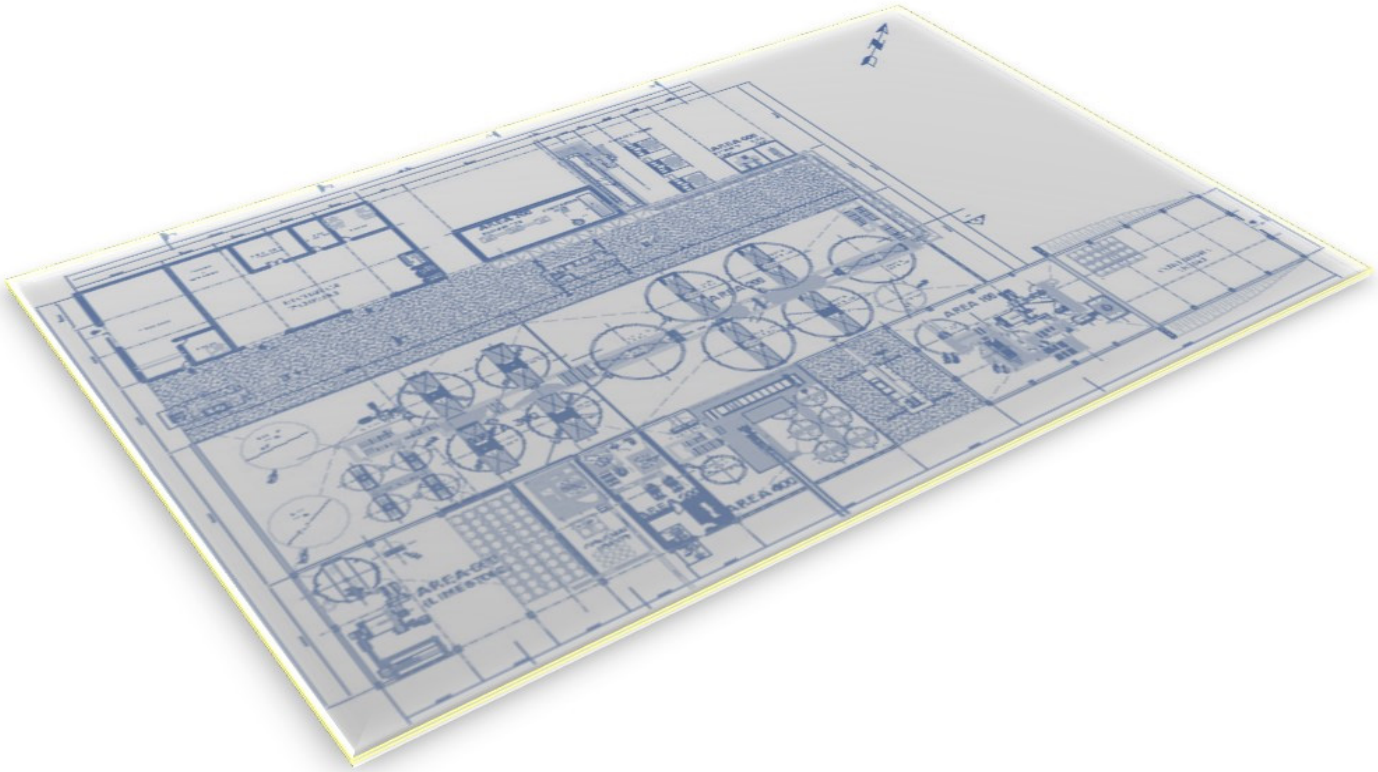
PONCE ENRIQUEZ PROJECT

ECUADOR

FEASIBILITY STUDY



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EFFECTIVE DATE: JANUARY 31, 2022

1. EXECUTIVE SUMMARY

1.1 Introduction

EPCM Consultores S.R.L. (**EPCMC**) was requested by BacTech Environmental Corporation (**BACTECH**) to compile an independent Feasibility Study (**the Study**) for the Ponce Enriquez Project (**the Project**) located in Ecuador.

The Study is based on the Conceptual Design developed during the months of August, September, October and November in 2021 and supporting documents prepared by **BACTECH**.

1.2 Terms of Reference

The Study will be used in support of **BACTECH** decision making process for the Ponce Enriquez Project.

Currency is expressed in US dollars unless stated otherwise; units presented are metric units, such as metric tonnes, unless otherwise noted.

Calendar years are used in some sections of the Study, in relation to the proposed execution plan. The months shown are for illustrative purposes; the actual timing may vary. Formal approval is required from **BACTECH** for plant construction, and additional permits need to be granted by the Government of Ecuador.

1.3 Project Description

A description of the project is summarized below:

- Processing repulping-grinding-bioleaching-neutralization-cyanidation-refining
- 10-year Plant Production span Average Annual Feed 18,250 t @ 55 g Au/t, 92 g Ag/t
- Plant Recovery 96% Au, 78% Ag
- Average Payable Doré 30,981 oz Au/year, 42,160 oz Ag/year

The process plant will utilise repulping, grinding, bioleaching, neutralization, cyanidation leaching and refining processes to recover gold (Au) and silver (Ag). On average, 31,403 oz equivalent of gold will be recovered annually.

Cyanide tailings will be filtered and deposited in an engineered drystack tailings facility.

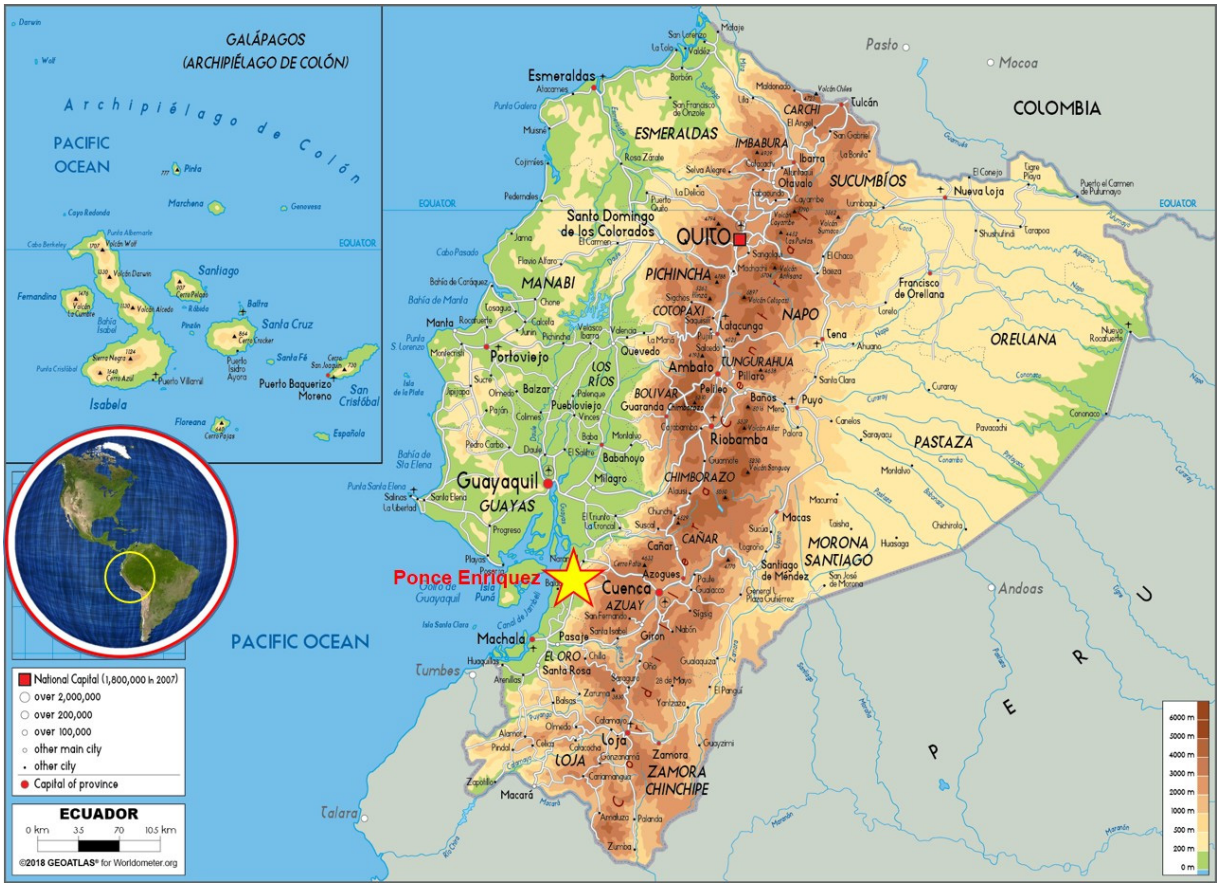
1.4 Project Location

The nearest city to the Project area is Machala, the fifth-largest city in Ecuador. The Project is situated about 60 km northeast of Machala and 150 km south of Guayaquil.

Vehicular access from Machala to the Project site is via the Panamericana highway and secondary roads of the Tenguel district.

The Project climate is warm and humid with an annual average temperature of 26°C, two seasons are clearly defined in this area: rainy season during the months of December to May and dry season from June to November. Annual precipitation varies from 34mm to 426mm.

FIGURE 1: PROJECT LOCATION



1.5 Mineral Tenure, Surface Rights, Royalties and Agreements

Under the current Mining Law, a concession's term is divided into two stages: exploration and exploitation. The exploration stage is further subdivided into shorter phases based on the achievement of stipulated milestones. Obligations that must be met to retain the concessions include payment of annual conservation fees, completion of annual reports on exploration completed, and proposed investment plans. Any failure to achieve these milestones and successfully advance to the next stage by the deadline can result in a forfeiture of the concession.

BACTECH does not hold any titles on mineral concessions as the Project is based on the implementation of a processing plant to execute bioprocessing and remediation solutions in the recovery of gold and silver while removing harmful contaminants like arsenic into benign EPA-approved products for disposal.

Licensed mining operators are subject to taxes, payments and contributions such as:

- Income Tax: 25% of profits.
- Labour Profit-Sharing Tax: 15% (12% to the State and 3% to employees in the case of large-scale mining, and 10% to the State and 5% to employees in the case of medium- and small-scale mining).
- Value Added Tax: 12%.
- Municipal taxes and contributions, social security contributions

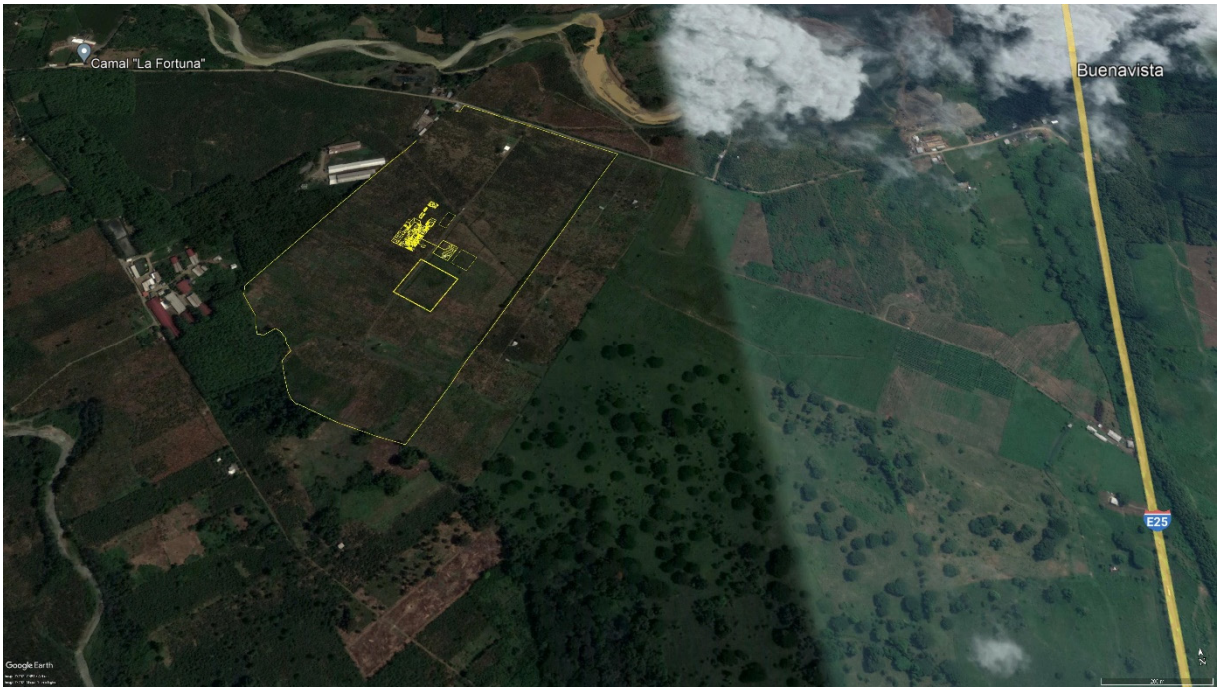
In addition to the taxes outlined above, the holder of the license must pay to the State a royalty of no less than 5% of the value of all sales and no more than 8% for the sale of gold, silver and copper (large-scale mining). For medium and small-scale mining, the royalty is 4% and 3% respectively, while artisanal mining is not subject to royalties.

The Ecuadorian government has various taxes, duties and levies that may or may not be applicable to future mining operations as the new government established incentives to private investment.

Surface rights must be obtained to support mining project development either through the land acquisition or by an easement (agreed with the land titleholder or imposed by the Ministry of Mining). At the Report effective date, **BACTECH** advised to have a formal purchase agreement with the titleholder of La Ginita Property for an area of 39.25 Hectares.

The referred area has been found suitable to support construction and development of the infrastructure required for the Project.

FIGURE 2: LOCATION OF THE PROJECT WITHIN LA GINITA PROPERTY



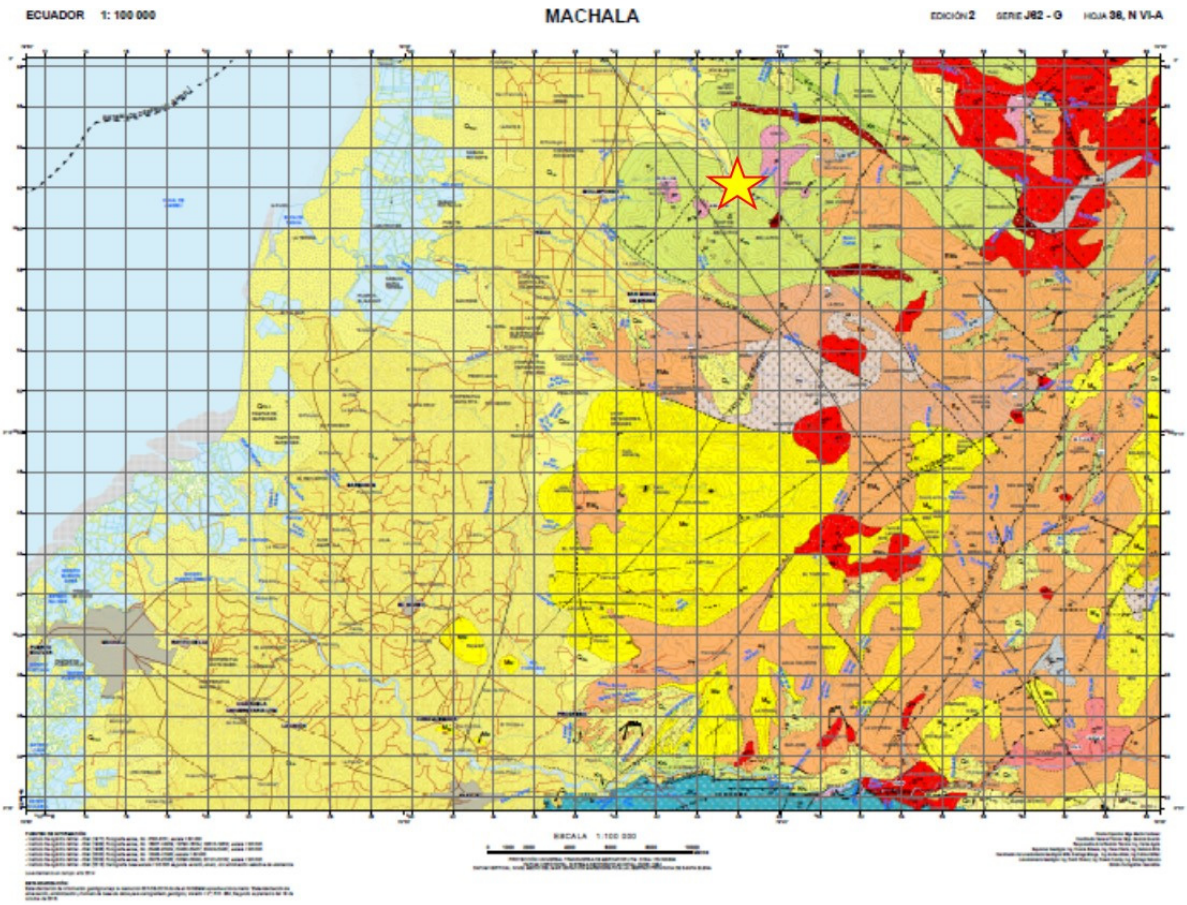
1.6 Geological Setting

The country of Ecuador spans the following five distinct physio-geographic regions:

1. A wide coastal plain in the west, where the surface consists of recent sedimentary rocks composed of material shed from the Andes;
2. The Cordillera Occidental, the western ridge of the Andes, that consists of oceanic rocks that accreted to the continent 50 to 100 million years ago;
3. The inter-Andean Graben, a high valley that is flanked by active volcanoes such as Cotopaxi and Tungurahua erupted in 2016;
4. The Cordillera Real, the eastern ridge of the Andes, that consists of much older rocks that formed the original continental mass and that are now being uplifted as the South American and Nazca plates collide; and,
5. The Oriente, where flat-lying sedimentary rocks younger than 200 million years old host the petroleum reservoirs that provide much of Ecuador's GDP.

The Ponce Enriquez mining area is characterized by the presence of various mineralized structures, which are currently mined by mining cooperatives and companies to supply and feed the various processing plants distributed in the area.

FIGURE 3: REGIONAL GEOLOGICAL MAP AND PROJECT LOCATION



1.7 Metallurgical Testwork

Upon identification of the sources of concentrates for the bioleaching process, metallurgical testwork commenced in 2019.

Metallurgical testwork programs were completed at ActLabs Falconbridge in Ontario, Canada and at ALS labs in Perth, Australia. The results of the testwork program were independently reported by each laboratory.

The results have been used as the basis of the flowsheet and the new conceptual engineering design.

1.8 Mineralization

The mineralized structures of the Ponce Enriquez area are all of similar characteristics and composition, considering the large area of the deposit.

Mineralogical paragenesis is composed of quartzes and iron sulphides, where gold is found free, disseminated or encapsulated within the crystalize structures of pyrite and arsenopyrite mainly considering the presence of physical gold in quartz. Macroscopically, the mineralogy consists of:

- Ore: Pyrite, arsenopyrite and quartz with gold contents.
- Secondary: Limonite, goethite
- Gangue: Chalcopyrite, calcite, baritone and pyrrhotite

1.9 Geotechnical

Ecuador is located in a high seismicity zone and the geotechnical investigation identified the project area as Zone V as per the NEC-15 parameters for Maximum Considered Earthquake design.

The soil in the concentrator site consists mainly of low plasticity clays with presence of clayey sands and gravels. ICCV recommends that foundations should be at a minimum depth of 2 meters with an admissible bearing capacity of 27.84 ton/m^2.

1.10 Groundwater

No groundwater was detected during the geotechnical investigation to a depth of 4 meters.

1.11 Water Management

The system will use the water flowing through the property on a constant basis. Use of rainwater contributes to restoration of the water levels required for the fresh water tanks.

1.12 Mineral Processing

The Ponce Enriquez treatment plant will be able to process refractory gold concentrates on a tolling basis. The process uses natural occurring microorganisms in specially engineered reactors to release gold for extraction (cyanide agitation leaching) and recovery (zinc precipitation).

The process will operate continuously 24/7 and will be operated by trained personnel and automation. The total process is divided into the following areas:

- Concentrate receipt and feed preparation.
- The bio-oxidation process and neutralization.
- Gold extraction, recovery, and detoxification.

The concentrate processing rate is 50 dry tonnes per day. The feed concentrate quality could vary and **BACTECH** strategy is set to allocate a purchasing crew to assure constant grade contents as feed material.

The total gold expected to be produced as doré varies from 28,164 oz Au + 42,160oz Ag during the first two years to 30,981 oz Au + 42,160 oz Ag per year during steady state. The doré is expected to contain above 98% precious metals with the remainder made up of base metals and impurities. The precious metals portion is expected to contain approximately 40% gold and 60% silver.

1.13 Project Infrastructure

1.13.1 Access

The planned route to access the project site is by the Panamericana road to Ponce Enriquez town and from this point to the plant area by the secondary access routes in Tenguel.

1.13.2 On-site Infrastructure

On-site services such as workshop, offices and assay lab will support the operation. Utilities and services include compressed air supply and distribution, reagents storage and distribution.

Mobile equipment for maintenance, operations services and transportation includes crane, forklift, buses and utility vehicles.

In order to reduce the impact of the project footprint, no camps will be built.

BACTECH will establish administration offices in Guayaquil and Machala to provide administrative and logistics support to the Project, and have not been included as part of the Project capital costs.

1.13.3 Power

The Ecuadorian electrical system is based on a high quality electricity service matrix, the distribution system is called the Sistema Nacional de Distribución (SND, National Distribution System). The SND is controlled by CELEC EP Transelectric, a government institution in charge of power transmission and distribution.

The Project site is located within the supply concession area of the Corporacion Nacional de Electricidad (CNEL, National Electric Corporation).

It is anticipated that the existing three-phase powerline has sufficient capacity to meet the overall project power demand. The annual average power demand is estimated to be approximately 8.3 MWh

1.13.4 Communications

The communications system for the project will consist of telecommunications system, radio communications, mobile and satellite communications available at the project area. The data management system will be connected to the communications systems.

FIGURE 6: ECUADOR ROAD MAP

1.14 Environmental, Permitting and Social Considerations

1.14.1 Baseline Studies

The physical (abiotic), biotic, social, economic, and cultural baseline has been characterized for the Project using primary information gathered in the field, and secondary information from official sources such as Government records. Field studies and data gathering for the baseline studies are strategically planned for implementation upon confirmation of the feasibility stage.

1.14.2 Permitting

Environmental licenses and permits will allow the project to proceed with the construction of the process facilities provided future operations adhere to the existing permit requirements.

A summary of main permit includes:

Before Construction

- Environmental License for the macro project
- Permit for water use
- Authorization to install and operate a process plant
- Authorization to install and operate a TSF
- Authorization from the municipality of the district in the area of influence to deposit non-hazardous solid waste in the landfill
- Permit from the Fire Department for project facilities
- Project Construction Permit
- Registration as a Hazardous Waste Generator (if applicable)

During Construction

- Operation Permit from the Fire Department

Before Operations

- Qualification for importation, possession and Use of Substances Controlled by SETED
- Transportation permit for controlled substances (waybills)
- Certificate of Registration of Hazardous Chemical Substances

1.14.3 Considerations of Social and Community Impacts

Upon positive definition of the project **BACTECH** will have a strategy to deal with the neighbouring settlements to sensitize the scope and impacts of the project, existing environmental baseline, the mining industry (including artisanal and large scale) and the **BACTECH** corporate commitment towards communities and sustainability.

1.15 Markets and Contracts

BACTECH envisage to commission a Trading Agent to prepare an independent marketing study on the gold-silver doré bars.

Gold–silver doré bars are typically sold through commercial banks and metals traders with sales price obtained from the World spot or London fixes. There are a number of global refineries specializing in refining of doré to bullion.

No contracts are currently in place for any production from the Project.

1.16 Capital Cost Estimates

The methodology used in the development of the capital cost estimate and the level of engineering definition result in the estimate having an accuracy of ±20% including the contingency based on the 80% confidence level.

The cost estimate was divided into the following:

- Direct costs: costs for productive works and permanent infrastructure. Includes productive infrastructure, services and equipment required for the extractive process.
- Contingency: includes variations in quantities, differences between estimated and actual equipment and material prices, labour costs and site specific conditions. Also accounts for variation resulting from uncertainties that are clarified during detail engineering, when basic engineering designs and specifications are finalized.
- Indirect costs: costs needed to support the construction of the facilities included in the direct costs. Includes engineering, procurement and contract management (EPCM) services, EPCM temporary facilities (infrastructure) and construction management, construction camp and associated services, capital spare parts, freight and logistics

The capital cost is estimated to be US$17.01 million.

TABLE 1: CAPITAL COST ESTIMATE

CAPEX SUMMARY					
DESCRIPTION	**SUPPLY COST**	**INSTALLATION COST**	**SUB-TOTAL**	**INDIRECTS**	**TOTAL**
Direct Field Costs					
Civil - Concrete & Structural Steel	$1,532,036		$1,532,036		$1,532,036
Mechanical Equipment	$6,160,687	$853,358	$7,014,045	$935,594	$7,949,639
Electrical, equipment, cables and hardware	$822,680	$40,000	$862,680		$862,680
Instrumentation & PLC (*)	$750,000		$750,000		$750,000
Piping	$200,000	$40,000	$240,000		$240,000
Chemical lab equipment (internal)	$150,000		$150,000		$150,000
Neutralization TSF	$451,682		$451,682		$451,682
AGL TSF	$95,060		$95,060		$95,060
Forklift	$120,000		$120,000	$0	$120,000
Generator	$91,830		$91,830		$91,830
Truck scale	$80,000		$80,000	$24,000	$104,000
Critical spares mechanical (5%)			$350,702	$0	$350,702
TOTAL DIRECT	**10,453,976.45**	**933,357.88**	**11,738,036.59**	**959,593.94**	**12,697,630.53**
Contingency (20%)					**$2,539,526**
EPCM					
Detailed Engineering (3.5%)					$444,417
Admin, Procurement & logistics (2.0%)					$253,953
General Expenditures (1.0%)					$126,976
Construction Management (4.0%)					$507,905
Precom/Commissioning/Start-up (1.0%)					$126,976
Vendors Support (0.5%)					$63,488
Financial expenditures (2.0%)					$253,953
TOTAL EPCM					**$1,777,668**
				GRAND TOTAL	**$17,014,825**

1.17 Operating Cost Estimates

The operating cost estimate is inclusive of site costs during the operational period until site closure.

The overall 10-year operating cost estimate is US$197/t, from which labour and reagents costs are the greatest contributors to the overall operating cost, followed, in order of contribution, by reagents, general expenditures and maintenance provision costs.

An additional cost of $15/t for external lab assay will be applied in the financial modelling.

A summary of the costs by area is provided in the following table:

TABLE 2: OPERATING COST ESTIMATE

OPEX SUMMARY			
LABOUR	Staff	$/year	$/ton
TOTAL LABOUR	35	1,193,211	67.18
POWER	KWh/t	$/year	$/ton
TOTAL POWER	453	686,072	37.59
REAGENTS		$/year	$/ton
TOTAL REAGENTS		1,172,141	64.80
GENERAL EXPENDITURES		$/year	$/ton
TOTAL GENERAL EXPENDITURES		346,800	19.00
MAINTENANCE PROVISION		$/year	$/ton
TOTAL MAINTENANCE PROVISION		153,098	8.39
TOTAL OPEX		3,551,322	196.97

Note: the financial modelling includes a factor for moisture contents as the OPEX values are a result of a throughput based on dry tonnes.

1.18 Economic Analysis

An economic model was developed to estimate annual cash flows and project sensitivities. pre-tax estimates of project values were prepared for comparative purposes, while after-tax estimates were developed and are likely to approximate the true investment value. It must be noted, however, that tax estimates involve many complex variables that can only be accurately calculated during operations and, as such, the after-tax results are only approximations.

Sensitivity analyses were performed for variations in metal prices and head grades to determine their relative importance as project value drivers.

This technical report contains forward-looking information regarding projected mine production rates, construction schedules, and forecasts of resulting cash flows. The mill head grades are based on sufficient sampling that is reasonably expected to be representative of the realized grades from actual mining operations. Factors such as the ability to obtain permits to construct and operate the plant, or to obtain major equipment or skilled labour on a timely basis to achieve the assumed mine production rates at the assumed grades, may cause actual results to differ from those presented in this economic analysis.

A summary of the production plan and payable metals produced is provided in Table 3. Other economic factors are listed below.

- A discount rate of 5% is applied.
- The analysis is performed in nominal 2021 US dollars.
- Revenues, costs, taxes are calculated for each period in which they occur rather than actual outgoing/incoming payment.
- Working capital is calculated as two months of consumables, power, labour and general and administration expenses.
- Results are presented based on 100% ownership.
- The model excludes all pre-development and sunk costs (i.e., exploration and resource definition costs, engineering fieldwork and studies costs, environmental baseline studies costs, financing costs, etc.).

TABLE 3: 10-YEAR OPERATION SUMMARY

PARAMETER	UNIT	VALUE
Mill Average Daily Throughput	t/d	50.0
Average Gold Mill Grade	g/t	55
Average Silver Mill Grade	g/t	92
Gold Contained	koz	322.7
Silver Contained	koz	539.8
Gold Recovered	koz	304.1
Silver Recovered	koz	421.6
Gold Recovery	%	96.0
Silver Recovery	%	78.1

Table 4 outlines the metal prices assumptions used in the economic analysis. The reader is cautioned that the metal prices are only estimates based on recent historical performance. There is no guarantee that they will be realized if the project is taken into production. The metal prices are based on many complex factors and there are no reliable long-term predictive tools.

TABLE 4: METAL PRICE ASSUMPTIONS

ASSUMPTIONS	UNIT	VALUE
Gold Price	US$/oz	1,798
Silver Price	US$/oz	18.00

A total of 304 koz of gold and 421.6 koz of silver is projected to be produced over a 10-year production span.

The Ponce Enriquez project is economically viable with a post-tax IRR of 49.63% and a net present value using a 5% discount rate (NPV5%) of $48.9 million using the metal prices described above. Table 5 summarizes the economic results of the project.

TABLE 5: SUMMARY OF RESULTS

10-YEAR OPERATION

CAPITAL COST	Unit	VALUE
Cash flow before Capital	US$M	124.3
Sustaining Capital	US$M	1.13
Working Capital	US$M	1.52
Total Capital	US$M	19.67
Cumulative Cash Flow less Financials	US$M	104.64
Cumulative After Tax Cash Flow less Financials	US$M	88.10
ECONOMIC RESULTS		
Pre-Tax NPV 5%	US$M	72.51
Pre-Tax IRR	%	63.56%
Pre-Tax Payback	years	2.67
After-Tax NPV 5%	US$M	60.35
After-Tax IRR	%	54.56%
After-Tax Payback	years	2.95

A sensitivity analysis was performed to examine which factors most affect the project economics when acting independently of all other cost and revenue factors. Variables evaluated were tested using a percentage range of variation:

- Gold grades from -30% to +30%
- Metal prices from -10% to +10%

Notwithstanding the above limitations to the sensitivity analysis, which are common to studies of this nature, the analysis revealed that the project is most sensitive to metal prices and head grade.

1.19 Risks and Opportunities

1.19.1 Risks

The most significant project risks are summarized below:

- Permitting - Delays in the EIA or receipt of permits for construction would affect the Project schedule for the development of the process plant.
- Land Negotiations - There is a potential for schedule delays due to negotiating land agreements and/or permits.
- COVID-19 - The pandemic may impact the project schedule and cost (restrictions to get to site, availability of personnel, permitting process, procurement delays, equipment costs).
- Concentrates - Proper grade control will maintain minimal unplanned feed dilution, which would minimise potential impacts on grade, throughput, and operating costs. A comprehensive, tight grade control program will help minimise unplanned feed dilution and negative impacts during operation.
- Concentrate prices - Proper negotiation and payables for concentrates will assure the stock of feed material and grades.
- Metallurgy - validate the recovery assumptions of the lower grade material.
- Commodity Prices- Lower commodity prices will change size and grade of the potential targets. Conversely, increased commodity prices will improve economics and potential outcomes.
- Project Schedule - Project components are tightly coupled within the schedule; many must be completed without delay to maintain the desired development targets.
- Tailings - Tailings are assumed to be non-acid-generating based on testwork completed to date. Additional testwork may be required to confirm this assumption.
- Power Cost - The cost of grid power is based on a market projection and not a power supply agreement. A higher power cost would result in increased operating costs.
- Power Availability - The availability of power from the national grid and ability to deliver it on time needs to be confirmed. The cost of the two 69 kV transmission lines required to operate the mine also needs to be confirmed.
- Local Procurement - The obligation to purchase in country may inflate project costs.
- Socio-Political Risk - Although the local community is amenable to the development of mining activities, any potential risk of socio-political opposition could adversely impact the project schedule.
- Labour - The potential for workforce unrest through non-compliance with local labour laws, as a result of third-party industrial activity, or from technical breaches of safety

obligations by contractors; this could affect all stages of the Project if not well managed from the start of construction.

- Security - impacts of illegal activities related to armed robbery and drug dealing by crime organizations need to be strategically managed. Gold dispatch will rest on third-party services for the transport of valuables. Surveillance of premises will be continuous.

1.19.2 Opportunities

The main opportunities identified for the project are listed below:

- Production Plan - An updated production plan will look to optimize upfront cash flows during the payback period. The optimization will review the feed grade rates improve economics.
- Limestone supply - There is the potential for a cost decrease of limestone for coarse particle sizes.