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## 1. SUMMARY

#### Mandate

In February 2017, Pierre O'Dowd, Independent Consulting Geologist, was retained by BacTech Environmental Corporation ("BacTech") to participate in an independent NI 43-101 Technical Report on the Telamayu tailings project, located in the Department of Potosi in the Republic of Bolivia. This report conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

### Location

The project is located in the centre of the Department of Potosi in southern Bolivia. The tailings is located between the villages of Atocha and Telamayu at 3,700 m of elevation, within the Bolivian altiplano. The Telamayu tailings project consists of a tailings deposit known as the Antiguo (old) tailings. The new tailings, located to the NE of the old tailings is not included in the project although BacTech holds an option on it.

#### Access

From La Paz, regular daily flights reach the town of Uyuni in one hour. From Uyuni, the village of Atocha is reached by car in approximately 2h30 hours using gravel roads running towards the SE in relatively good conditions (approx. 100 km). The Telamayu tailings are located just across the river from the village of Atocha.

### History

The Telamayu old tailings was accumulated from the 1930's up to 80's. The original material originated from two different nearby mining sites. The plant at Telamayu produced two concentrates: 1) Pb-Ag and 2): Zn-Ag and Sn was also recovered. The tailings covers an area of approximately 150 m X 300 m and its thickness averages 11 m.

## BacTech agreement

As of May 24, 2016, BacTech and COMIBOL have signed an Association Contract for the project. In exchange for providing the capital for the project, the construction and the operations for the plant, BacTech will receive 100% of the cash flow from the project for 18 months, or until such time as the debt against the project is retired, or whichever comes first. After completing the repayment of the debt, the project splits into a 55/45 ownership of the cash flow in COMIBOL's favour.

### Infrastructure

The Telamayu facility will be connected to the high voltage electricity grid via the existing substation on the property. Make-up water required for the project will be available directly from site in conjunction with a planned water reclamation circuit complimenting the process. The site will accommodate the construction of a process plant, with possible auxiliary out-building on the site to house the administration, maintenance shop and a covered concentrate storage facility. Water tanks for industrial use will be installed, including one for fire suppression water. The fire suppression water will be distributed to the protected area through a dedicated water pipe network. A fuel tank with an adjacent fuelling station will primarily supply mining equipment needs.

Sewage services for the facility will be comprised of a redundant fibre communication backbone system which will link and manage the data transmission of the distributed control system (DCS), third party programmable logic controllers (PLCs), motor controls, fire detection system, and computers around the site. It is expected that the site will be connected to the local phone system network; a satellite internet service will be established as well. In the case that this would not be possible, then a Voice over Internet Protocol (VoIP) telephone system would be required. In any case, a transceiver or cellular radio tower will be installed in order to optimize the utilization of cellular telephones, as the current coverage in the area is not adequate. At this stage of the project

development, there is a high degree of flexibility in the siting of the process plant and other infrastructure.

## Shipping of concentrates

BacTech intends to ship the concentrate in Bulk Bags via available rail or trucking services. Comibol has its own fleet. We recommend to BacTech to agree as far as possible with Comibol to use their services shipments by truck, at least until Oruro. The cost of transport provided by Comibol is 0.10 bolivianos per ton per kilometer.

## Drilling

Between December of 2016 and March of 2017 a total of 57 Vibracore drill holes were completed by BacTech for a total metrage of 647.05 m. Core recovery averaged 98.87%. Drill holes were located within a 20 X 20 m grid. Initial portion of each holes, gravel cap (barren overburden) and hard crust unsuitable for Vibracore equipment, was hand dug making a total digging and drilling metrage of 699.49 m. Depth of holes ranges from 8 to 15 m averaging 12 m.

## **Core Sampling**

A total of 913 samples were collected during the drilling program. This total includes 685 regular samples (including 57 channel samples collected in handmade pit at the beginning of each hole) and 228 control samples for QAQC. In addition, 271 bulk density measurements were performed at Telamayu's Comibol laboratory.

## Security

BacTech implemented adequate QAQC procedures for the samples collected during the Vibracore drilling program. On a general basis, a total of 4 controls samples were introduced in each of the 57 holes on site before shipping to the lab. Control samples made up 24% of total samples analyzed.

Control samples, in each holes, generally consisted of a non-certified blank (tested by the company), one duplicate sample and two certified standards. The company used one low grade and one high grade standards for Sn, Cu and Ag, for a total of 6 different certified standards (only the main metal of the standard was assayed). They were introduced randomly into each holes (generally two different metals per hole).

## QAQC

The 2016-17 drilling program at Telamayu generated 228 control samples:

- 57 analyses of uncertified barren material (blank)
- 57 analyses of duplicates
- 114 analyses of certified material (Low and High grade for Sn, Ag, and Cu)

During the compilation of the QAQC data, a number of irregularities were observed. They consisted of inadequate use standards (even blank) and unexplained results. Obvious errors (mix-up in standards) were corrected before analyzing the data. Unexplained values (outlayers) were removed in order to obtain relevant averages.

In addition to QAQC procedures applied by BacTech, the author requested that 50 random samples be re-assayed at a different laboratory (ActLabs) in order to confirm Spectrolab's results. Results were satisfactory.

## **Resource estimate**

The author was able to produce a resource estimate divided into Indicated (10 m radius around drill holes) and Inferred portions (more than 10 m from drill holes, mostly talus material). The author used the polygonal method (half distance between adjacent holes) applied on a surface map with drill hole locations. Areas were obtained graphically and applied to each individual block (sample, 1 m in most instances). A Bulk Density value has been attributed to each individual block (sample) using the closest BD measurement. Using the BD, area and thickness,

tonnage was obtained for each block. **Table 1.1** gives a summary of Indicated and Inferred resources.

## TABLE 1.1

## **RESOURCE ESTIMATE SUMMARY – TELAMAYU ANTIGUO TAILINGS**

Ag oz/t	Ag g/t	% <b>S</b> n	% CU S.	% Cu T.	BD	TONNAGE	Ag grams	Ag ounces	Sn Ibs	
	INDICATED									
8,223	281,88	1,30	0,63	1,15	1,63	373 016	105 144 992	3 380 868	9 725 887	
INFERRED										
8,689	297,84	1,19	0,65	1,07	1,75	78 991	23 526 958	756 494	1 885 809	
BD: Bul	k Densit	y								

## Metal zoning

Vertical cross sections and a surface plan indicate that the surface of the Antiguo tailings is copper rich (also the SW portion at depth). On the other hand, high Sn and Ag concentrations are found below the copper rich top and particularly in the NE half of the tailing pile. The distribution of metals is quite heterogeneous and grades can be extremes within the pile, both vertically and horizontally. Nevertheless, a certain level of continuity can globally be observed for each metal.

## 2. INTRODUCTION

In February 2017, Pierre O'Dowd, Independent Consulting Geologist, was retained by BacTech Environmental Corporation ("BacTech") to participate in an independent NI 43-101 Technical Report on the Telamayu tailings project, located in the Department of Potosi in the Republic of Bolivia (**Figure 2.1**). This report conforms to NI 43-101 Standards of Disclosure for Mineral Projects.





## SOURCES OF INFORMATION

A site visit was carried out by Pierre O'Dowd, P. Geo, an independent geologist, from January 24 to 28 of 2017. The purpose of the visit was to confirm the nature of the tailings being investigated, the quality of the work being performed by local professionals and identify any factors which might affect the project.

Prior to the field visit, the author had various discussions and a meeting with Kamil Khobzi who was acting geological consultant for Bumigene inc. a Montreal Engineering firm also mandated by BacTech to participate in the 43-101 report on this project. Mr. Khobzi provided the author with all technical data related to the project. During the visit, discussions were held with José Cordova (general manager for BacTech in Bolivia) and geologists Plinio Velasco and Jorge Cossío.

This report was prepared by Pierre O'Dowd, P. Geo., an Independent Qualified Person, who is responsible for all sections of the report. The documentation reviewed and other sources of information are listed at the end of this report.

This report was prepared in accordance with NI 43-101 and Form 43-101F1, including the amendments dated June 30, 2011. The author has never worked on the project before.

The Author is of the opinion that the conclusions, recommendations with exploration programs and budgets outlined in this report are valid at this time, are consistent with those of other junior mineral exploration companies previously and currently operating in the area, and are required to determine the full potential of the Project.

# LIST OF ABBREVIATIONS AND CONVERSION FACTORS (Tables 2.1 and 2.2)

Units of measurement used in this report conform to the SI (metric) system. All currency in this report is US dollars (\$) unless otherwise noted. US\$1 is approximately 6.91 Boliviano (BOB) as of the date of this report.

# TABLE 2.1 LIST OF ABBREVIATIONS

u	micron	kPa	kilopascal
°C	degree Celsius	kVA	kilovolt-amperes
°F	degree Fahrenheit	kW	kilowatt
цØ	microgram	kWh	kilowatt-hour
A	ampere	L	litre
a	annum	L/s	litres per second
bbl	barrels	m	metre
Btu	British thermal units	M	mega (million)
C\$	Canadian dollars	m <sup>2</sup>	square metre
cal	calorie	m <sup>3</sup>	cubic metre
cfm	cubic feet per minute	min	minute
cm	centimetre	MASL	metres above sea level
cm <sup>2</sup>	square centimetre	mm	millimetre
d	day	mph	miles per hour
dia.	diameter	MVA	megavolt-amperes
dmt	dry metric tonne	MW	megawatt
dwt	dead-weight ton	MWh	megawatt-hour
ft	foot	m <sup>3</sup> /h	cubic metres per hour
ft/s	foot per second	opt, oz/st	ounce per short ton
ft <sup>2</sup>	square foot	oz	Troy ounce (31.1035g)
ft <sup>3</sup>	cubic foot	oz/dmt	ounce per dry metric tonne
g	gram	ppm	part per million
G	giga (billion)	psia	pound per square inch absolute
Gal	Imperial gallon	psig	pound per square inch gauge
g/L	gram per litre	RL	relative elevation
g/t	gram per tonne	S	second
gpm	Imperial gallons per minute	st	short ton
gr/ft <sup>3</sup>	grain per cubic foot	stpa	short ton per year
gr/m <sup>3</sup>	grain per cubic metre	stpd	short ton per day
hr	hour	t	metric tonne
ha	hectare	tpa	metric tonne per year
hp	horsepower	tpd	metric tonne per day
in	inch	US\$	United States dollar
in <sup>2</sup>	square inch	USg	United States gallon
J	joule	USgpm	US gallon per minute
K	kilo (thousand)	V	volt
kcal	kilocalorie	W.	watt
kg	kilogram	wmt	wet metric tonne
km	kilometre	yd	cubic yard
km/h	kilometre per hour	yr	year
km <sup>2</sup>	square kilometre		

# TABLE 2.2LIST OF CONVERSION FACTORS

1 inch =	25.4	mm	1 mm =	0.3937	inch
1 foot =	0.305	m	1 m =	3.28083	foot
1 mile =	1.609	km	1 km =	0.6214	mile
1 acre =	0.405	ha	1 ha =	2.471	acre
1 acre =	4046.825	m²	1 ha =	0.01	km <sup>2</sup>
1 pound (avdp) (lb) =	0.454	kg	kg =	2.205	lb
1 pound (avdp) (lb) =	1.215	pound (troy)	kg =	2.679	pound (troy)
1 ton (short) =	0.907	t	t =	1.102	1 ton (short)

## 3. RELIANCE ON OTHER EXPERTS

This report has been prepared by Pierre O'Dowd, P. Geo., an independent consulting geologist, for BacTech Environmental Corp. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to Pierre O'Dowd at the time of preparation of this report;
- Assumptions, conditions, and qualifications as set forth in this report;
- Data, reports, and other information supplied by BacTech, Bumigène (consulting firm working for BacTech) and other third party sources; and
- Title documentation and various written communications with government officials and agencies provided by BacTech

For the purpose of this report, Pierre O'Dowd has relied on ownership information provided by BacTech and Bumigène. Pierre O'Dowd has not researched property title or mineral rights for the Telamayu tailings Agreements and expresses no opinion as to the ownership status of the property.

## 4. PROPERTY DESCRIPTION AND LOCATION

## TELAMAYU TAILINGS PROJECT

The project is located in the centre of the Department of Potosi in southern Bolivia. The tailings is located between the villages of Atocha and Telamayu at 3,700 m of elevation, within the Bolivian altiplano. The Telamayu tailings project consists of a tailings deposit known as the Antiguo (old) tailings. The new tailings, located to the NE of the old tailings is not included in the project, however, BacTech holds an option to the tailings. The Telamayu old tailings was accumulated from the 1930's up to 80's. The original material originated from two different nearby mining sites. The plant at Telamayu produced two concentrates: 1) Pb-Ag and 2): Zn-Ag and Sn was also recovered. The tailings covers an area of approximately 150 m X 300 m and its thickness averages 11 m (**Figure 4.1**).

## THE TELAMAYU TAILINGS AGREEMENT

On May 24, 2016, BacTech Environmental Corporation announced that its 98% owned Bolivian subsidiary Empresa Minera Ambiental BacTech S.A. ("EMABSA"), has signed an Association Contract with Corporación Minera Bolivia ("COMIBOL"), the state mining company of Bolivia.

The 10-year contract calls for the environmental remediation and restoration of the "Antiguo" tailings and an option on the "Nuevo" tailings, both situated at the Telamayu mill site.

The agreement envisions three phases, with the first phase focused on the completion of a technical study of the 500,000 tonne Antiguo tails. Included in the study will be the drilling of a grid of 20 x20 m holes that will provide information for a NI 43-101 study. In addition, tailings material will be used in metallurgical studies

to determine the optimal flow chart for the proposed plant. Engineering of the plant will be conducted by Bumigème Inc. of Montreal, Canada.





The second phase will be the construction of a processing plant that will create concentrates of silver, tin and copper using conventional processing. There will be contributions from gravity separation, flotation concentration, and copper precipitation from water creating the final products leaving site. The objective is to build a gravity/flotation circuit and a copper cementation plant. The products to be produced will be a silver concentrate for export, a copper precipitate, and tin.

There is considerable infrastructure at the mill site including power, rail, a mill housing and a local workforce. The Telamayu mill has processed material from the surrounding mines for over 70 years, with the Antiguo and Nuevo tailings created from the operation. The existing infrastructure should lead to reduced capital costs.

The final stage is the commercialization of the plant which is expected to be completed within the next 12 to 15 months. All three stages require the posting of a performance bond that is released upon completion of each phase. BacTech has posted a bond of USD\$26,000 to cover the initial phase.

As of May 24, 2016, BacTech and COMIBOL have signed an Association Contract for the project. In exchange for providing the capital for the project, the construction and the operations for the plant, BacTech will receive 100% of the cash flow from the project for 18 months, or until such time as the debt against the project is retired, or whichever comes first. After completing the repayment of the debt, the project splits into a 55/45 ownership of the cash flow in COMIBOL's favour.

## **BOLIVIA'S MINING LAW (**taken from Globalaw)

In 1997 a complete new Mining Code, governing most matters relating to mining activities was enacted. Additional regulations govern certain mining taxation matters and mining environmental obligations based on a separate general Environmental Law of 1992. The 1997 Code followed the concessions system

considering mining concessions as real estate property which as such could be transferred, contributed to capital of companies, mortgaged, bartered, sold and the like and subject to inheritance laws under the Civil Code. By a Constitutional Judgment of 2006 the characterization of concessions as real estate property was declared contrary to the Constitution and the Constitutional Court granted a two year waiting period for Congress to enact substitute rules. Since Congress did not so enact them, the judgment came into effect after expiration of the two years term and consequently all those articles in the Code treating concessions as real estate property were voided. Concessionaires retained their rights of development and exploitation and a number of others, such as the right to execute leases and joint venture agreements.

On February 7, 2009 a new Political Constitution was approved after a long process at a Constitutional Assembly. The Constitution inserted new rules on mining activities and mandated that all concessions be transformed into contracts with the State. Such transformation, requiring a new mining law, had to occur by December of 2010. But no substitute law was approved so the Executive Branch passed a Decree that month declaring all mining concessions as temporary licenses, respecting all acquired rights, until the enactment of a new law.

Since march of 2011 a multiparty commission, with the participation of the Mining Ministry, the State Mining Company COMIBOL, the National Union of Mining Workers, the Mining Cooperatives, the National Chamber of Mining (small private miners) and the Association of Medium Miners (large private mining companies) has been negotiating the new law whose draft by consensus of all parties is to pass for congressional approval, a process which is estimated may conclude during the first quarter of 2012.

This article follows the regulations which so far have been agreed at the above referenced commission, unless otherwise mentioned. Matters pending agreement will be identified.

### 2. How are mining rights acquired from the State?

Under the new law mining concessionaires will have to file their applications for conversion into Mining Administrative Contracts to be executed with a new Plurinational Administrative Mining Authority in order to retain and continue exercising their mining rights, following new rules under the law. Whenever new free areas are so declared and become available, any interested mining company or cooperative will be entitled to apply for a similar Mining Administrative Contract. These contracts are subject to approval by the Bolivian National Assembly (Congress). Contracts can be only for exploration or for all phases of mining development. Contracting party in an exploration agreement can exercise an option to enter into the phase of development. It will also be entitled to assign such right to another company or to have a third party mining company joining through an association agreement.

The state mining companies which hold large and important mining areas can either directly continue mining activities under certain conditions, including continuation of current joint venture agreements with private entities to be transformed into association agreements under special terms, or sign new association agreements with private parties, in which they must hold a participation of at least more than fifty per cent of profits.

Mining cooperatives having received mining rights through contracts with state mining companies will have a special treatment with acquired rights recognized by a special contract, the same kind of which will apply to new applications by mining cooperatives for new areas.

3. How are mining rights acquired from private persons or companies?

All private companies and cooperatives will be entitled to execute association agreements with other private parties or cooperatives in respect of mining areas recognized through contracts with the State. No direct acquisition of mining areas from other private parties is permitted.

4. What types of rights and for how long they are acquired? How can they be terminated or lost?

Administrative Contracts by conversion from current concessions will recognize existing full rights of exploration and/or exploitation and development, which include treatment, foundry refining and/or trading. Term of each contract will depend on the working and investment plans which the applicant must submit to the Authority. Initial term can successively be extended for additional periods for a maximum term of sixty years for exploitation and development. Exploration contracts will have a maximum term of five years with the option for development similarly up to the maximum of sixty years. New contracts will follow similar rules. Administrative Contracts can be terminated in case of breach of specific obligations. These include the obligation to make a payment of an annual patent (to be called right of validation) and the obligation to initiate works within a certain period of time and the obligation not to suspend works also for a certain period of time, unless force majeure can be demonstrated. Other substantial breaches of contract, like the obligation to periodically file reports with the Authority, will also be considered.

Termination of association agreements is subject to contract, though the holder of the mining right through administrative or special contract must abide by the terms of the latter, as above mentioned, to ensure continuity of the association.

5. What are the restrictions for one operator to hold mining rights?

Operators under contract cannot conduct mining activities in restricted areas, such as towns and cities or within a certain distance of cemeteries, military compounds, historical or archeological monuments, roads or public energy or telecommunications installations, or in or close to public or private properties unless in the latter case and to the extent legally authorized prior agreement with the owner is reached or, absent agreement, rights of use, way, surface or expropriation are obtained from the competent Authority through administrative process.

Foreign individuals and companies generally cannot hold property rights or rights of possession within fifty kilometers of the international borders, a rule which is likely to apply to mining administrative contracts. Participation of a foreign entity in an association agreement should not however be construed as triggering the prohibition, issue yet to be clarified under the new law.

A new maximum extension of mining areas which one company can hold is to be determined in the law. This restriction does not apply to current concessionaires when transforming their rights into administrative mining contracts.

6. What are the main working/operating obligations?

Under converted administrative mining contracts, the contracting party cannot abandon or stop the mining operations for more than one year, unless for reasons of force majeure. The exact scope of force majeure is yet to be determined in the law. Whether it will encompass unfavorable or negative market conditions rendering a venture temporarily non profitable, is a point of debate. The same rule will apply to new contracts with the additional obligation that companies should start operations within a period of time yet to be determined. The time as from which such term is computed is also a point of discussion. Other operating obligations include compliance of labor, social security, industrial security and environmental rules. Such set of rules is identified as the economic and social function for mining activities as required under the new Constitution. There are also reporting obligations of different nature and those relating to taxation as explained further below.

## 7. How are joint venture agreements or joint operating agreements regulated?

There will only be the so called association agreements which resemble joint venture agreements. Holders of mining areas by administrative contract or similar features under the law, whether state, cooperatives or private entities, can contract with other private or cooperative mining operators their participation in the implementation or development of a specific area or project through this kind of agreement. The association agreement does not generate a new legal entity. Relationship between the parties is governed by contractual terms. The law however fixes certain minimum requirements on clauses to be inserted in the agreement. One important feature is that all associates must be involved in management and operations. Contributions by the parties are to be determined as well as their participations in profits and losses. The percentages of profit participation are to be agreed in the contract. An issue which is pending is whether or not there will be in the law a minimum profit participation requirement for the main holder of the mining rights.

A legal representative will represent both parties and the association for all legal purposes. The taxing authority will grant a special tax registration for the association, separate from the individual tax registration of each associate. At which point in time the tax on company profits is to apply is being reviewed. The association is to carry independent accounting and generate financial statements of its own. The company tax on profits is not likely to apply to the profits declared by the association. Each participant will account for the amounts received as income from investments net of taxes. Its own and separate financial statements will determine payment of profits tax. Cooperatives and state mining companies are not covered by the tax on private companies' profits.

8. What are the main features of mining taxation and corporate taxation in mining?

This is a key pending item for discussion in the new law. Broadly, the private companies uphold the need to essentially maintain without change the currently in effect mining taxation system. The government is striving for some kind of increase, focusing on royalties. The general intent of the government is to have a sliding scale by tranches which will vary depending on international prices.

Current regulations provide for payment of an annual patent as a fixed amount depending on the extension of the concession/mining area. This is to continue under the new law as a so called "right of contractual continuity". It does not represent a very substantial charge.

A mining royalty system applies which is the main point of controversy between the state and producers. Royalties are mainly calculated on the gross value of sale of the respective mineral or product which results from multiplying the weight of the net fine content by the official quotation. This is fixed by reference to the daily quotes of cash transactions in the London Metals Exchange. The quotas vary from one mineral, concentrate, bar or refined product to another. A percentage on so calculated value is given to the various products: gold, zinc, lead, tin, antimony, wolfram, copper, bismuth, iron, borax, precious stones, etc.. Liquidation for payment occurs upon local sales or at the time of exports. Royalties are to be distributed between several beneficiaries, the main being the autonomous departments. The new distribution is yet to be decided.

In addition to mining patents and royalties, companies are subject to the general taxation system on company profits. In the case of mining companies there are two profits taxes, totaling 37.50%. The continuity of an additional surtax of 10%, applicable in a scenario of high international prices, is being debated. Remittance of profits abroad is subject to a withholding tax of 12.5%.

An additional 3% so called Transactions Tax applies on gross income, which can be credited against taxes on profits. With other indirect taxes and contributions, particularly to the social security system, the total participation for the state (government take) on net income before taxes, is estimated between 55% to 66% variable depending on companies and their activities.

An issue to be resolved is related to the constitutional rule that indigenous people are to have a participation in the benefits of exploitation of natural resources. This is likely to be resolved by recognizing to those people participation on royalties.

9. What are the main features of environmental obligations?

Every specific project has first to be categorized for environmental control purposes. Projects having environmental impact have to obtain an environmental license based on an environmental impact study. Companies acquiring new rights normally conduct a base line audit in order to identify environmental impacts of the past, for which, based on such audit, they are not responsible. Not conducting it makes the holder of rights responsible for impacts of the past. Changes to impact studies need official filing and authorization.

Filings and periodical reporting with the corresponding environmental authorities are applicable. Authorities can and do conduct audits and inspections. Third parties can file denunciations for breach. Regulations fix allowable impact limits for air, water, etc. Impacts above authorized limits generate civil liability and even criminal responsibility.

10. Is there a compulsory consultation procedure with indigenous peoples, peasant communities and/or with populations that may be affected by mining activities? How does it work?

The main current debate around exploitation of natural resources relates to the obligation of producers to consult with indigenous people, peasant communities and other population which may be impacted or affected by a project. This has become a complex issue not only for mining but also for other activities. Some projects have stopped because of the impossibility to reach agreement with local communities. There are a number of legislative initiatives to deal with the matter. The new mining law is to contain a specific chapter on public consultation, fixing specific rules and procedures including, the effects and legal nature of the consultation process and its results.

A more complex situation has developed as a result of recognition under the Constitution and regulations, of certain indigenous people's rights on their ancestral territories (territorial rights) which however are to respect third party acquired rights. This is a developing issue which will force more difficult negotiations and extended agreements. Restrictions also exist in the case of mining areas located in national preservation areas and parks.

11. What kinds of compensations to said groups or benefits in their favor can be expected?

In cases where agreements have been reached, the solutions are variable and multiple. This naturally depends on the scope and size of the project. Direct agreements have so far been the method. These may have included from simple compensations (build a road, a school, water works, medical infrastructure, perhaps occasionally cash payments) to more complex arrangements (relocation of towns and changes in infrastructure; creation of local entities or companies as service providers to the mining producer; relocation of historical/religious sites; obligations to hire personnel from communities; modernization of sites; independent commercial ventures with support of the producers; land acquisition, etc.).

12. Briefly explain how can easements be agreed or imposed.

Direct negotiations and agreements is the rule. Absent agreement the producer is entitled to file and obtain from the competent authority, through administrative proceedings, forced and compulsory easement. In all cases compensations are payable.

13. Briefly explain how expropriation of third parties' rights can be obtained.

Like with easements, absent agreement, an actual expropriation procedure can be filed when justified. This depends on the producer's needs. Easements only create limitations of or restrictions on property rights. Through expropriation the producer acquires all rights. Expropriation is to be reconsidered in the new mining law especially for the case of territorial rights of indigenous people, which cannot be subject to expropriation.

14. How are water rights for mining treated?

New rules on water rights are in process of development and implementation. Enactment of a more complete Law of Hydric Resources is expected. Some current rights for mining producers will most likely be recognized in the new mining law. These could include the right of use of internal waters (waters in the mining area) and water of public domain. In all cases environmental rules also apply. Relatively recent new rules compel all users of waters of any origin to pay users' rights to the State.

15. Is internal and/or external trading regulated? How?

Internal trade and export is free but controlled by a specialized registration entity, the SENARECOM. All traders, including producers, have to obtain a registration. One of the purposes of the entity is to exercise control over payment of royalties. Given the many deficiencies of internal control the new mining law will give extended powers of control to SENARECOM.

16. Are there compulsory rules to offer production for sale to local foundries or refineries? If so, explain.

Not at present. The new mining law however will create an obligation to producers of concentrates to compulsory offer their production for sale to local foundries, whether of the state or private, with as first right for the former. If agreements are not reached in terms of market conditions (price, payment terms, etc.) the producer will have the right of freedom of export.

17. Do state entities hold monopolies relating to mining activities? If so, explain.

Following current policies the new mining law will confirm that the state – through state public companies – will have the exclusive right of mining of certain ores. Lithium and related components (potassium for example) at the salt lakes can only be mined until the phase of production of basic commodities by the state mining companies. Subsequent semi-industrialization and industrialization processes can be performed through joint venture agreements (to be association agreements) with private companies, national or foreign. A similar approach will be given to uranium and similar ores for nuclear energy production.

18. Which are the state authorities of control over mining/environmental activities?What is the scope of their jurisdiction?

Authority is distributed between municipal, departmental and national environmental state entities, depending on the scope of control to be exercised. The national/central head is the Ministry of Environment and Water. Governors' offices intervene in departments.

19. How are claims or controversies settled? With the state? Between private producers? Are conciliation, mediation and/or arbitration viable? In which cases?

The new mining law is yet to define the more precise powers of state entities to resolve claims and controversies. However, the so now called Plurinational Mining Administrative Authority, would resolve on administrative proceedings for claims or oppositions against the granting of mining rights through administrative contracts or authorizations. Controversies on prior title between mining actors would most likely be resolved through ordinary proceedings.

Administrative Contracts with the Authority cannot be subject to arbitration. Laws of Administrative Procedure for claiming against its decisions will apply (revocation, administrative appeal and appeal before the Supreme Court of Justice).

Association agreements between state mining entities and private parties may contain clauses for national arbitration. Agreements between private parties can contain any proper arbitration clause they negotiate and agree to (either national or international).

Conciliation is available where parties choose national arbitration administered by specialized private arbitration institutions (mostly established by national or local chambers of commerce and/or industry). Conciliation is also possible based on the Law of Arbitration & Conciliation. Mediation is yet to be developed institutionally.

20. Is your country a member party to the Washington (ICSID) Convention? To other similar international treaties?

Bolivia was a party to the Washington Convention but filed a denunciation thereof on May 2, 2007 which became effective six months later under the Convention. It continues to be a party to the Panama Convention (Inter American Treaty on International Commercial Arbitration (1975), the Inter American Treaty on Extraterritorial Effects of Foreign Judgments and Arbitration Awards (1979) and the New York Convention of 1958.

21. Has your country executed and ratified Bilateral Investment Treaties (BITs) for the reciprocal protection of investments? With which countries? What are the general common features and most relevant differences? Multilateral treaties?

Bolivia signed during the 80s and 90s twenty two Bilateral Investments Treaties which based on a mandate of the new Constitution is in process or denunciation and/or renegotiation. Most of them however continue in effect. A chapter on investment protection under a bilateral Free Trade Agreement with Mexico has been denounced as part of the denunciation of the treaty by Bolivia, substituted by a new economic agreement under the rules of ALADI. Most of the BITs provided for ICSID arbitration in case of investment disputes. All of them, except one with Chile, have alternative mechanisms for arbitration, whether under ICC, Stockholm Chamber of Commerce or UNCITRAL rules. A relatively common feature is a broad scope as to what are investments. However, controversies have been raised where the concept is too broad.

22. Other relevant issues you wish to briefly address?

As a consequence of the new 2009 nationalist and indigenous people rights oriented Constitution, numerous legislative changes are taking place and will continue in the future, i.e. new laws on economic activity: mining, hydrocarbons, electricity, transport, telecommunications, forestry and others; consumers' protection law; on political organization with respect to all branches of government, including the judiciary; new substantive Codes: Civil, Commercial, Taxation and others; new investment law; laws governing the now autonomous departments, regions and indigenous people; departmental and municipal laws; new laws of procedure: constitutional, criminal, civil, etc and many more This process is likely to take a number of years more until fully accomplished.

# 5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

## ACCESSIBILITY

The Telamayu tailings project is located in the centre of the department of Potosi in southern Bolivia. From La Paz, regular daily flights reach the town of Uyuni in one hour. From Uyuni, the village of Atocha is reached by car in approximately 2h30 hours using gravel roads running towards the SE in relatively good conditions (approx. 100 km). The Telamayu tailings are located just across the river from the village of Atocha (**Figures 5.1 to 5.4**).



## FIGURE 5.1 DEPARTMENT OF POTOSI

## FIGURE 5.2 ACCESS TO ATOCHA-TELAMAYU



TABLE 5.1

## **CLIMATE - UYUNI REGION**

Climate data for Uyuni, Bolivia [nde]													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	37 (99)	32 (90)	30 (86)	28 (82)	23 (73)	21 (70)	20 (68)	22 (72)	22 (72)	30 (86)	36 (97)	33 (91)	37 (99)
Average high °C (°F)	18 (64)	18 (64)	17 (63)	17 (63)	15 (59)	13 (55)	13 (55)	15 (59)	18 (64)	19 (66)	20 (68)	19 (66)	17 (63)
Average low °C (°F)	1 (34)	1 (34)	-1 (30)	-7 (19)	-13 (9)	-13 (9)	-11 (12)	-12 (10)	-10 (14)	-8 (18)	-3 (27)	-1 (30)	-6 (21)
Record low °C (°F)	-6 (21)	-7 (19)	-12 (10)	-17 (1)	-22 (-8)	-18 (0)	-20 (-4)	-21 (-6)	-18 (0)	-12 (10)	-12 (10)	-10 (14)	-22 (-8)
Average rainfall mm (inches)	70 (2.76)	40 (1.57)	10 (0.39)	0(0)	0 (0)	0 (0)	0(0)	0 (0)	0 (0)	0 (0)	0 (0)	30 (1.18)	150 (5.91)
Average rainy days	4	3	1	0	0	0	0	0	0	0	0	2	10
Average relative humidity (%)	48	52	48	48	38	42	35	34	31	30	35	39	40
			Sour	rce: Weathe	rbase <sup>[3]</sup>								

## CLIMATE

Telamayu has a tundra climate (ET) because the mean temperature in the warmest month is below 10°C. However, it borders on the cold desert climate due to low precipitation and a mean annual temperature less than 18°C. Rainy season extends from December to February (Table 5.1).

## LOCAL RESOURCES

The Telamayu facilities may provide space, manpower and all needed infrastructures for the project, however, mine and plant infrastructure will be reviewed as previously mentioned.

#### Staff

According to Comibol management, there is a very good labor source in at Telamayu. Salaries are favourable for the project and BacTech intends to provide a competitive wage.

### Local Contractors

There are qualified local contractors for installation of equipment, metal structures, civil works, electricity etc. Comibol also has a machine workshop very well equipped and a very impressive woodshop. With these workshops, the construction costs of a new plant could be kept at a very acceptable price.

### Local suppliers

It is important to ensure that there are local distributors for cement, wood, steel bars, structural steel, piping etc.

### Supply of reagents

There are agents in La Paz that can provide reagents needed for BacTech operation (xanthates, lime, MIBC, etc.).

## Availability of offices and homes

According to Comibol, there is availability in the region, but the quality may not be suitable. BacTech will have to invest at this level to provide homes and offices with North American standards.

## Analytical Laboratory

The laboratory is in good condition and has two atomic absorption (AA) devices including a very recent Perkins Elmer. The section for chemical analysis is very clean and complete with accurate scales. The preparatory section of samples (crushers, pulverizers, riffles, etc.) is apparently operable and in good condition. BacTech may use the services of the laboratory rather than build his own (+ 500,000 US\$). Comibol seems to be willing to offer this service against payment of course.

## **Shipping of concentrates**

BacTech will ship its concentrates in "Bulk Bags" and the transport could be done either by rail or truck. We recommend to BacTech to utilize the trucking services available from Comibol to the town of Oruro in route to the smelter. The cost of transport provided by Comibol is 0.10 Bolivianos per ton per kilometer.

### INFRASTRUCTURE

Unpaved roads link the towns and communities within the project area. Atocha can provide basic needs for accommodations, meals and equipment. Specialized tools and services can be trucked or obtained at Oruro (4 hours by road).

## PHYSIOGRAPHY

The project area is located within a river in the Bolivian altiplano. Topography remains relatively smooth for the Andes and all sectors of the area are accessed by decent gravel roads. Four by four vehicles are favoured though, especially during rainy season.



## FIGURE 5.3 VIEW OF THE TELAMAYU PROJECT AREA




## 6. HISTORY

There has been no formal Mineral Resources Estimation of the tailings registered to date, however, several work programs for mineral and metallurgical evaluations of the tailings were completed in the past by Comibol as follows:

**In 1980 by Comibol:** (Pozos Digging/ 7-11m depth/results for Sn) - Ref. Ts 141. More than 60 holes (10x10m grid) were completed and sampled for Sn. A work plan (1:500) exists but no report is attached to it. However, reports of the findings were not available.

**In 1986 (Ts-193), Comibol** completed another drilling and sampling program on the Antiguo tailings. A total of 54 holes were performed. No report exists at the Telamayu office.

**In 1990-1996 by Dames and Moore Inc.** A drilling program was initiated in 1990, a 20 x20 m grid, 10-12m depth, sampling for Cu, Zn, Ag, Sn, … More than 50 drill holes (Auger drilling?) have been completed by Comibol. Sampling and some tests were performed. A compilation map of the works was presented to BacTech however, the report could not be obtained. The complete report of these works is at La Paz with Comibol.

**In 2004, COMIBOL** employees manually dug 5, 8-meter holes (Pozos) and the material was bagged at one meter intervals down to the bottom of the tailings pile. The available sample bags at the plant appear to have been collected during that period. The samples are grouped by hole number and depth. All of them are open. The most recent metallurgical tests performed by BacTechgreen were completed with the material coming from these samples.

A 2004 Comibol Telamayu Tailings resource document indicate that, for the calculation of this "exploitable" volume, has been calculated the total volume of the

dam (289,534.15 m<sup>3</sup> X 1.65 t/m<sup>3</sup> = **477,731.35** t), less the volume below the substation Telamayu (18,097-m<sup>3</sup> x 1.65 t/m<sup>3</sup> = 29,860 t, which in practice may not be exploited (transversal sections of the 220 to 300) ". The estimate is based on surveying volume calculations. No grades or quality attributes are attached to that tonnage.

The tonnages provided by COMIBOL are of a historical nature and have not been confirmed by the Company. BacTech is not treating the historical estimate as current mineral resources or reserves as they are not NI 43-101 compliant.

**In May 2012**, BacTech enlisted the services of SGS Bolivia S.A. to oversee the sampling of some 2,000 bags from the stored ones. A pipe was used to extract a sample from every bag and a larger sample of 200 kg was created. This sample was bagged and secured at site before making its way to Lima, Peru. From there, the samples were shipped to Inspectorate Exploration and Mining Services Ltd. in Vancouver, Canada, where assays of the material were produced. Results were extremely positive.

**In June 2016,** a site visit of the Telamayu tailings and plant was organized. The site-visit team included M. Florent Baril, metallurgical Engineer for Bumigème, Jose Cordova, metallurgical Engineer and project manager for BacTech, Kamil Khobzi, geological Engineer and resource geologist, and M. Bertram Plettenberg from CFM a Consulting, Management and Finance company. A formal meeting was held Thursday 9, 2016 with executives of the Telamayu plant.

During the site visit, the technical team reviewed local infrastructures, carried out a general inspection of the property, examined available core or samples, visited the existing processing facilities and collected whatever relevant data.

**In July 2016**, a statistical analysis completed over the sampling results from the 2004 "Pozos" done by Bumigeme is presented in **Table 6.1**:

#### **TABLE 6.1**

#### **JULY 2016 SAMPLING**

Sampling	Ag, g/t	Sn, %	Cu, %
Average Channels per metre (40 samples)	365,88	1,07	3,09
Average Channels per Horizon (30 samples)	295,61	0,69	4,29
Composite sample per each well (5 samples)	375,37	0,91	3,48
Composite sample for all wells (1 sample)	408,40	0,97	3,03
Average Comibol (Channels & Composites), 2004	361,32	0,91	3,47
Weighted Average Comibol per each well (92,500. kg)	394,29	1,04	2,28
Inspectorate (Vancouver). ICP (200 kg)	275,00	0,16	2,24
Variation	31%	479%	55%

From this compilation, the following facts emerges:

- Comibol sampling has been completed within the industry standards
- Channel sampling has been performed systematically (Channels being the best method of sampling)
- Comibol duplicate sampling for quality control purposes indicates perfect regression lines for Sn, Cu and Ag.
- No QA/QC protocol existed then
- The overall results for the tailings indicates a weighted average of 394 g/t Ag, 1.04% Sn and 2.28 % Cu.
- All the Comibol results indicates Sn content higher than 0.70 %
- The Inspectorate results for Ag and Cu are lower than those of Comibol and completely off course for Sn as shown in the following charts (Figures 6.1 to 6.3).

### FIGURE 6.1

#### SILVER COMPARISON



# FIGURE 6.2 TIN COMPARISON



FIGURE 6.3

### **COPPER COMPARISON**



## 7. GEOLOGICAL SETTING AND MINERALIZATION

According to Comibol personnel, the two tailing deposits at Telamayu originated through mining the lower portions (sulphide ores) of the Ag-Pb-Zn (Sn) Animas and Siete Suyos mines (apparently from 1932 to 1970) located in the Chocaya-Animas mining district (10 km west of Atocha) and the Bi, Sn, W, Cu, Sb, Au Tasna mine (from 1975- 1980) located some 40 km to the north of Atocha.

The material mined from Animas and Siete Suyos mines was transported by a cable trolley bucket system (8 km) to the flotation plant located in Telamayu. Historically, these 2 mines have been operated for more than 100 years. The material mined contained copper, tin, zinc, lead and silver, but the Telamayu flotation plant (350 tpd) has only two concentrate circuits whereby: (1) Pb-Ag and (2) Zn-Ag were produced. These two concentrates were passed through shaking tables to recover tin present in the concentrates.

In summary, Cu and Sn present in the Animas and Tasna mineral reported to the accumulated tailings. This is exemplified by the higher assays of Cu, Sn and Ag in the Telamayu tailings.

The Animas, Siete Suyos, Oploca, and Chocaya mines all worked the same system of veins (more than one mine can even be working the same vein!) and they have very similar mineralogies, and furthermore in the past all were administered from a single office. For this reason it is generally impossible to tell which mine a specimen actually came from, and "errors" are common both on collectors' labels as well as in the scientific literature, so the whole string of mines is often referred to jointly as the "Chocaya-Animas" or "Animas-Chocaya" mine/district/sub district. In some sense they could be viewed as different shafts of a single mine, and the decision is more semantic or political than mineralogical.



Deposits of the region are located in the southern part of the Eastern Cordillera of Bolivia. The basement is constituted by an Ordovician sedimentary sequence with alternating shales and sandstones. These Paleozoic rocks are strongly folded in direction N-S to NW-SE. The igneous body that constitutes a tourmalinized quartz porphyry, is affected by a series of fractures that were filled by mineralized solutions constituting areas of stockwork.

These deposits can be described as polymetallic "Bolivian type" vetiform deposits, located in a thick silicified breccia chimney, where the mineralization of greatest economic interest is tin (cassiterite, souxite and stannin), presented in the form of subparallel veins, stockworks and dissemination of high temperature minerals

Three zones of concentric alteration can be observed: one internal with tourmalinization - silicification, another intermediate with pyrite - sericite and the outermost being propilitized. There are three predominant directions of veins  $\cdot$  E-W; 45 °, 50 ° and 130 ° - 170 °.

No recent geological publication could be found for these mining district.

## 8. DEPOSIT TYPE

The following text was taken from: **Metallogeny of Bolivia**, Osvaldo R. Arce-Burgoa, and Richard J. Goldfarb, published in the October 2009 issue of the SEG (Society of Economic Geologists) Newsletter, No. 79, USA.

The 800 × 200 km polymetallic belt of the Altiplano and Western Cordillera provinces (Fig. 2) is mainly composed of epithermal Ag-Au-Pb-Zn-Cu deposits. These formed during the Middle-Late Miocene and Early Pliocene, when volcanism and shallow magmatism led to formation of widespread precious and base metal-bearing epithermal deposits (USGS-GEOBOL, 1992; Redwood, 1993).

The most important metallogenic features include epithermal mineralization of intermediate- and high-sulfidation type associated with small, shallow porphyritic subvolcanic plugs, flow domes, stratovolcanoes, flows, pyroclastic rocks, ignimbrite shields, and/or volcanic calderas of dacitic, rhyodacitic, rhyolitic, and andesitic composition. The giant San Cristobal disseminated Ag and Zn rich deposit may reflect porphyry dome emplacement into a lacustrine environment (Phillipson and Romberger, 2004).

Most deposits exhibit structural control along lineaments, large transcurrent faults, and local scale tension fractures. Mineralization style varies from vein lodes and stockworks to disseminations in breccias, porous pyroclastics, and porphyries. Mineralized rock is commonly banded, brecciated, and drusy to vuggy. Vertical deep to shallow metal zoning, sometimes telescoped, ranges from enrichments of Cu, Zn-Pb-(Ag), Pb-(Ag), to Ag-(Au) near the surface.

Hydrothermal alteration of the igneous rocks is generally penetrative and zoned; system cores exhibit phyllic or silicified alteration, widespread argillic and/or propylitic haloes, and apical zones altered to advanced argillic assemblages or silicic plugs. Silver-rich epithermal deposits are mainly intermediate sulfidation types (Arce-Burgoa, 2009). Important examples of these include Pulacayo, Berenguela, Carangas, Salinas de Garci Mendoza, <u>San Cristobal</u>, San Antonio de Lipez, and Jaquegua. High-sulfidation epithermal deposits are less common but include those at Laurani in the Altiplano and La Española in the Western Cordillera. At La Española, vuggy silica and quartz-alunite alteration appear to overprint an earlier low-sulfidation event (ArceBurgoa, 2009). The intermediate sulfidation epithermal deposits include the ca. 15.7 Ma Kori Kollo deposit, which, with a premining reserve of 161 t Au and 907 t Ag (Redwood, 1993), was the largest gold producer in South America during the early 1990s. At the Lipena-Lamosa epithermal deposit, Au, Bi, and Cu were mined in colonial times.

## 9. EXPLORATION

**In May 2012**, BacTech enlisted the services of SGS Bolivia S.A. to oversee the sampling of some 2,000 bags from the stored ones. A pipe was used to extract a sample from every bag and a larger sample of 200 kg was created. This sample was bagged and secured at site before making its way to Lima, Peru. From there, the samples were shipped to Inspectorate Exploration and Mining Services Ltd. in Vancouver, Canada, where assays of the material were produced. The results we received were extremely positive.

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- All the Comibol results indicates Sn content higher than 0.70 %
- The Inspectorate results for Ag and Cu are lower than those of Comibol and completely off course for Sn as shown in the following charts.

A drilling and sampling program was performed in the first quarter of 2017. It is described in detail in the next chapter.

### **10. DRILLING**

Between December of 2016 and March of 2017 a total of 57 Vibracore drill holes were completed for a total metrage of 647.05 m (**Table 10.1**). Vibracore is a technique that enables drilling of soft unconsolidated material such as tailings (**Pictures 10.1 to 10.3**). It uses vibration of the rods and bit to penetrate the material and no water has to be used. The use of water was not permitted to maximize recoveries of the easily washable material. The equipment is mounted on a pick-up truck to improve mobility.

# PICTURE 10.1 VIBRACORE DRILLING EQUIPMENT



Pierre O'Dowd – Consulting Geologist



# PICTURE 10.2 TAILINGS MATERIAL RECOVERED FROM DRILLING



# PICTURE 10.3 TAILINGS MATERIAL IN CORE BOXES

Core recovery averaged 98.87% (**Table 10.2**). Drill holes were located within a 20 X 20 m grid. Initial portion of each holes, gravel cap (barren overburden) and hard crust unsuitable for Vibracore equipment, was hand dug making a total digging and drilling metrage of 699.49 m (**Picture 10.4**). Depth of holes ranges from 8 to 15 m averaging 12 m.

# PICTURE 10.4 HANDMADE DIGGING OF THE INITIAL PORTION OF THE HOLES



### **TABLE 10.1**

#### **DRILLING INFORMATION**

Survey REF.	X (Surface)	Y (Surface)	Z (Surface)	Dip	Azimuth	Digging	NQDrilling	Depth, m	Start	End	Method	Driller	Geologist	Samples	Controls	<b>Bulk Density</b>	Boxes	Photos
a2	788 660,42	7 681 587,16	3 672,50	90°	26°	1,22	11,00	12,22	13/03/2017	14/03/2017	Vibracore	Leduc	P. Velasco	12	4	5	3	3
b2	788 669,41	7 681 605,13	3 672,49	90°	26°	1,08	12,00	13,08	12/03/2017	13/03/2017	Vibracore	Leduc	P. Velasco	12	4	5	3	3
b3	788 688,82	7 681 594,45	3 672,82	90°	26°	1,02	11,70	12,72	08/03/2017	10/07/2017	Vibracore	Leduc	P. Velasco	12	4	5	3	3
b5	788 725,08	7 681 583,36	3 673,10	90°	26°	1,10	10,40	11,50	07/03/2017	08/03/2017	Vibracore	Leduc	P. Velasco	11	4	5	3	3
b6	788 742,09	7 681 573,46	3 672,70	90°	26°	1,20	10,00	11,20	07/03/2017	07/03/2017	Vibracore	Leduc	P. Velasco	11	4	4	3	3
b7	788 758,58	7 681 561,54	3 673,17	90°	26°	1,10	9,60	10,70	06/03/2017	06/03/2017	Vibracore	Leduc	P. Velasco	11	4	4	3	3
b8	788 776,47	7 681 551,66	3 672,70	90°	26°	1,25	10,50	11,75	05/03/2017	05/03/2017	Vibracore	Leduc	P. Velasco	12	4	5	3	3
c2	788 677,90	7 681 623,71	3 672,12	90°	26°	1,01	10,00	11,01	11/03/2017	11/03/2017	Vibracore	Leduc	P. Velasco	11	4	4	3	3
c3	788 694,19	7 681 616,36	3 672,14	90°	26°	1,08	11,20	12,28	20/02/2017	21/02/2017	Vibracore	Leduc	P. Velasco	11	4	4	3	3
c4	788 713,53	7 681 606,50	3 671,86	90°	26°	0,79	11,60	12,39	21/02/2017	22/02/2017	Vibracore	Leduc	P. Velasco	12	4	5	3	3
c5	788 731,47	7 681 597,67	3 671,61	90°	26°	0,77	10,30	11,07	22/02/2017	23/02/2017	Vibracore	Leduc	P. Velasco	11	4	5	3	3
c6	788 749,49	7 681 588,99	3 671,27	90°	26°	0,51	16,00	16,51	23/02/2017	23/02/2017	Vibracore	Leduc	P. Velasco	13	4	5	4	4
c7	788 767,41	7 681 579,88	3 671,53	90°	26°	0,33	8,63	8,96	13/03/2017	14/03/2017	Vibracore	Leduc	P. Velasco	8	4	3	2	2
c8	788 785,50	7 681 570,80	3 671,79	90°	26°	1,05	12,00	13,05	03/03/2017	04/03/2017	Vibracore	Leduc	P. Velasco	13	4	5	4	4
c9	788 798,79	7 681 562,63	3 672,25	90°	26°	1,05	7,60	8,65	13/03/2017	14/03/2017	Vibracore	Leduc	P. Velasco	8	4	3	2	2
d2	788 687,51	7 681 639,54	3 672,22	90°	26°	1,05	11,30	12,35	18/02/2017	18/02/2017	Vibracore	Leduc	P. Velasco	12	4	5	3	3
d3	788 703,79	7 681 632,48	3 671,97	90°	26°	1,14	9,70	10,84	17/02/2017	17/02/2017	Vibracore	Leduc	P. Velasco	11	4	4	3	3
d4	788 722,57	7 681 623,27	3 671,66	90°	26°	1,09	13,60	14,69	16/02/2017	16/02/2017	Vibracore	Leduc	P. Velasco	15	4	6	4	4
d5	788 739,17	7 681 614,16	3 671,23	90°	26°	0,87	12,70	13,57	16/02/2017	16/02/2017	Vibracore	Leduc	P. Velasco	14	4	5	4	4
d6	788 757,24	7 681 605,42	3 671,00	90°	26°	1,12	9,60	10,72	27/01/2017	27/01/2017	Vibracore	Leduc	P. Velasco	10	4	4	3	3
d7	788 775,56	7 681 597,12	3 671,20	90°	26°	0,45	11,30	11,75	14/01/2017	14/01/2017	Vibracore	Leduc	P. Velasco	11	4	5	3	3
d8	788 793,98	7 681 588,58	3 671,57	90°	26°	0,68	13,20	13,88	25/01/2017	14/02/2017	Vibracore	Leduc	P. Velasco	14	4	6	4	4
d9	788 808,67	7 681 580,60	3 672,25	90°	26°	1,05	10,80	11,85	03/02/2017	04/02/2017	Vibracore	Leduc	P. Velasco	12	4	4	3	3
e3	788 712,01	7 681 650,15	3 672,00	90°	26°	1.21	10.00	11.21	02/02/2017	03/02/2017	Vibracore	Leduc	P. Velasco	11	4	4	3	3
e4	788 731,61	7 681 640,77	3 671,66	90°	26°	1,11	9,90	11,01	14/02/2017	15/02/2017	Vibracore	Leduc	P. Velasco	10	4	4	3	3
e5	788 748,87	7 681 663,87	3 671,33	90°	26°	1,18	12,70	13,88	16/02/2017	16/02/2017	Vibracore	Leduc	P. Velasco	14	4	5	4	4
e6	788 766,08	7 681 623,62	3 670,81	90°	26°	0.80	13.50	14.30	11/12/2016	12/12/2016	Vibracore	Leduc	P. Velasco	12	4	4	3	3
e7	788 784,74	7 681 615,64	3 671,08	90°	26°	0,70	11,95	12,65	13/01/2017	14/01/2017	Vibracore	Leduc	P. Velasco	12	4	5	3	3
e8	788 803,05	7 681 607,10	3 671,39	90°	26°	0,98	9,80	10,78	24/01/2017	24/01/2017	Vibracore	Leduc	P. Velasco	11	4	4	3	3
e9	788 817,50	7 681 598,26	3 671,20	90°	26°	1,07	10,20	11,27	20/01/2017	21/01/2017	Vibracore	Leduc	P. Velasco	10	4	4	3	3
f3	788 722.00	7 681 667.32	3 671.89	90°	26°	1.09	11.33	12.42	02/02/2017	02/02/2017	Vibracore	Leduc	P. Velasco	13	4	5	0	0
f4	788 738.43	7 681 659.39	3 671.48	90°	26°	0.00	0.00	0.00	01/02/2017	01/02/2017	Vibracore	Leduc	P. Velasco	13	4	5	3	3
f5	788 756,01	7 681 651,16	3 671,13	90°	26°	1.24	11.40	12.64	31/01/2017	31/01/2017	Vibracore	Leduc	P. Velasco	13	4	5	3	3
f6	788 774.78	7 681 642.06	3 670.86	90°	26°	0.90	13.75	14.65	11/12/2016	11/12/2016	Vibracore	Leduc	P. Velasco	10	5	5	3	3
f7	788 792.62	7 681 633.20	3 670.85	90°	26°	0.99	12.99	13.98	16/12/2016	16/12/2016	Vibracore	Leduc	P. Velasco	11	4	5	4	4
f8	788 811.56	7 681 626.32	3 671.02	90°	26°	0.86	10.35	11.21	24/01/2017	24/01/2017	Vibracore	Leduc	P. Velasco	11	4	4	3	3
f9	788 828.15	7 681 617.46	3 671.57	90°	26°	1.02	14.60	15.62	20/01/2017	20/01/2017	Vibracore	Leduc	P. Velasco	12	4	5	4	4
g3	788 729.32	7 681 686.78	3 671.41	90°	26°	1.02	12.45	13.47	30/01/2017	31/01/2017	Vibracore	Leduc	P. Velasco	13	4	5	4	4
g4	788 746,20	7 681 678,00	3 670,93	90°	26°	1.16	12.56	13.72	29/01/2017	30/01/2017	Vibracore	Leduc	P. Velasco	14	4	6	4	4
g5	788 765,61	7 681 669,27	3 670,28	90°	26°	0.63	11.25	11.88	15/12/2016	15/12/2016	Vibracore	Leduc	P. Velasco	12	4	5	3	3
g5x	788 769,37	7 681 660,13	3 670,69	90°	26°	0,00	12,30	12,30	08/12/2016	09/12/2016	Vibracore	Leduc	P. Velasco	12	4	5	5	5
g6	788 783,46	7 681 660,27	3 670,69	90°	26°	0,83	10,33	11,16	12/12/2016	13/12/2016	Vibracore	Leduc	P. Velasco	11	4	4	3	3
g7	788 801,60	7 681 650,49	3 670,74	90°	26°	0,64	11,25	11,89	17/12/2016	17/12/2016	Vibracore	Leduc	P. Velasco	12	4	4	3	3
g8	788 819,71	7 681 643,20	3 670,90	90°	26°	0,55	12,24	12,79	13/01/2017	13/01/2017	Vibracore	Leduc	P. Velasco	13	4	5	3	3
g9	788 834,00	7 681 635,44	3 670,44	90°	26°	1,15	9,62	10,77	19/01/2017	20/01/2017	Vibracore	Leduc	P. Velasco	9	4	4	3	3
h3	788 737,89	7 681 703,93	3 671,13	90°	26°	1,31	12,10	13,41	28/01/2017	28/01/2017	Vibracore	Leduc	P. Velasco	15	4	5	4	4
h4	788 755,80	7 681 695,80	3 670,46	90°	26°	1,28	13,30	14,58	29/01/2017	29/01/2017	Vibracore	Leduc	P. Velasco	14	4	6	4	4
h5	788 774,32	7 681 687,37	3 670,51	90°	26°	1,00	11,20	12,20	10/12/2016	10/12/2016	Vibracore	Leduc	P. Velasco	12	3	4	5	5
h6	788 792,32	7 681 678,48	3 670,55	90°	26°	0,80	10,05	10,85	13/12/2016	14/12/2016	Vibracore	Leduc	P. Velasco	11	4	4	2	2
h7	788810,08	7681668,238	3670,65	90°	26°	0,51	11,95	12,46	15/12/2016	15/12/2016	Vibracore	Leduc	P. Velasco	13	4	6	4	4
h8	788 828,34	7 681 660,20	3 670,90	90°	26°	1,15	11,20	12,35	12/01/2017	12/01/2017	Vibracore	Leduc	P. Velasco	12	4	5	3	3
i3	788 756,78	7 681 714,91	3 669,07	90°	26°	1,33	13,70	15,03	27/01/2017	28/01/2017	Vibracore	Leduc	P. Velasco	15	4	6	4	4
i4	788 768,29	7 681 711,47	3 670,80	90°	26°	0,50	15,20	15,70	18/01/2017	18/01/2017	Vibracore	Leduc	P. Velasco	16	4	7	4	4
i5	788 782,13	7 681 703,38	3 670,86	90°	26°	0,70	12,60	13,30	18/12/2016	18/12/2016	Vibracore	Leduc	P. Velasco	13	4	4	4	4
i6	788 799,38	7 681 694,90	3 671,00	90°	26°	0,70	12,10	12,80	19/12/2016	12/01/2017	Vibracore	Leduc	P. Velasco	12	4	5	3	3
i7	788 818,54	7 681 685,97	3 670,90	90°	26°	1,02	13,40	14,42	18/12/2016	18/12/2016	Vibracore	Leduc	P. Velasco	14	4	5	4	4
i8	788 834,76	7 681 674,25	3 671,00	90°	26°	1,00	11,05	12,05	18/01/2017	19/01/2017	Vibracore	Leduc	P. Velasco	12	4	6	3	3
Holes comple	eted				-	52,44	647,05	699,49					Total	685	228	271	186	186
							Average	12,27										
							-					Total s	amnles	913				

A total of 913 samples were collected during the drilling program. This total includes 685 regular samples (including 57 channel samples (in red) collected in the handmade pit at the beginning of each hole (**Picture 10.4**)) and 228 control samples for QAQC. In addition, 271 bulk density measurements were performed at Telamayu's Comibol laboratory.

## **TABLE 10.2**

#### CORE RECOVERY AND BULK DENSITY

Hole	Recovery	Bulk Density	WA Bulk Density
22	100.00%	2 17	2 19
h2	9/ 17%	2,17	2,13
h3	100.00%	1 78	1 78
b5	100,00%	1,70	1,70
b6	100,00%	1,47	1,40
b0 b7	100,00%	1,01	1,04
b9	100,00%	1,45	1,40
62	100,00%	2 19	2,37
C2 C2	100,00%	2,18	1.66
c3	100,00%	1,05	1,00
C4 C5	100,00%	1,73	1,70
6	100,00%	1,53	1,50
c7	100,00%	1,50	1,50
۲ <i>۲</i>	100,00%	1,15	1,15
- CO	100,00%	1,40	1,40
42	100,00%	2,30	2,35
43	100,00%	2,23	1 57
40	100,00%	1,30	1.07
45	100,00%	1 5/	1.02
46	98 /1/%	1,54	1.57
d7	77.40%	1,00	1,05
48	100.00%	1,35	1,34
40	100,00%	1,30	1,35
a3	100,04%	1,33	1,37
e4	95.96%	1,57	1,50
e5	100.00%	1,57	1 54
e6	67.26%	1,55	1 43
e7	86 78%	1,47	1 44
e8	100.00%	1 47	1 47
e9	99.02%	1.56	1.56
f3	100.00%	1.64	1.64
f4	100,00%	1,42	1,46
f5	100,00%	1,45	1,44
f6	75,64%	1,31	1,31
f7	90,07%	1,75	1,73
f8	100,00%	1,40	1,41
f9	97,26%	1,32	1,30
g3	100,00%	1,67	1,67
g4	100,00%	1,72	1,73
g5	84,71%	1,64	1,60
g5x	100,00%	1,53	1,54
g6	72,60%	1,28	1,28
g7	83,56%	1,69	1,66
g8	86,27%	1,41	1,38
g9	94,07%	1,61	1,63
h3	100,00%	1,54	1,54
h4	100,00%	1,74	1,73
h5	98,21%	1,50	1,54
h6	59,20%	1,41	1,39
h7	88,70%	1,52	1,52
n8	96,70%	1,43	1,47
n9 :2	400.000/	Not drille	ed a se
13	100,00%	1,74	1,75
14	95,86%	1,64	1,63
15	100,00%	1,89	1,94
10	84,30%	1,43	1,44
1/	04,33%	1,00	1,/1
10	97,01%	1,04	1,03
Average	94,87%	1,59	1,59

WA: weighted average (based on sample length, not tonnage)

It should be noted that several holes had to move from their planned location for various field reasons. Some holes were abandoned because of bad ground conditions. **Figure 10.1** indicates the final location of the holes.

Logging was done immediately at the drill site or in the coreshed by the senior geologist (Plinio Velasco). Description were written on paper and later transcribed by junior geologist Jorge Cossio into an excel format.





## **11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY**

#### On site

Core boxes were trucked from the drilling site to the company's logging facility in Telamayu by company personnel (**Pictures 11.1 to 11.3**). Core was described in detailed by a senior geologist and samples were selected, collected, bagged, labelled, registered and sealed by a junior geologist. Samples were then assembled by hole and put in larger bags which were also sealed and labelled (**Table 11.1**). The larger bags were sent taken by company truck to Spectrolab laboratory in Oruro. Spectrolab is independent from the company.

# PICTURE 11.1 LOGGING FACILITY



### Spectrolab

Spectrolab is a certified laboratory (certification: DTA-CET-020 and DTA-CET-032, Norm NB-ISO-IEC- 17025:2005). At the laboratory, samples were received, weighted and moisture measurements were immediately taken (gravimetry). No

crushing was necessary. Several elements were analyzed by AAS (Bi, Cu soluble, Cu Total, Ag, Pb and Zn), gold was assayed by FA and tin by SOP2-Sn-01 (SOP1-Preparation-01 at -200#).

# PICTURE 11.2 LABELLED SAMPLES







### **TABLE 11.1**

### SAMPLE SERIES PER HOLE

DDH	From	То	N		
G5X	4601	4616	16		
H5	4617	4631	15		
F6	4632	4647	16		
E6	4648	4664	17		
G6	4665	4679	15		
H6	4680	4694	15		
H7	4695	4711	17		
G5	4712	4727	16		
F7	4728	4744	17		
G7	4745	4760	16		
15	4761	4777	17		
17	4778	4795	18		
16	4796	4811	16		
H8	4812	4827	16		
G8	4828	4844	17		
E7	4845	4860	16		
D7	4861	4875	15		
14	4876	4895	20		
18	4896	4911	16		
G9	4913	4925	13		
F9	4927	4941	15		
E9	4942	4955	14		
F8	4956	4970	15		
F8	4971	4985	15		
D6	4986	4999	14		
13	5000	5018	19		
H3	5019	5035	17		
на	5036	5053	18		
G4	5050	5071	18		
63	5072	5088	17		
 	5089	5105	17		
F4	5106	5122	17		
F3	5123	5138	16		
F3	5129	5153	15		
D9	5155	5169	16		
F4	5170	5183	14		
E5	5184	5201	18		
 D5	5202	5219	18		
D4	5202	5238	19		
D8	5220	5256	18		
D3	5255	5250	15		
D2	5272	5287	16		
(3	5288	5302	15		
C4	5303	5318	16		
C5	5319	5333	15		
C6	5334	5350	17		
C8	5351	5367	17		
 	5368	5383	16		
B7	5384	5398	15		
B6	5399	5413	15		
B5	5414	5428	15		
B3	5429	5444	16		
 	5445	5450	15		
R2	5460	5475	16		
ΔZ Δ2	5476	5/01	16		
 	54/0	5491	10		
<u> </u>	5492	5503	12		
<u> </u>	5504	Total	012		
1	1	Total	913		

### Security

BacTech implemented adequate QAQC procedures for the samples collected during the Vibracore drilling program. On a general basis, a total of 4 controls samples were introduced in each of the 57 holes on site before shipping to the lab. Control samples made up 24% of total samples analyzed.

Control samples, in each holes, generally consisted of a non-certified blank (tested by the company), one duplicate sample and two certified standards (**Table 11.2**). The company used one low grade and one high grade standards for Sn, Cu and Ag, for a total of 6 different certified standards (only the main metal of the standard was assayed). They were introduced randomly into each holes (generally two different metals per hole).

### **TABLE 11.2**

### LIST OF CERTIFIED MATERIAL USED BY BACTECH

	Analysis	Code	Aliquot, g	Au, ppm	Ag, ppm	Sn, %	Cu, %	Pb, %	Zn, %	Bi ppm
Silver Low grade	FAA	CDN GS 1Q	50	1.24	40.7	0	0	0	0	0
Silver High Grade	FAA	CDN GS 3M	50	3.10	95.4	0	0	0	0	0
Tin Low Value	<b>Total Fusion</b>	NCS DC 35011	10	0	0	0.73	0.077	0	0	0
Tin High Value	<b>Total Fusion</b>	NCS DC 35012	10	0	0	3.98	0.109	0	0	0
Copper Low Value	AAS	NSC DC 73507	10	0	18.3	0	0.264	0.43	0.83	2.8
Copper High Value	AAS	NSC DC 73508	10	0	220	0	1.05	2.17	4.26	75.0

### QAQC

The 2016-17 drilling program at Telamayu generated 228 control samples (**Table 11.3**):

- 57 analyses of uncertified barren material (blank)
- 57 analyses of duplicates
- 114 analyses of certified material (Low and High grade for Sn, Ag, and Cu)

During the compilation of the QAQC data, a number of irregularities were observed. They consisted of: mix-up of standards (even blank) and unexplained results (typos ?? or others). Obvious errors (mix-up in standards) were corrected

to analyze the data. Unexplained values (freaks) were removed in order to obtain relevant averages.

#### **TALE 11.3**

Hole		Blanks		Δø sta	ndards	Sn Sta	ndards	Custa	ndards	First	samnle		Dunlicate sample		nle	Comments
Hore	Ag nnm	Sn %	Cu %	40.7 nnm	95.4 nnm	0.73%	3.98%	0.26%	1.05 %	Ag nnm	Sn %	Cu %	Aginn	Sn %	Cu %	Interpretation
a2	<0.03	<0.10	<0.04	-0.7 ppm	109 77	0.7570	3.30 %	0.27	1.05 /0	105.45	0.35	12	154 27	0.35	0.61	Wrong Ag and Cu Std ? wrong duplicate ?
h2	<0,03	<0,10	<0,04	<i>16.1</i>	105,77			0,27	1.07	383 5	1.2	0.07	/28.2/	1 28	0,01	
b2	<0.03	<0,10	<0,02	11 00	109.42				1,07	202,2	0.96	0,07	769 72	0.71	0,11	OK OK
b5	<0,03	<0,10	<0,02	50.86	100,42	0.84				272,75	0,55	0,00	200,72	0,71	0,05	OK OK
b5 b6	×0,03 103 28	<0,10	<0,02	30,00	110 08	0,04		0.27		2/1 32	0,55	1.63	245,51	0,57	1 55	Blank contaminated?
b0 b7	<0.03	<0,10	<0,02	210.64	115,50		1 11	0,27	-	1/12 /19	0,02	2 57	153 /6	0,57	1,35	Contaminated Ag Std?
h8	<0.03	<0.10	<0.02	52.66			7,11		1 18	387 73	14	0.21	460.01	1 34	03	Dunlicate high in AG
- 00 - 02	<0,03	<0,10	<0.02	46.37			1 21		1,10	127 11	0.29	0,21	111 //	0.29	0,3	OK
3	5.98	<0.10	<0.02	45,57	106 38		7,21			161.9	1.82	0.2	172 69	19	0.2	OK OK
4	<0.03	<0,10	0.02	45,55	100,30		4.07			22/ 25	0.55	0,2	238 53	0.63	0,2	OK OK
5	<0,03	<0,10	<0.02	40,57	235 80		4,07	0.27		306	1 09	0,04	206.85	1 15	0,05	Contaminated Ag Std. wrong Cu std
	<0.03	<0.10	<0.02		109.42		0.1	0,27		210 91	2 04	0,05	218 79	1 94	0.21	Blk instead od High Sn ?
c7	<0.03	<0.10	<0.02		111 56		0,1	0.26		135.66	0.75	0.07	143 16	0.29	0.08	wrong Ag std ?
c8	<0.03	<0.10	0.03%	51 34	117 34			0,20		187 31	0,75	4 65	162.96	0.4	3 93	OK Wiele Keister
60	<0.03	<0.10	0.02	44 99	117,34				11	153.06	1 55	4,03 0.73	96.77	0,4	0 74	Duplicate low in Ag and Sp
d2	<0.03	<0.10	<0.02	44,55			4 09	0.27	1,1	296.26	0.8	0.1	293 5	0.74	0.07	OK
d3	<0.03	1.04	<0.02		105.4	0.79	1,05	0,2,		338 17	1 49	0.12	439.69	11	0.14	Blank contaminated in Sn
d4	<0.03	0.63	<0.02		110 21	0,75			1 04	98 52	0.34	0.05	105 51	0.63	0.04	High Sp in Blk and duplicate
d5	<0.03	<0.10	0.02	38 42	110,21		2 15		1,04	136.83	0.37	2 59	178 15	2.6	2 41	Low Sn Std. High Sn in duplicate
46	<0.03	<0.10	<0.02	43.46			2,13		1 04	263 76	3 86	0.37	272 15	4 36	0.67	OK
d0 d7	<0.03	<0.10	<0.02				4 23	0.75	1,04	146 44	0.81	0.24	147 14	0.80	0.22	Custd??
d8	<0.03	<0.10	0.01			0.76	4,23	0,75	1.05	148 73	2 42	0.08	164 91	1 15	0.14	Low Sn in Duplicate
49	<0.03	<0.1	<0.02		97 97	0.81			2,05	167.89	2.68	0.06	138.81	2.6	0.08	OK
e3	<0.03	0.52	<0.02		51,51	0.76			1.08	125 39	0.49	1 14	133,82	0.4	0.87	Wrong Cu, Sn Std, high Sn in Blk
e4	<0.03	0.86	<0.02			0,70	4 11	0.26	1,00	199.86	0.75	0.09	185 15	0.7	0.08	High Sn in Blk
e5	<0.03	<0.10	<0.02		92 64	0.79	.,11	0,20		273 75	2 26	0.06	225 47	2 35	0.05	OK
e6	< 0.03	<0.10	<0.02	35.82	52,01	0,75			1.11	144.77	0.97	0.14	151.03	0.81	0.12	OK OK
e7	<0.03	2 94	<0.02	00,02	248 19	0.80			-)	148 19	0.23	0 33	130.00	0.75	0.32	Blk and Ag Std Contaminated?
e8	<0.03	<0.10	<0.02	37 47	210,20	0,00	4 23			171 17	1 97	0.29	201.85	1 84	0.32	OK
e9	< 0.03	0.06	<0.02	44.46			4.08			333.44	1.64	0.40	343.53	2.56	0.36	OK OK
f3	< 0.03	< 0.1	< 0.02	,		0.63	.,	0.27		158.14	0.63	0.42	848.39	2.43	0.2	Wrong Sn and Cu Std and wrong duplicate
f4	< 0.03	<0.1	<0.02		97.95	2.07				151.35	0.81	3.34	750.6	0.86	0.93	Sn contaminated ?? Wrong duplicate??
f5	< 0.03	<0.1	<0.02	66.53	- /		0.1			171.23	0.23	1.94	191.19	0.4	1.92	Ag contaminated?? Blk for Sn??
f6	.,	- /		< 0.03			4.30	0.24		202.12	1.7	0.09	173.86	1.74	0.18	Blank instead of Ag std ??
							,	,		374,4	3,94	0,21	389,79	4,02	0,27	2 duplicates in hole f6
f7	<0,03	<0,10	<0,02			0,80			1,06	192,03	0,58	0,61	216,56	0,58	0,60	OK
f8	<0,03	<0,10	<0,02		92,57	0,8				166,08	0,57	1,11	159,41	0,58	1,48	OK
f9	<0,03	<0,10	<0,02		98,61			6,037		167,94	1,51	0,42	242,73	2,79	0,25	Cu std??? Duplicates??
g3	<0,03	<0,10	<0,02		96,21	0,86				189,73	0,79	0,09	185,52	1,27	0,1	ОК
g4	<0,03	<0,10	<0,02	36,89			4,18			119,7	0,11	5,13	138,8	0,23	4,64	ОК
g5	<0,03	<0,10	<0,02		95,64			0,24		236,38	2,55	0,33	231,97	1,84	0,37	Wrong AG standard?
g5x	<0,03	<0,10	<0,02	47,53		0,80				599,17	1,57	0,34	508,49	2,59	0,16	ОК
g6	<0,03	<0,10	<0,02				4,26	0,27		200,12	2,52	0,34	182,34	3,30	0,38	wrong standard (Cu instead of Sn)
g7	<0,03	<0,10	<0,02		99,65	0,86				936,57	1,86	0,12	872,20	2,09	0,17	ОК
g8	<0,03	0,17	<0,02	35,96					1,09	311,51	1,46	0,08	329,78	1,44	0,07	ОК
g9	<0,03	<0,10	<0,02			0,81			1,01	685,06	1,52	0,30	783,13	1,50	0,33	ОК
h3	<0,03	<0,10	<0,02	39,93		0,81				276,99	2,55	0,11	207,15	2,54	0,07	ОК
h4	902,33	<0,10	0,02		96,18			0,28		256,03	0,81	0,05	357,88	2,59	0,14	Blank and duplicate contaminated??
h5	<0,03	<0,10	<0,02		109,22				0,84							Wrong Ag standard ??
h6	<0,03	0,40	<0,02		87,20	0,78				177,81	2,87	0,24	183,60	2,63	0,28	Blank contaminated ??
h7	<0,03	<0,10	<0,02	39,32			4,20			793,89	2,18	0,63	772,61	2,17	0,67	Ok
h8	<0,03	<0,10	<0,02	40,34			4,05			670,80	2,14	0,10	642,73	2,25	0,11	ОК
i3	<0,03	<0,10	<0,02		92,71		4,07			548,32	1,38	0,86	598,46	1,62	0,51	Wrong Ag std??
i4	<0,03	<0,10	<0,02		101,96	0,75				183,99	0,44	0,40	151,90	0,35	1,94	Cu???
i5	<0,03	<0,10	<0,02	42,30					1,15	263,52	1,21	0,26	260,52	1,10	0,20	ОК
i6	<0,03	<0,10	<0,02		155,07	0,74				251,86	3,01	0,11	261,30	2,79	0,12	ОК
i7	<0,03	<0,10	<0,02				4,07	0,31		115,59	0,41	0,76	119,60	0,40	0,81	ОК
i8	<0,03	<0,10	<0,02	43,04			4,2			462,21	1,33	0,36	391,67	1,21	0,34	Wrong Sn standard
Average				44,41	115,85	0,86	4,04	0,30	1,06	270,97	1,34	0,66	275,43	1,45	0,58	
After correct	Linner Che	مام سمام س														

#### QAQC PROGRAM RESULTS

#### **DISCUSSION ON RESULTS**

Interpreted explanations of erratic values can be seen in the Comment column. Lowest values for each metal correspond to detection limits.

#### Blanks (Figures 11.1 to 11.3)

Blanks are usually up to expectations. We note 2 high Ag values and 6 high Sn values. We believe that this could be due to contamination at the laboratory. Cu is usually low.

### Certified material (Figures 11.4 to 11.9)

We noted several cases of discrepancies in between standards (commonly mix-ups between low and high grade of the same metal). In practice this means that the log indicates that a certain standard was used, for a given metal (Ag, Sn or Cu), when it was actually the other standard of the same metal that was inserted (see lines where both cases (low and high grade) are highlighted, ex: a2). Twelve such cases are noted.

Fortunately, we were able to recognize these cases and they were corrected to produce the statistical treatment of the data in this report. We believe that these situations occurred because the personnel on site had no previous experience in QAQC procedures and very limited experience in working for North American companies.

After elimination of the obvious skewed values (outlayers), we noted that on average Ag and Sn values obtained are slightly higher that the certified material while the opposite occurs for the low grade Cu. The high grade Cu values are the same as the certified material.

#### Duplicates (Figures 11.10 to 11.2)

The procedure to obtain duplicates was as follows: a first sample was collected by taking half of the core in a given interval. The second sample comes from a quarter split of the remaining material for that same interval in the core box. The obvious result of this procedure is that, since we are dealing with two different samples, they cannot be expected to give identical results. However, result should be in the same range of values. Given the expected variability of the results, two results are clearly abnormal: f3 and f4. In these cases, we believe that wrong samples could have been duplicated.

If we exclude these two cases, average results for the three metals are clearly in the same range. Results are acceptable to the author.



# FIGURE 11.1 AG IN BLANKS

**FIGURE 11.2 SN IN BLANKS** 3,5 Blanks Sn 3 2,5 2 Sn % 1,5 1 . 0,5 .... 0 20 30 40 50 60 70 0 10 Titre de l'axe

FIGURE 11.3 SOLUBLE CU IN BLANKS



LOW GRADE SN STANDARD 2,5 Low Grade Sn Standard (0,73%) 2 1,5 Sn % 1 0,5 0 50 0 10 20 30 40 60 Titre de l'axe

**FIGURE 11.4** 

# **FIGURE 11.5 HIGH GRADE SN STANDARD**



LOW GRADE AG STANDARD 70 Low Grade Ag Standard (40.7 ppm) 60 50 udd 89 30 20 10 0 10 50 0 20 30 40 60 Titre de l'axe

**FIGURE 11.6** 

# **FIGURE 11.7 HIGH GRADE AG STANDARD**



0,8 Low Grade Cu Standard (0,27%) 0,7 0,6 0,5 % n) 0,3 • 0,2 0,1 0 10 20 40 50 60 0 30 70 Titre de l'axe

FIGURE 11.8 LOW GRADE CU STANDARD

# FIGURE 11.9 HIGH GRADE CU STANDARD





# FIGURE 11.11 AG DUPLICATES





## **12. DATA VERIFICATION**

The author performed the following data verification on the Telamayu tailings project in the course of the production of the NI43-101 technical report:

- Compilation and evaluation of all technical documents provided by Bumigene
- Meetings and discussions with BacTech local management and its professionals.
- Review of multiple legal documents, memos, press releases and letters related to the agreement with Comibol
- Review the various contracts and agreements related to the project
- Visit the project and the surrounding area (one week). Discuss with the general manager in charge of the project and the drilling foreman.
- Review and observe (for one week) all procedures related to the drilling, logging, sampling and QAQC.
- Verify the certifications of the laboratory used by BacTech (Spectrolab at Oruro)
- Review and correct all logs and tables generated by the geologists at the end of the drilling program
- Compilation and analysis of all data related to the logging, sampling and QAQC results

### SAMPLING BY THE AUTHOR

The author spent a week supervising the drilling and sampling by BacTech personnel but he did not collect any samples for his report. On the other hand, the author requested that a total of 50 samples (collected in holes exhibiting QAQC irregularities) be re-assayed at a different certified laboratory. Actlabs was chosen for this task. Activation Laboratories Ltd. (Actlabs) is ISO 17025 accredited and/or certified to 9001: 2008
The following analytical methods were used at Actlabs:

- Sn: FUS-Na2O2
- Ag: FA-GRA
- Total Cu: FUS-MS-Na2O2

After review of the ActLabs results, the author reached the following conclusions (Figures 12.1 12.2 and 12.3, Table 12.1):

- Two clearly erratic silver values originally obtained in hole I3 by Spectrolab (samples 5012 (<0.03 g/t Ag) and 5014 (5017 g/t Ag)) were demonstrated to be transcription errors. Spectrolab eventually re-checked its database and corrected its initial mistakes.
- Re-assayed values for Sn, Cu and Ag are usually slightly lower that original values (in the order of 10% for Sn and Cu and 5% for Ag). The differences can probably be explained by the fact that ActLabs does not use the same analytical methods as Spectrolab
- Two re-assay results for Sn and Ag (samples 4880 and 5150) are clearly not consistent with original results (see Table 12.1). These 2 irregularities could not be explained. Some significant inconsistencies were also noted for copper (samples 5099, 4880 and 4674). Copper is not considered a high priority metal for this project.
- Overall re-assay results are clearly consistent with original results from Spectrolab.

The author is satisfied with its re-assaying program.

## **TABLE 12.1**

#### **RESULTS OF THE RE-ASSAYING**

		SPECTROLAB			ACTLABS			
Hole	Sample	Ag (g/t)	Sn (%)	Cu T. (%)	Ag (g/t)	Sn (%)	Cu T. (%)	
A2	5482	452,25	1,10	0,30	383,00	1,02	0,44	
A2	5488	166,14	0,81	0,27	126,00	0,71	0,26	
B6	5403	195,59	0,17	4,29	147,00	0,20	5,33	
<b>B6</b>	5411	386,67	1,55	0,25	211,00	1,48	0,29	
B7	5384	288,86	0,82	1,07	232,00	0,64	1,10	
B7	5396	248,06	2,46	0,29	286,00	2,35	0,34	
C5	5328	262,69	1,16	0,15	228,00	1,05	0,16	
C5	5331	396,43	1,12	0,26	367,00	0,99	0,23	
C6	5344	520,21	2,63	0,61	462,00	1,23	0.69	
C6	5346	477,47	1,74	0,40	422,00	1,54	0,36	
C7	5504	144,19	0,29	3,49	144,00	0,28	3,98	
C7	5515	186,94	0,99	0,27	165,00	0,85	0,33	
C9	5501	202.06	1.42	0.25	179.00	1.11	0.38	
D3	5259	142,77	1,03	4,14	123,00	0,43	3,03	
D3	5264	223.83	1.48	0.43	188.00	0.96	0.39	
D4	5225	77,08	1,46	0,29	67,00	0,40	0.25	
D4	5237	265,12	1,04	0,54	257,00	0,62	0,60	
D7	4862	170,31	0,58	0,94	155,00	0,45	0,96	
D7	4863	164,14	0,70	1,76	177,00	0,47	1,78	
D8	5249	187,42	1,89	2,47	160,00	1,31	2,42	
E3	5145	128,45	1,67	1,00	140,00	0,77	0.83	
E3	5150	489,11	0,23	0,48	596,00	1,44	0,51	
E4	5180	550,26	1,32	0,41	554,00	1,09	0,38	
E7	4846	215,75	0,57	0,28	206,00	0,50	0,23	
E7	4857	218,17	3,02	0,51	280,00	2,37	0,40	
F3	5133	425,84	1,22	0,43	414,00	1,10	0,55	
F3	5135	795,94	1,96	0,60	685,00	1,75	0,53	
F4	5112	473,17	1,45	0,46	498,00	1,23	0,56	
F4	5116	335,34	2,21	3,43	325,00	1,78	0,45	
F5	5099	390,78	1,36	0,25	441,00	1,29	3,80	
F5	5102	192,69	2,66	1,35	290,00	2,90	0,45	
F6	4641	281,15	2,53	0,32	300,00	2,26	0,52	
F6	4647	389,79	4,02	0,65	410,00	3,87	0,34	
F9	4928	208,49	0,93	0,55	182,00	0,80	0,71	
F9	4936	218,30	2,15	0,17	263,00	2,11	0,47	
G5	4721	765,99	1,82	0,58	694,00	1,71	0,22	
G5	4722	562,73	2,39	0,81	500,00	2,08	0,67	
G6	4665	159,83	0,87	2,05	142,00	0,71	0,82	
G6	4674	177,35	1,87	0,07	154,00	1,71	1,83	
H4	5049	1050,93	2,29	0,59	971,00	2,17	0,09	
H4	5050	754,21	2,76	0,56	675,00	2,43	0,55	
H5	4625	1006,15	2,12	0,57	753,00	1,77	0,51	
H5	4628	710,75	2,91	0,50	544,00	2,63	0,51	
13	5012	364,50	1,73	0,03	832,00	1,75	0,43	
13	5014	226,88	2,95	0,44	463,00	2,72	0,73	
14	4879	133,22	0,23	6,41	126,00	0,13	8,01	
14	4880	184,87	0,23	7,33	559,00	2,69	0,43	
16	4801	309,49	0,98	0,16	228,00	1,00	0,13	
18	4904	594,77	1,45	0,43	391,00	1,20	0,27	
18	4908	418,64	3,08	0,33	396,00	3,04	0,33	
		Ag (g/t)	Sn (%)	Cu T. (%)	Ag (g/t)	Sn (%)	Cu T. (%)	
		357.83	1.59	1.08	349.82	1.42	0.99	

# FIGURE 12.1 RE-ASSAYING - SN



FIGURE12.2 RE-ASSAYING – AG



# FIGURE 12.3 RE-ASSAYING – TOTAL CU



# **13. MINERAL PROCESSING AND METALLURGICAL TESTING**

N/A

## **14. MINERAL RESOURCE ESTIMATES**

The author performed a mineral resource estimate for the Telamayu Antiguo tailings using data collected during the 2016-17 drilling program. All historical data have been excluded because no QAQC procedures were performed by former operators.

#### Method (Figure 14.1)

The author chose to use the polygonal method applied on a surface plan to perform the mineral resource estimate (half distance between holes). This method was deemed appropriate given the fact that all holes drilled by BacTech are vertical on a 20 m X 20 m grid. All material within 10 meters of the holes were assigned to the **Indicated category (Table 14.1)**. Material outside the 10 m radius was assigned to the **Inferred category**. This is material mostly found on the talus of the tailings. Given the high variability in grades and bulk density results within the tailings, no material was assigned to the measured category.

#### Bulk Density (BD)

Several BD measurements were made in each hole (**Table 10.2**). A BD value was assigned to each sample of the drilling program using the closest BD value available in the hole. This BD value was then used to obtain the tonnage of this particular block.

#### Tonnage

A tonnage was applied to each individual sample collected during the drilling program. Tonnage was obtain using the area of a given polygon (calculated graphically on a surface map) multiplied by the thickness of the sample (usually 1 m but not always) and multiplied by the BD assigned to that particular sample.

#### Grades

The grades of a particular resource block correspond the grades obtained for the sample attached to that block. Average grades of the tailings correspond to the weighted average (based on tonnage) of all blocks within each categories (Indicated, Inferred)

#### DISCUSSION

A series of N26° sections and a surface plan were produced (using Geosoft) to show the distribution of Ag, Sn and Cu within the Antiguo tailings (**Figure 14.2 to 14.10**). A few examples of these plans are shown in this report. A reviews of these sections and plan indicate that high grade copper material is mostly found near surface and the SW portion of the tailings. On the other hand high grade Ag and Sn material occupy the NE portion of the tailings under the copper rich top. We can observe that for all three metals, concentrations can show extreme values.





# FIGURE 14.2 SURFACE MAP WITH AG ISOGRADS



# FIGURE 14.3 SURFACE MAP WITH SN ISOGRADS



# FIGURE 14.4 SURFACE MAP WITH SOL. CU ISOGRADS









#### MINERAL RESOURCE ESTIMATE (Table 14.1)

**Table 14.1** shows a summary result of the mineral resource estimates performed by the author and using the aforementioned parameters. **Annex 1** show the calculation sheet for each individual mineral block (sample). The first table include material in the Indicated category and the second one the material in the Inferred category. Calculations were made in Excel format.

#### Comments

- It shall be noted that tonnage estimated in this study is totally consistent with Comibol's 2004 calculation (477,000 tonnes including 30,000 tonnes under the electrical sub-station (not included in this resource estimate)).
  Comibol did not estimate grades, only tonnage and did not discriminate tonnage into categories (measured, indicate or inferred).
- Summary grades are weighted averages calculated for every resource block (each sample).
- Metal content (grams, ounces and pounds) does not take into account recoveries.
- Copper results at Spectrolab and ActLabs (regular assaying and QAQC programs) exhibit the highest level of irregularities for all metals.

#### **TABLE 14.1**

#### **RESOURCE ESTIMATE SUMMARY – TELAMAYU ANTIGUO TAILINGS**

Ag oz/t	Ag g/t	% Sn	% CU S.	% Cu T.	BD	TONNAGE	Ag grams	Ag ounces	Sn Ibs
INDICATED									
8,223	281,88	1,30	0,63	1,15	1,63	373 016	105 144 992	3 380 868	9 725 887
INFERRED									
8,689	297,84	1,19	0,65	1,07	1,75	78 991	23 526 958	756 494	1 885 809
BD: Bul	3D: Bulk Density (weighted average based on tonnage per resource block)								

## **15. ADJACENT PROPERTIES**

Various small mining operations took place over the years and there is no longer any active mining in the vicinity of the project. Ore treated at Telamayu came from the Chocaya-Animas polymetallic (Ag, Pb, Zn, Sn, Cu) mining district located approximately some 8 km to the west of the property.

The most important mine in the region is located approximately 80 km to the west of Telemayu in the San Cristobal mining district. The San Critobal mine is owned by Minera San Cristobal. The company operates an open pit mine and processes 52,000 tpd producing 1,500 tonnes per day of Pb-Ag and Zn-Ag concentrates.

# **16. OTHER RELEVANT DATA AND INFORMATION**

N/A

## **17. INTERPRETATION AND CONCLUSIONS**

The Telamayu project is located in southern Bolivia in the Department of Potosi to the south-east of the town of Uyuni. An adequate gravel road connects Uyuni to Atocha.

The Antiguo Telamayu tailings was accumulated for decades by Comibol, a Bolivian state owned company which treated ore from two distinct nearby mines. For 50 years, Comibol produced two concentrates: a Sn-Ag and a Zn-Ag concentrates. Recoveries were not very high and Ag, Sn and Cu (not recovered at all) are found in high concentration in the tailings. Comibol recognized that, using a modern technology, more metals should be recovered from the tailings and that the latter should be relocated away from the river beds where it stands now. A portion of the original tailings is believed to have been washed out in the river contaminating it with metals. For decades, Comibol has been looking for a suitable environment friendly solution to this problem however, lack of funding plagued the project hence the need for an external partner with an appropriate technology and funding.

In 2016, BacTech entered into an agreement to process the tailings, recover Ag, Sn and Cu (possibly Iridium) from the material and relocate it in a more appropriate location (away from river beds). A Vibracore drilling program, on a 20 m X 20 m grid, was designed and performed by BacTech in 2106 and 2017 on the Antiguo Telamayu tailings.

The drilling program was designed to cover the entire Antiguo tailings, from surface and down to the river bed. This was accomplish with much difficulties given the nature of the material which was occasionally too hard for the Vibracore and other times too liquid to obtain a good recovery. In spite of all the challenges, the drilling program was completed, results were compiled and a resource estimated was successfully performed in the summer of 2017. The author was able to produce a resource estimate divided into Indicated (10 m radius around drill holes) and Inferred portions (more than 10 m from drill holes, mostly talus material). The author used the polygonal method (half distance between adjacent holes) applied on a surface map with drill hole locations. Areas were obtained graphically and applied to each individual block (sample, 1 m in most instances). A Bulk Density value has been attributed to each individual block (sample) using the closest BD measurement. Using the BD, area and thickness, tonnage was obtained for each block. **Table 17.1** gives a summary of Indicated and Inferred resources.

#### **TABLE 17.1**

#### **RESOURCE ESTIMATE SUMMARY – TELAMAYU ANTIGUO TAILINGS**

Ag oz/t	Ag g/t	% Sn	% CU S.	% Cu T.	BD	TONNAGE	Ag grams	Ag ounces	Sn Ibs
INDICATED									
8,223	281,88	1,30	0,63	1,15	1,63	373 016	105 144 992	3 380 868	9 725 887
INFERRED									
8,689	297,84	1,19	0,65	1,07	1,75	78 991	23 526 958	756 494	1 885 809
BD: Bul	3D: Bulk Density (weighted average based on tonnage per resource block)								

Vertical cross sections and a surface plan indicate that the surface of the Antiguo tailings is copper rich (also the SW portion at depth). On the other hand, high Sn and Ag concentrations are found below the copper rich top and particularly in the NE half of the tailing pile. The distribution of metals is quite heterogeneous and grades can be extremes within the pile, both vertically and horizontally. Nevertheless, a certain level of continuity can globally be observed for each metal.

## **18. RECOMMENDATIONS**

Tonnage and grades of the Telamayu Antiguo tailings are well established at this point of the project. The economic viability of this project is clearly influenced by recoveries for tin and silver (only marginally copper). Future challenges and studies will be related to metallurgy. The author recommends that adequate metallurgical test works be performed at an accredited laboratory and that a complete scoping study be achieved on the project. Following the results of the metallurgical and scoping studies, a decision to go ahead with the construction of the infrastructure required or stop the project can be taken.

The author is not qualified to prepare a budget for these studies.

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## **20 DATE AND SIGNATURE**

## NI 43-101 TECHNICAL REPORT ON THE TELAMAYU TAILINGS PROJECT DEPARTMENT OF POTOSI, BOLIVIA SEPTEMBER 13<sup>rd</sup> 2017

Prepared for:

## **BacTech Environmental Corporation**

20 Eglinton Ave W #1820 Toronto ON, M4R 1K8

Signed on the 13<sup>rd</sup> of September at Saint-Jean-Sur-Richelieu, Quebec, Canada

(s) Pierre O'DowdP. Geologist and Qualified Person as per NI 43-101(OGQ #668)

# **CERTIFICATE OF QUALIFIED PERSON**

# PIERRE O'DOWD PROFESSIONAL GEOLOGIST

I, Pierre O'Dowd, do hereby certify that:

I reside at 622 des Fortifications Street, St-Jean-Sur-Richelieu, Quebec, Canada, J2W 2W8. My telephone number is 514-910-9766.

I graduated from Montreal University in 1978 with a BSc. in Geology.

I have accumulated more than 39 years of experience in mining exploration and development, including twelve years with the Noranda-Falconbridge Group. I've worked in about fifteen countries on iron-vanadium, lithium, coal, base and precious metal projects. I'm currently a consulting geologist.

I am a registered member of the Ordre des Géologues du Québec (#668) and I am a qualified person under the terms of the NI 43-101 concerning mining projects.

I have visited the property being the object of the report titled "NI 43-101 TECHNICAL REPORT, ON THE TELAMAYU TAILINGS PROJECT, DEPARTMENT OF POTOSI, BOLIVIA, SEPTEMBER 13<sup>rd</sup> 2017" (the "Technical Report") for five days, from January 24 to 28, 2017, with BacTech managers José Cordova. I have not worked on the project being the object of this report before.

I am responsible for the production of the Technical Report and take responsibility for all of the items of such Technical Report. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading. I am independent from BacTech as such term is defined in section 1.5 of NI 43-101, and I have no interest in the mining titles being the object of the report titled "NI 43-101 TECHNICAL REPORT, ON THE TELAMAYU TAILINGS PROJECT, DEPARTMENT OF POTOSI, BOLIVIA, SEPTEMBER 13<sup>rd</sup> 2017". I will receive consulting fees for writing this qualification report.

The Author has read the NI 43-101 concerning mining projects and its Form 43-101 F1 and the Technical Report was written in conformity with that Instrument and Form.

(s) Pierre O'Dowd

Pierre O'Dowd Signed on September 13<sup>rd</sup>, 2017, in St-Jean-Sur-Richelieu, Quebec, Canada. ANNEX 1 SPECTROLAB ASSAY CERTIFICATES Available upon request

#### ANNEX 2 ACTLABS ASSAY CERTIFICATES Available upon request

ANNEX 3 RESOURCE ESTIMATE CALCULATION SHEETS - INDICATED Available upon request

ANNEX 4 RESOURCE ESTIMATE CALCULATION SHEETS - INFERRED Available upon request

Pierre O'Dowd – Consulting Geologist