Drawings	37

GCM contracted the FLSmidth Minerals' La Negra Repair Center for the repair of the following equipment:

- 42" x 48" jaw crusher
- 3 Symons 5½ crushers
- 3 vibrating screens.

***Phase III Pad, Process Ponds, Solution Handling System, and Dry Tailings Deposit (Vector)***

GCM contracted Vector Chile Limitada for the development of the Phase III Pad and Tailings Deposit Feasibility Engineering which started on October 28, 2009. A kick-off meeting was held that day and GCM provided information about the Phase I engineering. Vector delivered a list with all the requirements for information needed to start the engineering.

The Phase III feasibility engineering took five months, designs were prepared for civil, geotechnical, mechanical, and piping and costs were estimated. This work included the geometrical design of the pad and heap, stability analysis, and design of the solution drainage systems, solution collection systems, and rainwater diversion system. The process ponds and solution pumping systems were also designed.

Using the ore size distribution and characteristics, alternatives for transport and disposition of the material on the heap were assessed and the heap loading plan was established. The capital costs were then estimated for the construction of the heap, and the operating costs for the ore transport were estimated.

The tailings deposit engineering was developed over a period of 4 months, and included civil, geotechnical, and mechanical design and cost estimation.

The tailings deposit design included the definition of the location, the earthworks for ground improvement, the design of the tailings deposit, stability analysis, design of the retaining wall for spillage, and the rainwater diversion system. From these designs the capital cost was estimated.

A procedure for transport and deposit of the dry tailings was prepared and the operating cost of tailings deposition was estimated.

Table 12.2-4 shows the type and quantity of documents prepared by Vector. Appendix B contains a detailed list of the documents. Drawings and documents for Vector's heap leach and tailings engineering are also included in Appendix B.

**Table 12.2-4: Phase III Heap Pad, Process Ponds, and Tailings Deposit Documents**

Document Type	Quantity	
	Phase III Heap	Dry Tailings Deposit
Design Criteria	2	1
Flowsheets	1	-
P&IDs	2	-
Calculations	4	1
Specifications	11	-
Lists	3	-
Reports	6	8
Data Sheets	4	-
Design Drawings	48	13

***Grinding, CCD, and Filter Plant (AMEC)***

AMEC was contracted to prepare the feasibility level engineering for the grinding plant, CCD circuit, filter plant, and reagent preparation and distribution facilities. This work was performed between November 2009 and March 2010 and included the validation of previous GCM studies and the development of design criteria, mass and water balances, calculations, flowsheets, P&IDs, and plant layouts. Power and reagent consumptions were estimated and operating costs estimated for the facilities. Budget quotations were requested for equipment and bulk materials.

A hazard identification workshop (HAZID) was performed for the process facilities to identify hazards which might affect the project. Solutions were included in the engineering design.

Disciplines involved in the design effort were process, civil/structural, mechanical, piping, electrical, and instrumentation. The quantity and type of documents are shown in Table 12.2-5. Appendix B contains a detailed list of the documents. Drawings and documents for AMEC's process plant engineering are also included in Appendix B.

**Table 12.2-5: Process Plant Documents**

Document Type	Quantity
Design Criteria	10
Flowsheets	7
P&IDs	10
Calculations	13
Specifications	24
Lists	4
Reports	13
Data Sheets	7
Equipment Quotations	11
Equipment Evaluations	2
Material Take-offs	4
Design Drawings	43

A feasibility level cost estimate was prepared for the entire project. AMEC received contributions from the other consultants and GCM and integrated these into the project capital cost estimate (the results and methodology are provided in Section 14, Capital Cost).

AMEC also prepared the operating cost for the entire project at a feasibility level. AMEC received contributions from the other consultants and GCM and integrated them into the project operating cost estimate (the results and methodology are provided in Section 15, Operating Cost).

#### ***ADR Plant Reconditioning (AMEC)***

In addition to the preparation of the FS, GCM contracted AMEC to prepare the basic engineering for the ADR plant reconditioning. The work was performed between November 2009 and March 2010. The scope of work included the carbon adsorption circuit, elution and carbon regeneration plant, electro-winning, and gold room.

This work included the validation of previous GCM studies and the preparation of design criteria, mass and heat balances, calculations, flowsheets, P&IDs, plant and layouts. Power and reagent consumptions were estimated. Disciplines involved in this work were process, civil/structural, mechanical, piping, electrical, and instrumentation. The quantity and type of documents issued are shown in Table 12.2-6. A detailed list of the documents is included in Appendix B. Drawings and documents for AMEC's process plant engineering are also included in Appendix B.

**Table 12.2-6: ADR Plant Documents**

Document Type	Quantity
Design Criteria	1
Flowsheets	4
P&IDs	6
Calculations	11
Specifications	9
Lists	7
Reports	2
Data Sheets	2
Equipment Quotations	9
Equipment Evaluations	7
Material Take-offs	4
Design Drawings	25

Firm quotations were requested for the equipment and bulk materials for these facilities to allow GCM to begin equipment and bulk materials purchase early in 2010 and start the ADR plant reconditioning in April 2010. This information was also included in the project capital cost estimate. The ADR operating cost was estimated and included in the project operating cost estimate. The technical basis (civil, mechanical, piping, electrical, and instrumentation) for the ADR construction contract was also prepared.

#### ***Electrical System Refurbishment (Ceyge)***

GCM contracted CEYGE Ltda. Ingeniería y Construcción to carry out the engineering for the refurbishment of the existing electrical system at Guanaco as described below.

- Electrical energy supply trade-off study. The technical-economical feasibility of connecting the plant to the SIC or SING grid system was analyzed and compared to the option of self generation.
- The electrical demand was estimated for Stage 1 and Stage 2 and the plant electrical distribution system was designed. The design and electrical consumption estimates were supplemented for project areas by Vector for the Phase III heap and ponds, Ceyge for the crushing area, and AMEC for the process plant, filter plant, and ADR plant.

- Single line diagrams were prepared and the generation and distribution systems including the controls were designed. The locations of the installation were established and the reconditioning activities were determined for the electrical systems and the fuel supply system for the generators.
- A latest generation plant control system was designed, utilizing existing equipment where possible for the Stage 1 plant with the capacity to be enlarged to include the Stage 2.
- Capital and operating costs were estimated for the two stages.

A list of the drawings and documents prepared is provided in Table 12.2-7. Appendix C contains a detailed list of the documents. Drawings and documents for CEYGE power systems engineering are also included in Appendix C.

**Table 12.2-7: Drawings and Documents for the Electrical System**

Document Type	Quantity Stage 1	Quantity Stage 2
P&IDs	1	0
Calculations	4	1
Lists	4	1
Reports	3	3
Equipment Quotations	6	0
Equipment Evaluations	1	0
Material Take-offs	1	0
Design Drawings	14	1
Single Line Diagrams	3	1

#### 12.2.4 Procurement

The engineering companies were responsible for obtaining quotations for the equipment and materials necessary for their scope of the project.

Firm quotes were obtained for the equipment and materials required for Stage 1 so that the GCM project team could subsequently issue the purchase orders.

Budget quotations were obtained for the Stage 2 equipment and materials so that this information could be included in the capital cost estimate for the FS study.

### ***Refurbishing of the Existing Crushing Plant (AJG Ltda.)***

AJG obtained a quotation for the concrete supply and for the manufacture of structural steel for the crushing plant. AJG followed internal procedures.

### ***Heap Pad 3, Process Ponds, and Solution Handling System (Vector)***

Vector obtained quotations for pad and ponds HDPE liners, mechanical equipment (pumps), HDPE piping, fittings and valves to be used in the solution handling systems. Vector followed internal procedures.

### ***ADR, Grinding, CCD Circuit, and Filter Plant (AMEC)***

Procurement activities completed in AMEC were the following:

- Preparation of the Purchasing Plan which defined the requisition packages that were for budget quotation and those that were for firm quotation.
- Establish for each requisition the suppliers that should participate in the bidding process.
- Preparation of the documentation required to request quotations.
- Carry out the bidding process through the AMEC Procurement Center portal on the Internet.

This quotation process followed AMEC standards which maintains price confidentiality and ensures fair competition between suppliers for quality, cost, and delivery.

Suppliers' quotations were requested in two separate parts; a commercial bid and a technical bid (without prices). The technical bids were evaluated by engineering and the commercial bid was evaluated by procurement. For budget quotations a technical-commercial evaluation was prepared which was presented to the client for approval prior to being incorporated into the capital cost estimate. The budget quotations are listed in Table 12.2-8.

For firm price quotations (listed in Table 12.2-9) a letter of recommendation was issued to GCM recommending the selected supplier together with the technical and commercial evaluations. GCM placed the purchase order and carried out expediting, transport, reception, and payment.

**Table 12.2-8: Budget Quotations for CAPEX**

Requisition No.	Description
2181-5AG-P01	Agitators
2181-5CV-P01	Conveyors and Belt Feeders
2181-5CY-P01	Cyclones
2181-5FL-P01	Filtering Classification System
2181-5KI-P01	Carbon Regeneration Kiln
2181-5SN-P01	Liner Screen
2181-5TH-P01	Thickeners and Tanks
2181-5XX-P01	Flocculant Plant
2181-6PU-P04	Sump and Centrifugal Slurry Pumps
2181-6PU-P05	Solution Centrifugal Pumps
2181-6PU-P06	Dosing Pumps

**Table 12.2-9: Firm Quotations for Purchasing**

Requisition No.	Description
2181-5AG-R01	Agitators
2181-5EH-R01	Elution Heater Package
2181-5EJ-R01	Eductors
2181-5MM-R01	Ball Mill
2181-5SN-R02	Carbon Screen
2181-5TK-R02	Tanks
2181-6PU-R01	Loaded Carbon Pumps – ADR Plant
2181-6PU-R02	Solution Pumps – ADR Plant
2181-6PU-R03	Dosing and Mixing Pumps – ADR Plant

### ***Electrical System Refurbishing (Ceyge)***

Ceyge obtained quotations for diesel generators, CCM's and miscellaneous electrical equipment to be used in the electrical system refurbishment. Ceyge followed internal procedures.

### 12.2.5 Construction Contracts

GCM's project team managed the construction contracts and also carried out the quotation process, evaluation, and award. The engineering companies provided the technical bases for contract bidding and GCM prepared the administrative bases and safety and environmental protection requirements. The Contract Plan for Stage 1 and the status of the contracts are shown in Table 12.2-10.

**Table 12.2-10: Stage 1 Contracting Plan**

Contractor	Scope of the Contract	Current Status
AJG Ltda.	Civil/structural Repair of the Crushing Plant	In progress
Ceyge Ltda.	Refurbishment of the Electrical Generation and Distribution System (all areas)	In progress
FLSmith	Repair of Crushing Equipment	In progress
Esco	Refurbishment of the ADR plant	In progress
Santa Marta	Earthworks for Construction of the Phase III Heap	In progress
PL Servicios	Liner placement for the Phase III Heap	In progress
H. Reyes	Preparation of the Underground Mine Ramp	In progress
Transportes Bello	Equipment and Materials Transport	In progress

### 12.2.6 Construction

The execution of the contracts in Table 12.2-10 is the scope of the construction. Management and supervision of the contractors in the field is being performed by the GCM project team using GCM procedures and supported by GCM administration.

The scope the work currently being executed includes the following:

- Refurbishment of the existing infrastructure
- Development of the underground mine access ramp
- Refurbishment of the crushing plant
- Construction of Phase III heap and the process ponds
- Refurbishment of the ADR plant
- Refurbishment of the electrical generation and distribution systems for the areas above.

### ***Refurbishment of the Existing Infrastructure***

Between September 2009 and March 2010 the following were refurbished and remodelled:

- Camp and Kitchen/Dining Room: Repair of the dormitory and dining room buildings so that the camp is in operating condition.
- Administration Offices: Repair of the existing offices
- Industrial Water Supply: Refurbishment of the catchments and water pipelines to the plant.
- Potable Water Supply: Refurbishment of the storage tank and water distribution system in the plant.

### ***Development of the Access Ramp to the Underground Mine***

This work is being performed by an underground mining contractor under the direction and supervision of GCM mine management. Technical details are included in Section 5, Mining.

### ***Refurbishment of the Crushing Plant***

Refurbishing of the crushing plant is being performed by AJG Ltda. after a bidding process led by GCM. The scope of work included repair and refurbishment of concrete, structures, chutes, slabs, and bins in the plant. The repair of mechanical equipment was assigned by GCM to FLSmidth Minerals' La Negra Repair Center.

### ***Construction of the Phase 3 Heap and Process Ponds***

The construction of Phase 3 heap and process ponds was split into two contracts. The company Santa Marta was awarded the earthworks for the pad and process ponds and PL services was awarded the installation of the liners for the pad, solution ditches, and ponds.

The construction of the solution pumping system will be done by GCM's operations and maintenance personnel.

### ***Refurbishment of the ADR Plant***

Esco Ingeniería was awarded the refurbishment of the ADR plant including the excavation and backfill, concrete placement, repair and manufacturing of structural steel, refurbishment and installation of tanks and reactors, and installation of equipment, piping, fittings, and valves.

### ***Refurbishment of the Electrical Generation and Distribution System***

CEYGE Limitada was awarded the construction and start-up of the electrical, instrumentation, and control system for the crushing plant area, ADR plant, and electrical generation and distribution system.

Electrical construction activities include the dismantling and refurbishment of the existing equipment and electrical materials, purchase of new equipment, erection of electrical and control rooms, erection of conduit and cable trays for power and control cabling, installation and connection of power and control wiring, installation of lighting and plugs, connections to the grounding grid for cable trays and equipment, and installation and connection of local control push button stations.

Instrumentation work includes the installation of the instruments and the control system, instrumentation conduit, wiring and connection, supply, programming and installation of the control system, preparation of the operation screens (mimics), and the assistance during start-up of the electrical and control system.

### ***Pre-commissioning***

After mechanical completion each contractor will perform pre-commissioning activities under GCM's project personnel supervision. GCM project personnel will also coordinate between contractors. GCM's operating personnel will take part in pre-commissioning, since this is a valuable training period.

The systems will be checked and an authorization form will be issued indicating that the equipment is ready for operation and that the necessary basic services are available for testing.

During pre-commissioning activities the process systems will be tested with air and/or water without introducing fresh feed to the plant. The tests will be carried out through the PLC based control system in order to ensure that all safety interlocks and devices are operational.

The pre-commissioning of a system will be complete when all the mechanical, piping, electrical, instrumentation, and control systems have been operated, tested, and calibrated and their condition provides certainty of the integrity of the components.

All testing activities during this stage will be carried out with due consideration for safety and motor and/or electrical installation lock-out procedures will be observed.

### **12.2.7 Commissioning and Start-up**

Stage 1 commissioning will be performed by the project team with the support of the contractors and GCM operating personnel.

The process will begin when the first leach pad surface construction is complete and ready to receive crushed material. Commissioning and start-up of the primary, secondary, and tertiary crushing circuits will begin, performing equipment checks for proper operation and final size adjustment. The feed will come from the Phase II heap and the open pits and will be transported to the Phase III pad after crushing.

The process ponds and solution irrigation and collection systems must be ready to operate 5 days after the loading of the heap is started. Irrigation of the heap will then start. The ADR plant must be also finished and ready to operate at this time, so as to start receiving the solutions from leaching and begin with the adsorption process in the carbon columns. The process of irrigation and loading of the solutions will take 45 days.

After this time the first batch of elution will be run and the first doré will be produced hence the elution and EW plant must be finished and tested. The refurbishment of the assay laboratory must also be complete at this time.

The leaching process will continue in a steady state depending only on the feed of ore to the heap.

Metal doré will be produced and poured depending on the gold and silver load in the activated carbon in the adsorption columns. According to the plan, one elution operation will be performed per day providing approximately 120 oz of doré.

### **12.3 Current Project Status – Stage 2**

At the end of Q2 2010 several Stage 2 project activities had been started. This section describes the status of these activities, the project organization, engineering development, procurement, contracts, and construction.

The design and construction of new facilities to process underground mine ore (higher grade) in an agitation leach and CCD gold recovery circuit which will produce pregnant solution to be sent to the existing (Stage 1) ADR plant and EW for doré production is referred to as Stage 2. The integrated operation will consist of the Phase III heap leach (with ore from open pit and the Phase II pad) and agitation leach (with ore from underground mine).

Facilities include the following:

- Underground mine infrastructure
- Grinding circuit

- Agitation leach, and CCD plant
- Tailings filter plant
- Dry tailings deposit
- Reagent system
- Additional power supply
- Infrastructure.

### **Work Plan - Stage 2**

The work plan for Stage 2 is based on the construction of the process plant using an EPC type of contract, however, the underground mine infrastructure, the dry tailings deposit, and modifications to the infrastructure will be built using separate contracts for engineering and construction. The contracts plan is provided in Table 12.3-1 and a milestone schedule for the EPC contract is provided in Table 12.3-2.

**Table 12.3-1: Contracting Plan - Stage 2**

<b>Contract</b>	<b>Scope of the Contract</b>	<b>Current Status</b>
Underground Mine Infrastructure	Access ramps and preparation for mining	In progress
EPC Process Plant	Construction of CCD plant, filter plant, and expansion of the electrical generation and distribution system	In quotation
Dry Tailings Deposit	Basic engineering	In progress
Dry Tailings Deposit	Construction of the dry tailings deposit	Future
Modifications to Infrastructure	Refurbishment of the fresh water systems.	In progress
Modifications to Infrastructure	Modification of the sewage treatment plant	Future

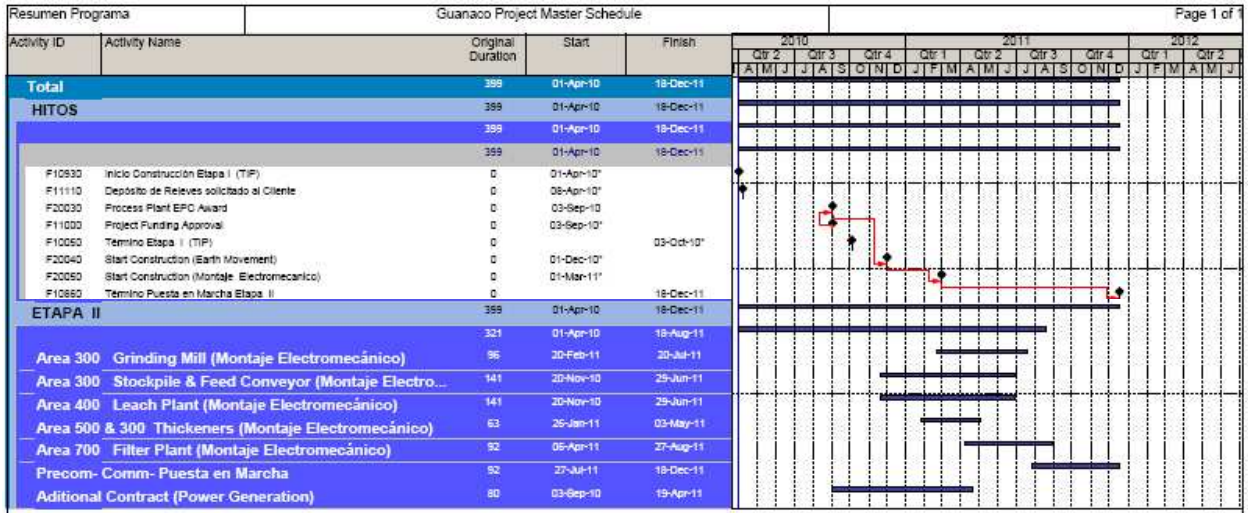
**Table 12.3-2: Milestone Schedule for the EPC Contract**

<b>Milestone</b>	<b>Date</b>
EPC Award (process plant, filter plant, and electrical system expansion)	September, 2010
Start of Engineering	October, 2010
Start of Construction	December, 2010
Mechanical Completion	October, 2011
Commissioning	November, 2011
Stage 2 Start-Up	December, 2011

### Stage 2 Schedule

The construction schedule for Stage 2 is summarized in Figure 12.3-1.

**Figure 12.3-1: Stage 2 Construction Schedule**

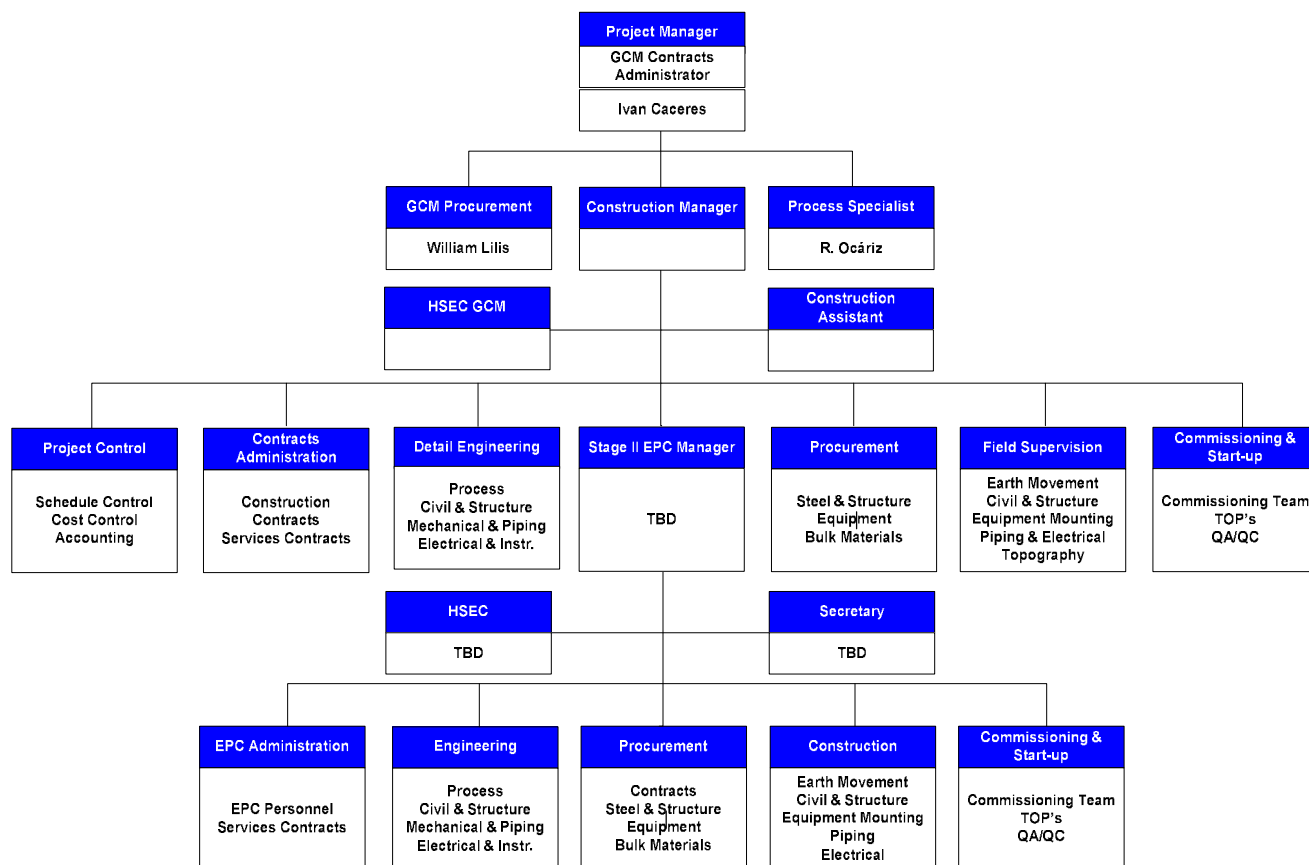


### 12.3.1 Project Organization

The Stage 2 project team organization considers that the team will also be participating in the Stage 1 operation. Therefore, a contract administrator will be assigned for the EPC contract during the engineering and procurement stages with the support of GCM HSEC and administration while the GCM project team is dedicated in the field to other contracts.

The organization chart for Stage 2 is shown in Figure 12.3-2.

**Figure 12.3-2: GCM Stage 2 Organization Chart**



### 12.3.2 Project WBS

The Stage 2 WBS will be the same as the Stage 1 WBS (see Table 12.2.1).

### 12.3.3 EPC Contract

An EPC company will be selected to carry out the Stage 2 project.

#### ***EPC Contract Philosophy***

GCM has selected an EPC contract for the process plant, filter plant, and electrical system expansion. This approach allows GCM to keep their project organization focused on Stage 1 start-up and Stage 2 contracts coordination which, in GCM management's opinion, is a feasible way to complete the project at an acceptable risk level and cost.

### ***EPC Scope of Facilities***

The EPC contractor will design and install the following facilities:

- Grinding plant, from ore stockpile feed conveyor to the pre-leach thickener
- Agitation leach plant
- CCD circuit
- Filter plant
- Reagent facilities
- Process, fire, and gland water distribution systems
- Power generation and distribution system expansion.

### ***EPC Scope of Work***

The EPC contractor will prepare a procedures manual, an implementation program, the project progress and control measuring system, and the technical documents control system as required by GCM. The EPC contractor will establish formal project communications procedures for the contract.

Engineering design will include detail engineering of the facilities in civil, structural, mechanical, piping, electrical, instrumentation, and control systems disciplines. A process specialist will review and confirm the process design parameters and assumptions. A hazard and operability analysis (HAZOP) and a constructability workshop will be performed.

Procurement will carry out the equipment and bulk materials procurement process from quotation through purchase order issue, expediting, freight coordination, transport to site, and warehousing. Procurement services in the field will also be provided.

The major items of equipment to be purchased are:

- Ball mill
- Thickeners
- Agitated leach tanks and agitators
- Filter presses
- Pumps for slurry, solution, and metering
- Flocculant plant
- Conveyors
- Hydrocyclones.

Construction of the facilities will include field supervision and administration, quality assurance and control, document control, construction manpower, construction equipment and tools, scheduling, and cost control.

The EPC contractor will be responsible for mechanical completion, ramp-up and performance tests according to the contract requirements. During performance tests GCM will operate and maintain the facility. The contractor will provide technical advisors to GCM during the performance tests to ensure that the facility passes all performance tests.

### ***Acceptance of Facilities***

Acceptance will be achieved when all of the following conditions have been satisfied:

- The Commencement of Ramp-Up Certificate has been signed
- The Acceptance Punch List items have been completed or mutually agreed by GCM and contractor
- The facility has successfully passed all of the performance tests
- GCM has received the spare parts and special tools
- GCM has received copies of all manuals, drawings, as-built drawings, and other project documents
- GCM has received final waivers and releases of liens from all subcontractors performing services or delivering equipment or materials
- GCM has received all of the information and documents related to taxes, costs, and asset records.

### ***EPC Tender Process***

The GCM project team will be in charge of the EPC tender process. Administrative and technical bases will be prepared to define the contract scope of work, scope of services, acceptance requirements, and performance guarantees to be applied to the contract.

### ***EPC Terms of Payment***

The EPC contract will be a lump sum contract which may be adjusted from time to time in accordance with the contract change order procedures. GCM will pay the contractor the contract amount in a series of monthly payments. Each payment will be bid based upon the milestones achieved during the previous month.

#### **12.3.4 Other Contracts**

##### ***Underground Mine Development***

Construction work for the access ramp and preparation of the mine is being performed by an underground mining contractor under the direction and supervision of GCM's mine management. This contract will continue during stage 2 until the start of the underground mine operations. Technical details are included in Section 5, Mining.

##### ***Dry Tailings Deposit***

GCM will contract the detail engineering of the dry tailings deposit so that bids can be requested for construction. Detail engineering will include the design of the earthworks, design of the deposition system, stability analysis, and design of the runoff retaining wall and rain water diversion system. The engineering company will also provide the technical bases for the construction contract so that GCM can commence the bidding process. A QA/QC services contract for construction will also bid and awarded.

The construction contract consists mainly of earthworks activities and transport of borrow materials for the preparation of the surface of the deposition area and complementary works.

##### ***Infrastructure***

Modifications required to the infrastructure are described below

**Fresh water:** The supply of fresh water must be increased from the refurbishing of the existing wells to the connection to the existing fresh water pipelines. Construction activities will include the review and cleaning of wells, installation of new pumps and electrical supply and control.

**Sewage treatment:** Minor modifications requested by the authorities will be made so that the system will meet the new requirements of the standards. A services contract will be awarded for maintenance of the chemical toilets located at various places around the site.

#### **12.3.5 Commissioning and Start-up**

Commissioning and start-up of the new facilities will be the responsibility of the GCM project team supported by the construction contractors. In particular, the EPC contractor will support the start-up of the facilities included in its contract so as to ensure fulfillment of the contractual warranties.

The procedures, organization, and supervision will be the responsibility of the GCM project team supported by GCM operations and maintenance. The EPC contractor will support the commissioning and start-up of the new facilities working together with GCM

operations personnel. The EPC contractor will develop procedures for approval by GCM project personnel to verify compliance with contract warranties. These procedures must meet site requirements for safety, operations, and interferences.

Critical aspects of this phase will be the coordination between contractors, timely supply of raw materials and reagents, coordination of the control systems, and interferences between facilities in operation and those that are in the start-up stage.

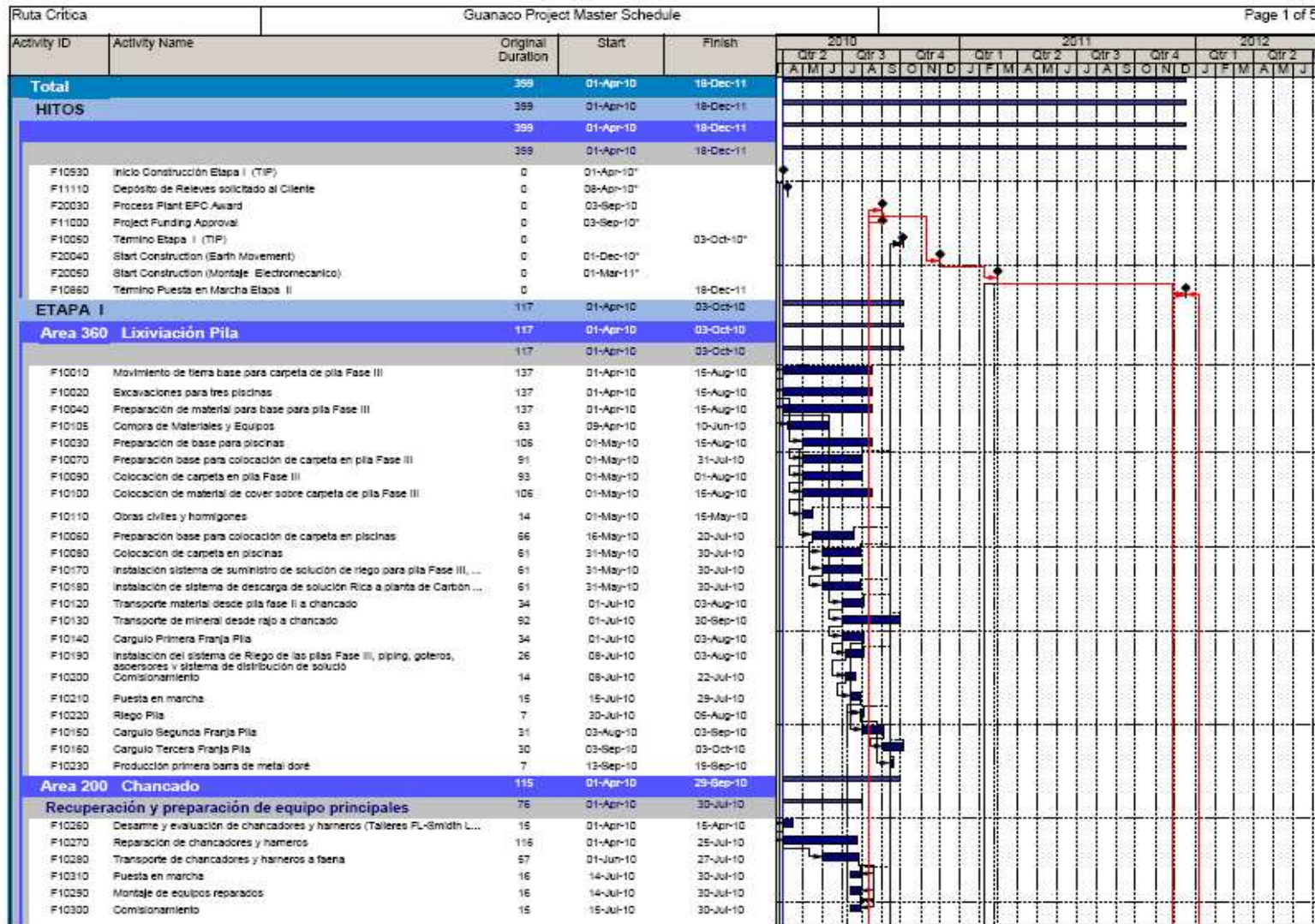
## **12.4 Construction Timeline**

A full project schedule has been prepared during the FS covering Stages 1 and 2. The milestone schedule is summarized in Table 12.1-1

The project schedule for Stages 1 and 2 is provided in Figure 12.4-1. The critical path schedule is shown in Figure 12.4-2. The planning elements include:

- Mechanical completion, pre-commissioning, and start-up sequences for the main process systems.
- Procurement process duration
- Construction work per discipline per area
- Definition and award of the main construction contracts.

Figure 12.4-1: Project Schedule



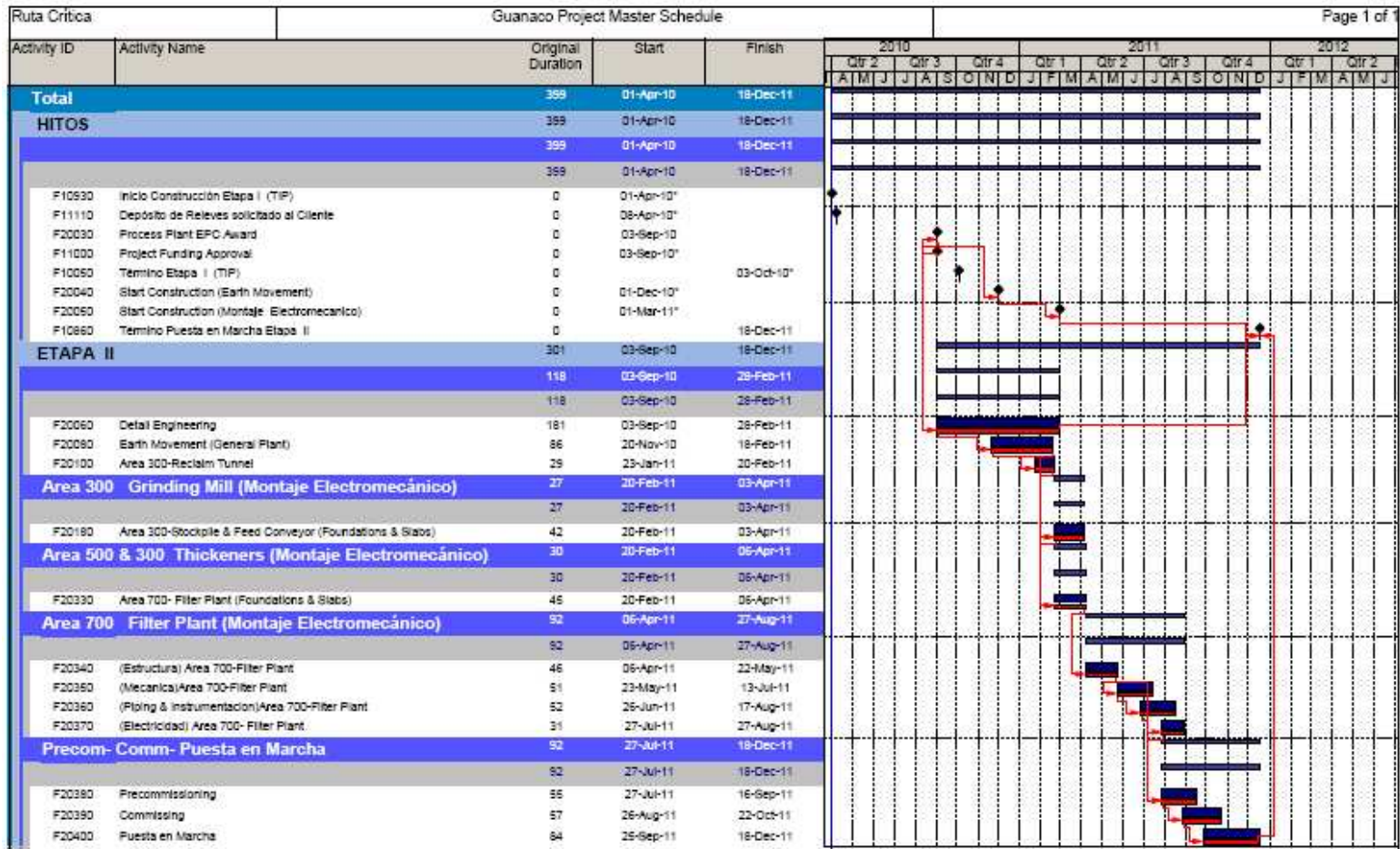
Ruta Crítica		Guanaco Project Master Schedule			Page 2 of 8																								
Activity ID	Activity Name	Original Duration	Start	Finish	2010				2011				2012																
					Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	2012															
					A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	A	M	J							
<b>Recuperación y reparación de equipo correas y estructuras</b>					115	01-Apr-10	29-Sep-10																						
F10320	Limpeza de terreno y excavaciones	30	01-Apr-10	30-Apr-10																									
F10330	Obras civiles, recuperación y colocación de nuevos hormigones	30	16-Apr-10	15-May-10																									
F10340	Reparación de estructura de plataforma acceso tolva de alimentación de ...	30	16-Apr-10	15-May-10																									
F10350	Limpeza y desmontaje de equipos menores, correas, reductores y límites	15	16-Apr-10	30-Apr-10																									
F10360	correas, contrapesos y polines	15	16-Apr-10	30-Apr-10																									
F10370	reductores y motores	15	16-Apr-10	30-Apr-10																									
F10380	chutes	15	16-Apr-10	30-Apr-10																									
F10390	Reparación y cambio de estructuras dañadas	52	01-May-10	21-Jun-10																									
F10400	Reparación de estructuras de escaleras, pasarelas y pasamanos	52	01-May-10	21-Jun-10																									
F10410	Reparación y reacondicionamiento de equipos menores	52	01-May-10	21-Jun-10																									
F10420	Reacondicionamiento de chutes y planchas de desgaste	52	01-May-10	21-Jun-10																									
F10430	Pintura sobre áreas reparadas	21	01-Jun-10	21-Jun-10																									
F10440	Instalación de equipos menores reparados	21	01-Jun-10	21-Jun-10																									
F10460	Instalación de correas transportadoras	30	01-Jun-10	30-Jun-10																									
F10450	Pintura general de terminación	15	16-Jun-10	30-Jun-10																									
F10470	Comisionamiento	10	15-Jul-10	25-Jul-10																									
F10480	Puesta en marcha	6	25-Jul-10	30-Jul-10																									
F10490	Operación charcado	55	05-Aug-10	29-Sep-10																									
<b>Area 600 Planta ADR</b>					113	01-Apr-10	24-Sep-10																						
<b>Recuperación y reparación equipos obras civiles estructur...</b>					113	01-Apr-10	24-Sep-10																						
F10500	Limpeza de terreno y excavaciones	15	01-Apr-10	15-Apr-10																									
F10590	Calentador de soluciones y bombas	61	01-Apr-10	31-May-10																									
F10600	Detectores de cianuro	30	01-Apr-10	30-Apr-10																									
F10610	Duchas de emergencia	30	01-Apr-10	30-Apr-10																									
F11070	Ingeniería de Apoyo (Detalle)	91	01-Apr-10	30-Jun-10																									
F10510	Obras civiles, demolición, recuperación y colocación de hormigones	21	16-Apr-10	06-May-10																									
F10520	Reparaciones de baños y casa de cambio en ADR	15	22-Apr-10	06-May-10																									
F10530	Recuperación y ampliación de contención secundaria	21	07-May-10	27-May-10																									
F10550	Reparación y cambio de estructuras dañadas	30	07-May-10	05-Jun-10																									
F10560	Reparación y reacondicionamiento de estructuras de escaleras, pasarela...	21	07-May-10	27-May-10																									
F10570	Reparación y reacondicionamiento de equipos	21	07-May-10	27-May-10																									
F10540	Limpeza y desmontaje de equipos e instrumentación (Se realizó durante...	28	14-May-10	10-Jun-10																									
F10580	Compras de equipos nuevos y control de calidad de equipos nuevos	120	28-May-10	24-Sep-10																									
F10620	Instalación de piping, bombas e instrumentación	30	01-Jun-10	30-Jun-10																									
F10630	Montaje y ensamble de equipos de acuerdo a nuevo diseño de disposit...	30	01-Jun-10	30-Jun-10																									
F10640	Pintura sobre áreas reparadas	21	01-Jun-10	21-Jun-10																									
F10650	Pintura general de terminación	21	10-Jun-10	30-Jun-10																									
F10660	Comisionamiento	27	01-Jul-10	27-Jul-10																									
F10670	Puesta en marcha	15	28-Jul-10	11-Aug-10																									
<b>Area 670 Fundición</b>					108	01-Apr-10	18-Sep-10																						
<b>Recuperación y reparación equipos obras civiles estructur...</b>					108	01-Apr-10	18-Sep-10																						
F10680	Desmontaje de equipos existentes	15	01-Apr-10	15-Apr-10																									
F10770	secador de precipitados	30	01-Apr-10	30-Apr-10																									
F10790	detectores de cianuro	30	01-Apr-10	30-Apr-10																									
F10790	duchas de emergencia	30	01-Apr-10	30-Apr-10																									
F11100	Ingeniería de Apoyo (Detalle)	91	01-Apr-10	30-Jun-10																									

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Activity ID	Activity Name	Original Duration	Start	Finish	2010				2011				2012						
					Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 2					
					A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
F10690	Obras civiles, demolición, recuperación y colocación de hormigones	15	15-Apr-10	30-Apr-10															
F10700	reparación de baños y líneas de desagües	15	15-Apr-10	30-Apr-10															
F10710	reparaciones de oficinas	15	15-Apr-10	30-Apr-10															
F10720	Recuperación y ampliación de contención secundaria	15	15-Apr-10	30-Apr-10															
F10730	Limpieza y desmontaje de equipos e instrumentación	15	15-Apr-10	30-Apr-10															
F10740	Reparación y cambio de estructuras dañadas	21	01-May-10	21-May-10															
F10750	Reparación y reacondicionamiento de equipos	21	01-May-10	21-May-10															
F10760	Comoras y control de calidad de equipos nuevos	120	22-May-10	18-Sep-10															
F10800	Instalación de piping, bombas e instrumentación	15	22-May-10	05-Jun-10															
F10810	Montaje y ensamble de equipos de acuerdo a nuevo diseño de disposit...	30	22-May-10	20-Jun-10															
F10820	Pintura sobre áreas reparadas	15	21-Jun-10	05-Jul-10															
F10830	Pintura general de terminación	15	28-Jun-10	12-Jul-10															
F10840	Comisionamiento	11	20-Jul-10	30-Jul-10															
F10850	Puesta en marcha	11	20-Aug-10	30-Aug-10															
<b>Area 600 Lab. Química/Muestrera y Metalúrgica</b>		<b>76</b>	<b>01-Apr-10</b>	<b>30-Jul-10</b>															
<b>Químico</b>		<b>76</b>	<b>01-Apr-10</b>	<b>30-Jul-10</b>															
F10870	pintura de cielos y muros de laboratorio y oficinas	30	01-Apr-10	30-Apr-10															
F10880	cambio de pisos en todas las áreas	30	01-Apr-10	30-Apr-10															
F10890	reparación de baños	30	01-Apr-10	30-Apr-10															
F10890	reparación y calibración de equipos de AA y balanzas	21	01-May-10	21-May-10															
F10910	reparación de hornos de ensayo fuego	76	01-May-10	15-Jul-10															
F10920	puesta en marcha	76	15-May-10	30-Jul-10															
<b>Muestrera</b>		<b>28</b>	<b>01-Apr-10</b>	<b>15-May-10</b>															
F10970	compra de equipos nuevos	30	01-Apr-10	30-Apr-10															
F10940	recuperación de pisos de hormigón	30	15-Apr-10	15-May-10															
F10950	cambio de cubierta de muros	30	15-Apr-10	15-May-10															
F10960	reacondicionamiento de equipos	30	15-Apr-10	15-May-10															
F10980	reparación de sistema de extracción	30	15-Apr-10	15-May-10															
F10990	puesta en marcha	30	15-Apr-10	15-May-10															
<b>Metalúrgico</b>		<b>28</b>	<b>01-Apr-10</b>	<b>15-May-10</b>															
F11040	compra de equipos nuevos	30	01-Apr-10	30-Apr-10															
F11010	recuperación de pisos de hormigón	30	15-Apr-10	15-May-10															
F11020	cambio de cubierta de muros	30	15-Apr-10	15-May-10															
F11030	reacondicionamiento de equipos	30	15-Apr-10	15-May-10															
F11050	reacondicionamiento de sistema de extracción	30	15-Apr-10	15-May-10															
F11060	puesta en marcha	30	15-Apr-10	15-May-10															
<b>Area 900 Sistema de Capacitación y distribución de A...</b>		<b>37</b>	<b>01-Apr-10</b>	<b>31-May-10</b>															
<b>Agua potable</b>		<b>37</b>	<b>01-Apr-10</b>	<b>31-May-10</b>															
F11080	Reparación de sistema de captaciones de aguas superficiales (Derechos...	30	01-Apr-10	30-Apr-10															
F11090	Reparación de líneas desde captaciones a faena (20 Km. aprox.)	30	01-Apr-10	30-Apr-10															
F11200	Reacondicionamiento de red de distribución interna de campamento, ofic...	61	01-Apr-10	31-May-10															
F11210	Reacondicionamiento de ciclorador para nuevos requerimientos	31	01-May-10	31-May-10															
<b>Agua industrial</b>		<b>37</b>	<b>01-Apr-10</b>	<b>31-May-10</b>															
F11230	Recuperación de pozos	30	01-Apr-10	30-Apr-10															
F11240	Reparación de líneas desde captaciones a faena (15 Km. aprox.)	30	01-Apr-10	30-Apr-10															
F11250	Reparaciones de estanques y piscinas de acumulación	30	01-Apr-10	30-Apr-10															
F11260	Reacondicionamiento de red de distribución interna planta y mina	31	01-May-10	31-May-10															
<b>Aguas servidas</b>		<b>32</b>	<b>01-Apr-10</b>	<b>31-May-10</b>															

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Activity ID	Activity Name	Original Duration	Start	Finish	2010				2011				2012						
					Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2						
					A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
F11280	Reacondicionamiento y ampliación sistema existente	51	01-Apr-10	21-May-10															
<b>Area 930 Sistema de Distribución de Energía eléctrica,...</b>		108	01-Apr-10	19-Sep-10															
F11290	Ingeniería de detalle de montaje Actualiz.Dato Vendor (en ejecución des...	7	01-Apr-10	07-Apr-10															
F11300	Desmontaje equipos e Instalaciones existentes	15	01-Apr-10	15-Apr-10															
F11310	Recuperación y actualización de materiales y equipos existentes	30	01-Apr-10	30-Apr-10															
F11320	Revisión transformadores de distribución planta	30	01-Apr-10	30-Apr-10															
F11470	Suministro, montaje y programación sistema de control central	112	01-Apr-10	21-Jul-10															
F11330	Compras de equipos nuevos y elementos	15	09-Apr-10*	10-Jun-10															
F11340	Hormigones, radieres y fundaciones para salas eléctricas y de control	15	09-Apr-10	23-Apr-10															
F11350	Reparación de cámaras y bancos de ductos	15	09-Apr-10	23-Apr-10															
F11360	Suministro y acondicionamiento de Contenedores HI-Cub	37	09-Apr-10	15-May-10															
F11440	Montaje Instrumentación de terreno	97	24-Apr-10	29-Jul-10															
F11370	Montaje de equipos eléctricos	31	01-May-10	31-May-10															
F11380	Montaje de canalizaciones eléctrica	31	01-May-10	31-May-10															
F11390	Conexión a tierra de equipos y escalerías	31	01-May-10	31-May-10															
F11400	Montaje desconectores de seguridad y botoneras	31	01-May-10	31-May-10															
F11410	Montaje de cajas de conexión	31	01-May-10	31-May-10															
F11420	Tendido y conexión de conductores de alumbrado, fuerza y control	30	16-May-10	14-Jun-10															
F11450	Montaje de canalizaciones de instrumentación	37	23-May-10	28-Jun-10															
F11460	Tendido y conexión de cables de instrumentación	45	30-May-10	13-Jul-10															
F11480	Puesta en marcha y asistencia puesta en marcha	76	09-Jul-10	19-Sep-10															
F11430	Montaje de equipos de alumbrado y enchufes	30	31-Jul-10	29-Aug-10															
<b>Area 920 Generación Energía</b>		76	01-Apr-10	30-Jul-10															
F11490	Limpeza y desarme de estructuras y edificio a reacondicionar	30	01-Apr-10	30-Apr-10															
F11500	Retiro de equipos existentes	15	01-Apr-10	15-Apr-10															
F11510	Recuperación estructuras de sala de máquinas	15	01-Apr-10	15-Apr-10															
F11570	Nueva Sala Eléctrica Generación Contenedor Externo tipo HI-Cub 40'	37	01-Apr-10	07-May-10															
F11580	Sistema Puesta a Tierra Sala Sub-Estación	7	01-Apr-10	07-Apr-10															
F11590	Sistema de protección Paramayos	7	01-Apr-10	07-Apr-10															
F11600	Compra y montaje 7 generadores de 660 KVA (5 op. + 1 sto-by)	37	01-Apr-10	07-May-10															
F11620	Sellado de muros perimetrales	15	08-Apr-10	22-Apr-10															
F11630	Redistribución de sistema de extracción de gases	15	15-Apr-10	29-Apr-10															
F11540	Reacondicionamiento de sistema de alimentación de combustible	15	30-Apr-10	14-May-10															
F11550	Instrumentación generación	15	30-Apr-10	14-May-10															
F11560	Rehabilitación Cargadores de Baterías	15	30-Apr-10	14-May-10															
F11610	Comisionamiento	14	01-Jul-10	15-Jul-10															
F11620	Puesta en marcha	15	15-Jul-10	30-Jul-10															
<b>ETAPA II</b>		399	01-Apr-10	18-Dec-11															
		321	01-Apr-10	18-Aug-11															
		321	01-Apr-10	18-Aug-11															
F20090	Tailings Deposit	122	01-Apr-10	31-Jul-10															
F20060	Detail Engineering	181	03-Sep-10	28-Feb-11															
F20070	Procurement	285	02-Nov-10	18-Aug-11															
F20080	Earth Movement (General Plant)	86	20-Nov-10	18-Feb-11															
F20110	Area 300-Grinding Mill (Foundations & Slabs)	77	24-Nov-10	14-Feb-11															
F20100	Area 300-Reclaim Tunnel	28	23-Jan-11	20-Feb-11															

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Activity ID	Activity Name	Original Duration	Start	Finish	2010 2011 2012																										
					Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2																		
					A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
<b>Area 300 Grinding Mill (Montaje Electromecánico)</b>																															
		96	20-Feb-11	20-Jul-11																											
F20180	Area 300-Stockpile & Feed Conveyor (Foundations & Slabs)	42	20-Feb-11	03-Apr-11																											
F20120	(Mecanica) Area 300 Grinding Mill	96	01-Mar-11	26-Apr-11																											
F20130	(Estructura) Area 300 Grinding Mill	27	15-Mar-11	11-Apr-11																											
F20140	(Floing & Instrumentacion) Area 300 Grinding Mill	49	01-Apr-11	20-May-11																											
F20160	Area 600-Columnas de carbon (Foundations & Slabs)	21	01-Apr-11	22-Apr-11																											
F20160	(Electricidad) Area 300 Grinding Mill	36	15-Apr-11	20-May-11																											
F20170	Area 600-Columnas de carbon (Montaje Electromecanico)	63	28-Apr-11	20-Jul-11																											
<b>Area 300 Stockpile &amp; Feed Conveyor (Montaje Electro...)</b>																															
		141	20-Nov-10	29-Jun-11																											
F20230	Area 400-Leach Plant (Foundations & Slabs)	67	20-Nov-10	30-Jan-11																											
F20190	(Estructura) Area 300 - Stockpile & Feed Conveyor	128	20-Feb-11	28-Jun-11																											
F20200	(Mecanica) Area 300 - Stockpile & Feed Conveyor	117	04-Mar-11	29-Jun-11																											
F20210	(Floing & Instrumentacion) Area 300-Feed Conveyor	60	24-Mar-11	23-May-11																											
F20220	(Electricidad) Area 300-Feed Conveyor	67	22-Apr-11	28-Jun-11																											
<b>Area 400 Leach Plant (Montaje Electromecánico)</b>																															
		141	20-Nov-10	29-Jun-11																											
F20280	Area 500 & 300- Thickeners (Foundations & Slabs)	62	20-Nov-10	25-Jan-11																											
F20240	(Mecanica) Area 400-Leach Plant	128	20-Feb-11	28-Jun-11																											
F20250	(Estructura) Area 400-Leach Plant	117	04-Mar-11	29-Jun-11																											
F20260	(Floing & Instrumentacion) Area 400- Leach Plant	97	24-Mar-11	29-Jun-11																											
F20270	(Electricidad)Area 400 - Leach Plant	67	23-Apr-11	29-Jun-11																											
<b>Area 500 &amp; 300 Thickeners (Montaje Electromecánico)</b>																															
		63	25-Jan-11	03-May-11																											
F20290	(Mecanica)Area 500 & 300 Thickeners	60	25-Jan-11	15-Apr-11																											
F20300	(Estructura) Area 500 & 300 Thickeners	90	25-Jan-11	25-Apr-11																											
F20330	Area 700- Filter Plant (Foundations & Slabs)	46	20-Feb-11	06-Apr-11																											
F20310	(Floing & Instrumentacion)Area 500 & 300 Thickeners	68	25-Feb-11	03-May-11																											
F20320	(Electricidad)Area 500 & 300 Thickeners	64	11-Mar-11	03-May-11																											
<b>Area 700 Filter Plant (Montaje Electromecánico)</b>																															
		92	06-Apr-11	27-Aug-11																											
F20340	(Estructura) Area 700-Filter Plant	46	06-Apr-11	22-May-11																											
F20350	(Mecanica)Area 700-Filter Plant	51	23-May-11	13-Jul-11																											
F20360	(Floing & Instrumentacion)Area 700-Filter Plant	62	26-Jun-11	17-Aug-11																											
F20370	(Electricidad) Area 700- Filter Plant	31	27-Jul-11	27-Aug-11																											
<b>Precom- Comm- Puesta en Marcha</b>																															
		92	27-Jul-11	18-Dec-11																											
F20380	Precomissioning	56	27-Jul-11	16-Sep-11																											
F20390	Comissioning	97	26-Aug-11	22-Oct-11																											
F20400	Puesta en Marcha	84	28-Sep-11	18-Dec-11																											
<b>Additional Contract (Power Generation)</b>																															
		80	03-Sep-10	19-Apr-11																											
F20410	Ingenieria Power Generation (Additional Coppo)	102	03-Sep-10	19-Dec-10																											
F20420	Power Generation (Additona Coppo)	21	16-Dec-10	19-Apr-11																											

**Figure 12.4-2: Project Critical Path Schedule**



## 12.5 Construction Cash flow

The Stage 2 estimated monthly cash flow is provided in Figure 12.5-1. This cash flow includes direct and indirect costs and assumes that 100% of the contingency will be spent.

It has been assumed that work will start in August 2010 and finish in September 2011, generating payments until November 2011.

During the peak months of construction the monthly cash flow will be US\$5 million. Details of the capital costs are included in Section 14, Capital Cost.

**Figure 12.5-1: Stage 2 Construction Cash Flow**



## **12.6 Production Ramp-up**

The production ramp-up is described in Section 6, Process

## **12.7 Delivery to Operations**

During mechanical completion the care and custody will be gradually transferred to GCM Operations. Due to the nature of the main contract – an EPC – before full transfer to Operations, the contractor has to perform the agreed performance tests at full GCM satisfaction.

Upon performance tests completion the facilities will be fully operated by GCM Operations personnel, while EPC contractor solve minor outstanding issues.

The EPC contractor and the project team will then be demobilized and all construction facilities have to be dismantled. It is expected that some GCM projects team personnel will continue providing engineering and construction support to the plant.