ANDES GMS
GEOLOGY AND MINING
SERVICES

TECHNICAL REPORT

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Minera Anzá,
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1 Introduction

This Technical Report prepared by Andes GMS SpA in compliance with National Instrument 43-101 (NI43-101) Standards of Disclosure for Mineral Projects, with the purpose of supporting public disclosure of technical data of the Minera Anzáral Project prepared for Orosur Mining Inc. (Orosur), which is publicly listed on the TSX and AIM stock exchanges.

Minera Anzá SA, identified with Nit: 900.357.982-5, is an abroad subsidiary company based in Colombia since August 2010 by means of Public Deed (Escritura Pública) No 1094, in order to develop exploration activity, in mining concession contract appropriately granted and registered by national mining cadastre, located in the Municipality of Anzá, "Departamento de Antoquia", Colombia.

The Anzá Project is located in the middle of two gypsum mines that started their mining activities in 1991. This mine is located at 6.5 km. west of a small town named Anzá and 50 km. west of the Medellin city. The initial production of gypsum was developed at two open-pit mine, Aragón and La Pastorera. Later, in 2005, the gypsum mining process changed to underground mine.

This report includes a review of the regional geology, local geology, types and degree of the mineralization, exploration history, metallurgical testing and results, among others.

2 Summary

2.1 Location and Accessibility

The Anzá Project is located in the east side of the Cordillera Occidental, at 50 km west of the city of Medellín, Colombia. The Project covers total area of 105 km^2 and is located at an altitude between 700 and 2000 meters above sea level. Access to the project is via a 90 km. paved road from Medellin until Anzá, which is located near the Cauca River. Then to the west, it follows a gravel road for 16 km, which connects the Gypsum mine with Anzá.

2.2 Climate and Vegetation

The Anzá Project has a tropical climate with temperatures ranges from 16 °C to 27 °C. Precipitation typically occurs from April to November (rainy season), with 1500 mm of rain fall per year, approximately. The area is covered by pasture, bush and woodland. The agricultural activity, in the surrounding area, is mainly based on subsistence farming, growing mango and areca nut, besides small livestock farming activities.

2.3 Infrastructure

The Anzá Project is well development from infrastructure and access from the highway. The Municipality of Anzá has a population of 1,600 people and in the surrounding area, in the peripheral rural community, lives 6,000 people. The Project has a wide energy system and good sources of water extraction. The agricultural activity is the main economic activity of the place.

2.4 History

Presence of gypsum in the Anzá area was observed for the first time in 1972, currently known as Tendencia Aragón-Pastorera Area. Gypsum was extracted at artisanal scale, until the Exman Gypsum mine was developed in 1991. Initially, the Exam mine production was entirely by open-pit process from the Aragón and Las Pastorera sites. The stability problems on the pit walls lead to an underground production in 2005.

In 2010, Waymar Resources Ltd., was involve at the area for exploration, at first the massive sulphide mineralization and gold later. The works achieved were request of exploration permits; acquisition of mining concessions to Niverengo Consortium; study of the available data; geochemistry of the drain sediments, soil and rock; geophysics studies (Induced Polarization (IP) and terrestrial magnetometry survey and aerial cover by helicopter); the drilled up of 17,408 m of drill holes; petrographic studies, quality control (QC) and quality assurance (QA); geological levels and sections; and progress report and technical report NI43-101.

From 2012 and 2017, the task of maintenance of the requested permits according to the Colombian mining regulation were carried out. During this time Waymar was acquired by Orosur in 2014. Finally, from 2017 to 2018 explorations drill holes in the interest area were carried out, thanks to an increase of the financial resources.

2.5 Geology Setting

2.5.1 Regional Geology

In northern South America, there are three main tectonics plates, the Pacific Plate (Nazca) on the west, the Caribbean Plate on the north and the South American Plate on the east. The subduction and lifting movements of these plates, created the Bloque Andino del Norte of the Andes Mountain, in Colombia, which is subdivided in three range of mountains: Cordillera Occidental, Central and Oriental.

These processes occured at the boundaries of these tectonics plates, between Nazca Plate and South American Plate, and have generated the present geological setting. These plate tectonic forming processes are strongly associated with ore forming processes and the formation of many of the mineral deposits of Colombia (Cediel et al., 2003).

The Anzá Project is setting into the Western Tectonic Realm of Colombia (Cediel, Shaw y Cáceres, 2003; Kennan y Pindell, 2009). It is composed of accretionary terrains against the western margin of the Escudo de Guayana of the late Mesozoic. This project is located, particularly, in the eastern margin of the Terrane Cañas Gordas (“CGT”), part of the Realm mentioned before, which is describe as a volcanic and sedimentary sequences of the Middle - Upper Cretaceous age, accretion has occurred during Early – Middle Miocene age.

The main Formations in this area are: Barroso Formation, located in the east part of the area and described as volcanic sequences, with a located series of andesitic to dacitic pyroclastic rocks, with levels of gypsum and metalliferous sulphides, which were laying down under a subaquatic environment; and the Penderisco Formation, sedimentary sequences in the west part of the territory, laying down under a continental slope environment, which partially cover up the Barroso Formation.

The CGT was intruded, to the east by the Sabanalarga Batholith during Cretaceous age (99-112 Ma). This is described as a calc –alkaline pluton, elongated, which have tonalite, quarts diorite and granodiorite. Meanwhile, in the west side, it was intruded by the Mande-Acandi alkaline to calc- alkaline plutonic arc, dated at approximately 53 Ma.

Structural setting of the CGT limits to east with the Garrapatas-Dabeiba Fault System, with a dextral oblique kinematic, and it limits to the west with the Atrato fault system. The Anzá Project is located into the East edge of the CGT, adjacent to the Romeral Fault, part of the

Garrapatas-Dabeiba fault system, which divides the Cordillera Occidental allochthonous oceanic rocks from the Cordillera Central continental sub plate.

2.5.2 Local Geology

The local geology of the Anzá Project is described by many authors (Alfonso y Cano (2000), Niverengo (2001), Kedahda (2006)). It is located in the east side of the CGT, roughly 7 km onto the west of the Romeral fault zone mark by the course of the Cauca River.

The area of the project found inside a North–South trend, of 10 km to 15 km wide, is a belt of the Barroso Formation of basalt and andesite basalt, with lens-shaped outcrops of fines sediments. Besides, there is an important outcrop rock of the Penderisco Formation, 5 to 7 km on to west side of the project area, and the presence of the cretaceous calc – alkaline pluton, with a minor Neogene intrusion, that only affects in local level. The boundary between Barroso Formation and Penderisco Formation is setting to regional scale by the Sepultura Fault, which is a parallel structure to the Romeral Fault System.

The sequences named as Transicional (Kedahda, 2006) are levels of gypsum alternate with pyroclastic rocks and intermediate sediments, inside the main outcrop rock of the Barroso Formation, there is a sulphide mineralization in the La Pastorera and Aragón mines. According to Alfonso y Cano (2000), the connection of this clastic sequence with the Penderisco Formation is uncertain.

The host rocks of the gypsum mine deposits are mapped in detail. There are three local units mapped in La Pastorera and form the lowest units exhibit of the Miembro Transicional (Alfonso y Cano, 2000, Niverengo, 2001 y Kedahda, 2006). The first one is a sequence of fine tuffs with alternating levels of massive to pillow shape basalt and chert; the second one is a crystal-lithic tuff, with local mineralization of pyrite over gypsum and sulphide; and the third one, is a sequence of agglomerate and crystal-lithic tuff with alternate levels of chert, calcareous mudstone and basalt. In this units the gypsum and the massive sulphide are found, being the gypsum the main part.

2.6 Drilling and Exploration

The gold Anzá Project today includes two small underground mines of gypsum, which have their environmental permits obtained from the Colombian authorities. The discovery of lens with massive sulphide lead to an initial model of volcanic massive sulphide ("VMS"). However, the 3,000 meters of initial drillholes of the 1 stage that began in 2011, takes to the interpretation of a hydrothermal mineralization with strong structural control, with disseminates to semi-massive sulphides, irregular shape veins and hydrothermal breccias. There were more than 2 km length and 200 m wide, feature Au zones (± Ag, Zn, Cu) showing different kinds of mineralization and alteration, of which only two stand out like possible mineralization events: a first possible event of bands and veins mineralization, associated with mudstones and tuff units. A second possible event, overlapping the first one, associated with hydrothermal vents controlled by silica breccia zones with sulphide presence (pyrite, chalcopyrite and sphalerite) in the matrix and fault zones.

Afterwards, a drilling campaign in 2018, envisaged with specific strategic purposes: to verify the miniralization style and length along the Corredor Aragón – La Pastorera, and in depth; to prove the gold grades associated to the mineralization of gypsum in the north and south of the project; and to research the geochemistry and geophysics concurrence anomalies in Charrascala.

Three units were identified as carriers of gold mineralization: silica breccia with spread pyrite, sphalerite, chalcopyrite in the matrix and veins; faults zones with sulphide; and laminated mudstone or tuff with vein of quartz with sulphide.

The domains of gold were intercept in depth in the north area. This confirms a regular structure of high grade with descent continuity of 400 m and open in depth. Besides, the continuity towards the south, was confirmed in areas of high grade along 2,500 m from north to south. In the north, the structure has a dip of 50-55° east and present exploration efforts are guided to define whether the center and south part of the deposit have the same direction. If that was the case then, there are great opportunities to increase the mineralization potential in those areas.

The explorations drillholes in Charrascala in 2018 intercepted gold anomalies along a structural corridor of 800 m from north to south. These minerals interceptions have high grade intervals that vary between 0,9 m to 3,8 m and have veins zones of high contents of sulphide, mainly pyrite, with minor pyrrhotite, chalcopyrite and sphalerite. The hydrothermal alteration has a strong silicification and propylitisation that trends to show the presence of structures, which control the mineralization. The country rocks are intermediate to the mafic volcanic flows, tuff and 3 breccia of the Barroso Formation. The Barroso Formation is part of the Igneous–sedimentary sequence that has many of the most important minerals deposits of the Oro del Cauca Belt, including the Burítica deposit.

From the exploration activity and strategy, 17,308 m of drilling (53 drillholes) has been performed from 2011 to 2012, with a drillhole grid spacing of 50 m average and 300 m depth. Thanks to this exploration, more than 2.5 km of mineralization along the Aragón fault were identified, which are located in four zones of high-grade gold. Meanwhile, in the Orosur campaign, in 2017 and 2018, 18 drillholes in the Aragón–La Pastorera corridor

(APTA) were carried out, totalling 6,314 m and 5 DDH drillholes in Charrascala totalling 3,045 m.

Besides the drilling studies, systematics sampling programs of soils, streams, surfaces and underground, were carried out by GeoMinas Company S.A. In addition, it considered magnetic and radiometric study in lines of a total of 2,867 km covering 260 km², and a structural evaluation using radar images covering all the terrestrial area. In addition, a geological mapping to 1:2000 scale into the interest area that covers 1,350 ha approximately of the Anzá property was carried out and, finally, the geophysics studies of induced polarization (IP), resistivity, magnetometry and topographical uplifting into the central part of the Anzá property were also performed. The Geophysics One Company made all these works in 2012.

2.7 Mineral Resources and Reserve Estimate

Mine Development Associates (MDA) in the exploratory stage made a series of gold estimation for the Anzá Project in Colombia, which used the inverse distance weighting method, in the only mineralization zone described by the Orosur geologist.

The estimations were carried out with the results of 53 gold assays, used a rotate block model of regular blocks of 2.5m by 5.0m by 2.5m, x, y and z respectively.

The present data information that the Anzá Project has is not enough to develop resource and reserve estimations, nor to make a validation under NI 43-101 standards. Therefore, it is necessary to obtain more representative data and analysis of the area.

2.8 Interpretation and Conclusions

Geological information, with regard to the geological model of the Minera Anzá indicates mineralization is related to hydrothermal system with strong structural control. There are established policies of environment and communities.

2.9 Recommendations

The present project, is in advanced exploration stage and is recommended to continue advancing in knowledge and verification of the geological model. Also, it must install groundwater wells, to identify and measure the water table of the area.

3 Reliance on Other Expert

This technical report is intended to be read in its entirety, the sections should not be read out of context. It can be used in its entirety by Orosur, is subject to the terms and conditions of the contract with Andes GMS SpA. For the realization of this document, we used the information provided by the experts of the Minera Anzá, which contains the data of: concession contracts, mining and environmental legal frameworks of Colombia.

4 Property Description and Location

The Republic of Colombia is a sovereign country located in the NW extreme of South America, limits to the north with the Caribbean Sea, to the northeast with Venezuela, to the southeast with Brazil, to the southwest with Peru and Ecuador, to the west with the Pacific Ocean and to the northwest with Panama. It has a total area of 1,138,910 km^2 that includes 1,700 km from NNW to SSE and 1,210 km from NNE to SSW (Geografía Colombia, 2018).

Colombian territory has a diverse land relief with a central mountain system and valleys and plain areas. The central mountain system is the Andes Mountain, which splits just at the north of the southern border of Colombia with Ecuador in three separated ranges known as the Cordillera Occidental, the Cordillera Central and the Cordillera Oriental. Regarding its hydrography, there are two major rivers that separate the three main Andean ranges: the Cauca River (1,014 km), which flows towards north between the Cordillera Occidental and the Cordillera Central; and the Magdalena River (1,553 km), which divides the Cordillera Central and the Cordillera Oriental. Both of them, after emerging from the mountains, become one, descending through the swampy lowlands towards the Caribbean.

The area to the South and East of the Andean range is composed largely by fluvial plains divided between the affluent of the Orinoco and Amazon rivers. The open plains joint immediately to the mountains. Nevertheless, as the distance increases from the mountains, the plains give way to a largely unexplored and uninhabited jungle. The Pacific coastal area is also characterized by jungle vegetation. The main rivers in the Pacific Coast include Baudó, San Juan, and Patia (Geography Colombia, 2018).

Figure 1: Location Map of Colombia (IGAC,2007).

4.1 Location of the Anzá Project

The Anzá Project is located on the eastern side of the Cordillera Occidental, in the Municipality of Anzá of the Antioquia province, 82 kilometres from Medellín, at 920 meters above sea level. It has its mining concessions centered around 6.5 km east of the small town of Anzá. The Antoquia province has 253 km^2, its territory covers from the Cauca River to the East to the Cordillera Occidental to the West.

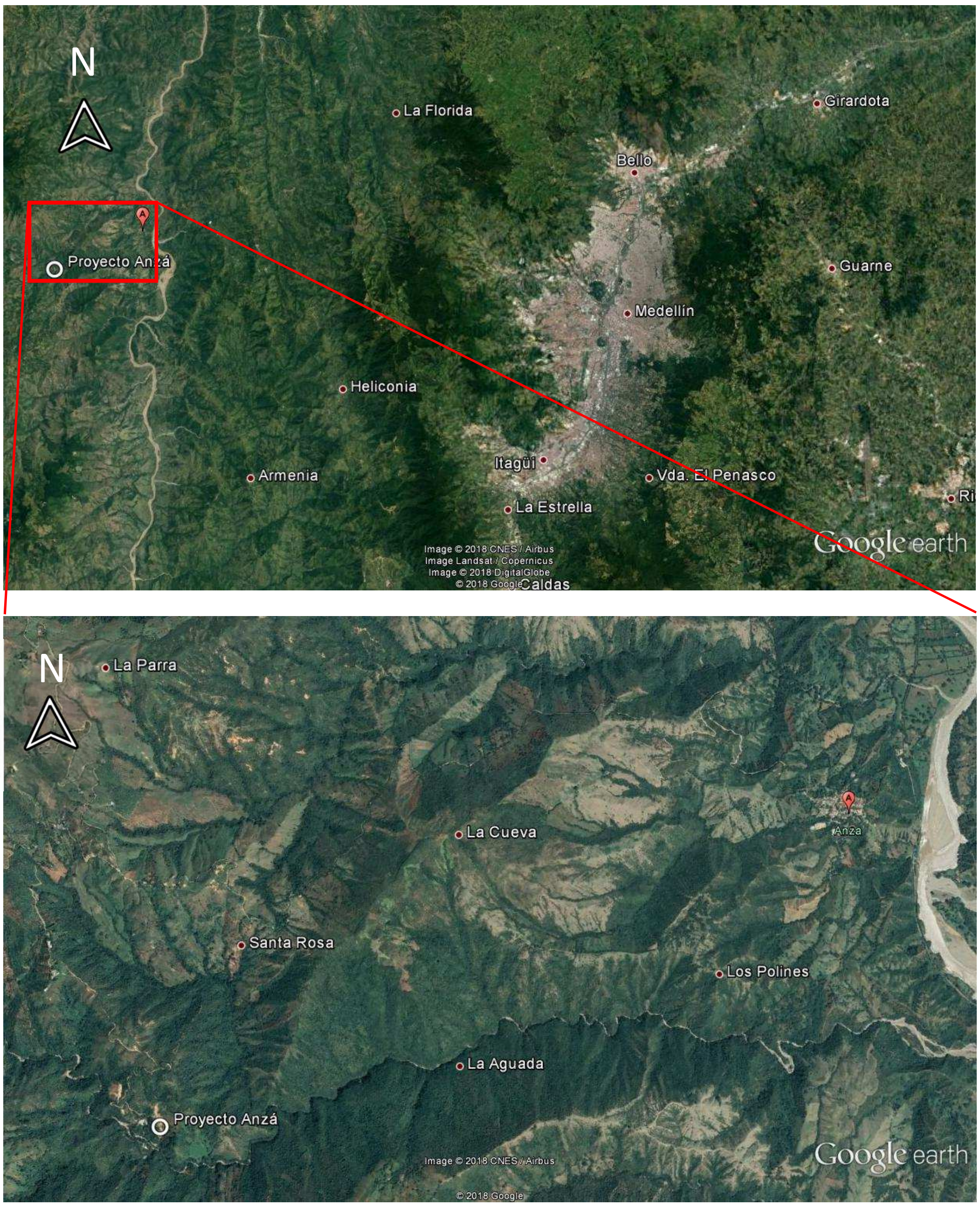


Figure 2: Location map of Anzá Project

4.2 Land Tenure Description.

The Minera Anzá owns 100% of mining concessions that comprise to the Anzá Project. The project covers an approximate area of 10,615 hectares distributed in 3 mining concessions and 3 pending mining concession application.

PATENT	CATEGORY	STAGE	AREA (Has)	DATE RMN	ANNUALLY	MUNICIPALITY	VALIDITY
T13635011	Mining Concession application	Exploration	6738,33	May 3, 2013	QUINTA	Anzá and Betulia	Exploration: 2/5/2024
		Exploration	112,44			Anzá	According to reserves: 7/7/2021. According to Law: 2/05/2035
7248B	Concession application	Exploration	1798,58	November 11, 2010	OCTAVA	Anzá and Betulia	Exploration: 10/11/2021
IF5-11361X	Mining Concession application	Exploration	1966,26	October 19, 2012	QUINTA	Anzá, Betulia	Exploration: 18/10/2023
LHO-08011	Concession application	Pre-contractual	3903,84	N/A	N/A	Anzá, Betulia	N/A
ICQ-080035X	Concession application	Pre-contractual	6219,06	N/A	N/A	Anzá, Caicedo, Santa fe de Antioquia.	N/A
OG2-08465	Concession application	Pre-contractual	14,89	N/A	N/A	Anzá	N/A

Table 1: Mining titles and applications stage (Minera Anzá. (2018). Report from Minera Anzá for "Ministerio de Minas").

The area where the project is located, has all utilities (water, energy). Moreover, it is located in a community with mining tradition (Guintar, gypsum mines). The Guintar community is known for having artisanal mining. Therefore, three years ago, Orosur participated in the "Formalización Minera" process of the mining units, with the coordination of the

"Secretaría de Minas de la Gobernación de Antioquia", having in mind that there are mines that partially overlap with the H7248B005 concession near Guintar.

In Fig. 3, a map of the Anza project is depicted. Here, the green area represents the current mining concession contracts: Integrated concession T13635011, H7248B005, and IF5-11361X. Additionally, the area bounded in red corresponds to the mining concession contract application: ICQ - 080035 X, LHO-08011 and OG2-08465 (Minera Anzá ((2018). Minera Anzá report to Ministry of mining/Ministerio de Minas).

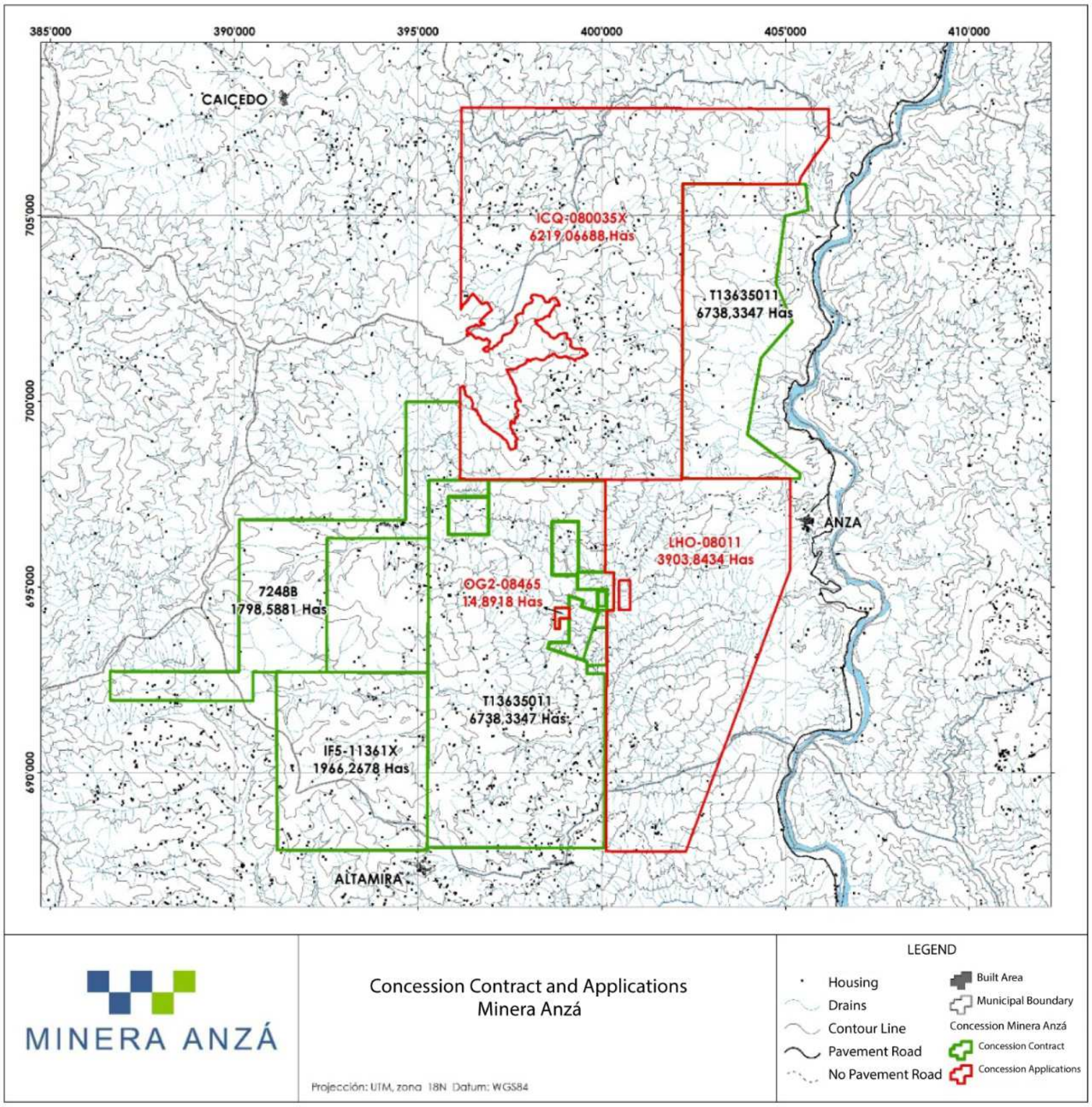


Figure 3: Titles deed and request of Minera Anzá (Minera Anzá. (2018). Report from Minera Anzá for the Ministry of Mining/Ministerio de Minas.

4.3 Agreements, Royalties and Other Encumbrances

The property is affected by an exploration agreement with venture option dated the 7th of September, 2018, by and among Minera Anzá S.A. Sucursal Colombia, Newmont Colombia S.A.S., and Orosur Mining Inc. The full agreement is filed on SEDAR.

Brief summary of the agreement:

- Three phase earn-in of up to 75% in Anzá by spending a minimum US$30.0mm over 12 years, completing an NI 43-101 feasibility study & making cash payments to Orosur equaling a US$4.0mm.

• Phase 1, earning 51% interest by spending US$10.0mm over 4 years & making cash payments equaling US$2.0mm during the first 2 years. After Phase 1, Newmont may elect to form a JV.

• In Phase 2, earning additional 14% interest by sole-funding US$20.0mm within 4 years, completing an NI 43-101 pre-feasibility study & making cash payments to Orosur equaling a total of US$2.0mm.

• In Phase 3, earning an additional 10% interest by completing an NI 43-101 compliant feasibility study within four years.

Joint Funding and Financing Option

• After Phase 3 earn-in, Orosur may elect for Newmont to fund all expenditures until commencement of commercial production. If so, Newmont's interest shall increase by 5% to 80% and Orosur must pay back post-FS expenses from its share of production

Under the terms of the Colombian mining code concession fees are paid in single annual payments from the time that a concession contract has been granted.

For the mining concession contracts that were perfected prior to 2010 and after May 10th, 2013, Law # 685 (2001) applies and the payment of annual fees is based on the current value of the daily minimum wage, as follows. Concessions of up to 2,000 ha pay one daily minimum wage per hectare per year (currently US$10.67/ha). Concessions covering 2,001 to 5,000 ha pay two daily minimum salaries (US$21.34/ha) and those covering more than 5,000 ha pay three minimum daily wages per hectare per year (US$32/ha).

Concession contracts granted between 2010 and 2013 fall under the terms of Law # 1382 (2010). Annual holding fees for these concessions are categorized by age rather than size. US$10.67/ha are paid for the first five years of the concession; US$13.30/ha for years six and seven; and US$16/ha for years eight to eleven if the exploration phase is extended.

Once the exploitation phase has commenced royalties based on gross production are payable in accordance with Article 16 Law 141/1994 which was modified by Law 756/2002. For base metals, the royalty is 5% of gross production, whilst for gold and silver a nominal royalty of 4% is payable. Royalties are paid to the Royalties National Fund who then distributes the funds to provincial projects.

Pursuant to the Niverengo Option Agreement, whereby Waymar exercised the option and acquired the 100% interest in the Anzá Project, the vendor received a 2% net smelter return royalty on future production from the property. Orosur retained the right to purchase one-half of the NSR (1%) in consideration of a payment of US$1.0mm.

There are environmental liabilities left by Exman, former operator of the gipsum mine, but to date the value of these, consisting of the slopes of the pitheads of Aragón and Pastorera and the closure of the Aragón mine, has not been estimated.

Regarding the issue of permits to conduct the exploration operation, there are currently bonded contracts in the vicinity of the gipsum mine and in the El Vergel camp (APTA zone). In case of new drilling or other exploration work in different areas, a negotiation with the owners must be done.

In terms of accessibility risks to the mining property, they do not exist.

Also, there is a Colombian pledge over the assets. Summary is following:

Pursuant to the terms of a movable closed mining pledge agreement between Minera Anzá S.A. Branch Colombia, as the Guarantor, and Newmont Colombia SAS, as the Secured Party, and in accordance with article 238 of Law 685 of 2001, Law 1676 of 2013 and the applicable laws, the Guarantor granted in favor and for the benefit of the Secured Party to movable closed mining pledge without possession over one hundred percent (100%) of the mining exploration and exploitation rights, titles and interests of Guarantor in and to the property described on Exhibit A of the pledge agreement. The purpose of the Guarantee granted under this Agreement is to serve as a guarantee to the Secured Party in relation to the fulfillment of the agreement under the exploration agreement with venture dated dated September 7, 2018 among Minera Anzá SA Colombia Branch, Newmont Colombia S.A.S. and Orosur Mining

4.4 Environmental

The environmental policies of the Anzá Mining Company are committed to the maintenance and protection of the environment, combining the activities to sustainable development and efficient use of natural resources.

To achieve this goal continuously encourage the care for the environment through:

- An environmental management department that encourage the implementation of an environmental management system.
- Integration of the environmental component in the planning and development of all activities.
- Implementation of programs to identify, control or mitigate potential environmental impacts.
- Efficient use of all material used in the project.
- Reduction of waste generation.
- Implementation of all applicable environmental standards
- Evaluation of environmental management through monitoring programs looking for continuous improvements.
- Recovery of environments which was intervene for activities (rehabilitation) trying to maintain biodiversity.
- Encourage education in environmental awareness among employees, contractors, local community and other groups.

4.4.1 Environmental Permitting.

During the exploration phase, required environmental permits and mining environmental guidelines as: water concessions, occupation of the course, air emissions, forest exploitation, dumping permit, study of harvesting specimens.

Environmental mining guidelines are drawn up by the company according to the terms of reference of the environmental authority. Contractors are in accordance with the procedures implemented in the company. Additionally, it required to environmental compliance in all processes. While the preparation and the PMA file is not required in the stages of exploration.

The stage of exploitation that includes construction, installation, operation, and closure, requires having an environmental license approved by the environmental authority. This license includes an environmental impact study (EIA), an assessment of the environmental and social impact of the project, together with the management plans for each of the resources is involved. Every six months, the company must deliver to the environmental authority, management plans compliance reports, which was license approved.

The current mining code also requires the concessionaire to get a safe mining environmental policy, in order to cover the possible effects of the mining operation. During the exploration stage, the insured value according to the policy must be 5% of the value of the planned annual exploration expenditures. During the construction phase the value insured under the policy must be 5% of the planned investment for the assembly and construction under the PTO (“Plan de Trabajo y Obras”) approved by the mining authority. During the exploitation phase, the insured value according to the policy must be 10% of the estimated annual production multiplied by the average price received for the product. For licences or agreements subject to the mining code of 1988 (Còdigo Minero de 1988), the licensee must obtain an insurance policy with an insurance value of 10% of the estimated production for the first two years as established by the PTO.

Temporary protected area of the tropical dry forest

In August 2015, the resolution 1814 of the “Ministerio de Medio Ambiente” of Colombia and according to precautionary principle, i.e. without definitive technical studies, it declared, temporarily, as a development and protection environmental area, some polygons, within is: "Polygon 15: dry forest: located in the jurisdiction of the “Corporación Autónoma Regional del Centro de Antioquia – CORANTIOQUIA” in “Departamento de Antoquia”. Note that the T13635011 concession contract and proposals ICQ and LHO (both acronyms referred to in mining concession proposals) are overlapping with this polygon.
Likewise, was established under resolution 1814 in 2015 that this declaration of temporary development and protection environmental zones would be valid for two (2) years, period during which could not be granted new mining concessions.
Through resolution 2157 in 2017, it extended by another year the temporary development and protection environmental zones, within which is located the: "Polygon 15: dry forest: located in the jurisdiction of the “Corporación Autónoma Regional del Centro de Antioquia”. To date, the delimitation still is not defined, in accordance with the declaration route of a protected area and is currently undergoing a capture phase; and the past October 22, 2018, the “Ministerio de Medio Ambiente”, through the 1987 resolution, extended, for 1 additional year, the caution zone for the delimitation of the tropical dry forest including the polygon 15.

According to this, it is important to mention that in addition to article 34 of the mining code, decree 2372 in 2010 regulated the decree-law 2811 in 1974, in matters related to the national system of protected areas (“Sistema Nacional de Areas Protegidas” (SINAP)) and determined that the declaration of SINAP protected areas it must be based on technical, environmental, and social studies that apply as a minimum the following criteria:

- Biophysical criteria: representativeness, irreplaceably, ecological integrity and level of threat.
- Economic and cultural criteria.

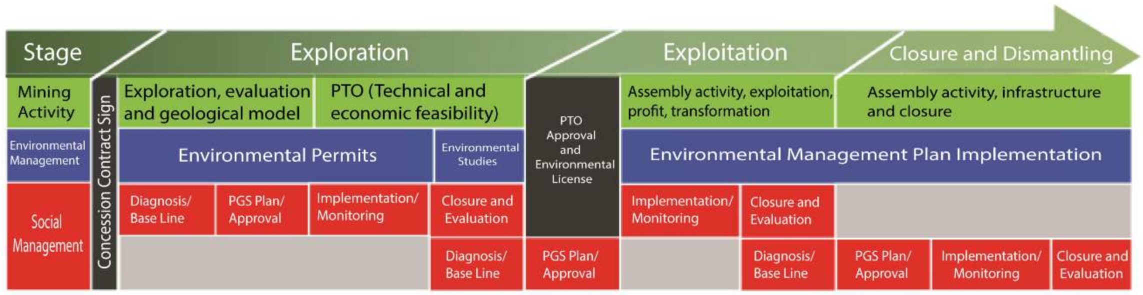
For the final declaration of the temporary renewable natural resources protection zone, denominated as Dry Forest (Bosque Seco), the category which will be declared will be a “Distrito Regional de Manejo Integrado” (DMI), that allows to develop productive activities, including mining, under a compatible scheme with conservation objectives defined by the environmental authority. In addition, it is important to mention that, under this figure of declaration, it is respected for acquired rights as in the case of the environmental licenses already granted. For productive projects, including mining, it can be managed through the scheme of subtraction area, which can be temporary for the exploration phase and permanent for the exploitation phase; following the guidelines of the reference terms in accordance with Management Plan (“Plan de Manejo”) that environmental authority granted to the DMI.

Environmental Permits

Currently, the company has a unified contract T13635011 (FIAM-06): concomitance stage of exploration and exploitation of a gypsum mine, with its valid environmental license approved by the mining authority, granted by the resolution HX-1220 of December 20, 2002 and extended by resolution 130HX-1301-6196 of Corantioquia Territorial Hevexicos of January 12, 2006. Additionally, it has 8 permits of water concessions (6 of industrial use and 2 domestic use) and 1 dumping permit for 3 septic tanks of the camp facilities.

4.5 Sustainability, Action Plans and Relationship with the Community

For the company, sustainable development implies the responsible and efficient resources administration, in order to preserve the ecological, social and economic balance allowing the continuity and permanence in the short, medium and long term. The above is obtained through action plans binding on each of the organization areas, having in mind, the stage in which the project is and its projection in the future.



Community relationship policy

Minera Anzá is committed to contribute to the well-being of communities, establishing relationships of mutual benefit, creating jobs, ensuring the health of the employees along with care of the environment, performing a responsible mining and committed to sustainable development. Always informing the activities carried out and providing information on the performance and the impacts, encourage transparency, trust and mutual respect.

To achieve this it adopts a set of plans for:

- To assess the potential impacts, risks and opportunities that affect the community.
- To identify the different actors in the community and to learn about their concerns.
- To keep open communication channels with the community, develop dialogue with the community, addressing claims and perform different kinds of queries.
- To spread activities, work ways, actions to minimize environmental impacts and encourage the responsible mining to the national productive matrix.
- To encourage the employees participation in the transmission of principles and activities or events that contribute to the community development.
- To contribute to the development of local abilities, through actions that encourage sustainable development, providing focus support on training and development of principles, avoiding to create dependency.
- To prioritize the hiring of local labour, without discrimination of gender, ethnicity or religious beliefs, implementing training programmes in mining specialities.
- To support the abilities generation and the development of other activities, which may be sources of incomings after the closure of the mining operations.

It is the responsibility of management to establish, implement and enforce this policy. Each employee or contractor should observe this policy taking responsibility for their actions.

Community relationship plan and action plan for local and regional development benefit

Anzá Mining Company goal is to create and maintain a permanent bond with the communities in the area of direct and indirect influence, through which stakeholders can express their concerns and the Company can support them achieving a mutual benefit and relationship in harmony.

It is important to note that the municipality has 7,200 inhabitants distributed in 18 “veredas”. 90% of the inhabitants are located in the rural area. The project in its entirety (counting the mining contracts and proposals) impact 100% of the “veredas” due that the extension of this contracts covers a high percentage of the area of the municipality. However, the greatest direct influence area includes the “veredas El Pedrero, La Quiebra, y Vendiagujal”, and a lower percentage, the municipality and the “corregimiento de Guintar” where is participating with artisanal miners in the formalization program.

Relationship plan is underway with the communities where it has a direct impact of the project, without neglecting other municipality areas, in order to identify needs and opportunities for the development of articulated work plans in collaboration with the community and the local authority.

The mining project currently contributes to the growth of the local economy and social development in communities located in the influence zone, not only by the main activity but also for goods and ancillary services that are generated.

The generation of decent employment not only provides direct income to employees for the benefit of their families and the local economy, but also the opportunity for personal and professional growth, since for the project, training is essential to the development of business and social management.

The interaction plans and projects between community-government-company allows the development of action plans addressed to minimize the community urgent needs. As well as agreements that the company performs with local and national institutions that translates into benefits for employees and the community in general.

It is important to note that the economy is encouraged through purchases and recruitment of local services that the company ahead in the municipality, being direct motor of the improvement in the economy and the quality of life of the inhabitants. The promotion that the company invest to the development of the inhabitants with productive capacity is essential to create an autonomous society, with managerial skills and no economic dependencies, allowing diversity in income generation, increase in the productive capacity and generation of new sustainable projects.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Access

The Anzá Project can be accessed from Medellin through a route that connects this city with the small town of Anzá. The access to the Anzá Project can be reached in approximately two hours following the national route 62 to Santa Fe de Antioquia. Afterwards, at the intersection with the Cauca River, it is required to drive 28 km towards South, along the Bolombolo highway (25B) until reaching the intersection with a secondary paved road, named Calle 10. Then, driving 2 kilometers southwest, the Anzá town is reached.

To get to the project itself, it is necessary to drive 16 km from the Anzá town towards west by a winding and narrow dirt road, which leads to Guintar and Aragón and La Pastorera gypsum mines.

5.2 Topography, Climate and Vegetation

The project area is geographically located on the eastern side of the Cordillera Occidental. A North-South branch of the Andes Mountain, fragments and disappears towards North, before the border with Panamá and to reach the Caribbean Sea. It is a scarp ground with elevations that vary between 700 and 1500 meters above sea level. However, the following orographic elevations stand out: Alto de la Mata (1,850 m.a.s.l.), Alto de Olivares (1,900 m.a.s.l.), Alto de Arribón (2,500 m.a.s.l.) and Alto del Valle (2,900 m.a.s.l.).

There is a very dense drainage system in the area, with gorges covered with pastures, bush and irregular woodland an the number of rocks outcrops is poor. To the West the main stream is the Cauca River that drains towards South. To the South of the area, is located the Niverengo River, which drains toward East until joint with the Cauca River.

In the municipality, it is possible to observe three kinds of soils: 1. sediments and organic matter in slopes or low parts of the Cauca River; 2. less fertile due mostly to deforestration and dryness in the middle part; and 3. fertile at the top.

Climatic conditions in Colombia are determined by the altitude and season; there are high or low rainy periods, and little to no change in temperature. The country can be divided vertically into four climate zones. The hot area or “hot land” corresponds to the tropical zone, which goes from sea level to approximately 1,100 m.a.s.l., where the annual average temperature is between 24 ° C and 27 ° C; at sea level, temperatures have an average maximum of 38 ° C and a minimum of 18 ° C. The temperate zone or “warm land” is located between 1,100 m.a.s.l. and 2,000 m.a.s.l., where the average temperature is approximately 18 ° C. The cold country or “cold land” is located between 2,000 m.a.s.l. and 3,000 m.a.s.l., with temperatures averaging a bit more than 13 ° C. Beyond 3,000 m.a.s.l., the temperature varies from 13 ° C to - 17 ° C, depending on the altitude. The annual average temperature in the capital, Bogota (altitude 2,598 m.a.s.l.) is 14 ° C. Rainfall is more intense on the West Coast and in the Andean area. The rainy and dry seasons or "winter" and "summer", generally alternate in cycles of three month periods.

The study area includes a mixture of climatic conditions between the "hot land" and "warm land", with minimum and maximum temperatures between of 16 ° C and 27 ° C, respectively, and an average annual rainfall of approximately 1,500 mm, most of which occurs in the rainy seasons from April through November.

In the region there are three ecosystems, which in the Municipality of Anzá and according to Holdridge classification are:

- **Tropical dry forest (T-DF):** this ecosystem goes from 0 to 900 m.a.s.l. along the basin of the Cauca River, with an average temperature of 24 ° C and an annual average precipitation between 1000 and 2000 mm.
- **Subtropical moist forest (ST-MF)**: it covers South-West and North-East area of the Municipality of Anzá. It is present between 900 m.a.s.l. and 2100 m.a.s.l., with critical temperatures of 24 ° C and average annual rainfall between 1000 and 2000 mm.
- **Subtropical wet forest (ST-WF)**: It covers the middle band of the Cordillera Central including part of the Municipality of Anzá, Antioquia, Olaya, Liborina and Sabanalarga, it has a yearly average rainfall between 2000 and 4000 mm.

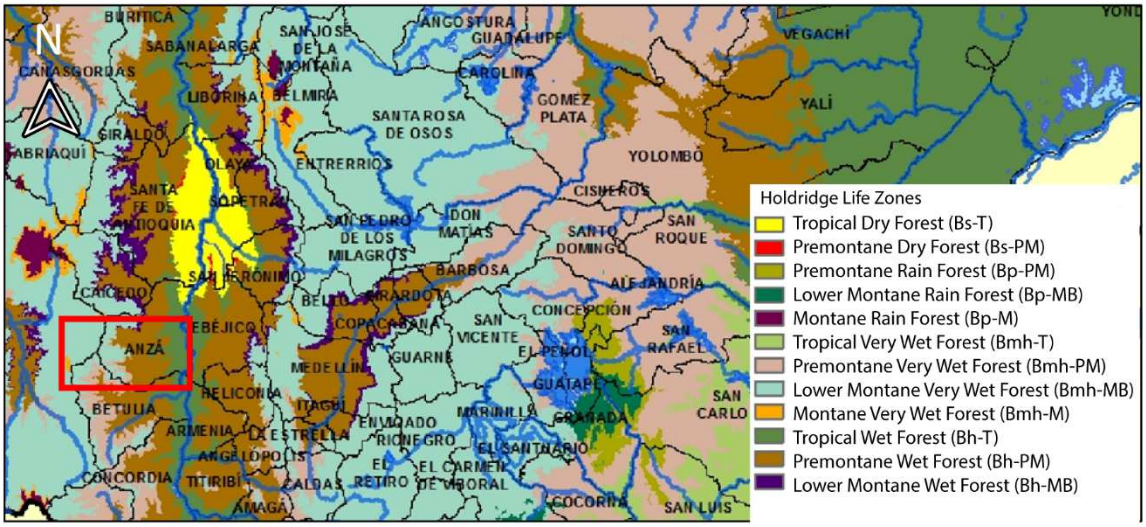


Figure 4: Holdridge life zones system classification in Antioquía. (Take from a study of Minera Anzá (n.d.)).

5.3 Infrastructure of the Area

5.3.1 Routes and Political-Administrative Divisions

The project area also known as Aragón - Pastorera is located 6.5 km to the west-northwest of the Anzá town and is joined by a gravel road in regular condition, which is normaly used by motorcycles, cars, trucks, small trucks and buses. There are 2 km from Anzá town to the route that connects San José de Antioquia and Medellín. Therefore, the infrastructure of the project has an excellent and clear network of roads to major cities of the country.

The Municipality of Anzá is one of the 125 municipalities in the Department of Antoquia, whose capital is Medellín. This is a modern city, with excellent internal and external infrastructure including a dense network of highways and roads that connects it with the rest of Colombia. Additionally, Medellin has two airports: one in the centre of the city (Olaya Herrera) and another one 25 km in a straight line to the Southeast (rìo Negro), with high frequency of flights to the rest of the country and some international flights. Moreover, it has 86 km road that connects La Cabecera with the Corregimiento of Guintar, where 36 km belong to the Municipality of Anzá and 50 km to the Department of Antoquia and are handled entirely between both administrative divisions.

The political-administrative division of the Municipality of Anzá has an urban zone and a rural zone. In the urban zone there are eight neighborhoods: Central, Divino Niño, María Auxiliadora, Buga, La Asomadera, La Punta, El Hoyo y el Zacatín. In the rural zone is divided in 17 "Veredas" and 1 Corregimiento. The "veredas" are: Higuiná, La Mata, Los Llanos, El Nudillo, La Cejita, La Travesía, El Gredal, La Chuscalita, La Ciénaga, La Cordillera, La Quioná, La Quiebra, Las Lomitas, El Encanto, Monterredondo, La Choclina, Vendiagujal, El Pedrero;

and the Corregimiento of Guintar. The Anzá project is located on the “vereda” El Pedrero and the “vereda” La Quiebra, whose main economic activities are the mining of gypsum, the cultivation of mangoes and agriculture in general.

Figure 5: Rural area divide: 18 “Veredas y el Corregimiento de Güintar”. Area: 253 Km^2. Boundary: North, to the municipalities of Caicedo and Santafé de Antoquía; South, to the Corregimiento Altamira (Municipality of Betulia) and to Municipality of Armenia Mantequilla; East, to Corregimiento Sevilla (Municipality of Ebéjico); West, to Municipality of Urrao, through Guíntar. Population: 7.500 people (17% at Cabecera Municipal, 83% at Veredas and Corregimiento). 51% Men, 49% Women. Urban Zone is form by 8 neighborhoods. Rural Zone include 18 Veredas and Corregimiento de Guíntar (600 people). 1 Mayor, 9 City Councillor, 1 Municipal Official. ((Minera Anzá. (2018). Report from Minera Anzá for Ministry of Mining.).

5.3.2 Economy

In the municipality there are forests with woods suitable for construction and cabinetmaking, especially pine kernel, cedar and lignum vitae. Furthermore, it has a hydrographic richness, where its main sources are the Cauca River and the gorge Noque, Higuiná, Pitanjá, Niverengo, Quioná and Purco where abundant fish species, such as Bagre, Pintado, Dorada, Mojarra, Bocachico, Barbudo y Picuda can be found.

The base of the economy of the Anzá people is the agricultural activity due to the fact that most of the population is in the field as smallholders or with an artisanal production system.

72% of the “veredas” support its economy almost exclusively from coffee farming, although on a smaller scale in the exploitation of certain products such as corn, sugarcane, banana, yucca and some fruit trees. Another economy base is livestock farming (mainly cattle), which takes place along the Cauca River. Fishing is also part of the economy but only in a small-scale, due to the fact that this type of activity does not cover individual requirements in terms of incomes. Therefore, it is a complemented with agricultural production.

5.3.3 Education

In 2012, the Municipality of Anzá had two educational institutions (EIs), with five offices and 11 rural education centres (RECs), with 63 teachers and coverage of 73%. The EIs offer from pre-school to grade 11 (basic primary, basic secondary and high school), La Cejita CER offers from preschool to grade 9 (basic primary and basic secondary) and the other CERs up to grade 5 (basic primary). Secondary education finishes with a high school diploma. There is a "Sistema de Aprendizaje Tutorial" (SAT), giving opportunity to young people and adults to gain access to the educational system. It is estimated that illiteracy is around 21%, mainly due to low coverage, which affects people who are 15 years old or over, according to the 2005 census.

"Plan de Desarrollo Municipal" 2012-2015, indicates that the "Sistema General de Seguridad Social en Salud" (SGSSS) has a weak development in the Municipality of Anzá. It has the social enterprise of the State Hospital San Francisco de Asís, which is the only public institution of health (IPS) that provides cares of first level of complexity. In the "Corregimiento of Guintar", there is a health centre in a moderate state (currently remodeling), attended by a doctor and an assistant administrative nurse. In the "vereda" La Cejita there are facilities that are used by health brigades serving occasionally. The municipality has agreements with the Governor's Office through the program MANA and with the Antioquia University, which provide psychology, nutrition and other services (Minera Anzá study (n.d.)).

5.3.4 Drinking Water and Sewage System

Supply of drinking water in the municipality is poor, with a score of 61.5% according to the "Plan de Desarrollo Municipal" 2012-2015. In its basin, there is an aqueduct that provides service 24 hours a day, consisting of a conventional treatment plant with a maximum capacity of 10 l/s. This plant was built in 1993 with lifetime of 20 years. 61% of the system pipes have 75 mm diameter and 20.6% have 37.5 mm diameter, which are considered outside the standard. In the rural area there are aqueducts in the "veredas": La Quiuna, Lomitas, Monterredondo, La Choclina, Vendiagujal, La Cordillera and La Chuscalita (table 2), which have compact treatment plants. In Guintar the system was optimized with the relocation of the inlet pipe about 800 m upstream from the previous one, where was built a tank storage, operation hut and treatment plant. The other aqueducts from the remaining "veredas" of the municipality have problems in their fundamental components.

Anzá has a sewerage system that covers 95,22% of the population, according to the "Plan de Desarrollo Municipal" 2012-2015, which consists of a combined system of rain water and sewage water (aguas negras), built approximately 40 years ago in 8 and 10 inch cement pipe. The rural area has in some "veredas" septic wells, as in El Pedrero where a well was built to 25 families. Guintar system is outdated and does not achieve the standards set by the industry. Solid waste from the municipality, including mainly Anzá and Guintar, are deposited in the sanitary landfill Curume at a rate of 0.27 kg/inhabitant/day. The collection and transport service consist of a dump truck of 7 m^3 or 12 ton, which is not exclusively used. (Minera Anzá. ((2018). Minera Anzá report to Ministry of mines/Ministerio de Minas.).

Aqueduct	Type of Administration	Spring	Number of User	Number of Homes in "Las Veredas"
Aguas Unida de Anzá multiveredal (Quiuná, Lomitas, Monterredondo, Choclina y Vendeagujal	Asociación de usuarios	La Volcana	305	530
La Cordillera	Asociación de usuarios	Maracaibo	105	149
La Quiebra	Junta de acción comunal	La Chontica	70	79
La Ciénaga	Asociación de usuarios	El Nevado	24	27
La Chuscalita	Asociación de usuarios	Montañitas	37	54
El Gredal	Asociación de usuarios	Branquisala	55	64
Corregimiento de Güintar	Asociación de usuarios	La Algodona y Aguila	167	181
El Pedrero – La Travesía	Asociación de usuarios	Potreritos	87	117
La Cejita	Asociación de usuarios	La Puria	167	181
El Nudillo	Asociación de usuarios	La Chuscala	87	117
Los Llanos	Junta de acción comunal	La Higuiná	38	38
La Mata	Junta de acción comunal	La Higuiná	38	42
La Higuiná	Asociación de usuarios	Brichi y Pantanillo	70	91
Cabecera Urbana	Urbana	La Puria	534	461

Table 2: Aqueduct of drinking water of Municipality of Anzá ((Minera Anzá. (2018). Report from Minera Anzá for Ministry of Mining.).

5.3.5 Hydrological Potential

The Municipality of Anzá has a hydrological potential consisting of 8 sub-basins that lead to the Cauca River and 23 watersheds that drain into the first ones. The basins of the gorge have erosional processes associated to removal of the forest cover and use of the soil with a predominance of ranching, especially in the tropical dry forest life zone.

In general, drainage systems take dendritic shapes, characterized by secondary small manifolds that carry runoff water to central manifolds, which form a complex chain of parallel drainages along the slope, carrying waters to the Cauca River. In its way sources go through eroded slopes topography, characterized for its steep slopes and outcrops, that improved efficiency in collection and quickly evacuation of water, allowing the washing of soils and the articulated material drag, making that the riverbed of these preserved in its most settled parts, boulders of variable size and large accumulation of sediment such as sand and gravel, resulting of weathering of the geological material. Although the water is plentiful, the quality decreases as it passes through the places where agricultural and livestock farming take place, as well as human settlements, where pollutant loads reach the water sources closer to its source. This decrease of the riverbed is mainly due to deforestation in the catchment areas of the highlands, ranching and agricultural crops on very steep slopes, which are evident outcrops rock, the susceptibility to wash the soil and the creation of erosive processes. The hydric sources act as recipients of sewage from domestic and agricultural activities, which contributes to that the water quality is affected, which is being corrected through the implementation of sewage sing management systems for the houses in the area (Minera Anzá. ((2018). Minera Anzá report to "Ministerio de Minas").

The gorge with greater threats by torrential waters are, in order: La Sapera, La Noque and La Niverengo. It is important to note that the stream flow can be increased with deforestation and decrease gradually as the forest is regenerating (Minera Anzá study (n.d.)).

Hydric viewpoint, the project is framed in an area called the Pastorera (166.97 has), which limits to the North with level 1700, to the South with the road that goes from the "vereda" La Cabecera to the "vereda" El Pedrero, to the East with the gorge El Chocho and to the West with the gorge La Parra. Its importance lies in 10 hydric sources, besides its wealth of flora and fauna, which discharges to the Niverengo gorge.

5.3.6 Electricity

Anzá town is connected to the country power supply, where the municipality is responsible for maintaining the urban electrical grid system and in the "Corregimiento of Guintar". In Anzá town 87.1% of the housing has electricity according to "Plan de Desarrollo Municipal" 2012-2015, which is supplied by "Empresas Públicas de Medellín" ESP, Isagen SA ESP and Vatia SA ESP "Sistema de Transmisión Eléctrico de Antioquia Occidental".

It is unknown the data of power, voltage and if there is capacity available for other connections of larger energy consumption. "Empresas Públicas de Medellín" (EPM) is the most required in the area with offices in Ebegico (9.5 km), Caicedeo (18.3 km), San Cristóbal (24.1 km), Angelopolis (25.2 km) and La Estrella (25.5 km), with substations in the municipalities of Ancon Sur (SE La Estrella: 220, 110, 44, y 13,6 kV y 360 MWA) and San Cristóbal (SE San Cristóbal: 44 y 13,6 kV y 20 MWA) (EPM, 2018).

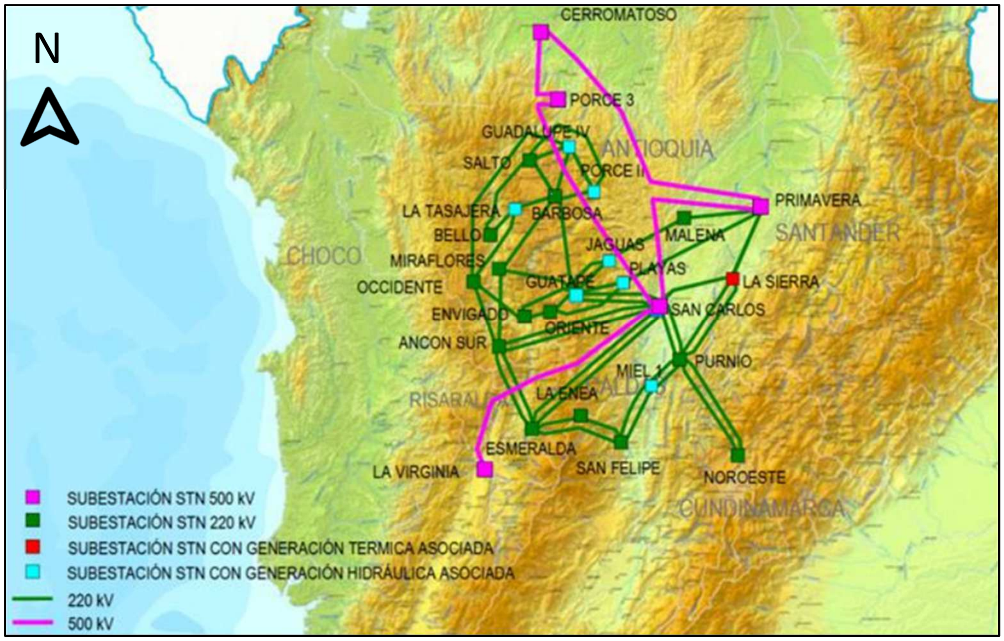


Figure 6: Electrical system of electrical transmission of Antioquia (UPME 2015).

5.3.7 Mining

"The Guaimara" gypsum deposit embedded in volcanic rocks of the Barroso Formation, and located on the borders of the Niverengo gorge, has been mined since 1972. Maya and Mejía in 1987 mention have detected gypsum affected by the Niverengo fault and some massive sulphide deposits. “Corporación Autónoma Regional del Centro de Antioquia”, submitted in 1998 a map of mining expectations for the plans of “Ordenamiento Territorial”. In this indicates the “municipio de Anzá” as an area with metal mining tendency of steel industry, limestone, gold, industrial minerals, and precious stone.

5.3.8 Demography

Medellin has around 2.22 million people according to the last census of DANE in 2005, with projection to reach a population of 2.93 million in 2020. According to this census 37.3% of the population has reached an educational level of high school, 17.1% has higher education and postgraduate studies and only 6.3% has no studies, with only 4.1% illiteracy rate in the population 15 years old and over (Figure 7).

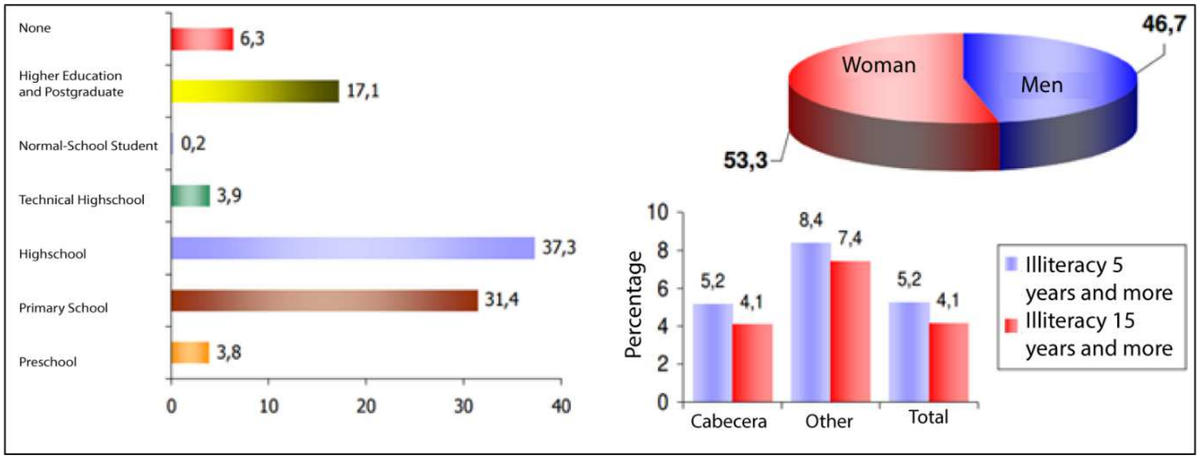


Figure 7: Population of Medellin after census 2005 (DANE).

6 History

The presence of gypsum was observed for the first time in the Anzá area in 1972, but it was developed, in 1991, the first legally extractions by "Explotaciones Mineras de Antioquia"- Exman Ltd Company. Then, in 2010, Waymar Resources Ltda, bought the Anzá area mining titles to "Explotaciones Mineras de Antioquia" - Exman and it involved in the area initially exploring massive sulphide mineralization and gold later.

As an option agreement signed by both parties concerned, it is allowed Exman to continue with the exploitation of gypsum while it do not interferes with exploration work or the future development of the property. Exploration work would consist of studies of: geochemistry of drain sediments, soil and rock; geophysics studies, including section of induced polarization, magnetometry terrestrial and by helicopter; drillholes, with 17,408 m drilled; and finally, petrographic studies, QA/QC quality control (QC) and quality assurance (QA), geological sections, progress report and technical report NI43-101.

With these results, Waymar founds polymetallic mineralization veins of gold-copper-zinc-lead-silver, in an area of approximately 1,100 m North-South by 400 m East-West between the coordinates 693.900-695.000 N and 399.800 - 400.200 E (UTM, WGS84), this area was defined as Aragón – Pastorera trend area.

Then at the end of 2012 exploration works were minimize due to lack of financing, Waymar began the search for alternatives to continue Anzá exploration.

In the middle of 2014, Orosur saw in Anzá the possibility of a second operation of gold in South America and decided to go ahead with a purchase bid that materialized in this year. At the beginning of 2016, Orosur restarted the original idea on Anzá and began to prepare the way to make possible the construction of a gold mine.

In 2016, Orosur carried out studies of mineralogical metallurgical behavior and a geological re-interpretation of the Aragón-Pastorera area and in March, Minera Anzá sends to EXMAN Ltda. a request under the Option Agreement, signed on May 20 2010 to suspend mining operations, based on the observations contemplated to the exploitation system by "Secretaría de Minas de la Gobernación de Antioquia" and by the ARL Sura Adviser. . This put the mining title continuity and future development of the property at risk. Minera Anzá egained control of the property to restart production operations, after carrying out a new "Programa de Trabajos y Obras" aimed to meet the requirements of Colombian legislation. Finally, exploration drilling was carried out in the area of interest in 2017-2018, as a result of increased the financial capital to the project.

6.1 Previous Studies

The first studies in the area date back to the 1970's; geologists from the National University and private companies concluded that it had no economic interest. More detailed geological studies began in 1987 as Vargas's (1988) study, "Geology of the gypsum deposit La Guaimarala/ "Geología del Depósito de Yeso La Guaimarala", was based on data reported by Maya & Mejía (1987), included a map of the surrounding area as well as a proposed form and source of a mineral deposit and a reserve estimate for a gypsum deposit. According to the study, anhydrite formed from the reaction, in hot, of seawater and hydrothermal fluids in an ocean environment during active volcanism, and is later hydrated to become gypsum.

In his Master's degree thesis by Parra (1997) completed a 1:250000 scale study of Tertiary geological units in the area between the municipalities of Anzá, Santa Fe de Antioquia and Liborina with the objective of establishing the lithological differences of the Amaga Formation and other rocks of the sedimentary record of the Neotertiary time. Informally, Parra defines the Anzá sequence, -a sub-horizontal conglomerates unit that occupies the environs of the eponymous town, the Niverengo, Puria and dPucuna gorge and a stretch of the route between Santa Fé de Antoquia and Anzá, and based on the pollen content on coal and clays stripes, allocates it to Pleistocene time.

Ortiz et al (1999) presented a geochemical study in the Municipality of Anzá, Cordillera Occidental. This study delivers some considerations on lithology and on indicators elements of metal mineralization. In addition, the study shows evidence of vein mineralization sulphides with copper, zinc and lead in dioritic rocks and gypsum in basic volcanic rocks.

In the work entitled "Geological-Mining Study of the Aragón Mine II in the Municipality of Anzá "("Estudio Geológico-Minero de la Mina Aragón II en el Municipio de Anzá"), Cano & Suaterna (1999) determine the geological and geometrical characteristics of Aragón II deposit, including its source, shape, dimensions and relationship with country rocks and the structures that affect them. They propose a possible source for the deposit and an explotation method based on its geology and economic prospects, and perform a reserve calculation.

Florez & Parra (1999) describe the gypsum mineralization of the Municipality of Anzá, indicating that the deposit has a sulphate content of between 56 and less than 15%, occurs with pyrite and chalcopyrite mineralization and silicified, bedded pyrite.

In technical datasheet to Exman Ltda Company, Alfonso & Cano (2000) performed a study of the presence of volcanogenic massive sulphides (VMS) and gypsum mineralization in the La Pastorera mine. The authors proposed a Kuroko type deposit genesis, based on the coexistence of VMS and gypsum bedding in a submarine volcano-sedimentary sequence with the presence of hydrothermal breccias and alteration, associated with VMS mineralization and intermediate to felsic intrusive rocks. They also made a preliminary estimate of the reserves in the VMS deposit.

In its "Massive Sulphides Project in Anzá" in 2001, the Niverengo Society identifies a polymetallic horizon and another horizon of pyrite, and proposed a VMS model based on the geological and structural features observed in the deposit.

Kedhada Company, owned by AngloGold Ashanti, indicate the results of a sampling campaign over the "Transitional Member" and the Siliceous Pyritic unit in its report "La Pastorera Prospectus" in 2006. Kedhada identified polymetallic mineralization with gold, related it to the siliceous ores (OKO in Japanese) of Kuroko type deposits.

A technical report prepared in 2010 by Bargmann & Platten of Snowden, analyzes each of the geological and structural features associated with the deposit, considered the gypsum occurrences of La Pastorera and Aragón as part of a VMS system. They also proposed stages of exploration to be taken in order to minimize the uncertainty about sampling carried out in the area.

Rodriguez and Arango (2013) indicates that there is a sequence of pillow lavas which is considered part of the Diabasas of San Jose de Urama of upper Jurassic - lower Cretaceous age, occuring in the area between the Municipality of Anzá and Corregimiento of Guintar. Radiometric data locates this sequence stratigraphically below the Barroso Formation, of lower to upper Cretaceous time, similar to the Sabanalarga Batholith.

Guiral-Vega et al (2015) framed their study on Sabanalarga Batholith and its implication in the allochthonous terrains theory in the West of Colombia. They identify Anzá, Tonusco and the Buritica Fault as well as Las Cauca Oeste and Uramita – El Tambor, as part of an important North-South system affecting the Cordillera Oeste by ductile and brittle deformation during the Andean Orogeny after lower Cretaceous time.

Finally, there is another series of studies in the area (or including it) both regional and local, some related to the exploration activities of the project, which are summarized in the following table:

Year	Author	Title	Description
1990	Franklin Ortiz	Massive Sulphides in Colombia	Springer-Verlag paper, pp. 379-387
2003	Exman Ltda	Pastorera y Aragón Geologic And Mining Report	Local geology, regional geology and origin
2003	Exman Ltda	Complement of "Programa de Trabajos y Obras (PTO) de la licencia 0048"	Report request according to "Código de Minería de Colombia"
2005	Geoestudios	Geological, Geochemical and Geophysical complement sheet 130 Santa Fé de Antioquia and sheet 146 Medellín Occidental	Official geological regional map of Ingeomina scale 1:100000 make by Geoestudios
2010	Arce Geofísicos	Total field magnetometry and induced polarization. Volume I: Report. Volume II: Induced polarization maps and plates	Terrestrial magnetometry study, spontaneous potential and induced polarization in Aragón area.
2010	Geominas SA	Work visit report gypsum mine La Pastorera and Aragón	Safety and stability conditions report of gypsum mine
2011	Geominas SA	Sampling soils report	Soils and rocks sampling and geological mas 1:5000 in Aragón block
2011	Gemi SA	Petrographic microscopic analysis of thin and polish section	Petrographic study of 15 thin and polish section
2011	Gemi SA	Geological exploration Anzá Project	Drain sediments and rocks sampling and geological map 1:25000
2011	Gemi SA	Petrographic microscopic analysis of igneous rocks	studio petrographic study of 14 thin and polish section
2011	Peter Diorio, Geophysics One Inc	Mag and IP orientation survey over the Anzá project	Results and recommendations about magnetometry and IP make by Arce Geofísicos
2012	MPX Geophysics Ltd	Helicopter-borne Geophysical survey	Magnetic and radiometric aerial survey about Anzá Project area
2012	Alto Americas SA	Identification of geological lineaments and structures by means of radar imagery	Radar with remote sensors for detect prospective area of interest
2012	Gemi SA	Final report of geochemical soils and rocks sampling and geological cartography of surface	Soils and rocks sampling and geological map 1:10000 in blocks Guaimarala, Charrascala and Los Jesuitas
2012	Peter Diorio, Geophysics One Inc	Processing and Interpretation of helicopter magnetic and radiometric data over the Anzá project, Antioquia Dept.	Interpretation of helicopter magnetic and radiometric data make by MPX Geophysics

2012	Gemi SA	Final report of geochemical sampling of soils and rock and geological cartography of "Vereda" La Cejita (Municipality of Anzá)	Soils and rock sampling and geological map 1:10000 in La cejita zone
2013	GeoMinEx Consultants Inc	An Interpretation of the Stratigraphy-Structure-Mineralization in DDH MAP 48	An Interpretation of the Stratigraphy-Structure-Mineralization in DDH MAP 48

Table 3: Geological studies of the Anzá area (Take from a study of Minera Anzá (n.d.)).

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7 Geology and Mineralization

7.1 Regional Geology

7.1.1 Geology

The Anzá Project is located in a zone that belongs to the Northern Andean Block, which includes Ecuador, Colombia and Venezuela. It has a complex tectonic evolution associated with the accretion of land from the Proterozoic to the Miocene times, according to Cediel et al (2003). In this zone, five allochthonous terranes can be identified: the Guiana Shield, the Maracaibo Sub-plate, the Central Continental sub-plate, the Western Tectonic terrain and Guajira-Falcon Composite Terrane (see Figure 8). Four of them were gradually acreted from the West onto the Western margin of the Guiana Shield in the Middle-Late Proterozoic time (~ 1600-550 Ma), the Middle Paleozoic time and the Middle Cretaceous-Miocene time (~ 100-10 Ma).

The Anzá project is located on the eastern margin of the Western Tectonic terrain. Within this, three composite tarrain assembleges are recognized. These are: the Pacific (PAT) to the South, containing the Romeral (RO), Dagua (DAP) and Gorgon (GOR) terrains; el Caribeño (CAT) to the North, containing the San Jacinto (SJ), Sinú (SN), Guajira-Falcon (Gu-FA) and Caribbean Mountains (CAM) terrains; and the Arco Choco to the West, containing the Cañas Gordas (CG) and Baudo (BAU) terrains (see Figure 8). Specifically, Anzá is part of the Romeral (RO) terrain in this association of allochthonous terrains. This corresponds to a wedge of the Lower Cretaceous time acrecionary in the Aptian-Paleocene time and composed of mafic-ultramafic complex, ophiolitic sequences and oceanic sediments. Anzá is limited in the East by the Romeral-Peltetec fault system of the Aptian time (Upper part of the lower Cretaceous) and in the West by the Garrapatas-Debeida fault system of the Oligocene-Miocene time (Cediel et al., 2003).

Characterization of the allochthonous terrains of the “Bloque Tectónico Occidental” still remains incomplete; however, it is known that all units contain fragments of oceanic plateaus, non-seismic chains, intraoceanic island arcs and/or ophiolites, and all developed on an oceanic basement. Through paleomagnetic data and paleogeography reconstructions, their autochthonous origin in relation to the South American continent has been proven (Cedie et al., 2003).

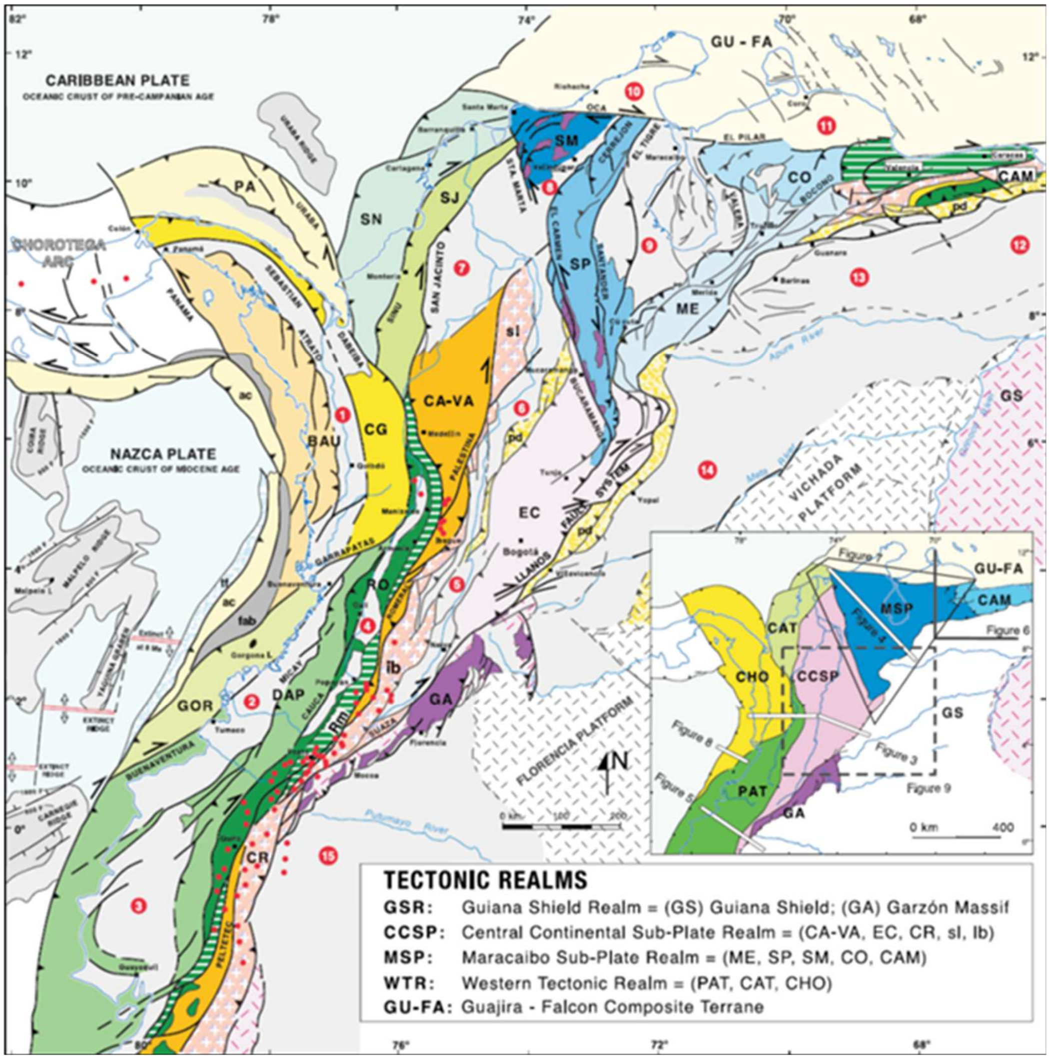

Figure 8: Map of structural events in the western part Bloque Norte De Los Andes (Cediel, et al 2003).

Furthermore, the Anzá project is located on the eastern side of the Cordillera Occidental of Colombia, specifically in the Metallogenic Belt of the Middle Cauca, which mainly presents gold mineralization porphyry and/or epithermal type with a strong relationship with the Cauca-Romeral fault zone, and constitutes a suture zone associated with the crush of the Choco Arc. Moreover, the most important gold mining districts of the country are located in this zone (Marmato, with reserves estimated to 8 Moz Au; Colosa, resources estimated to 29Moz Au and Buritica resources estimated to 3.7 Moz Au) (Sillitoe, r.; 2008) (see Figure 9).

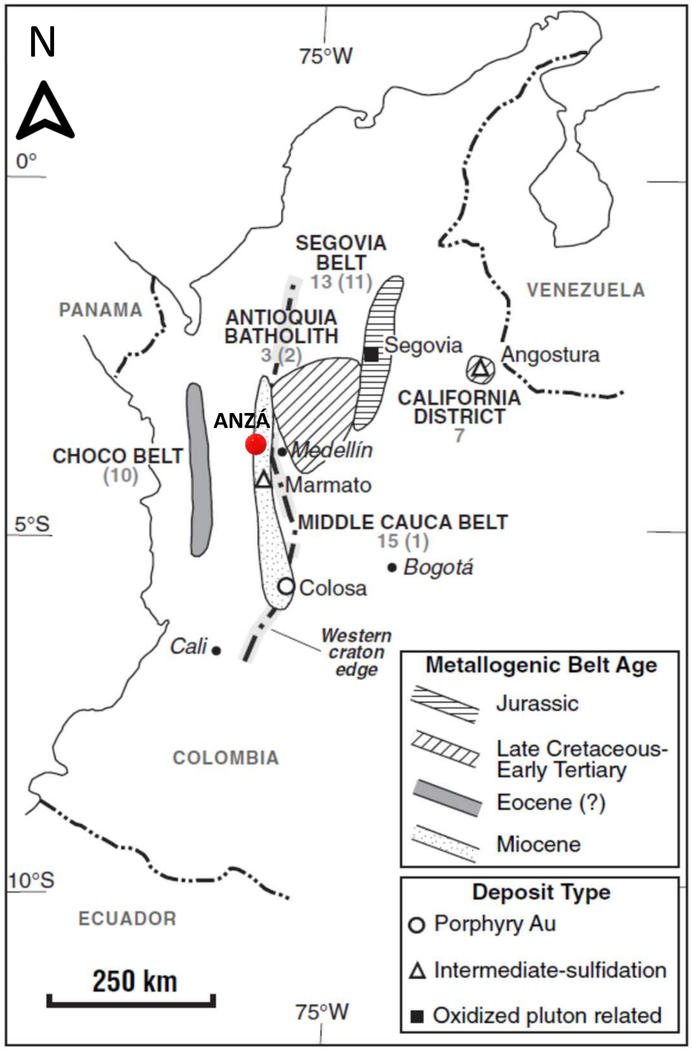

Figure 9: Metallogenic Belt in Colombia. Modify of Sillitoe, R. (2008).

The project area predominates the igneous and volcano-sedimentary rocks from the Upper Cretaceous of the Cañasgordas group (Alvarez, 1971a, and b), constituted in part by Barroso and Penderisco Formation (Alvarez & González, 1978); and by intrusive bodies of the Sabanalarga Batholith and sedimentary rocks from Amagá Formation. These units show strong evidence of tectonic deformation (Gemi, 2011).

Barroso Formation (Aptian - Early Coniacian)**:** Defined by Alvarez & González (1978) corresponds to a volcano-sedimentary rocks intercalation, in which volcanic rocks vary their texture from aphanitic to porphyritic, and composition from andesites to basalts, characterized by the green colour; towards the top pyroclastic rocks prevail, which are associated with lens of siliceous sedimentary rocks of black colour. Sedimentary sequence consists of siliceous siltstones and chert of grey - black colour.

Penderisco Formation (Late Campanian – Early Paleocene)**:** Defined by Alvarez & González (1978) it is described like a sedimentary rocks sequence (limestones and siltstones and claystones, locally intercalated with conglomerates) which can be found lying on the volcanic rocks of the Barroso Formation in concordance contact, locally presents contacts by fault with adjacent units.

Sabanalarga Batholith: Álvarez y González, (1978): It has been defined as an N-S elongated body of age 89, 9±0, 8 Ma (Ar-Ar) – 98.2 ±3, 5 Ma (K/Ar), presenting textural and compositional variation. The predominant composition corresponds to a quartz diorite, with transition to a hornblendic diorite and, locally, bodies of hornblendic gabbro. In the project area, this unit is related to the intrusive rock, which at the North part of the project in the La Cejita area, is in intrusive contact with the previous units.

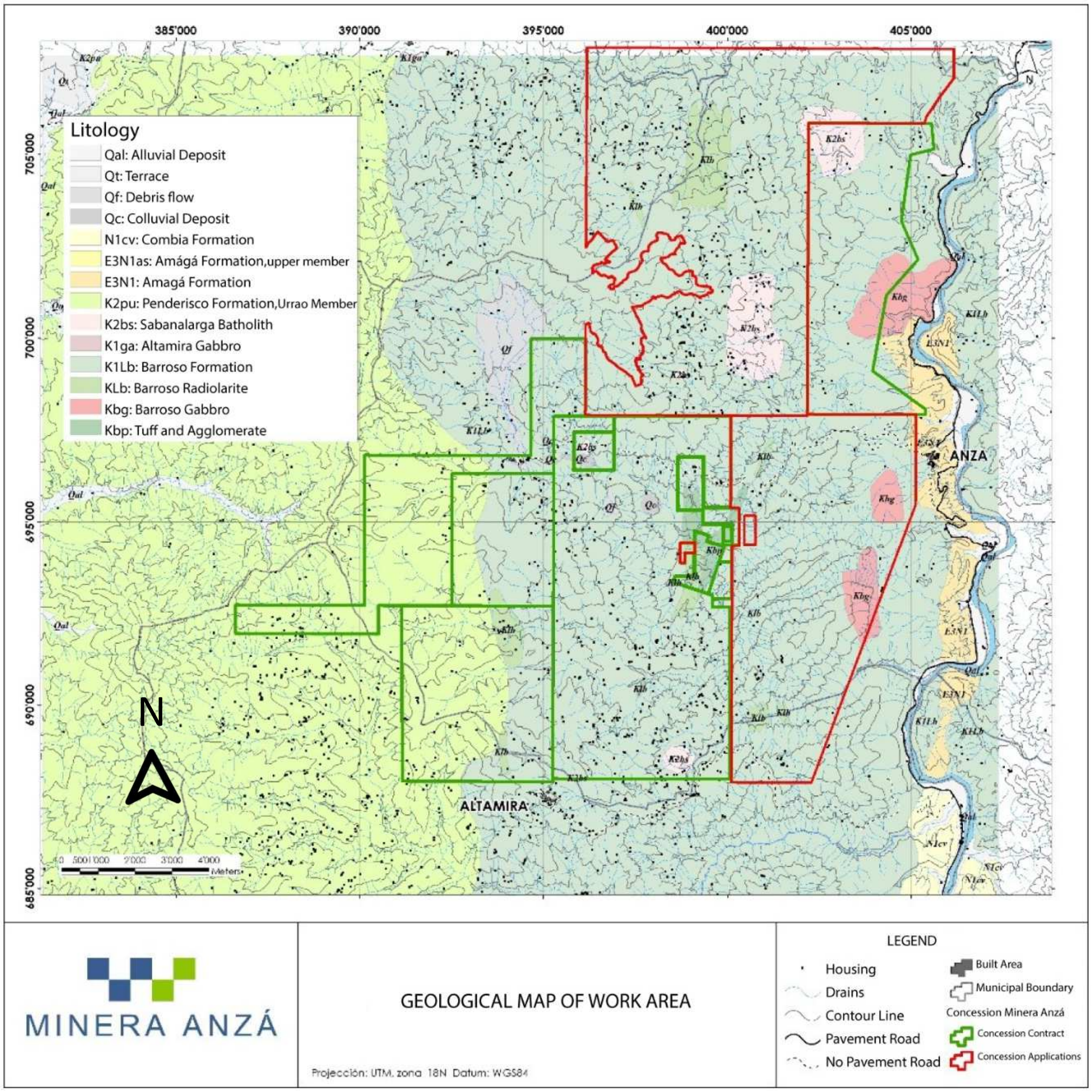

Figure 10: Geological map of the Project area; Green polygons are the titles and the red polygons are requests from Minera Anzá ((Minera Anzá (2018). Minera Anzá report to Ministry of mines/Ministerio de Minas).

7.1.2 Structural Geology

A North-South fault system, named Cauca fault on the map of Mejía et al. (1983) and which would correspond to Romeral-Peltetec Fault of the Aptian time in the scheme of Cediel et al. (2003), limits to the West with Polimetamorphic Complex of the Central Cordillera and it puts in contact the Barroso Formation of the Lower-Upper Cretaceous. This fault is the trace of a tectonic suture between Jurassic (?) - Cretaceous allochthonous terrains acrecionated to the West against a continental margin composed of the Guiana Shield. It has around 1,000 km long, and includes a melange with strong deformed fragments of high-temperature metamorphic rocks from a mafic-ultramafic complex of volcanic rocks and ophiolites and marine metasediments (Cediel et al., 2003).

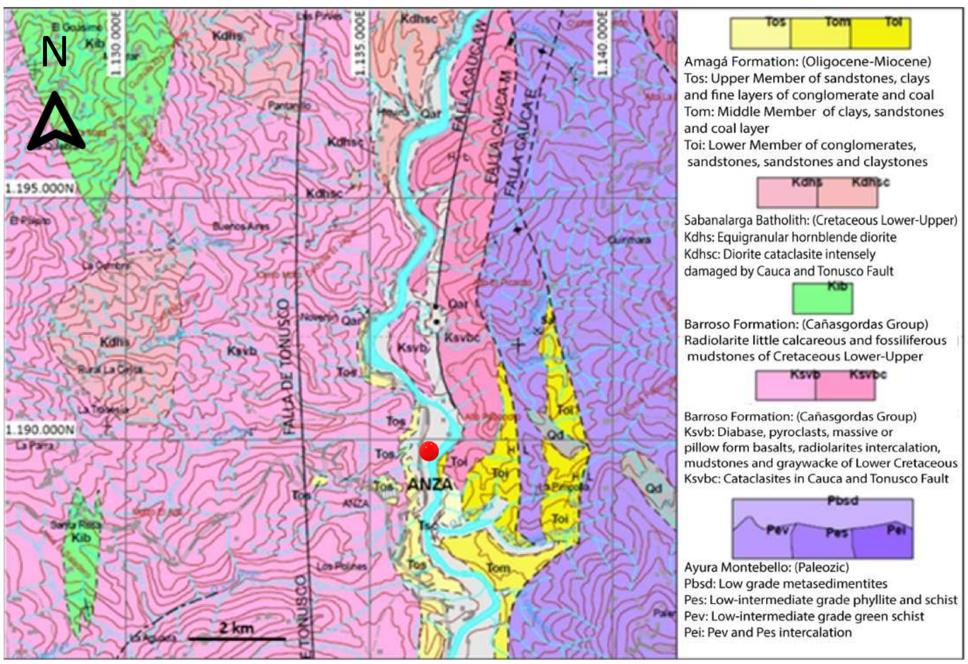

Figure 11: Geology of the Anzá Zone after geologic sheet 146; 1: 100,000 (Mejía et al., 1983).

7.2 District Geology

7.2.1 Lithology

The lithological units and geologic events exposed in the project area are represented by events since Paleozoic time.

The area is showing different types of lithology, where the oldest are exposed in the eastern side; to the East of the Cauca River, outcrops the Ayura-Montebello group from the Paleozoic-Triassic time. Correa et al. (2005a) indicates that the metamorphic basement of the Central Cordillera axis, located in Medellin surroundings. It was initially defined as Ayura-Montebello Group, which is composed of metabasites and high-grade gneiss and low-grade schists. Subsequently, it was subdivided into Ayura area for high-grade rocks and Montebello for low-grade rocks. While Correa et al. (2005a), allowed to identify metamorphic events in the Devonian - Carboniferous time, Permian -Triassic and Cretaceous time (in discussion). Therefore, it was redefined like a polimetamorphic complex of the Cordillera Central. Besides, to Cediel et al. (2003), the polimetamorphic complex of the Cordillera Central would be part of the Cajamarca-Valdivia terrain, limited to the West by the Romeral-Peltetec fault of the Aptian time and to the East for the Palestine fault of the Ordovician-Silurian time (in discussion). The terrain is composed of pelitic and graphitic schists, amphibolites, intrusive rocks and other rocks of ophiolitic origin (olivine gabbros, pyroxenites, chromite and serpentinites), in which is possible to observe metamorphic grades from green schist to amphibolites and with geochemical analysis compatible with interoceanic arcs rocks and continental margin rocks.

The geology of Anzá area is clearly dominated by the Barroso Formation, which corresponds to a set of volcanic rocks intercalated with fine sediment rocks, traditionally assigned to the Lower to Upper Cretaceous time (Mejía et al., 1983) and considered part of the allochthonous terrain of Romeral in the scheme of Cediel et al. (2003). The sequence contains diabases, massive and pillow shape basalts, pyroclastic rocks and radiolarite, mudstones and graywacke intercalated and interpreted like an interoceanic mafic-ultramafic complex with sequences of ophiolties and bottom oceanic sediments. Rodriguez & Arango (2013), recently have redefined Barroso Formation, indicating that this sequence has two different units, the oldest denominated Diabasas de San José de Urama, and Barroso Formation (Figure 12). Therefore, it defined like a volcano-sedimentary unit consisting of basalts and andesites with porphyritic and amygdales textures, with agglomerates, tuffs and marine sediments rocks packages intercalated and discordant over volcanic components, whose volcanic component fall within tholeiitic and calcalkaline middle K and where the behavior of the rare earth elements and the trace the elements correspond to rocks formed in an arc formed by subduction. It was date between 105-85

Ma, which allow to locate this volcano-sedimentary unit between the top part of the Lower Cretaceous time and the middle-bottom part of the Upper Cretaceous time.

Furthermore, Sabanalarga Batholith is composed of equigranular hornblende diorites, with examples cataclastics due to intense brittle deformation attributed to Cauca and Tonusco faults. Radiometric ages reported by Rodríguez et al., (2012) are 83-102 Ma, which located this pluton between the top part of the Lower Cretaceous time and the middle-bottom part of the Upper Cretaceous time. In the district, it is a North-South elongated body of about 35 km long by 2-10 km width, consisting of an initial pulse of gabbros and diorites and other later pulse of quartz diorites and tonalite (Rodríguez et. 2012). Due its similar ages with Barroso Formation, this batholith is considered the plutonic component of the volcano-sedimentary sequence and both units are probe of the installation in the Lower-Upper Cretaceous time of a magmatic arc (Rodríguez et al., 2012).

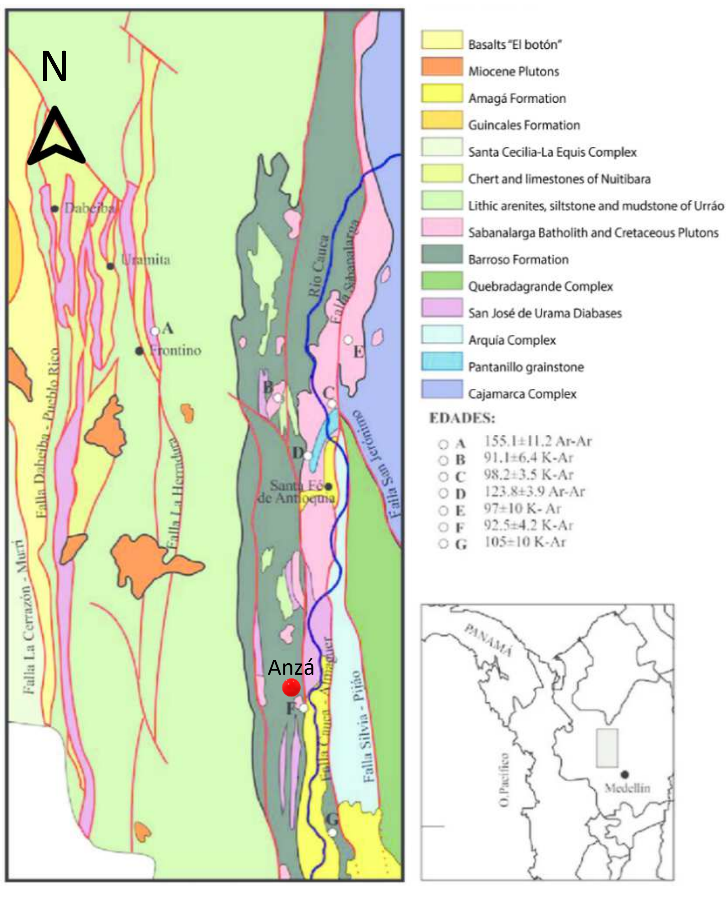

Figure 12: Detail map of the lithology from Cordillera Central and Cordillera Occidental (Rodríguez et al., 2012).

The stratigraphic record of the area completed with siliciclastic sequences of claystones, sandstones and conglomerates with intercalated thin levels of coal, that Mejía et at. (1983) described like top, middle and bottom members of the Formation Amagá of the Oligocene-Miocene time. According to Ramírez et al. (2012), this unit corresponds to sedimentation in pull-apart basins generated in the Oligocene-Miocene time throughout the depression of the Cauca, due transpressional dextral movements of the Romeral fault system. During the accretion of the Choco in the Oligocene-Pliocene time, the Amaga Formation rocks are affected by a Norwest fault system related to a component of strain transpressional, which later in the Pliocene-Pleistocene time is invested with sinistral movements (Ramírez et al., 2012).

7.2.2 Structural Geology

The study area is framed in Romeral-Peltetec fault system of the Aptian time in the scheme of Cediel et al. (2003), has an NNE trend and separates the Cordillera Occidental and Cordillera Central along the Cauca River. The main faults reported in the study area are (Figure 13):

Aragón Fault: It has a NE trend, with sub vertical dip and a sinistral movement mostly. It affects mainly the rocks of the Barroso Formation and it has a close relationship with the mineralization found in the study area.

Pastorera Fault: It has a NE-SW trend, it affects the rocks of the Barroso formation.

Niverengo Fault: It is prior to Aragón and La Pastorera faults and has a NW-SE trend.

Tonusco Fault: With reverse behavior and vergence to the East.

Cuño Fault: It has N-S trend, with a sub vertical dip; this fault truncates the gypsum in the Pastorera Mine linked with the Aragón fault. It presents a broad tectonic shear zone.

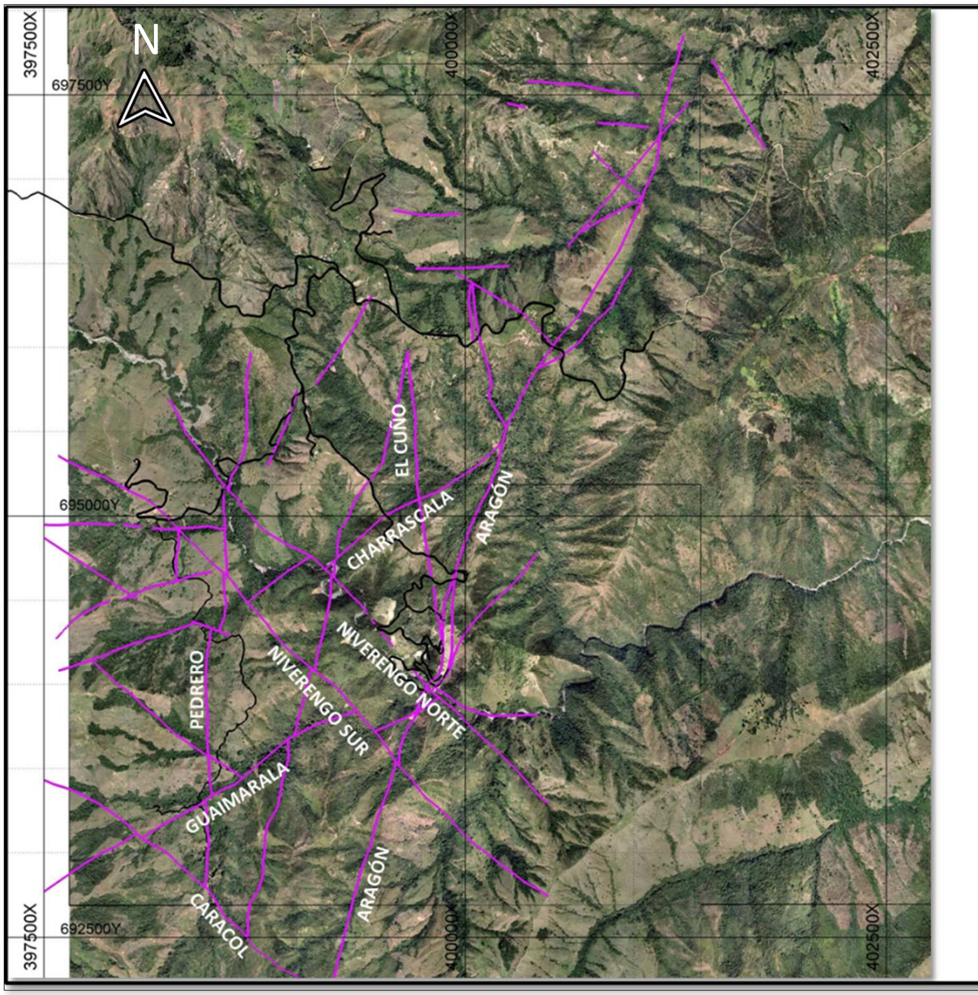

Figure 13: Main Fault System (Minera Anzá. (2018). Minera Anzá Report for Ministerio de Minas/Ministry of Mining).

7.3 Local Geology

7.3.1 Lithology

From the data reports presented by Alfonso & Cano (2000), Niverengo (2001), Kedhada (2006), Bargmann & Platten (2010) and studies made to Gemi SA and with GeoMinas SA, the local geology of the project area is located on a belt of North –South trend which includes basalts, tuffs and breccias of the Barroso Formation; Lenticular outcrops of mudstones, calcareous shales, siliceous and gypsum levels intercalated between the volcanic rocks; tonalitic-dioritic intrusion of Sabanalarga Batholith which generate contact rocks, and recent alluvial deposits. These are affected by North-South, Northeast, Northwest, and East-West local faults (Figure 14).

Tuffs (K1t) unit composed of lithic lapilli tuffs with green shades, crystals tuff with higher proportion of quartz and plagioclase and rhyolitic tuffs of scarlet red colour with lapilli fragments. They outcropping in the gorge Pitanja, Juanes, Higuina, Puria, Juanes, Noveron, Cañada Las Peñas, in several tributaries in the upper basin of these and in valleys to the East and South of the El Rodeo farm in the “vereda” La Cejita, as well as in the route sections that leads to the “vereda” La Cejita and locally, on roads and path of the partition of waters (Gemi, 2012).

The crystal tuffs and rhyolitic tuffs are limited to minor lenses, intercalated with the lapilli tuffs in central sector, between the trace of the fault El Nudillo and South of the Buenos Aires lineament, as well as 500 m to the North outside the study area. The lapilli tuffs include North, Central and Southeast of the project area and the area of the gorge Parra, where are covered by slope deposits. Also occur tuffs with thermal metamorphism in the Northwest, according to an aureole of 200 m wide around the tonalite-diorite.

To the West and South, the tuff is limited with the intrusive mentioned, and to Southwest, end up like mudstone intercalated, while their northern and East limits are not defined to the scale of the map due, they are outside of the area of study (Gemi 2012).

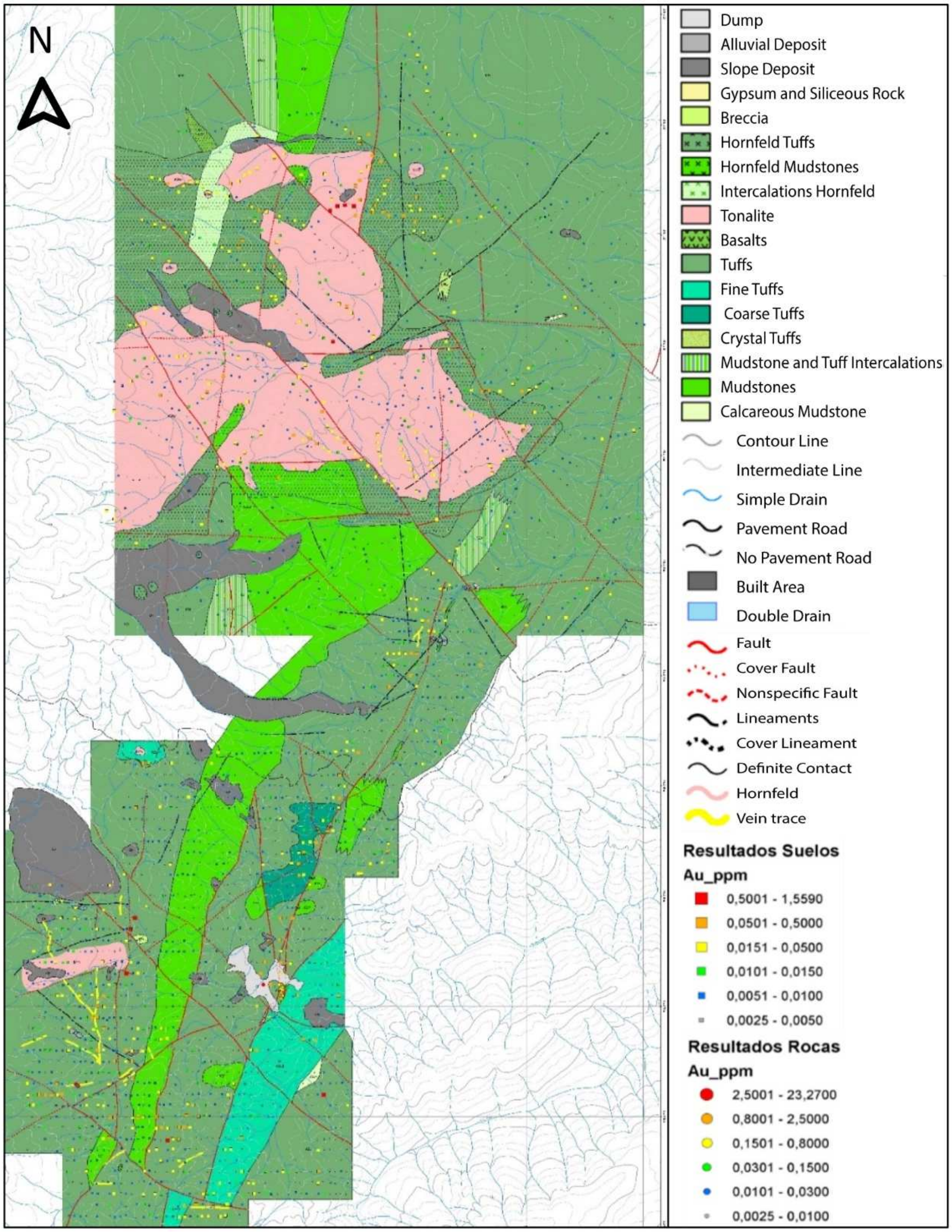

Figure 14: Geology of the Anzá Project with lithology and soils geochemistry (Gemi, 2012)

Silicification is the main alteration event in the tuffs, which seems to be mostly related to the intrusion of the tonalite-diorite. Other minerals of hydrothermal alteration include quartz veins with presence of chlorite and epidote. The presence of iron and manganese oxides suggest that the primary mineralization is mainly pyrite, partly accompanied by something of chalcopyrite as suggested the presence of copper oxides.

The basalts of green and black colour, aphanitic texture, massive, fractured and weathering. According to petrographic descriptions in which observed the presence of minerals alteration in amygdales and veinlets like calcite, pumpellyite, quartz, epidote and zeolites and some iron oxides. It often can be found traces of spread fine granular pyrite. Its main exponents are observed along the gorge Niverengo, Purco, Pitanja, Higuina, Puria, Torito and on Santa Fe de Antioquia-Anzá way.

Mudstone (K1l) unit occurs as a Northeast body of 1.5 km length by 100-400 m wide. In the central part of the project (Fig. 21), in La Mata de Moras sector to the Northwest of the gorge La Chiquita, it is intruded to North by La Cejita tonalite-diorite. In addition, there is a hornfels area in the El Valerio sector and La Puria Fault, continuing outside the study area in North-South elongated form. Other mudstones have isolated outcrops in the South slope and partially in the North slope of the middle basin of the gorge Puria, to the North of the middle basin of the gorge Juanes, in the sections of the Anzá - La Cejita road found to the Southwest of the study area and in Los Llanos sector.

The mudstones, in general, show a massive, hard, slightly fractured and jointed shape, with semi-concoidea to flat fracture. In surface they are green to brown colour by mosses and patinas of iron oxides respectively, black to dark grey colour in fresh-sections, composed of a fine granular aggregate of silt, clay and organic matter in proportions not determined.

The main degradation process of the mudstone is weathering, which produces reddish brown to orange brown colour to 4 m depth, while the mudstone from thermal metamorphism have purple, pink and yellow shades floor (Gemi, 2012).

On the northern slope of the middle basin of the gorge Pitanja, outcropping a body of radiolarite of lenticular shape to direction almost EW (Gemi, 2012). They are low density, fine granular, white-cream to grey colour, with high content of silica and some patches of iron oxides. The main degradation agent of the radiolarite is weathering, developing deep limo-clay soils of yellow colour with sub angular fragments of gravel to cobble size of white colour silica composition. The C horizon is characterized like matrix-supported.

Outcrops of the tonalite-diorite, or La Cejita tonalite (K2TO), occur in the North slopes of gorge La Puria, the upper basin of the gorge Pitanja, Juanes and Potrerito and in the gorge Chuscala, as well as in section road of the La Cejita - Los Llanos roads and in the Herradura roads which is located towards the Northwest of the study area where it is possible to distinguish some sub metric blocks with the typical spheroidal weathering of the intrusive. It outcrops like a body of irregular shape with a slight trend toward the North, which is in contact to the North, South and East with the tuff, to the West and South with mudstones, and in both cases like intrusive contacts that generate a ring of thermal metamorphism (GEMI, 2012). The unit’s best outcrop shows a massive rock, a bit fractured, of white mottled to black colour and medium brown colour by iron oxides present. Its texture consists of an isotropic crystal aggregate, phaneritic, middle equigranular, with plagioclase euhedrals of tabular form, with slight to moderate argillic alteration, hornblende euhedrals of dark green colour, prismatic to irregular shape and quartz subhedral crystals of translucent to light grey colour, with fine phaneritics facies, and (60%) subhedral plagioclase, and slight argillic alteration with (40%) prismatic hornblende of very dark green colour. The diorite composition occurs preferably in the edges of the intrusive stock (Photo 1) while more tonalitic composition is found in the central part of the intrusion in the area of La Cejita.

Photo 1: Diorite outcrop in the “vereda” La Cejita (Gemi, 2012).

Several outcrops of tonalite-diorite occur strongly affected by weathering processes, therefor shows saprolitic appearance, composed of sandy fragments of medium to coarse grained, quartz-rich, with abundant oxides of iron in patches and veinlets. Soils are sandy-silty brown pink, white and occasionally brown colour, possibly by oxidation of the ferromagnesians and sulphides and sometimes clayey soils by supergene argitilization.

Silicification at local vein structures is the main alteration affecting the tonalite-diorite. About the mineralization, is limited to the presence of low pyrite spread and local veinlets related to traces of faults zones (Gemi, 2012).

The hornfels form from mudstone and tuffs of the Barroso Formation, occur in a metamorphic contact aureole of approximately 300 m wide around the tonalite-diorite. The ring is not uniform and can have up to 1 km wide, like in the upper basin of the gorge Pitanja, sector El Nudillo and the North slope of the middle basin of the gorge Puria. Other outcrops occur in the South of the “vereda” La Cejita, as well as in the sectors El Nudillo, the upper part of the gorge Chuscala, the upper basin of the gorge Pitanja and Higuina and in the middle basin of the gorge Puria.

The common feature in the hornfels, is its massive appearance and high hardness, due pervasive silicification, apple green colour, for the presence of chlorite and quartz recrystallization, in the case of those developed in tuffs exposed in the middle basin of the gorge Puria and black to brown very dark colour, due to the existence of possible biotite alteration in the case of the mudstone.

Hornfels of weathered tuffs, presented white and brown colour, with soils according to saprolitics aggregates of silts and clays, which retain the texture of a rock with argillic alteration and moderate oxides of iron and manganese. Some fragments preserved better, retain the texture of a lapilli tuff. Weathering of hornfels on mudstones produces soils of clear colours, predominantly the colours pink, yellow and purple (Gemi, 2012).

In the recent deposits, slope’s (colluvium) are located around all over the western sector of the study area, several forms and compositions. On the eastern edge of the radiolarite with the tonalite in Los Nudillos sector, a deposit of elongated shape occurs to Northwest, the supported-matrix fabric, dark brown colour, clay composition in presence of organic matter and block clast size of diorite, radiolarite, basalts and tuffs. In the far north of the study area, another East-West slope deposit occurs of elongated shape, of matrix sandy-silty that supports sub meter size rounded to sub rounded cobble of tuffs and occasionally diorites in incipient to moderate state of weathering. Another deposit of this kind in the southwestern sector has elongated shape East-West, with clayey-silty matrix of brown colour that supports blocks of fine tuffs in incipient State of weathering.

7.3.2 Local Structural Geology

Anzá shows geomorphological evidence as triangular facets, deflected drains and waterfalls that reveal the presence of major tectonic structures, i.e. geological faults systems, that in descending order of age and according with preferential orientation correspond to North-South (NS), East-West (EW) and Northwest-Southeast (NW-SE). Among these are also lineament and veins, all of which are shown in Figure 15.

The main North-South faults, correspond to Aragón and El Pedrero, general trend N20E, which are cut by Northwest (30-40 ° W) and East-West. Local faults in the South sector of the El Rodeo farm and on the North slope of the middle basin of the gorge Higuina, are also part of this system of tectonic structures (Gemi, 2012).

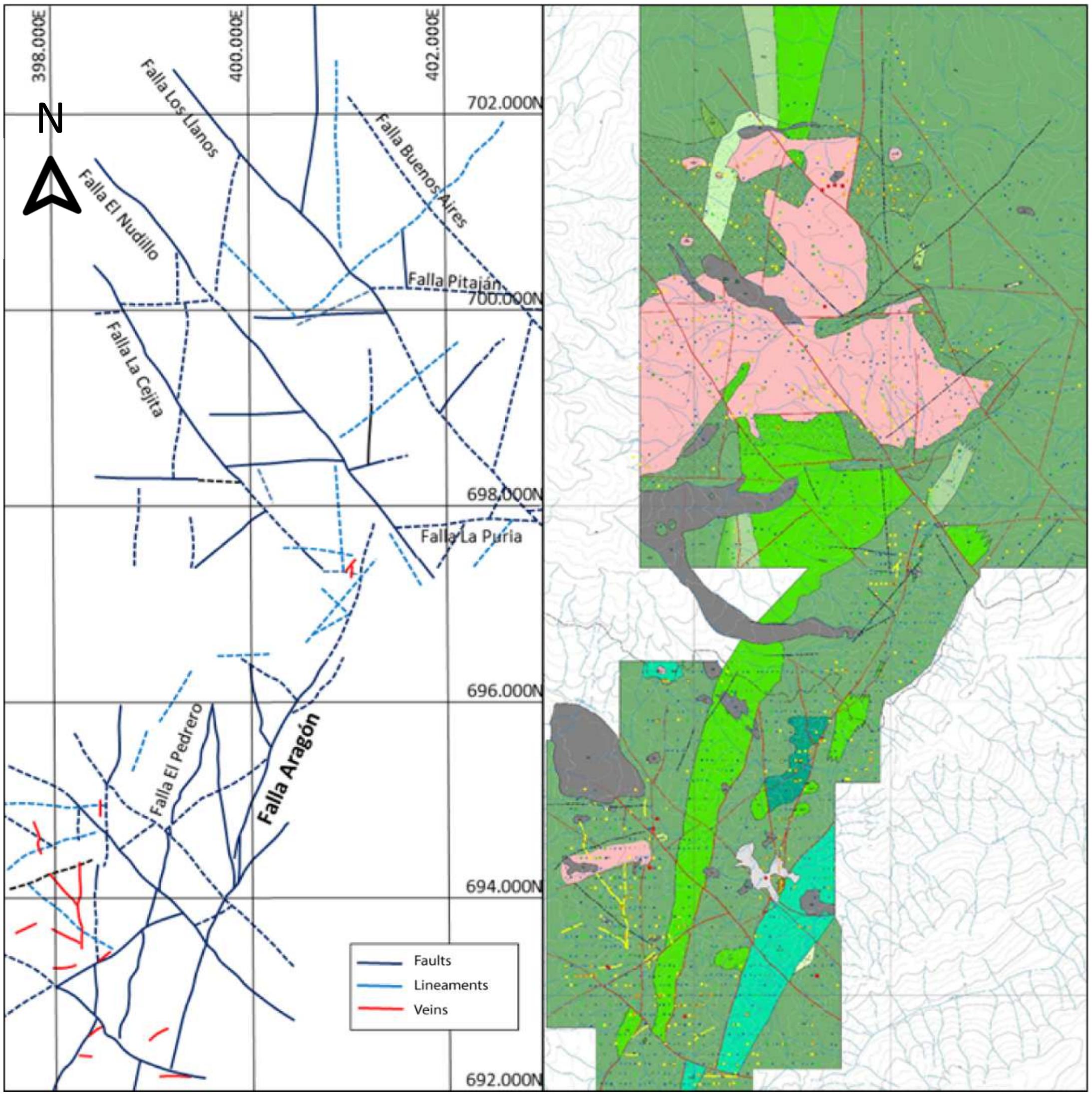

Figure 15: Main Faults, lineaments y veins of the Anzá project (Gemi, 2012).

Without doubt, the Aragón fault is the main fault of the project. It is a structure sinistral, according to geomorphological evidence like shutter ridge, displaced drains and saddles of fault that can be seen especially in the sector of La Chiquita. It has variable direction NS to N20E and sub vertical dip with a fault zone of several meters in some parts, with strong geomorphic expression in the gorge Chiquita in the sector of La Jesuita (Gemi, 2012).

Northwest Faults like El Nudillo, La Cejita and La Puria cut and move to the fault toward East. The structure continues towards Northeast at the height of the Gorge Pitanja indicating that the fault is still outside the project area like in the La Higuina (Gemi, 2012).

In the gorge Higuina, an Aragón fault zone of direction N25 ° E / 85 °SE occurs in outcrop of 7 m high and 15 m wide witha bluish green colour, locally with shades of pink, with intense faulting of preferential direction NE and some groove marks that suggest apparent sinistral movement. The rock has is clearly weathered, with a heavy accumulation of oxides on the edge of the B and C horizon soils which give the rock a reddish brown colour. At the macroscopic level, the rock is green, mainly due to the presence of chlorite and epidote of metamorphic origin. In the fault there is a dyke of acid composition, with euhedral, prismatic hornblende of medium size and dark green colour and subhedral quartz.

El Pedrero fault has North-South trend north-northeast and sub vertical dip, exposed mainly in the West and South and North out of the limits of the work area affecting the tuff unit like a defined structure in which it is possible to see fault zones between 7 and 14 m of rocks with develop of cataclastics rocks. An outcrop rock of 30 m long, 20 m wide and 4 m high in grey massive lapilli tuffs on the upper part of the gorge Higuina, shows a N10E° shear zone with an approximate width of 10 m and the presence of carbonates as fracture filling with trace of pyrite (Gemi, 2012).

According to Gemi (2012), Aragón and El Pedrero faults are possibly associated with the intrusion of the tonalite-diorite of La Cejita. Although El Pedrero fault not continuous through the intrusive, evidence of field like lineaments of saddles, pronounced jumps, deflected gorge and local North-South faults suggest that this fault was reactivated after the intrusion.

The East-West fault system consists of Pitajan and La Puria faults, dominated by the geomorphological expressions in the gorges of the same name. The Pitajan fault is sinestral, with some vertical component, moves the North-South fault system and simultaneously is itself moved to the Northwest. An outcrop shows a selvage zone with dissemination of sulphide. For its part, the La Puria fault has dextral movement that moves a mudstone body for about 250 m to the East and, at the same time, is cut in several segments by Northwest-trending faults such as El Nudillo, La Cejita, and Buenos Aires. The fault system is most represented in outcrop in the La Mata de Moras sector to the South sector of the study area, on a road between the "veredas" La Cejita and El Cinco, where tuffs with traces of pyrite and fault planes, shown evidence of contact metamorphism contact (2012 Gemi).

The Northwest fault system is the youngest and it is composed of four main structures: la Cejita, El Nudillo, Los Llanos and Buenos Aires (Fig. 22). The Cejita is a sinistral structure which moves a body of mudstones and tuffs in the homonymous "vereda" (Photo 2).

Photo 2: La Cejita fault cutting La Cejita diorite (Gemi, 2012).

El Nudillo fault has dextral kinematics and moves the tonalite-diorite La Cejita, tuffs and mudstones by approximately 500 m to the South-East of the farm El Rodeo, as well as La Puria y Aragón faults. Los Llanos fault is sinistral and moves Pedrero fault in the Northwestern sector and the Aragón fault in the Southeast sector of the study area. An outcrop rock in the upper part of the gorge Juanes shows this fault by cutting a grey colour fine tuff with presence of carbonates like veinlets, iron oxides and spread pyrite. Finally, the Buenos Aires Fault is an inferred structure of possible dextral movement that moves Aragón and Pitajan (Gemi, 2012).

7.3.3 Alteration and Local Mineralization

With respect to the mineralization, without doubt the sulfur predominate is pyrite, which occurs spread, in flakes or patches, fractures and veinlets, both in the hornfels of the aureole contact in tuffs and mudstones around the tonalite-diorite La Cejita like it is hydrothermal vein structures. In the first ones dominate pyrite in veinlet and spread with abundance of up to 5% total rock, with chalcopyrite subordinate and occasionally bornite.

In its high and middle basin of the gorge Pitajan and the Higuina, vein shape structures are found that contain sulphides. In the first outcropping, irregular quartz veins of less than 3 m in length and 5 cm in thickness, with direction of N70 ° W and traces of pyrite. Another irregular quartz veins of more than 8 m in length, thickness less than 6 cm and N65 ° W direction occur with the presence of poorly disseminated pyrite a Herradura path, between the “veredas” La Cejita and La Higuina. In the middle of the gorge Higuina, another quartz vein of N30 ° E / 70 ° direction occurs in outcrop: it is moderately weathered, discontinuous and less than 5 cm thick. On the upper part of the gorge Pitajan, there is a volcanic rock with massive texture and traces of fine pyrite. At the top of the gorge Puria, quartz veins with thickness less than 2 cm, long less than 3 m and orientation N30 ° W / 60 ° SW occur in an outcrop rock of 3 m high and 10 m long in massive tuff with contact metamorphism. Veinlets N60 ° E / 25 ° with abundant iron oxides, possibly due to the oxidation of pyrite, occur on one side of the road between the "veredas" La Cejita and La Mata, in a saprolitic tonalite-diorite outcrop (2012 Gemi) (photo 3).

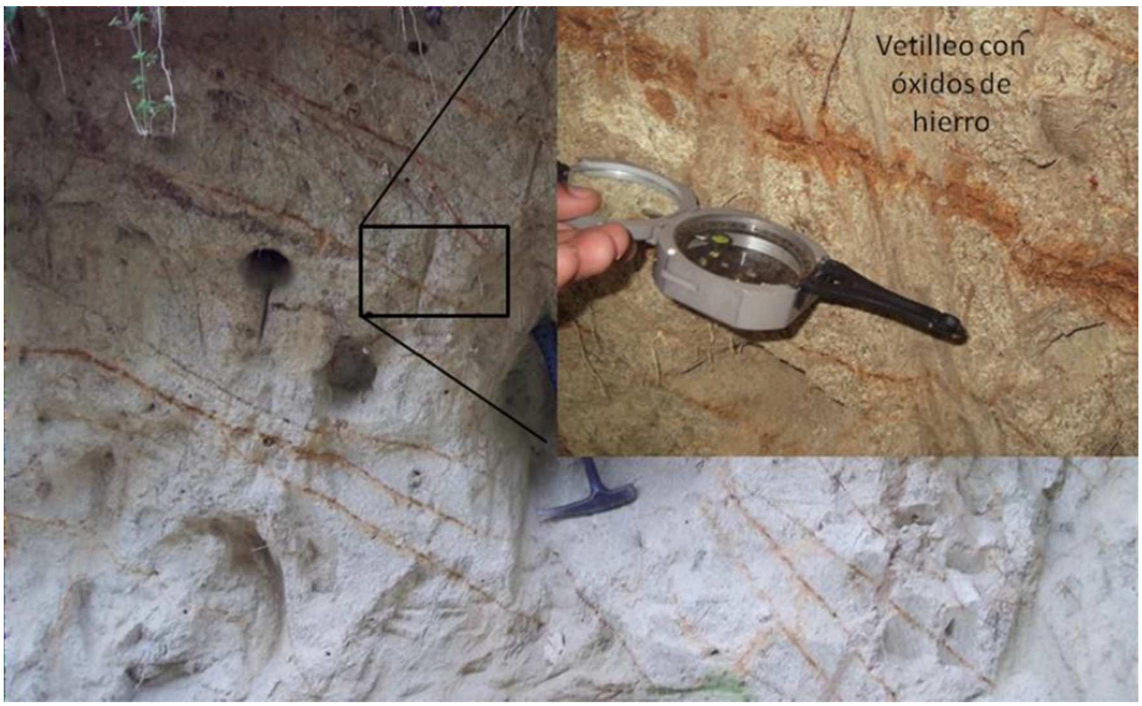

Photo 3: Oxides of iron veinlets in the road of La Cejita - Lo Mata (Gemi, 2012).

Sulphide mineralization, including pyrite, bornite, chalcopyrite and sphalerite in lesser proportion, often are associated with contact areas with the La Cejita tonalite-diorite: for example, in the sector of Los Llanos, upper part of the basins of the gorge Higuina and the Pitanja, in the middle part of the basin of this last gorge, in the eastern tributaries of the gorge Puria, near the "vereda" La Cejita and in the western tributaries of the gorge Pitajan located in the sector of El Rodeo farm. It is occasionally possible to find traces of pyrite in the same intrusion (Gemi, 2012).

Silicification is the main alteration in the project area (Figure 16), and is related to the contact with the tonalite-diorite La Cejita, which appears many times accompanied by traces of pyrite. In less proportion, supergene argitilization occurs in the tuffs and intrusive unit. In specific sites, it is possible to see chlorite alteration and epidote alteration occasionally present in the limits of the veins. Carbonates are a casual association in vein shape structures, and the relationship between carbonates and silica can vary significantly from one outcrop rock to another (Gemi, 2012).

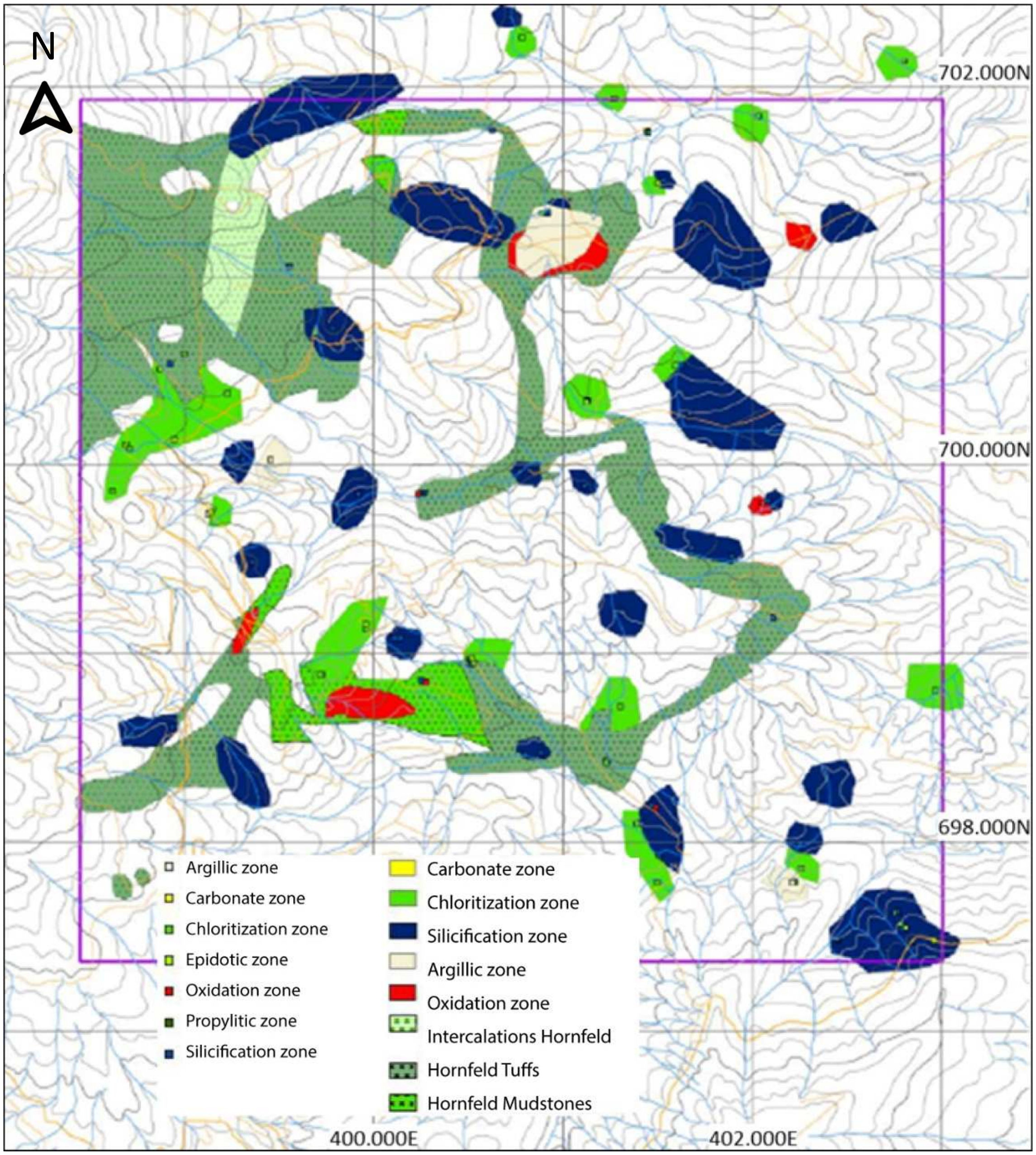

Figure 16: Hydrothermal alteration and metasomatism in the Anzá area (Gemi, 2012).

7.4 Geology of the Aragón - La Pastorera Area

Anzá Project is in a region denominated by the Aragón - the Pastorera Trend Area (APTA), which is located approximately 7 km west of the Romeral fault zone, and marked approximately by the course of the Cauca River (Figure 17). The project area is located within a 10 km to 15 km wide, North-South trending belt of basalts and basaltic andesites of the Barroso Formation. Lenticular outcrops of fine sediments (sediment and mud) occur within the Barroso Formation. An important outcrop of the Penderisco Formation is located about 5 km to 7 km west of the project area. A calc-alkaline Cretaceous intrusion and Neogene intrusion are present, but they are minor local components. The fracture between Barroso Formation and Penderisco Formation is defined at a regional scale by the Sepultura fault of North-South trend, which is a structure parallel to the Romeral fault. In the vicinity of the Anzá Project, the Sepultura fault is mapped within Barroso Formation, suggesting a morphology of fault more complex and a structural history (Figure 17).

In Aragón and the Pastorera mine gypsum deposits, the sulphide mineralization occurs in a local pyroclastic and intermediate sedimentary sequence in the main basaltic outcrop of Barroso Formation (Figure 18). This sequence is called the transitional member by Kedahda (2006).

Three units mapping locally occur in the Pastorera mine and formed lower units exposed of the transitional member (Alfonso and Cano, 2000 Niverengo, 2001 and Kedahda, 2006):

- Thick sequence of fine tuffs, with intercalated basalt massive to pillow shape and less chert and calcareous mud.
- Tuffs of intermediate composition, with local pyrite above the gypsum and sulphide. Pyrite replacement zones can reach 3 m in thickness.
- Agglomerate and crystal-lithic tuff, with minor intercalated chert, calcareous mudstone and basalt. The massive sulphides are also found, while gypsum is an important part of the unit.

Several faults go through the La Pastorera – Aragón area and, in particular, the associated gypsum and sulphide bodies are truncated by the Aragón fault (Figures 19). The Aragón (NNE-SSW) fault, the Saladero fault (N-S) and the Pedrero Fault (N-S) joined, with parts of the outcrop rock of the transitional member abutting against the normal lithology of the Barroso Formation. The three faults are also displayed cutting Cretaceous intrusions. The North-South El Cuño and El Cruce faults, shown in Figure 19, do not result in map scale displacement of the geological boundaries; however, it is evident that these faults have displacements that are significant in the scale of sulphide bodies. These faults are framed by a shear area with breccia of ± 10 m, developing local cataclastic foliation in the fault zones. Mineralization of fault planes is not reported.

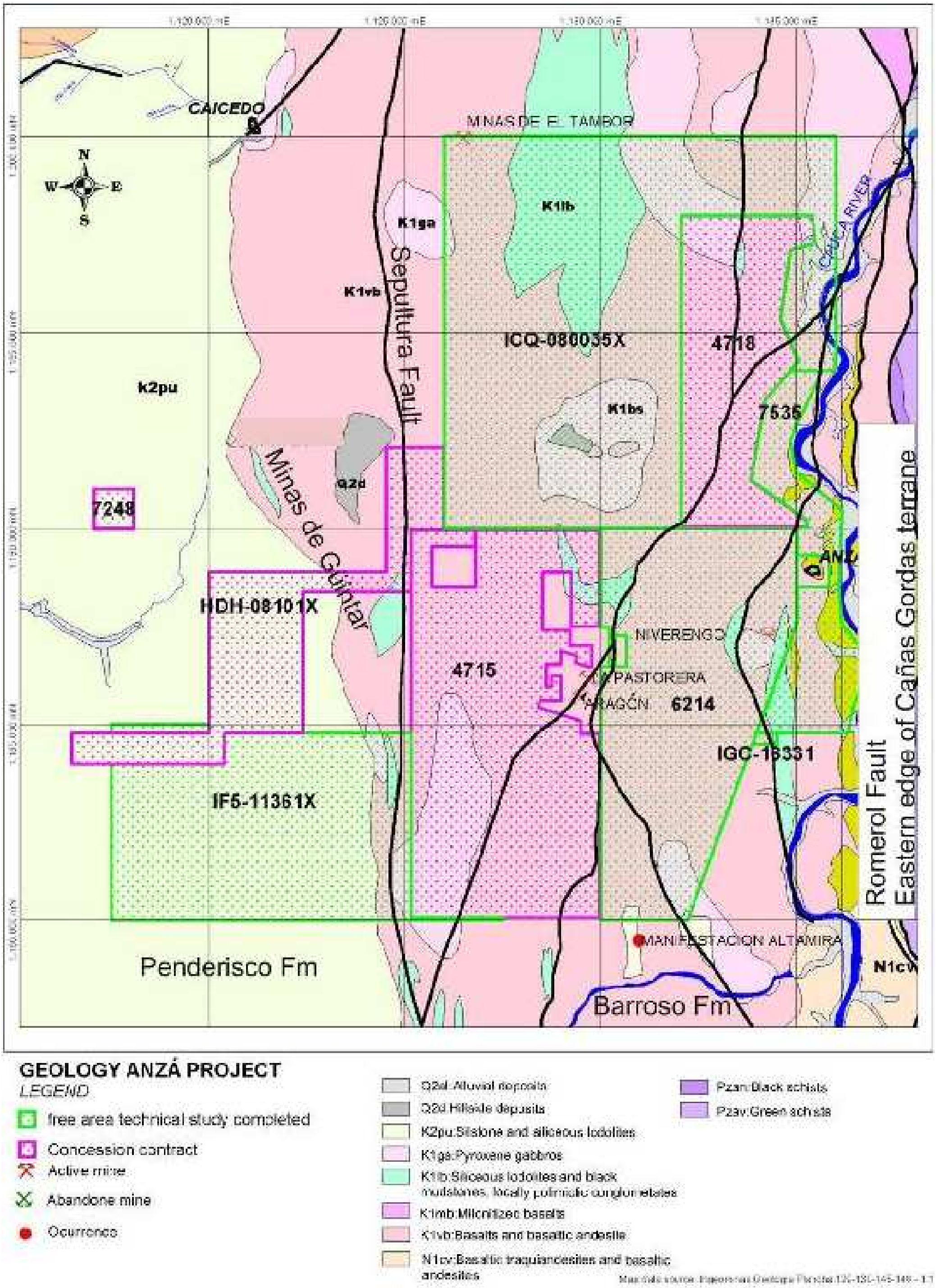

Figure 17: General geology map of the Anzá Project area. Coordinates in the Colombian grid by Gauss-Kruger (source: CGL, 2010, based in maps of geology to scale INGEOMINAS 1:100,000).

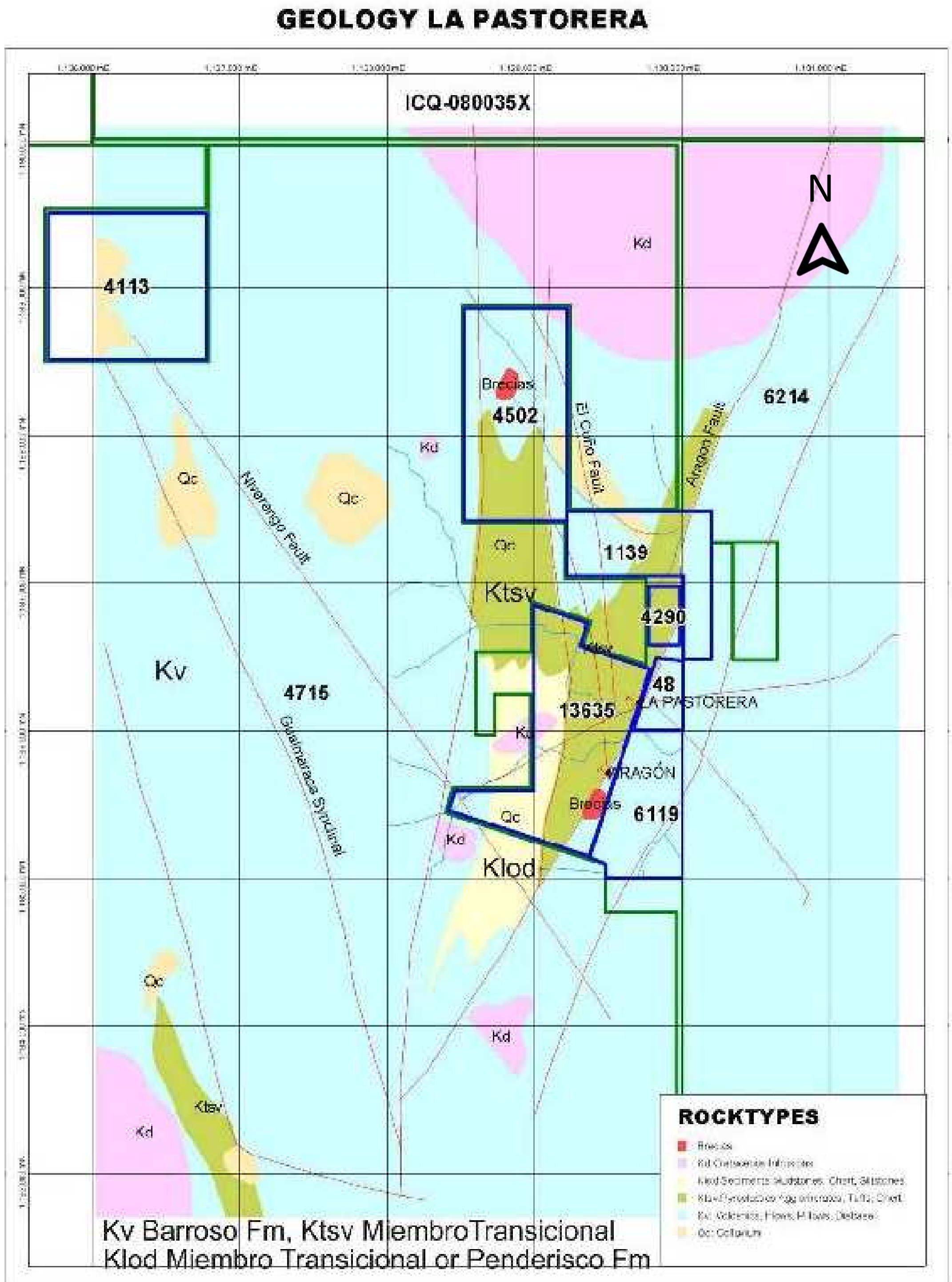

Figure 18: Geology map and concession of the area of La Pastorera Mine and Aragón Mine. Coordinates in the Colombian grid by Gauss-Kruger (source: CGL, 2010, base in Niverengo 2001).

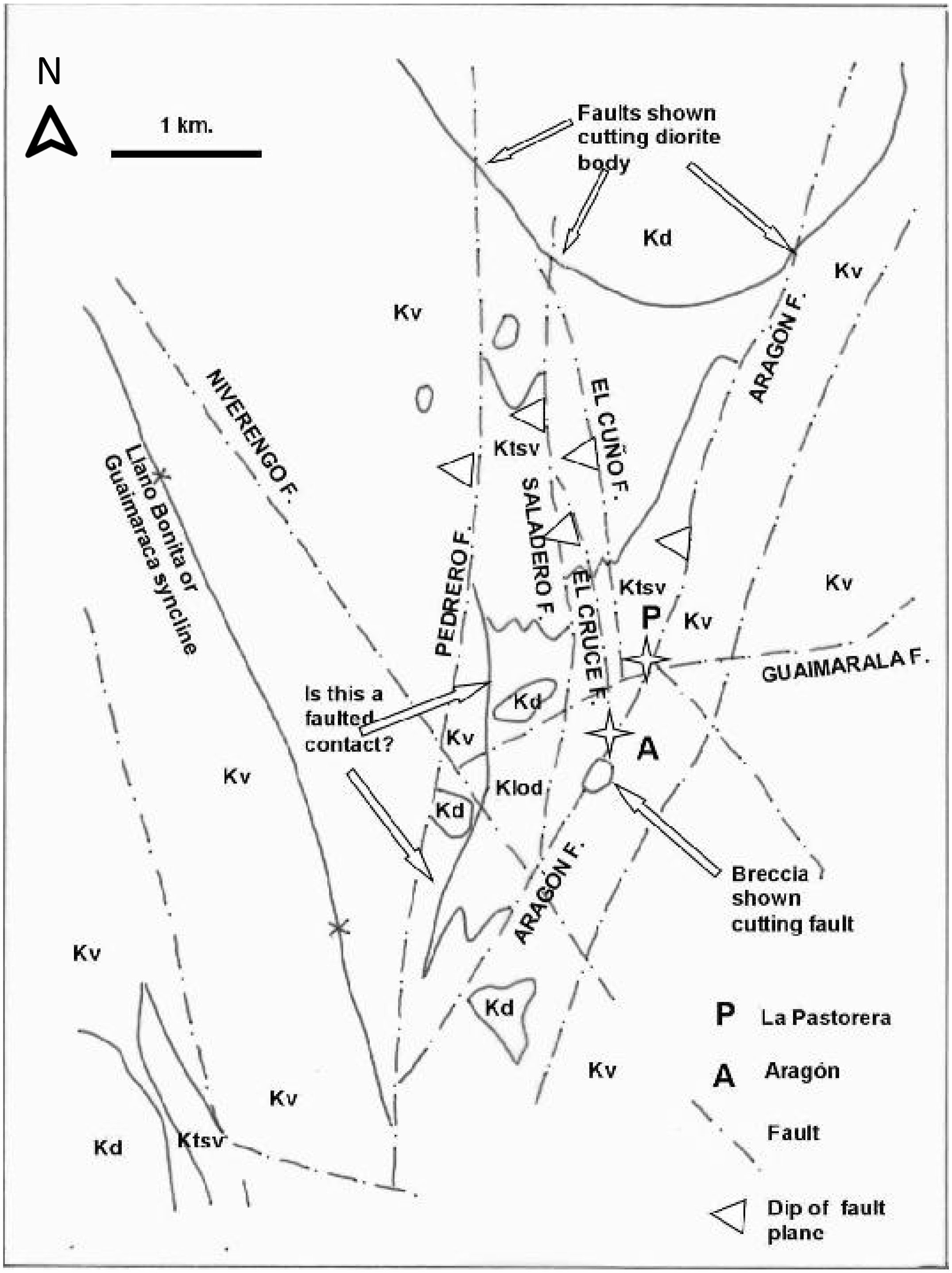

Figure 19: Faults patterns around the deposits La Pastorera and Aragón, including Niverengo Fault which extends NW-SE (provided by CGL, original source Peñoles, 2006 (?)).

Geological mapping, shows the presence of folds with trends ranging from NNE to SSW, NS and NE-SW in successions of the wall rock. The axis have a dip of 45 ° to 80 ° and the folds are tight vertical structures. It seems that several folds end in fault, but the fault creeping may also contribute to the concentric line of Aragón segments Northeast-Southwest and Aragón-Pastorera anticline. The Pastorera deposit mapped like occurring within the core of an Anticline of North-South trend, which has, may be asymmetrical and isoclinal nature. It is no reported divisions or foliation associated with folds or presence of metamorphism by the conservation of the alteration of chlorite-sericite, the sequence of microcrystalline quartz and chalcedony; it suggested that the metamorphism is absent or very low degree (Kedahda (2006)).

During the early stages of mining in the Pastorera, it is mapped different units of gypsum and massive sulphide. These have been interpreted as an antiformal structure. However, the current geological exhibition in the Pastorera suggests that the geological structure is more complex than suggested above. The gypsum has apparently wedged contacts with the siliceous pyrite unit to the West and a black charcoal slate in the East. The general structure is synform instead of the antiform structure described by Alfonso y Cano (2000), Niverengo (2001) and Kedahda (2006), although it cannot be ruled out fault in the Eastern gypsum contact. The Pastorera underground mapping confirms that the western end of the siliceous pyrite unit dip eastward (Peñoles, 2006 (?)). This syncline interpretation suggests that gypsum body folds into depth. EXMAN verbally confirmed that the gypsum actually decreases in the deepest levels of the Pastorera. Massive sulphide observed during early extraction may be present as dipping rock unit apparently West within the upper levels of the current Western pit wall. This relationship may indicate the presence of an unconformity or fault between the lower siliceous pyrite unit and the overlying massive sulphide outcrop.

8 Deposit Type

The deposit of the Anzá project would correspond to the characteristics defined in the first studies to a Kuroko-type Volcanic Massive Sulphides (VMS) deposit. Later drilling, however, led to the interpretation of hydrothermal mineralization overprinted, with a strong structural control, with disseminated sulphides to semi-massive sulphides, irregular veins and hydrothermal breccias. According to studies carried out in the area, the mineralogy and geometry fit this system by the background described below:

8.1 VMS Deposit Characteristic

Substantial accumulations of anhydrite and gypsum are a distinctive feature of the deposits of Kuroko in Japan (Lambert and Sato 1976, Farrell and Holland 1983, Shikazono, Holland, and Quirke 1983) (Figure 9.3). Anhydrite is considered the primary ore, with subsequent hydration resulting gypsum. Gypsum and/or anhydrite are almost unknown in other older VMS systems. However, the anhydrite is a transitional common component of hydrothermal chimney systems modern in a variety of environments (e.g., Ames, Franklin and Harrington, 1993) Hannington et al., 1999). Anhydrite usually appears in four types (Shikazono, Holland, and Quirke 1983):

- Type 1, anhydrite nodule
- Type 2, anhydrite associated with sulphide minerals
- Type 3, anhydrite inside of the main sulphide mineral
- Type 4, vein anhydrite

Anhydrite bodies lie beneath the massive sulphide component and can extend far beyond its boundaries. They are compensated in relation to any of hydro-thermal system (for example, brecccia). The bottom is gradational and the top against sulphides is relatively sharp. Figure 9.4 illustrates a schematic column through a typical body of anhydrite. Anhydrite Type 1, form the bottom part of body usually main. Occurs like nodules in pyroclastic sediments, nodules increase in size upwards (scale in mm/m). The content of anhydrite increases upwards and nodules finally come together to form a massive and relatively pure anhydrite in the upper part of the body type 1. Nodules form parallel layers to the host pyroclastic sediment. The sediment is altered to clay and chlorite between nodules. Anhydrite Type 2 superimposed on type 1 and is distinguished by the spread of sphalerite, galena, chalcopyrite and pyrite. Also, there may be veins of sulphide.

Farrel and Holland (1983) reported very rare cases of anhydrite laminated with tuff or mudstone. The layers of sphalerite also reported interlace with anhydrite near the hanging wall of the Fukazawa pit, Japan (Farrel and Holland 1983). The descriptions of the samples in Shikazono, Holland, and Quirke (1983) also reported examples of laminated anhydrite and nodules of laminated anhydrite. Replacement of anhydrite with gypsum is usually restricted (Farrel and Holland 1983; Shikazono, Holland and Quirke 1983).

Overview of the origin of the anhydrite in kuroko deposits, is that it replaces or fills the space of the pores in the sediments of the beds, forming on volcanic rocks beneath the seafloor (Farrel and Holland 1983; Kuroda 1983; Kusakabe and Chiba 1983; Shikazono, Holland and Quirke 1983). A place under the seabed, would protect it from dissolving in the sea water, which destroys the anhydrite in the waste of the chimney on top of the exhalations.

8.2 Gypsum of Anzá

Gypsum is of the main minerals in the deposits of Anzá (Florez Molina and Parra Sanchez, 1999). Considered as the lower unit current exposed of the transitional member unit with an inferred stratigraphic thickness of 250 m minimum.

On the basis of existing interpretations, the upper contact of gypsum in the Pastorera shown a variety of configurations, the upper contact of the gypsum should be adjacent to the massive sulphide layer (Alfonso and Cano, 2000), while deeper levels of the open pit deposit and current underground work suggest an upper contact with silicon material with pyrite. Alfonso Cano, (2000) interpreted the contact at the top part of the gypsum is located between massive sulphide layer and the layers of chert and barites overlying, while Niverengo, (2001) shows gypsum which extends on the chert and barite. In Aragón, the upper contact of the gypsum appears like a flat sharp merger with tuffs and diabases (Alfonso and Cano, 2000). In these interpretations, the nature of the basis of gypsum is unknown in Aragón or La Pastorera.

Gypsum is usually layered with thin to massive units. The layers are marked by colour and changes of texture, with some layers marked by dark stripes similar to the shales and local zones of mudstone clasts in gypsum. The layers appear to be compliant with overlapping sequences. The sulphate content varies from 56% to 15% by weight (Florez Molina and Parra Sanchez, 1999). Extraction of three types of gypsum (Snowden, 2007):

- White to grey pale Gypsum with a content of sulphate between 42% y 56%
- Grey gypsum with a content of sulphate between 38% and 42%
- Material from dark gray to black colour with less than 15% of sulfate which is discarded as waste.

The colour of gypsum varies between grey, yellow and white. The texture is saccharoidal, with a medium grain size. Gypsum is accompanied by anhydrite, calcite, chlorite of magnesium and poor quartz, and has presence of lenticular bodies of tuff within gypsum. These are mineralized with pyrite and chalcopyrite (Florez Molina and Parra Sanchez, 1999), and may include silicified pyrite layers well exposed in the underground works of gypsum.

The deepest levels of the open pit seem to show a synform structure, with gypsum in contact with a black shale, to East of the mine portals. Also, a contact of gypsum with mudstone was observed underground on the West side in the underground works at 913 m depth.

Anzá gypsum deposit have only small amounts of anhydrite, while, as noted above, the Kuroko deposits are dominated by anhydrite. Anzá gypsum shows granular textures, which may indicate recrystallization, however it is not known if there was a precursor of anhydrite. The hydration of anhydrite is possible during the sediments diagenesis of the guest or the recent weather. Today, the original ore - anhydrite or gypsum- in Anzá is unknown.

Underground gypsum photographs show layers of black shale (Figure 20) and also describes a coloured band. This suggests that gypsum (or precursor of anhydrite) is deposited as part of a sedimentary sequence like sulfate sediments on the seabed. Alternating black shale with gypsum deposition indicates a relatively long geological episode of sulfate deposition.

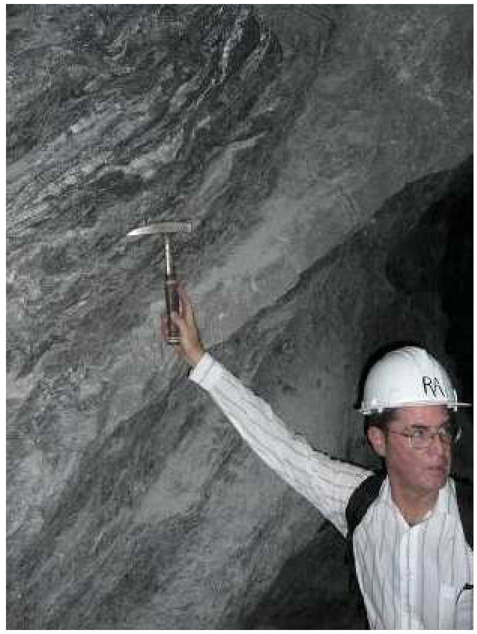

Photo 4: Bands of gypsum with intercalations of black shale, underground mine in La Pastorera (Snowden, 2007).

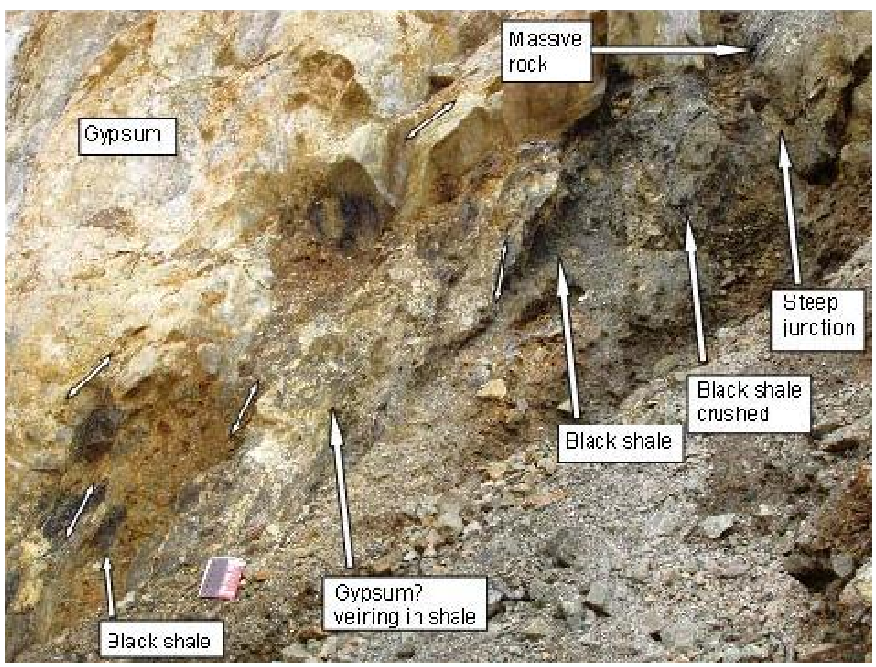

Photo 5: Detail of the Eastern contact of gypsum on the wall of the La Pastorera Mine. Gypsum and black carbonaceous shales show a contact dip West apparently normal (Snowden, 2010).

8.3 Massive Sulphide Unit

An initial interpretation of the massive sulphide layer was done by Niverengo (2001) and Alfonso Cano (2000). The layer is located within the body of gypsum, near its upper contact. The upper portions are dominated by sulphide, and the base is described as a silicified tuff. Its dip is reported as 20 ° W to 50 ° W, and its thickness is up to 12 m, with an average of 4 to 5 m. Exposure at surface is discontinuous with outcrops similar to lenses of 40 m and 55 m, showing a total exposure of about 200 m length. It is reported that the massive sulphide unit shows boudinage structures in the South of the La Pastorera mine, near the Aragón fault. Northward, it becomes more continuous and stratiform, with layers of gypsum and sulphide that increase in thickness.

Sulphide ores are predominantly iron-rich sphalerite and galena with minor pyrite, chalcopyrite and bornite. These are produced in a fine silica matrix or gypsum. In some cases, chalcedony quartz layers separated sulphide layers. Sulphide textures range from fine-grained to coarse-grained and mineralization can be massive, bands or breccia. Minerals in bands show separate layers of galena and sphalerite (Figure 22). The sample is approximately 15 cm on their longest dimension and shows two different domains: metal sulphide base and fine silica. It presents galena of fine-grained (1 mm) and a thicker area (4 mm to 8 mm) with dark sphalerite, galena and minor chalcopyrite. Sulphides show equigranular euhedral grains. There is no stratification of fine scale and the boundary between the two combinations of sulphides is a fast gradation. The silica shows laminated and uniform areas. Laminations to millimetre scale are at the bottom of the sample (Figure 23).

The shape of the laminas and the local sulphide crystals, on the contact surface, pointed at fine silica which is a filling of voids within the material dominated by sulphide. The sample is too small, in relation to the scale of the two domains, to fully interpret these relationships. The silica-filled space can represent: fractures modified in a largest sulphide body, pore space in the sulphide breccia or solution holes formed after the dissolution of soluble clasts (anhydrite / gypsum) on mixture breccia. The local finish of this area with galena, sphalerite and quartz suggests that hydrothermal solutions were present at this stage.

Photo 6: Photographs of massive sulphide material in thin sections of La Pastorera (Snowden, 2010)

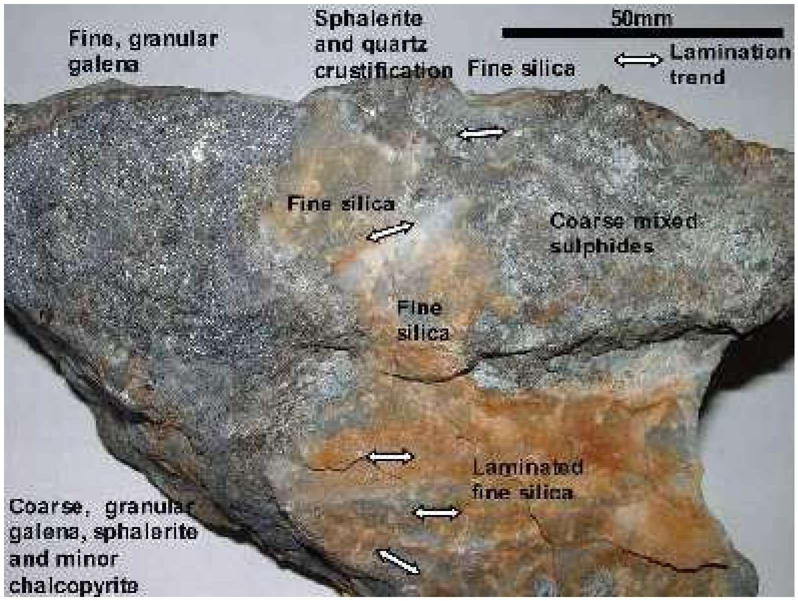

Photo 7: Sulphide massive hand sample collecting by Snowden (Snowden, 2010).

The domain of sulphide shows a mineralogy that is similar to the polished sections described by Alfonso y Cano (2000). Various textures of sulphide can appear in all the VMS system, it required a careful description of the structure and texture of the sulphide-rich blocks and/or exposure to deduce the conditions of formation and importance in the VMS context. Most of the massive sulphide material occurs in the upper parts of the La Pastorera site with siliceous pyrite unit stratigraphically below, outcropping in the deepest levels of the pit and in the underground work. This vertical zonation between units in the Pastorera is consistent with the generic VMS models. The massive sulphide can have a gradual or non-conformity relationship with siliceous pyrite unit. Alfonso and Cano (2000), suggest that the deepening of the massive sulphide unit would be toward Southwest, this means that the outcrop rock will be present on the West wall of the current pit on the South end of the Pastorera pit. This can be a main feature related to the nature of system VMS La Pastorera / Aragón, or a function of tectonic activity contemporary or later to the mineralization. It should also be noted that the Pastorera massive sulphide mineralization was discovered as a result of the extraction of gypsum and not through a specific VMS exploration program. Despite the apparently small size of massive sulphide body, found grades are very encouraging.

8.4 Siliceous Pyrite Unit

The siliceous pyrite unit is mapped within the underground works of gypsum in the Pastorera and it can be traced at the western edge of the deposit and on the access road (Kedahda 2006, Peñoles, 2006). This layer is found predominantly in the West side of the gypsum body, although it is present to the Northeast in the underground works. The inclination of the western end is clearly toward East, with deep reductions in the underground section of approximately 50 ° E, and the inclinations are more pronounced in open pit walls.

The western end of the siliceous unit varies in thickness between 7 and 22 m. The mineralogy of replacement is medium grain quartz, gypsum and pyrite, with epidote, chlorite and biotite. Some areas comprise sphalerite, meanwhile galena and the bornite have also been identified. The results of the test confirm the presence of gold, zinc and minor silver mineralization, Kedahda (2006).

The relationship of this silica unit with overlapping, West immersion, massive sulphide and the tuffs-chert-barite sequence is uncertain. Kedahda (2006) considers that the siliceous pyrite unit is a second body of mineralization and the sample stratigraphically below of the massive sulphide horizon. Also, there may be a distinction between this unit and the silicon material associated with the massive sulphide layer.

8.5 Barite, Chert and Tuff with Pyrite

These units are located above the massive sulphide unit and gypsum in the upper levels of the open pit of La Pastorera and form part of the Transitional Member (Alfonso and Cano, 2000, Niverengo, 2001). The Tuff form a unit which limits the sequence of gypsum / massive sulphide and has thin layers of barite and chert. The tuffs are pyritic and locally have massive pyrite layers of up to 3 m thick. Pyrite mineralization is also reported from the Aragón deposit, which consists mainly of finely to granular crystalline pyrite horizons, as well as spread pyrite in the sedimentary rocks in the area of the mine (Snowden, 2007).

The barite layer is described like 20 cm to 50 cm thick and traceable by more than 200 m. Described as mottled, gray & massive. Barite layer seems to be overlapping and possibly interdigitate with the thicker tuff unit, and has a layer of chert immediately below the layer of barite. Another layer of chert is reported in the tuffs above the layer of barite. However, it worth mentioned that most of the parts of the volcanic sequence contain chert.

8.6 Breccias

It reported two breccias in the vicinity of gypsum mines Exman, La Cueva and La Maluca (Niverengo 2001). Both are assigned to approximately 200 m along the largest dimension, however the exposure in both areas is poor. La Maluca breccia is located approximately 2 km Northwest of La Pastorera mine and is located in the Barroso Formation dominated for basalt. La Cueva breccia is located approximately 500 m to the South of the Aragón mine, dominated for basalt from the Barroso Formation, however its location is adjacent to the Aragón Fault.

La Cueva breccia is described like a matrix of calcite and chalcedony silica with clasts including opaline silica and sulphide volcanic material, including porphyry basalt, andesite, and dacite. The silica opaline and the pyrite are present in stockworks. La Maluca breccia has a silica matrix with pyrite and some carbonate minerals. Materials include tuff and agglomerate silicified and bleached and polymetallic sulphide and laminated pyrite.

Niverengo (2001) interpreted that both breccias are related to the system VMS La Pastorera / Aragón, and conclude that they can be feeders systems. Snowden (2007), notes that breccias are an element in various mineralization styles, including VMS deposits, and keep in mind that these breccias may not be associated with the mineralization of the Pastorera / Aragón.

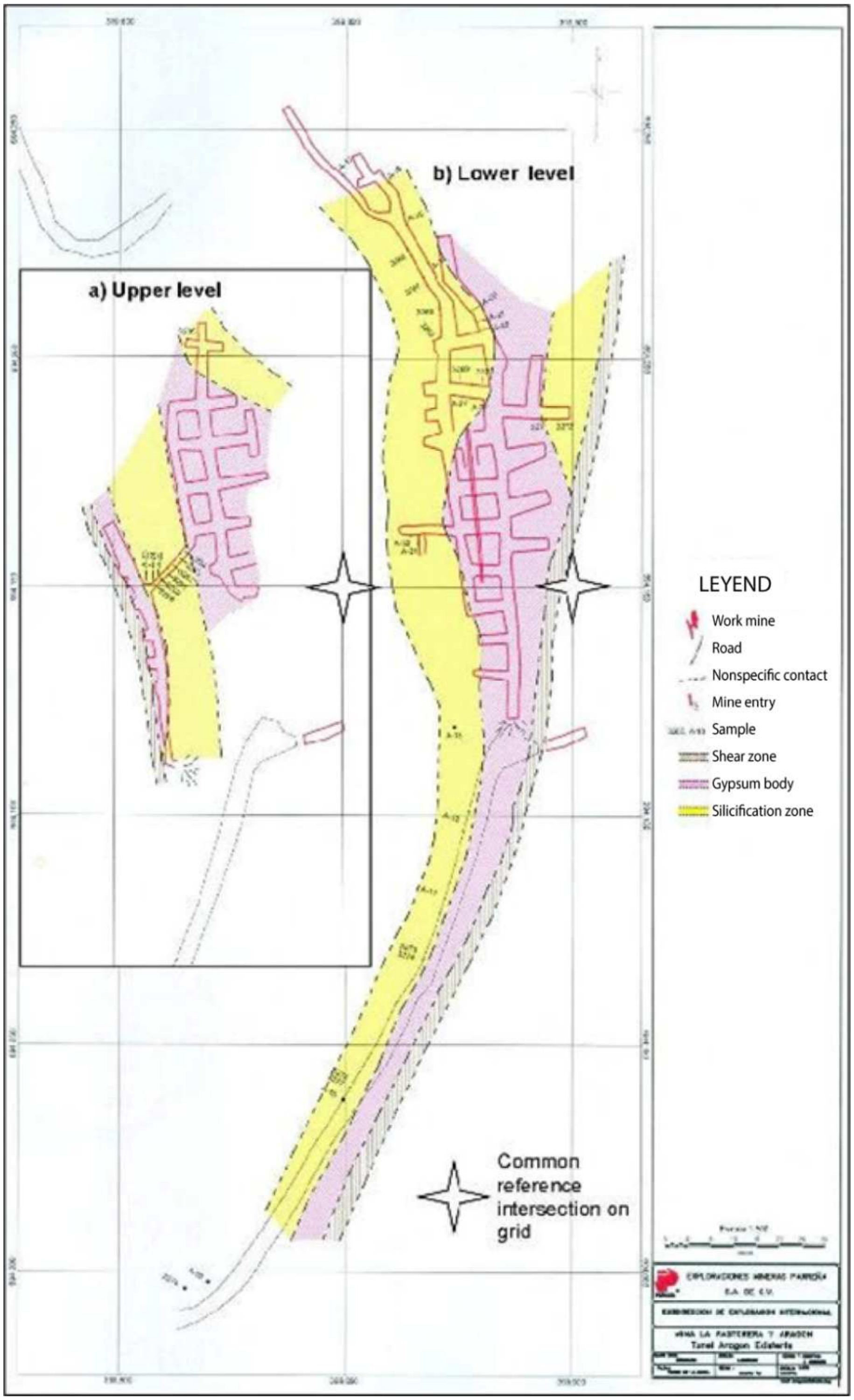

Figure 20: Underground works of gypsum in the Pastorera, showing places of sampling Kedahda and Peñoles. Coordinates in UTM (WGS84, 18N) yellow: silicified pyritic horizon, pink: gypsum. Upper level 913m, lower level 906 m (provided by CGL, original source Peñoles, 2006 (?), modified).

Photo 8: Steep stratification in the siliceous pyrite layer in outcrop rock in the Western Wall pit of La Pastorera. Dark brown lenses may represent areas of massive sulphide (Snowden, 2007).

Photo 9: La Pastorera pit that shows the location of the zone of alteration sericite-chlorite - pyrite and massive sulphide (Alfonso and Cano, 2000).

9 Exploration

Exploration in the Anzá project as well as drilling campaigns consisted in sediments from drains, soil and rock geochemical surveys; and also, district and local geophysical surveys at levels.

9.1 Regional Exploration

Since 2010, numerous works were carried out in the area which helped define 5 exploration targets in conjunction with the geological interpretation of the area. The following table summarizes the works carried out from 2010 to date:

Geophysics	Geochemical	Drillholes campaign
Terrestrial magnetometry.	Course of sediments	First campaign drill at April 2011 to September 2012. Drilled 17,410 metres.
IP	Rock sampling and outcrop.	Second campaign began October 2017 and continue until April 2018. It will make 9,300 metres approximately
Radiometry and Magnetometry aerial-transport	Soils sampling.	

Table 4: work was carried out in 2010 to date (Minera Anzá. (2018). Minera Anzá Report for Ministerio de Minas/Ministry of Mining).

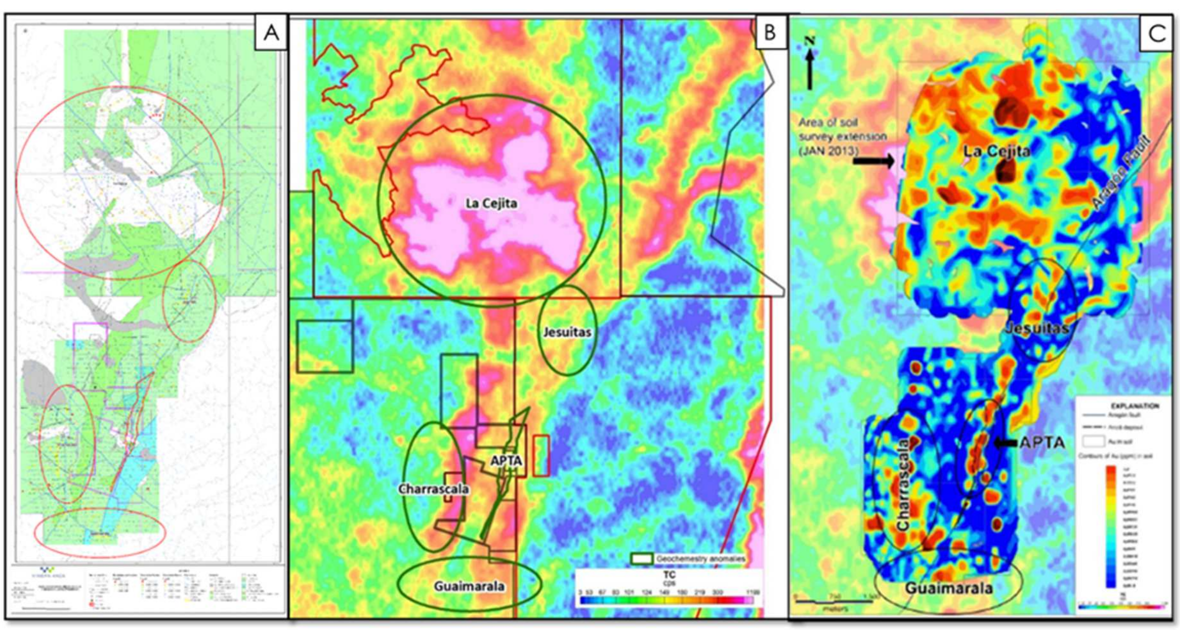

Figure 21: A. Geological map. B. Radiometry TC. C. Geochemistry anomalies map (Minera Anzá. (2018). Report of Minera Anzá for Ministerio de Minas).

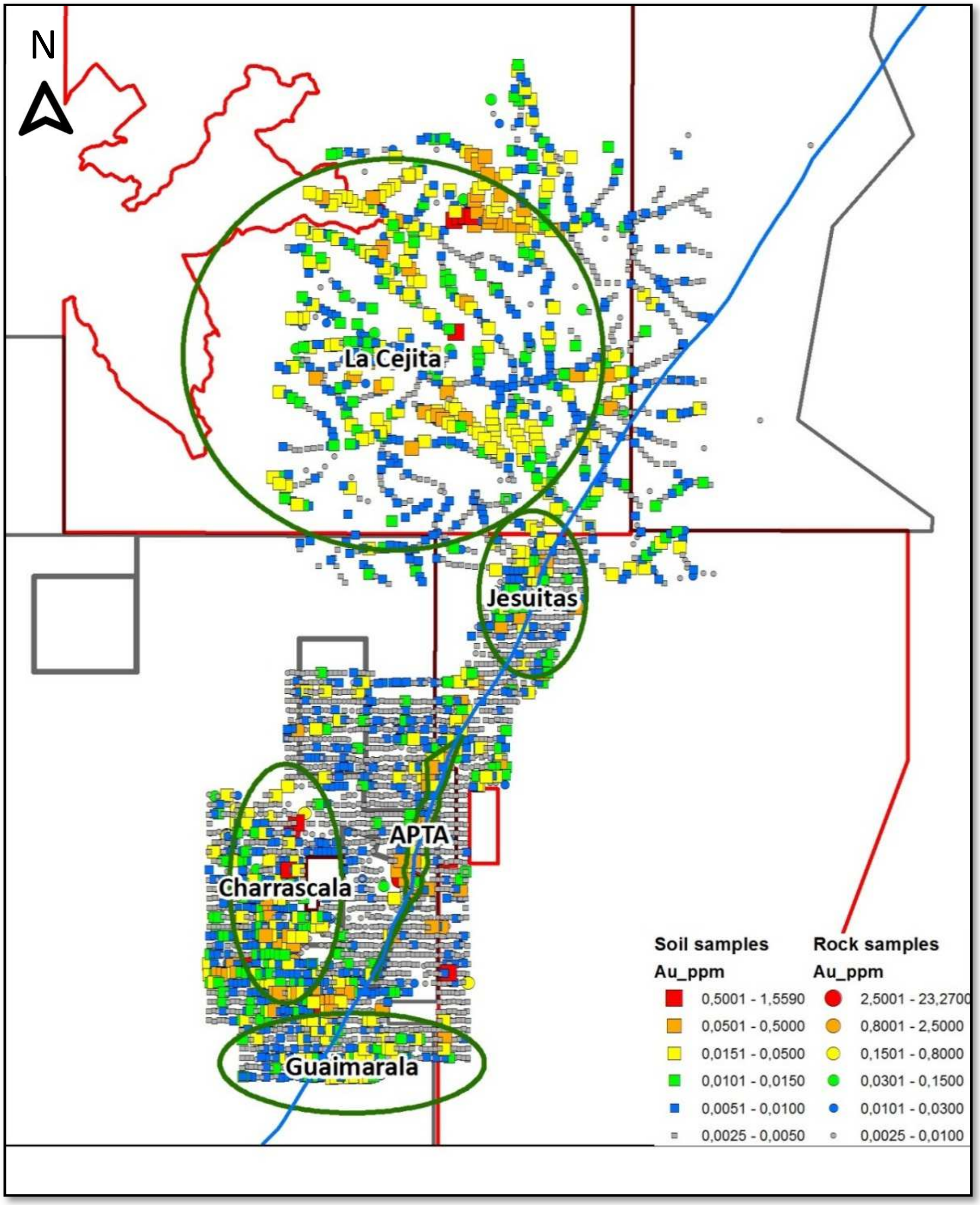

Figure 22: Soil and rocks sampling in 5 geological targets (Minera Anzá. (2018). Report of Minera Anzá for Ministerio de Minas).

The identified targets show several features geological, geophysical and geochemical with great potential in the exploration of metals (Figure 22). The targets have been denominated:

LA CEJITA: It is located to the North of the project and is characterized by an intrusion of composition Tonalite-Diorite of Cretaceous time that correlates with the SabanaLarga Batholith. Stands a contact metamorphism aureole. The intrusion of this body could generate openings for the rise and deposition of mineralization of Miocene time.

This sector has great potential due to its geological characteristics and the presence of a strong geochemical anomaly. The presence of isolated structures such as veins of quartz with carbonate and mineralized with pyrite, ± sphalerite, as well as a large zone of silica alteration suggests a geotectonic framework of an island arc and suggests that the study area has a high potential for the presence of an epithermal deposit type. On the other hand, the mineralization of pyrite, ± chalcopyrite, ± sphalerite in an intrusive body, suggest the occurrence of a porphyry style deposit.

APTA (Aragón- La Pastorera Trend area)**:** Located in the Central-Eastern area of the project. This target requires more work (single target with diamond drilling) by Minera Anzá. It is based on a mineral deposit characterized for strong structural control (Aragón Fault) with a visible sulphide mineralization (mainly pyrite ± chalcopyrite ± sphalerite ± galena) and dominant silica and chlorite alteration. High values of gold have been detected in this sector.

JESUITAS: Located to the North of the APTA target (Aragón - La Pastorera Trend Area) corresponds to the continuation of the Aragón trend fault. Stand tuff and mudstones of the Barroso Formation with ± sphalerite ± chalcopyrite-pyrite mineralization. The predominant alterations are chlorite-epidote and silica. The potential is high due it is the continuation of the APTA Target and it has similar features.

CHARRASCALA: Located to the West of the project, is characterized by a structural pattern similar to the APTA sector (Aragón - La Pastorera Trend Area). It has small intrusive bodies of dioritic composition, possibly of Cretaceous time. In this sector predominated tuff and mudstones of the Barroso Formation affected by major faults. The presence of structures type stockworks, veins of quartz with carbonates and sediment rocks mineralized with pyrite, ± sphalerite, ±galena, ± malachite in the mineralized structures, as well as the wide distribution of the silica alteration and a geotectonic framework, leads to the conclusion that the study area has a high potential for the presence of an epithermal deposit type.

GUAIMARALA: Located to the South of the project, is characterized by great potential due to the combination of structures N - S and SE - NW, (Aragón Fault is intercepted with Caracol fault). Stands out the presence of tuffs with pyrite and spread chalcopyrite.
Therefore, it sets up a project of very high auriferous potential that should be in terms of resources, similar to those already defined in the Middle Cauca metallogenic belt. Based on that fact, it is that it is required to carry out a geological reconnaissance structured and detailed in order to unlock the real potential of the Anzá project.

9.1.1 Geochemical

Exploration in the area of Anzá Project has included three types of geochemical studies according to the type of sample: sediments from drains, soils and rocks. The samples include inserts to control the quality of sampling and analysis, as duplicates, blanks and standards, which altogether analyzed by a certified laboratory for studies of geological samples.

One of the first studies was carried out by the company GeoMinas S A, which reported, in February 2011, the end of a campaign of geochemical sampling with a total of 789 soils samples and 337 rock samples. Among the last ones there are 24 samples collected outside La Pastorera tunnel and other 47 in the interior of the same work, requested by Minera Anzá SA with the purpose of knowing the contents of base metals in siliceous levels that accompany the structures of gypsum.

Previous studies that indicated the presence of anomalies of copper (Cu), zinc (Zn), lead (Pb), gold (Au) and silver (Ag) were confirmed by the work carried out by Gemi (2011). In general, stand out five main areas, Anzá, Guintar, Pitajan, La Mata and La Noque, showing consistent anomalies in silver and gold with copper, lead and zinc in Anzá, lead and zinc in Guintar and Pitajan, barium and selenium in La Mats and mercury in la Noque. Anzá, Guintar and Pitajan areas, also with presence of arsenic, bismuth, mercury and lead are possibly most promising by epithermal systems, rich in metal base in the case of Anzá (sphalerite, chalcopyrite, pyrite and galena) and possibly connected to developments porphyry type in Guintar and Pitajan (table 5). La Mata and La Noque are not well-defined, so that additional studies are required. Note that the sector of Aragón - La Pastorera Trend Area (APTA), is contained within the area defined as Anzá.

Domain	Anzá	Güíntar	Pitaján	La Mata	La Noque
Active sediments	Ag, As, Au, Bi, Cd, Cr, Cu, Hg, Mn, Mo, Ni, Pb, S, Sb, Se, Tl y Zn	Ag, As, Au, Bi, Cd, Cr, Hg, K, Mg, Mo, Ni, Pb y Zn	Ag, As, Au, Bi, Cd, Co, Mo, Pb, Se, Sb y Zn	Ba, Tl y Se	Ag, Au, Hg y K
Pan concentrations	Ag, As, Au, B, Bi, Cd, Co, Cr, Cu, Hg, Mg, Mn, Mo, Ni, Pb, S, Sb, Se, Tl y Zn	Au, Bi, Ca, Hg, K, Mg, Pb, Sc y Se		Al, As, Fe, Hg, S, Sr y Tl	Au, Ba
Rock splinter	Ag, Au, Cd, Co, Cr, Cu, Mg, Mo, Ni, Pb, S, Sc, Sn, W y Zn	Al, As, Au, Ba, Be, Bi, Ce, Co, Cu, Fe, La, Li, P, Sn, Th, W, Y y Zn	Mo, Cu, Pb, Zn	Ag, As, Au, Bi, Mo, Cd, Cu, Pb y Zn	
Alteration	Propylitic Silicification Argillic	Propylitic Silicification Possible Potassic	Propylitic Metasomatic Possible Potassic	Propylitic Argillic Sericitic	Propylitic Possible Potassic
Mineralization	Massive sulphides (Ga-Cp-Es-Py) Epithermal veins	Epithermal veins	Spread sulphides	Spread sulphides	

Table 5: Geochemical anomalies in the Anzá Project (Gemi, 2011)

Minera Anzá SA currently has a database with a total of 229 samples of sediments from drains, 680 of rock and 3039 soil. A geochemical map of the soil samples, displays several anomalous areas with values over 0.5 ppm Au. Several of them occur in discontinuous way for about 5 km along the Aragón fault zone (Figure 23), from Guaimarala surrounding to the South to Jesuitas to the North. One of these anomalies in the surrounding of La Pastorera and Aragón mines has about 1 km long by 200-500 m wide and coincides with the intersection of a North-South fault with the Aragón structure. Further North, Jesuitas and halfway between that area and the same Anzá, where there are no advanced exploration work, are similar to the described situations. These models are made through the MapInfo Discover module. Another important gold anomaly occurs in western position, in the area of Charrascala, about a set of North-South faults that coincides with the presence of quartz veins. It has about 4 km North-South by 200-800 m wide.

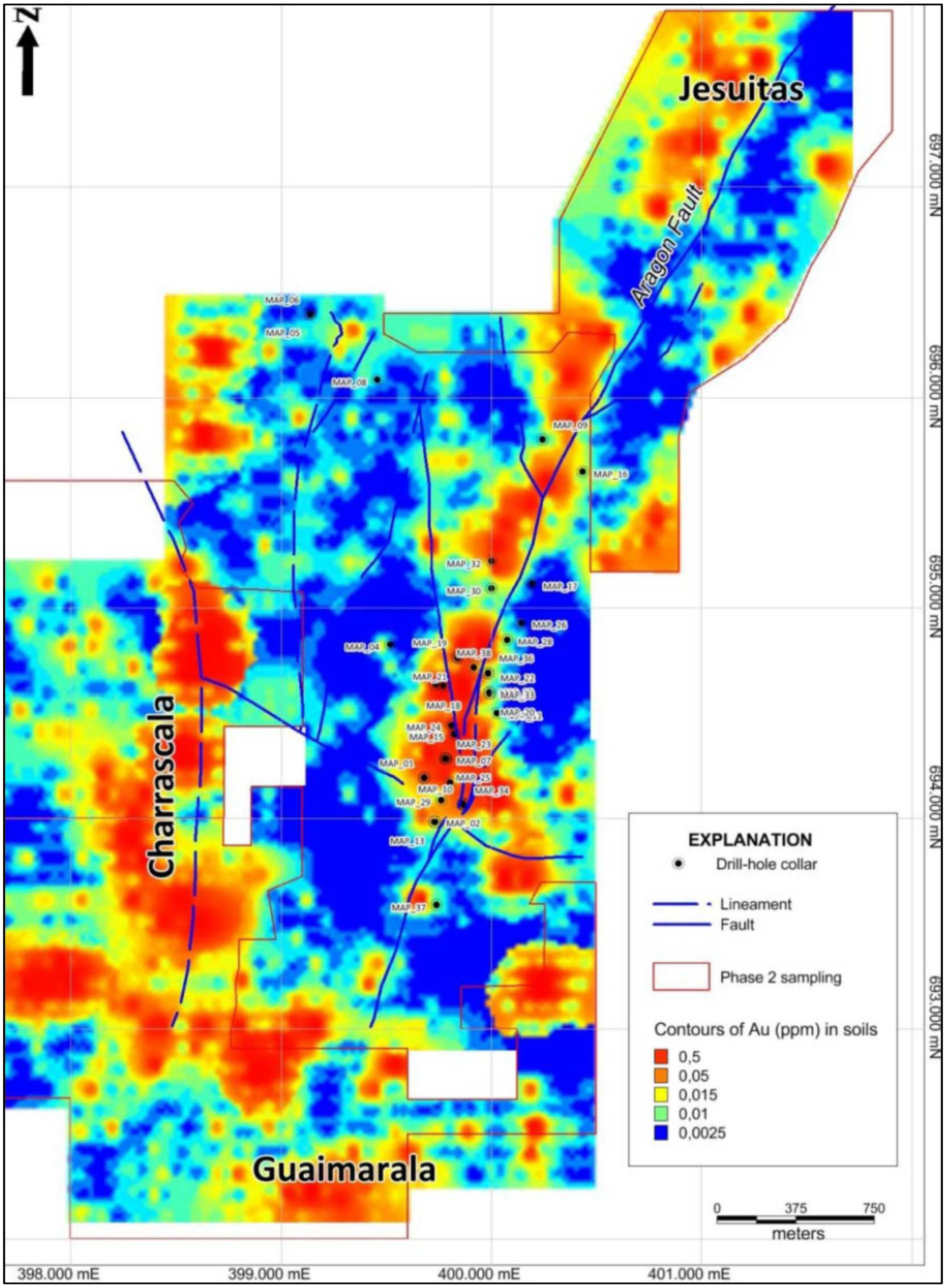

Figure 23: Gold analysis (ppm) in soil samples (Minera Anzá. (2018). Minera Anzá Report for Ministerio de Minas/Ministry of Mining).

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Likewise, in the year 2011, GeoMinas carry out, within La Pastorera mine, 47 samples collection that had aimed to know the concentration of base metals in siliceous structures with spread sulphides, mineral veins, shear zones and gypsum. The samples were taken with Jackhammer in channels of 2 m of length over previously established sections, packaged and labelled in accordance with the company's quality assurance policies. They were analyzed by ISO 9001 certified laboratory for Gold Fire and suite of 36 elements by ICP including duplicates, standards and blanks as part of the established quality control procedure of Minera Anzá SA.

Analysis results indicate a majority of abnormal samples in gold with values of 0.1 to 0.87 ppm Au (table 6) and three with contents of economic order (> 1 g/t Au), which generally have low correlation with values in silver, arsenic, copper, lead and zinc. The correlation between these metals is also low, which possibly is related to different mineralization events.

Sample	Au_ppm	Ag_ppm	As_ppm	Cu_ppm	Mo_ppm	Pb_ppm	Zn_ppm	S_%	Ca_%
MA-2000317	0,46	10,20	85,00	129,40	6,00	305,00	2231,30	9,54	9,16
MA-2000318	0,47	1,80	42,00	166,80	4,00	137,00	3021,70	8,02	8,41
MA-2000319	0,05	1,10	46,00	27,10	4,00	45,00	1487,10	14,72	13,95
MA-2000320	0,13	0,30	44,00	85,70	12,00	763,00	756,30	2,24	1,13
MA-2000321	0,12	0,40	79,00	20,80	10,00	50,00	277,10	3,28	0,85
MA-2000322	1,75	1,20	132,00	492,20	9,00	256,00	3429,40	3,09	0,88
MA-2000323	0,17	0,90	6,00	178,10	0,50	30,00	932,20	0,79	3,03
MA-2000326	0,23	0,20	8,00	77,80	0,50	6,00	732,80	0,26	5,16
MA-2000327	0,40	0,80	178,00	39,40	4,00	18,00	753,20	2,48	3,29
MA-2000328	0,60	0,20	146,00	19,40	10,00	16,00	316,70	5,41	0,63
MA-2000329	0,05	0,40	411,00	10,10	2,00	1,00	267,20	8,94	5,84
MA-2000331	0,87	0,40	101,00	1119,20	4,00	23,00	5788,20	4,68	1,73
MA-2000332	0,57	0,60	44,00	813,80	3,00	11,00	1889,40	8,77	7,34
MA-2000333	2,99	0,30	256,00	603,80	23,00	9,00	2807,50	3,68	0,48
MA-2000334	0,34	0,30	257,00	60,50	7,00	10,00	650,80	3,81	0,34
MA-2000335	0,27	0,20	187,00	15,60	12,00	6,00	553,90	1,97	0,29
MA-2000336	0,11	0,10	486,00	15,10	8,00	7,00	269,00	2,86	0,26
MA-2000337	0,09	0,20	590,00	20,40	2,00	9,00	252,60	3,11	0,16
MA-2000338	0,11	0,10	116,00	36,10	2,00	7,00	500,90	2,15	0,23
MA-2000339	0,21	0,40	202,00	25,10	8,00	16,00	446,40	1,61	0,47
MA-2000340	0,10	0,10	197,00	81,50	21,00	17,00	857,00	1,55	0,49
MA-2000341	0,13	1,20	187,00	996,10	10,00	781,00	7399,10	2,69	0,44
MA-2000342	0,19	0,30	269,00	782,70	15,00	25,00	1218,30	3,65	0,99
MA-2000343	0,09	0,80	226,00	19,40	4,00	8,00	90,80	6,73	5,03

MA-2000344	0,15	0,50	20,00	18,10	2,00	14,00	402,20	8,82	6,51
MA-2000345	0,09	0,40	37,00	80,00	3,00	177,00	834,40	1,38	1,88
MA-2000346	2,14	1,50	26,00	125,50	6,00	109,00	3571,10	4,09	1,95
MA-2000347	0,12	0,20	14,00	70,60	1,00	1,00	411,20	0,49	2,60
MA-2000348	0,29	0,30	84,00	193,00	9,00	21,00	980,60	2,07	0,50
MA-2000351	0,27	0,10	28,00	164,60	13,00	27,00	950,60	2,14	0,44
MA-2000352	0,22	0,20	32,00	14,10	8,00	18,00	95,60	2,25	0,72
MA-2000353	0,19	0,30	207,00	17,00	4,00	18,00	269,30	3,05	1,05
MA-2000354	0,01	0,10	10,00	84,80	1,00	1,00	92,40	0,25	4,79
MA-2000356	0,04	0,60	62,00	6,70	2,00	10,00	141,30	12,58	11,24
MA-2000357	0,08	0,90	166,00	16,70	2,00	11,00	99,40	10,92	7,72
MA-2000358	0,05	0,40	77,00	11,70	5,00	11,00	133,60	11,50	7,95
MA-2000359	0,08	0,40	95,00	18,80	5,00	13,00	64,70	7,50	3,76
MA-2000360	0,03	0,40	39,00	6,70	2,00	10,00	1053,90	9,66	8,14
MA-2000361	0,04	0,10	90,00	52,30	8,00	8,00	4867,10	5,10	3,86
MA-2000362	0,06	0,60	59,00	142,40	10,00	11,00	4049,60	15,70	18,57
MA-2000363	0,02	0,30	20,00	118,40	4,00	5,00	3143,30	14,05	12,72
MA-2000364	0,01	0,40	1,50	638,30	0,50	33,00	6872,50	17,12	18,99
MA-2000365	0,11	2,60	42,00	170,60	12,00	117,00	3458,10	12,33	10,93
MA-2000366	0,47	13,30	338,00	79,40	22,00	111,00	682,30	9,80	7,84
MA-2000367	0,10	0,70	70,00	233,30	5,00	70,00	3508,30	12,32	11,73

Table 6: Analysis results of geochemical assay of La Pastorera Mine (Minera Anzá. (2018). Minera Anzá Report for Ministerio de Minas/Ministry of Mining).

Table 6 also contains values in S and Ca, which aims to predict the presence of gypsum due these two elements are principal constituents of this mineral. Nine samples of the table have values of S above 10%, which coincide with high levels of Ca (> 7%) and low presence in gold and other metals analyzed, which in general can be interpreted due to the presence of gypsum with low contents of sulphides.

Sample	Au_ppm	Ag_ppm	As_ppm	Cu_ppm	Pb_ppm	Zn_ppm	S_%	Ca_%	Ca/S	% Yeso
MA-2000319	0,05	1,10	46,00	27,10	45,00	1487,10	14,72	13,95	0,95	59,93
MA-2000343	0,09	0,80	226,00	19,40	8,00	90,80	6,73	5,03	0,75	21,61
MA-2000354	0,01	0,10	10,00	84,80	1,00	92,40	0,25	4,79	19,16	20,58
MA-2000356	0,04	0,60	62,00	6,70	10,00	141,30	12,58	11,24	0,89	48,29
MA-2000357	0,08	0,90	166,00	16,70	11,00	99,40	10,92	7,72	0,71	33,16
MA-2000358	0,05	0,40	77,00	11,70	11,00	133,60	11,50	7,95	0,69	34,15
MA-2000359	0,08	0,40	95,00	18,80	13,00	64,70	7,50	3,76	0,50	16,15
MA-2000360	0,03	0,40	39,00	6,70	10,00	1053,90	9,66	8,14	0,84	34,97
MA-2000361	0,04	0,10	90,00	52,30	8,00	4867,10	5,10	3,86	0,76	16,58
MA-2000362	0,06	0,60	59,00	142,40	11,00	4049,60	15,70	18,57	1,18	79,78
MA-2000363	0,02	0,30	20,00	118,40	5,00	3143,30	14,05	12,72	0,91	54,64
MA-2000364	0,01	0,40	1,50	638,30	33,00	6872,50	17,12	18,99	1,11	81,58
MA-2000365	0,11	2,60	42,00	170,60	117,00	3458,10	12,33	10,93	0,89	46,95
MA-2000367	0,10	0,70	70,00	233,30	70,00	3508,30	12,32	11,73	0,95	50,39

Table 7: Estimated content of gypsum from the content of calcium in the samples (Minera Anzá. (2018). Minera Anzá Report for Ministerio de Minas/Ministry of Mining).

Table 7 shows the content of gypsum in some of the samples of table 6 in which there are no anomalous gold values and on the contrary, there is high presence in S and Ca, calculated from the relationship of molecular mass Ca/CaSO2 * 2H2O. Samples with values above 45% gypsum have a chance to be of economic interest, represented by contents of calcium and sulphur greater than 10.5% and 8.3% respectively, while that those with gypsum greater than 75% correspond to high purity ore and more economical value. In the majority of samples, the Ca/S ratio is less than 1.25 due to excess of S by the presence of sulphides, which in some samples is well demonstrated by the high contents of zinc like sphalerite. In other cases, the low Ca/S ratio may be associated to the presence of pyrite. These are impurities in addition to others such as aluminium, magnesium and silica affecting the economic value of gypsum ore.

9.1.2 Geophysics

Anzá Project area had two geophysical studies which were analyzed using the software Geosoft Oasis Montaj which are explained below:

- Magnetometry/Radiometry covers approximately 260 km2 in East-West lines every 100 m and nominal height of 70 m, with a total of 2867 km of continuous reading.
- Induced polarization (IP) polo-polo 50 m (27.8 km linear) and 25 m (4 km linear) and magnetometry in 29 0.5 to 2 km long East-West lines separated by 100 and 250 m.

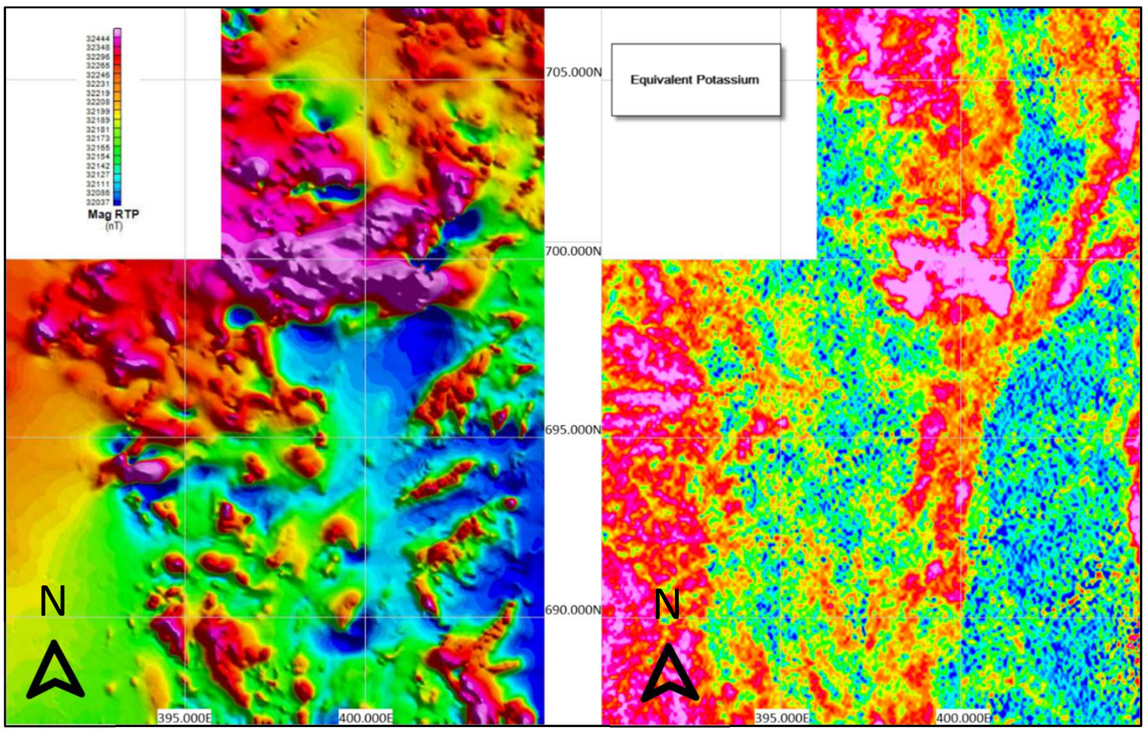


Figure 24: Magnetometry and radiometric signal with reduced pole to pole (RTP) (left) and potassium equivalent (right) (Diorio, 2012).

Diorio (2012) of Geophysics One made an interpretation of the geology of the project based on magnetic and radiometric coverage (Figure 25). In the central part of the area he interpreted a dioritic body matching the tonalite-diorite La Cejita, which shows a high magnetic RTP and high values of Total Counts of radiometry. This suggests, the presence of an intrusive body consisting in depth with certain root sill type to the West and North, and furthermore, predominance on surface of some kind of rich in K like sericitic or potassic alteration. Volcanic rocks to the North, South and East would be also affected by this kind of alteration.

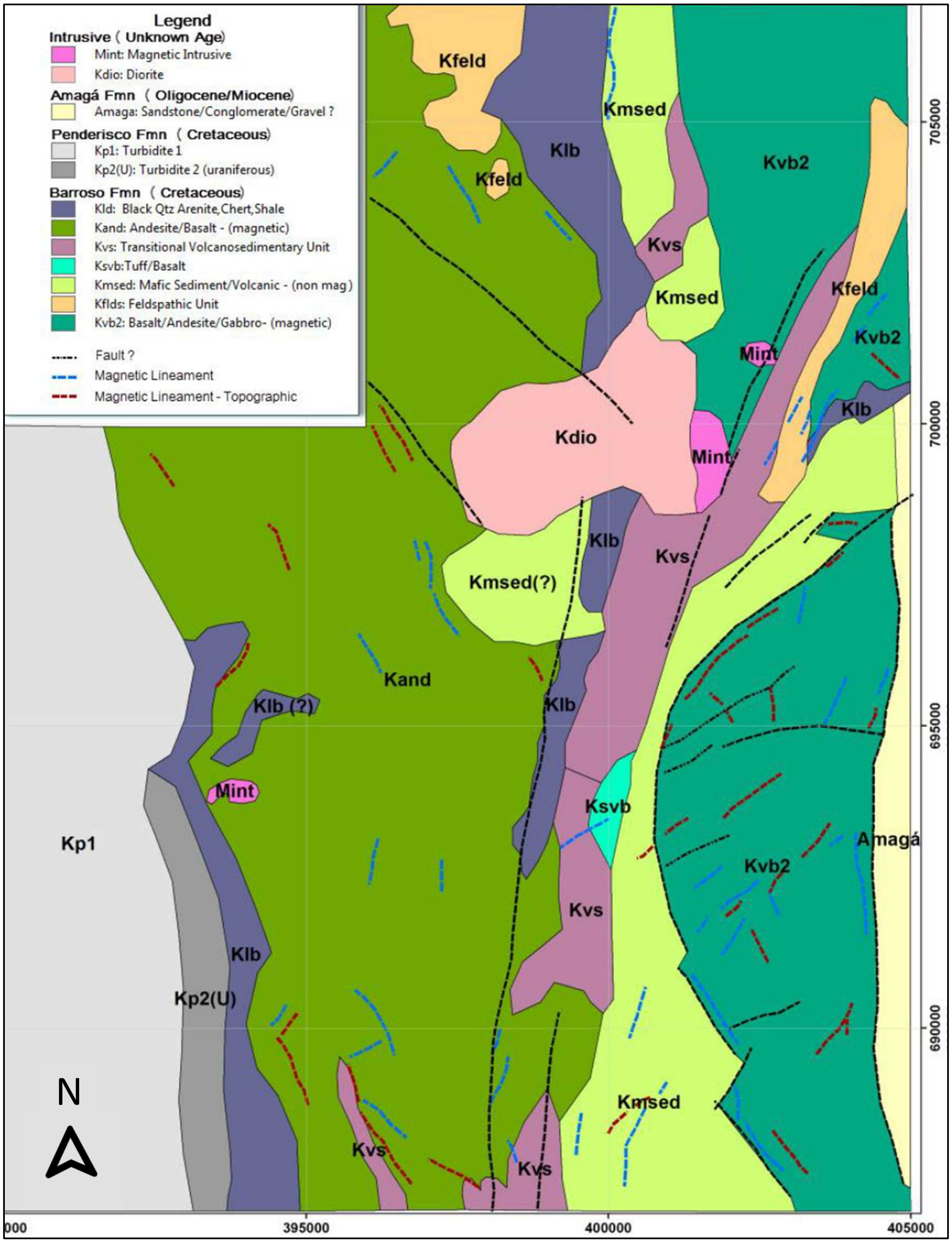


Figure 25: Geological interpretation of the Anzá area based on the magnetometry and radiometry (Diorio, 2012).

The study of induced polarization / ground magnetometry, in lines L1200 and the L800 crossed La Pastorera tunnel and the Aragón tunnel respectively (Diorio, 2010), the first one at the height of the coordinate 399. 900E and the second one surrounding the 399. 700E (Figure 30).

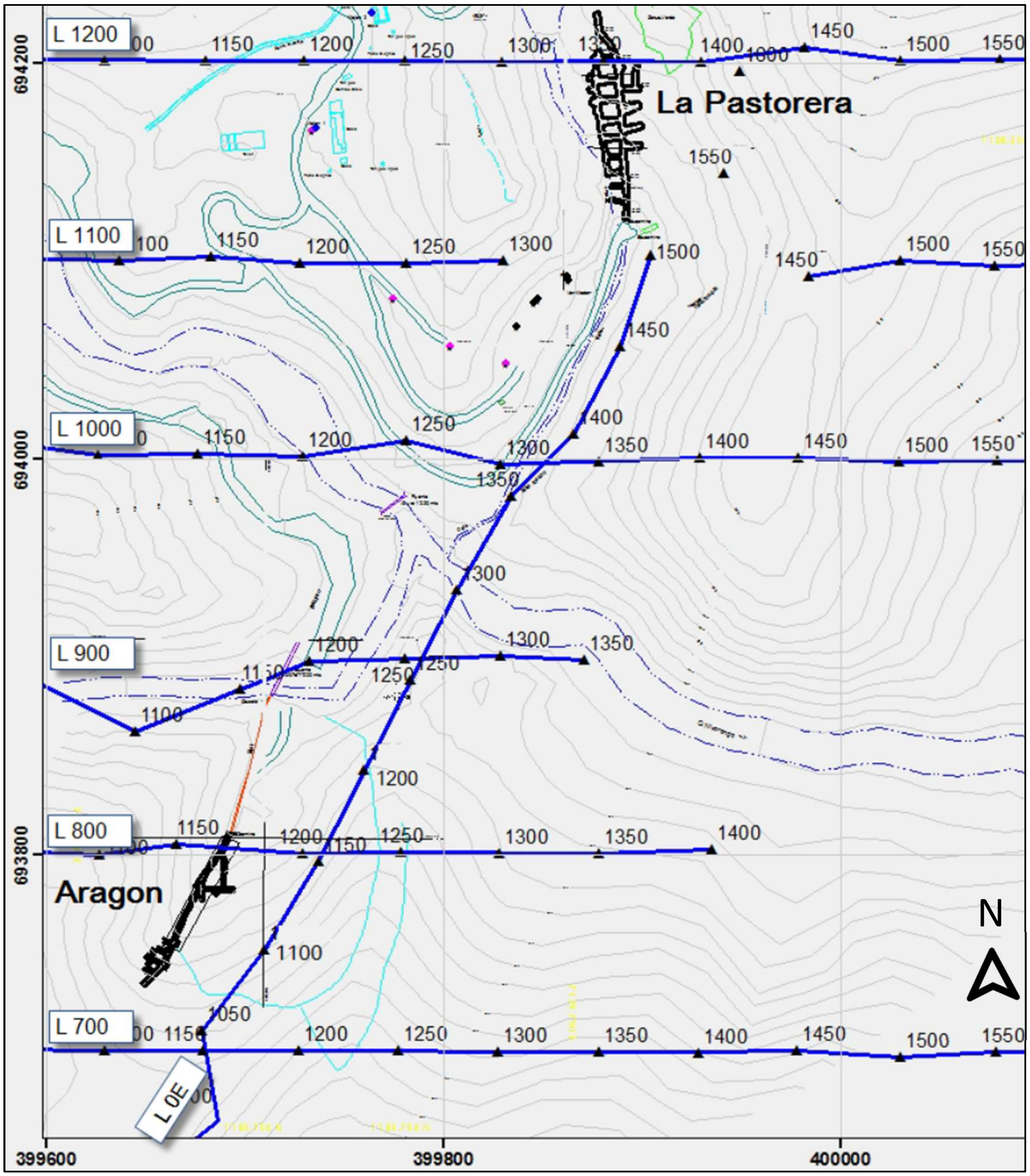


Figure 26: Magnetometry and IP in the gypsum mines Pastorera and Aragón (Diorio, 2010).

On the location of La Pastorera tunnel, induced polarization line stands out a chargeability contrast between a high toward West and a low toward East, possibly due to a zone with the presence of sulphides in the western sector. The high chargeability is defined like a sub vertical geo electrical structure with values of 15 to 32 mV/V, about 200 m width and 300 m high (Figure 27). The highest values tend to form a discrete sub circular body, by which the area with higher content of sulphides would be rather discreet and reduced continuity.

Also, at the height of the Pastorera tunnel, IP study generated a small resistive sub horizontal core of about 50 m high by 120 m long, with resistivity values 400-600 ohm-m which may well reflect the presence of gypsum due pure examples of that ore, may have resistivity on 800 ohm-m (Guinea et al., 2010). This nucleus is part of a sub horizontal area with resistivity of 200-320 ohm-m, which would correspond to classical sedimentary rocks and/o felsic volcanic rocks. In depth, under 750 m elevation, the resistivity values are 20-125 ohm-m, which would be consistent with the presence of mafic volcanic rocks and/or clay sedimentary rocks. In general, the resistivity section suggests that the sequence is sub horizontal.

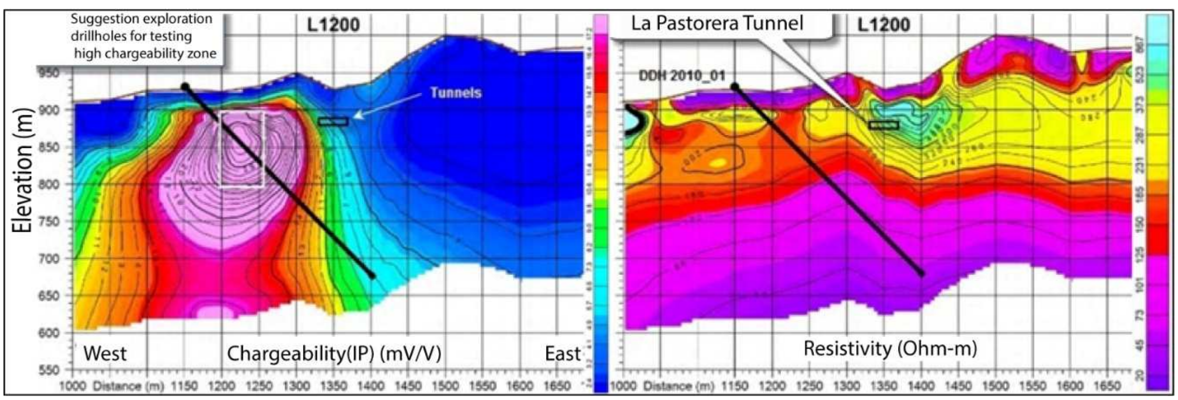


Figure 27: IP L1200 Line in La Pastorera Mine (Diorio, 2010).

Diorio (2010) carry out another interpretation based on the profiles of induced polarization (IP) and raised terrestrial Magnetometry in the project area, which are on the geological basis of Snowden (Bargmann & Platten, 2010) (Figure 27). Six areas of interest were identified based on the combination of effects IP (chargeability) and resistivity, which is summarized in the following table:

Zone	Chargeability	Resistivity	Length	Orientation	Lithology	Structure
1a	High and shallow	Low Resistive deep	200 m	Sub circular	Pyroclastic rock	Aragón
1b	High and deep	Moderate-High	400 m	North- South	Pyroclastic rock	El Cuno
1c	Moderate- low	Moderate	400 m	North- South	Basalts	El Cuno
2a	High -moderate	Low	700 m	North- South	Basalts	El Cruce
2b	Moderate-low	Low	1200 m	North- South	Pyroclastic rock	El Cruce
3	High	High	700 m	North-South	Sediment rocks	¿

Table 8: Areas of potential exploration according to IP and Magnetometry (Diorio, 2010).

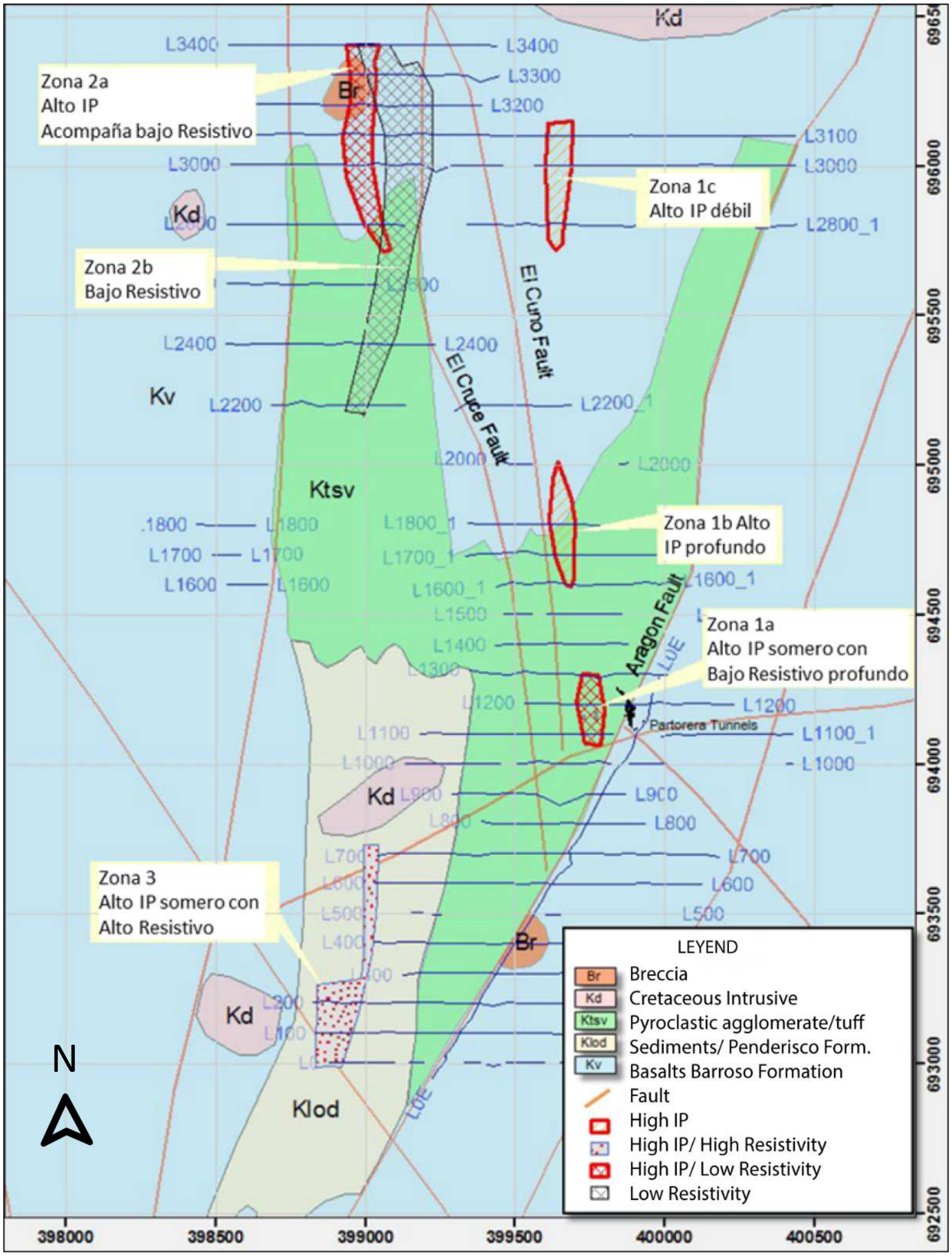


Figure 28: Interpreted cross-sections of IP and Magnetometry (Diorio, 2010).

9.2 Mineral Resources Estimate

The present data information that, the Anzá Project have, is not enough for develop a resources and reserve estimation, due is not representative, so it is necessary to make more analysis of the area and does not qualify for a validation under the NI 43-101 standards.

10 Drillholes

In the 2011 and 2012, Minera Anzá SA (Waymar Resources) carried out diamond drillholes totaling 17.409,94 m of drilling in 53 drillholes vertical and inclined (- 45 °, - 50 °, - 55 °, - 60 °, - 65 °, - 70 ° and 75 °), of 134.2 m to 500.09 m in length with 10° and 305 ° azimuth. Through 2 drillbore: KD1000 own by Kluane contractor and Duralite 800 own by Logan contractor, have ability to drill in NTW diameter up to more than 1000 m (figure 29). Each drillholes have location data shown in table 9 in UTM Datum WGS84 zone 18N, while the position of each drillholes with respect to the geology of the project is plotted in figure 30.

Figure 29: Drill KD1000 in diameter NTW (Orosur, 2018).

Drillhole	East(m)	North(m)	Elevation(m)	Azimuth(°)	Dip(°)	Depth(m)
MAP-01	399681,2	694190,4	922,411	120	45	360,00
MAP-02	399864,4	694066,6	893,551	300	90	330,00
MAP-03	399679,8	694191,3	922,428	90	45	410,00
MAP-04	399518,3	694821,0	1129,175	90	60	311,00
MAP-05	399138,4	696395,6	1233,724	270	45	351,00
MAP-06	399137,6	696395,4	1233,789	270	60	400,00
MAP-07	399782,3	694283,1	941,126	90	45	380,00
MAP-08	399455,3	696082,4	1177,800	90	45	163,40
MAP-09	400241,1	695798,8	1096,015	150	45	134,20
MAP-10	399865,1	694069,3	893,575	10	45	346,40
MAP-11	400027,3	694498,4	1094,666	270	50	385,07
MAP-12	399733,4	694630,4	1075,184	90	50	354,40
MAP-13	399730,5	693983,1	884,759	150	50	320,04
MAP-14	399729,5	693981,6	884,760	90	50	282,62
MAP-15	399821,9	694398,6	995,773	90	50	357,44
MAP-16	400432,7	695646,2	1011,684	270	50	277,19
MAP-17	400192,7	695112,3	982,466	270	50	152,92
MAP-18	399771,7	694624,8	1076,638	90	60	154,90
MAP-19	399836,7	694761,6	1133,710	90	60	500,09
MAP-20	399991,3	694593,9	1111,009	240	60	350,20
MAP-21	399837,9	694759,1	1133,695	125	50	496,93
MAP-22	399990,1	694594,0	1110,685	305	55	377,31
MAP-23	399781,9	694283,6	941,299	75	60	401,81
MAP-24	399808,4	694440,9	1014,379	60	60	385,81
MAP-25	399781,6	694282,5	941,251	105	70	452,90
MAP-26	400141,1	694926,5	1021,919	285	60	408,67
MAP-27	399778,9	694283,6	941,115	290	60	266,88
MAP-28	400075,6	694844,9	1055,444	285	60	396,50
MAP-29	399761,9	694086,2	902,438	115	50	233,31
MAP-30	399998,6	695089,1	1016,963	105	60	353,80
MAP-31	399802,6	694170,7	940,958	110	50	280,60
MAP-32	400001,2	695219,6	939,475	25	45	327,87
MAP-33	399990,1	694593,9	1110,690	255	60	221,12
MAP-34	399865,8	694063,4	892,938	80	55	341,25
MAP-35	399982,2	694683,9	1107,751	285	75	384,30
MAP-36	399982,5	694685,3	1107,540	305	70	373,62
MAP-37	399739,2	693587,3	1025,970	285	60	310,99
MAP-38	399915,5	694712,3	1105,741	125	75	466,65
MAP-39	399556,8	693239,6	1098,221	285	60	395,92

MAP-40	399808,4	694440,2	1014,137	90	55	449,50
MAP-41	399237,9	693032,4	1238,989	270	60	422,77
MAP-42	399844,9	694527,0	1070,080	90	70	314,15
MAP-43	400046,3	694794,9	1072,599	285	60	360,25
MAP-44	400192,9	695113,2	981,690	290	50	291,27
MAP-45	400075,0	694874,6	1044,305	285	55	320,35
MAP-46	399875,1	694081,8	894,556	115	70	184,52
MAP-47	399841,5	694032,3	898,772	115	80	224,17
MAP-48	399857,4	694589,1	1093,961	90	70	303,87
MAP-49	399846,1	694561,6	1084,700	90	45	236,37
MAP-50	399845,7	694561,5	1084,699	90	65	227,22
MAP-51	399871,0	694663,0	1130,600	90	65	388,87
MAP-52	399915,5	694712,3	1105,740	90	70	147,92
MAP-53	400046,3	694794,9	1073,600	300	65	341,60

Table 9: Coordinates of the collar of the diamantine drilling in Anzá (Datum WGS85 UTM Zone 18N).

These drillholes were drilled between April 3, 2011 and September 27, 2012 in three phases: the first one was commissioned to the company Logan Drilling Colombia SAS, which drilled 3185 m in ten holes, and the second one of 2130 m in seven drillholes and the third one of 12095 m were drilled by the Kluane Company. The first objective of the drill campaings was to test for evidence of base metal mineralization in massive sulphides along with manifestations of gypsum, and to derive the source of precious metals associated with the consistently high gold values that cut the first holes. The majority of the drillholes also crossed gypsum sections with varying degrees of purity.

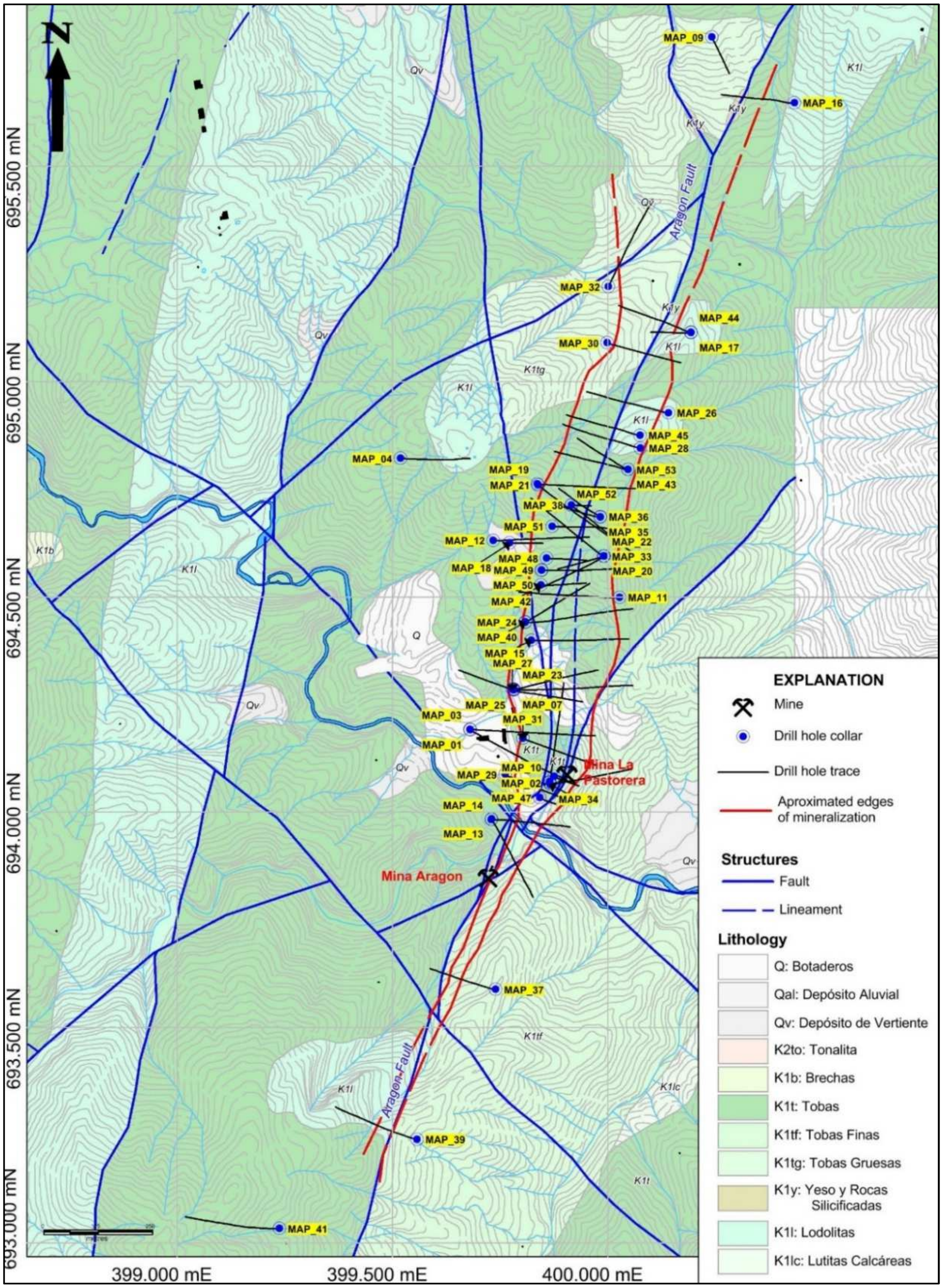


Figure 30: Points of drilling of Diamantine Aragón - La Pastorera Trend Area (APTA) (Minera Anzá. (2018). Minera Anzá Report for Ministerio de Minas/Ministry of Mining).

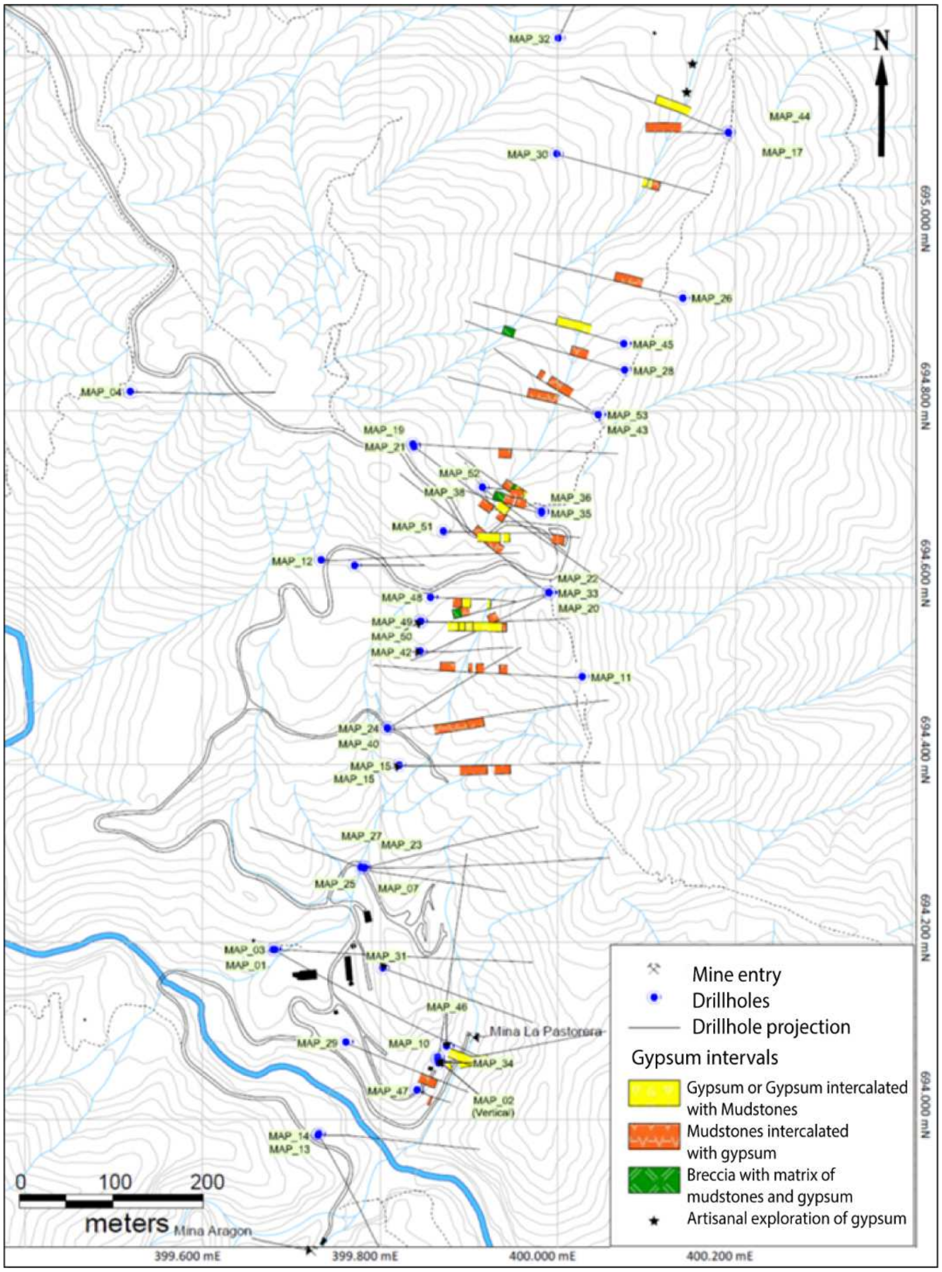


Figure 31: Main intercepts and types of gypsum in the Anzá Project area (Minera Anzá. (2018). Minera Anzá Report for Ministerio de Minas/Ministry of Mining).

A drilling campaign in 2018 was designed with specific strategic goals of the type and the continuity (in surface and depth) of the mineralization to review along the Aragón area, try the gold values associated with the mineralization of gypsum towards the South part of the project APTA (Aragón - La Pastorera Trend Area) and to investigate concurrence of the geochemical and geophysical anomalies in Charrascala (Charrascala presents an equivalent linear coincidence equivalent with geophysical anomalies with APTA).

After drilling, it was confirmed that mineralization is associated with a hydrothermal system and a strong structural control (fault and breccia zone). Two potential mineralization events stand out: a possible first event of mineralization in veins and bands associated with mudstone and tuff units. A second possible hydrothermal event overlaps the first one it occurs in areas of silicified breccia sulphides (Py + Cpy + Shp) in the matrix and fault zones.

Drilling also identified three units as carriers of gold mineralization: silicified matrix supported breccia with the presence of pyrite / sphalerite / chalcopyrite disseminated in the matrix and veins; fault zones with sulphides; and laminated mudstone or tuff with veins of quartz with sulphide.

The domains of gold were intercepted in depth in the North sector, thus confirming a regular high grade structure with a continuity of descent of 400 m and open in depth. Besides, the continuity to the South was confirmed with high grade sector over 2,500 m from North to South. In the North, the structure clearly descends 50-55 ° to the East and current exploration efforts are oriented to set if this is the Central and South part of the Aragón - the Pastorera Trend Area (APTA) deposit. In the case of having the same orientation of dip like in the North, it will be revealed great opportunities to increase drastically the potential mineralization in these sectors.

Exploration drilling in Charrascala in 2018 intercepted gold along a structural corridor of 800 m from North to South. These mineralized intercepts vary from 0.90 m to 3.8 m thick and are characterized as fragile veins with a high content of pyrite, and minor pyrrhotite, chalcopyrite and sphalerite. The hydrothermal alteration includes intense silicification and propylitization that tend to reflect the presence of structures controlling the mineralization. Country rocks are intermediates with volcanic flows, mafic, tuff and breccias of the Barroso Formation. The Barroso Formation is part of the igneous-sedimentary sequence, which host many important mineral deposits in the Oro del Cauca Belt, including the Buriticá Deposit.

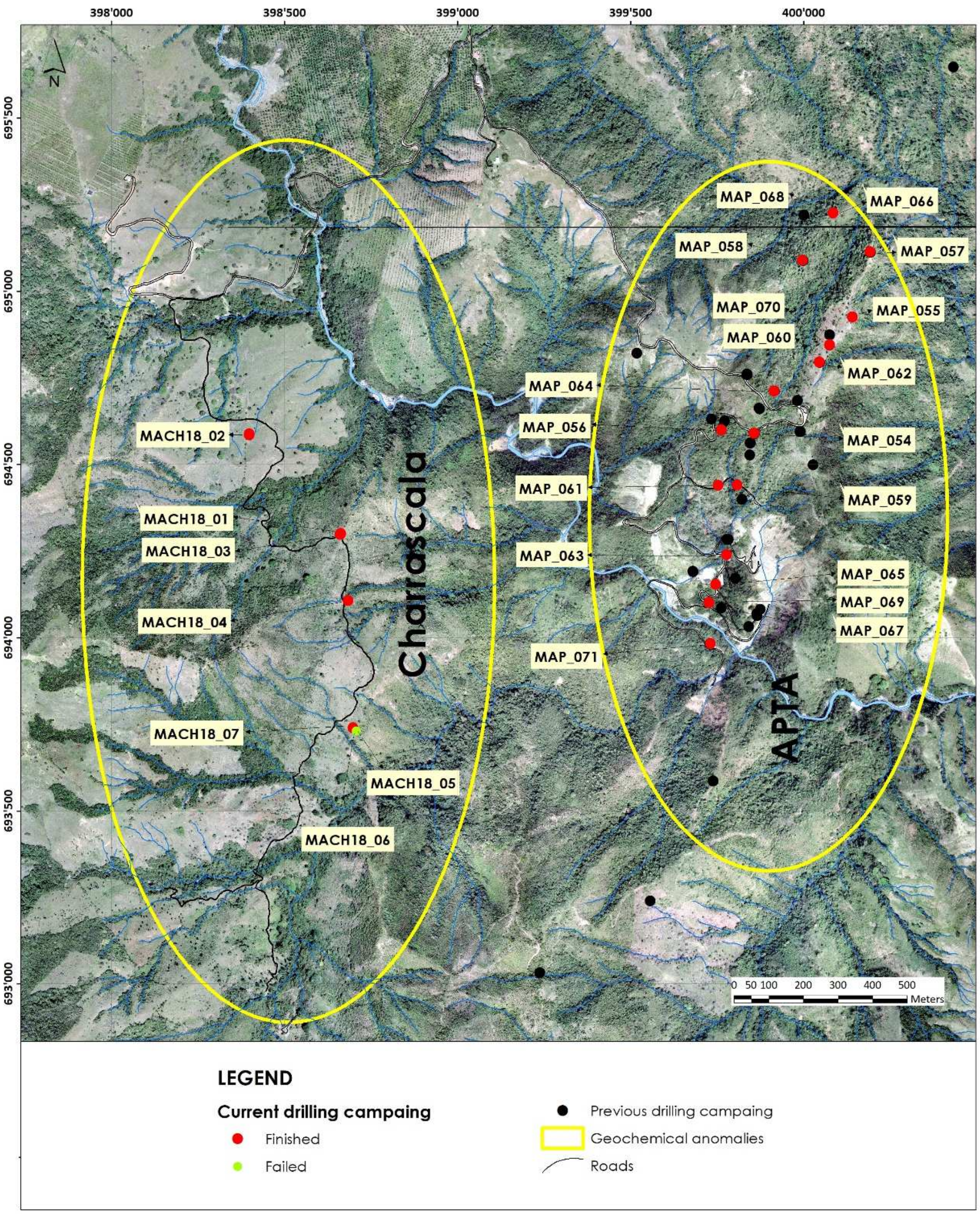


Figure 32: Plant view of the frilling campaign 2017- 2018, Charrascala and APTA area (Minera Anzá. (2018). Minera Anzá Report for Ministerio de Minas/Ministry of Mining).

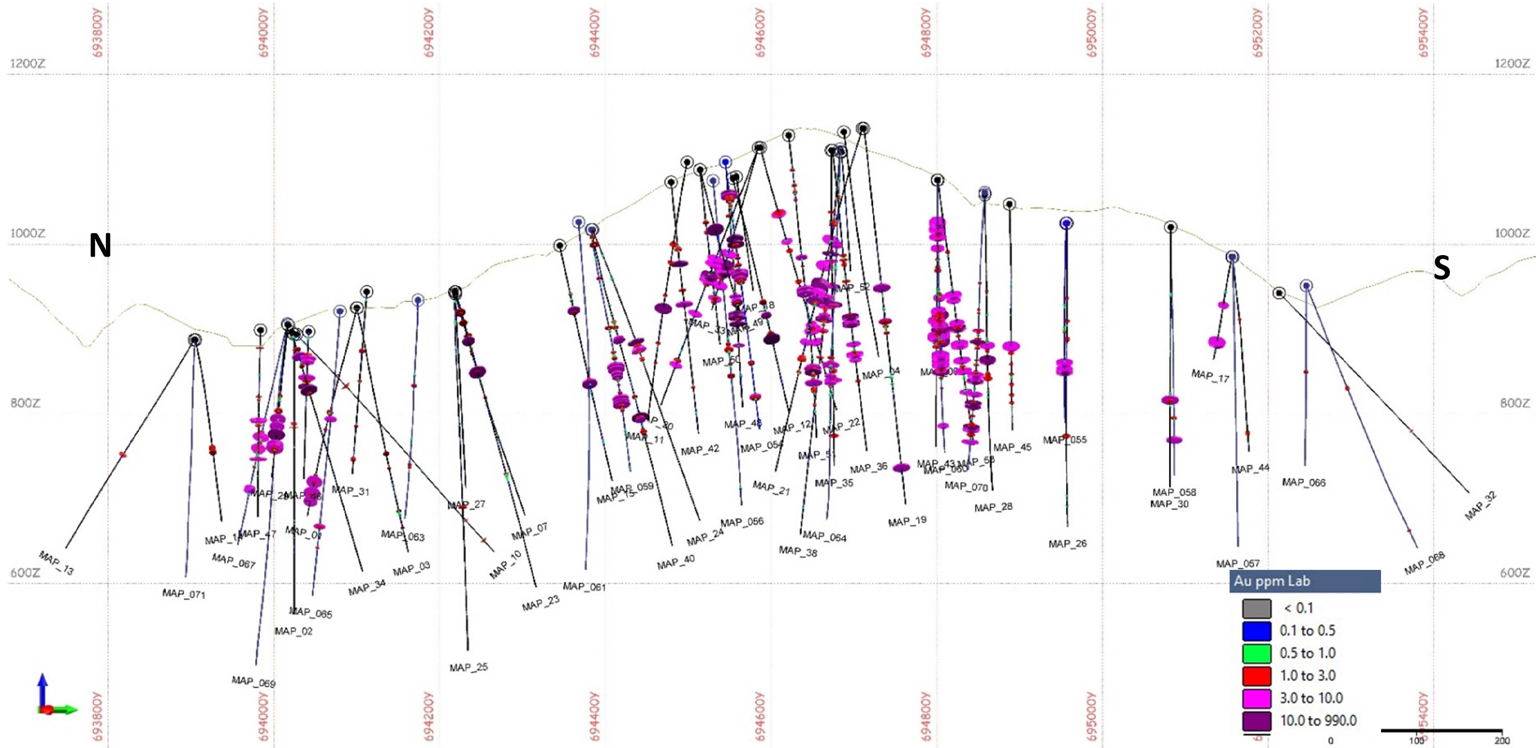


Figure 33: Longitudinal section of APTA, It observe the ore shoots recognized in the North and Center (principal) and in the South, it show the mineralization continuity. The black collar correspond to the campaign borehole 2011-2012 and the blue collar the campaign 2017-2018.

Current interpretation of APTA (Aragón - La Pastorera Trend Area9)

An interpretation of the site was done by Orosur based on drillhole information using modelling in Micromine software. The APTA's North body is shown in red (Figure 34). The geological information supports the model hypothesis, and represents great exploration potential because of the general dip of the body and it remains open at depth.

In green and cyan colour are the bodies of the central part of APTA. While the data shown intercepts with high concentrations of gold, further work is needed to confirm the dip of the body since many of the holes were drilled E - W (Figure 38).

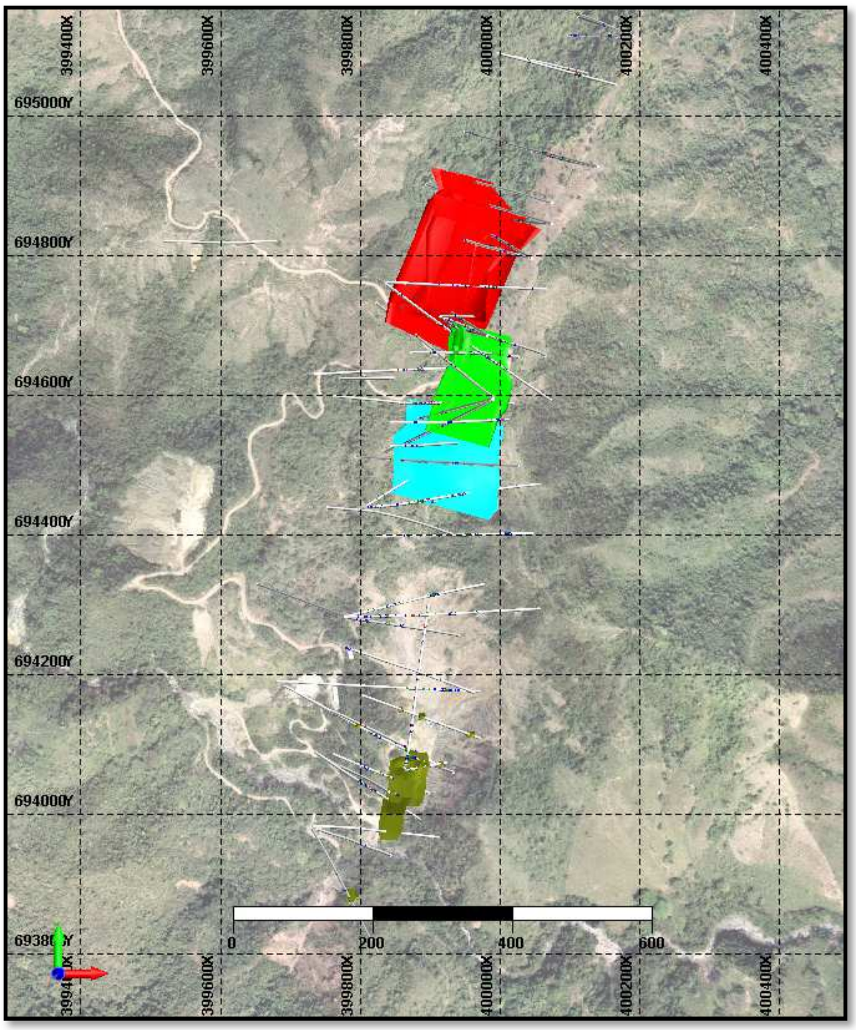


Figure 34: plant view of the modelling of APTA (Sections of drillholes zone APTA, Minera Anzá. (2018)).

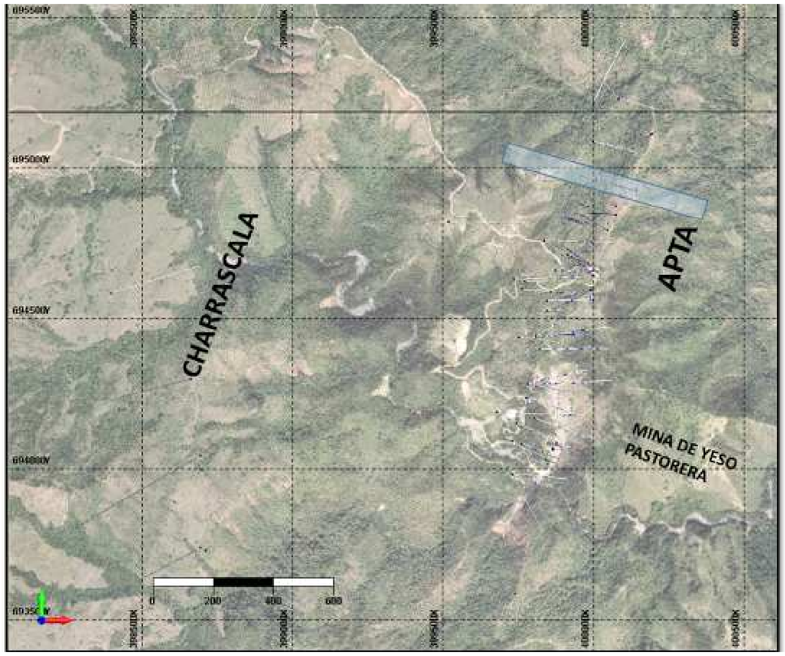
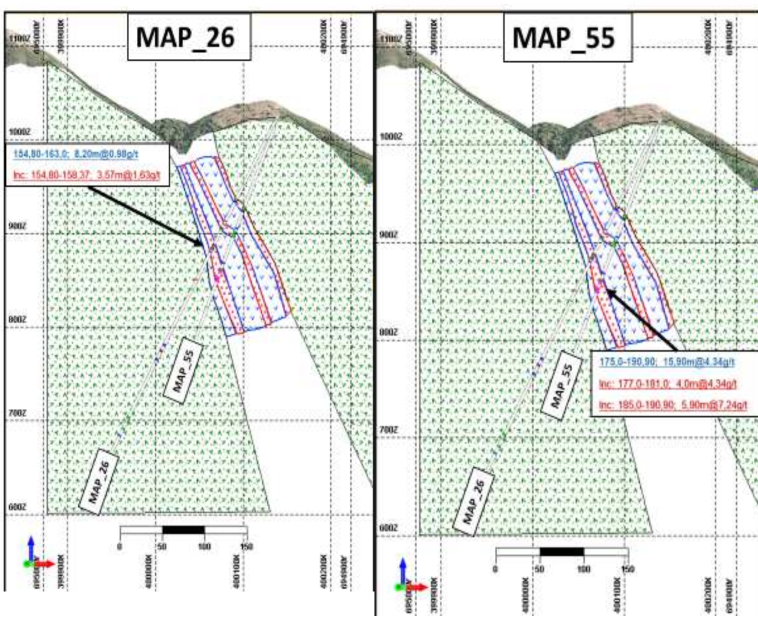


Figure 35: Drillhole trace MAP_26 and MAP_55 in APTA (Sections of drillholes zone APTA, Minera Anzá. (2018)).



Hole Number	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Zn (%)
MAP_26	99,80	105,20	5.40	0,69	1,38	0.01
	130,80	132,35	1,55	1,55	3,97	1,07
	135,50	139,00	3,50	0,49	6,59	0,86
	154,80	163,00	8,20	0,98	0,77	0,26
Including	154,80	158,37	3,57	1,63	1,26	0,32
	284,69	287,50	2,81	1,32	0,65	0,02
	365,40	368,50	3,10	0,71	1,40	0,07
	379,25	382,00	2,75	0,80	3,54	0,27
MAP_55	103,30	110,30	7,00	0,53	3,37	0,08
	132,10	139,90	7,80	0,79	8,20	0,51
	175,00	190,90	15,90	4,34	5,60	1,30
Including	177,00	181,00	4,00	6,26	3,35	0,57
Including	185,00	190,90	5,90	7,24	8,73	2,78

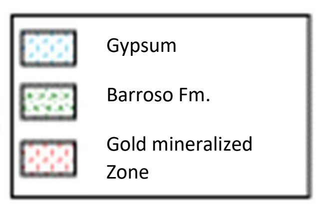


Figure 36: Section view MAP_26 and MAP_55 with lithology schematic. Besides, show Au, Ag and Zn concentration of the drillhole (Sections of drillholes zone APTA, Minera Anzá. (2018)).

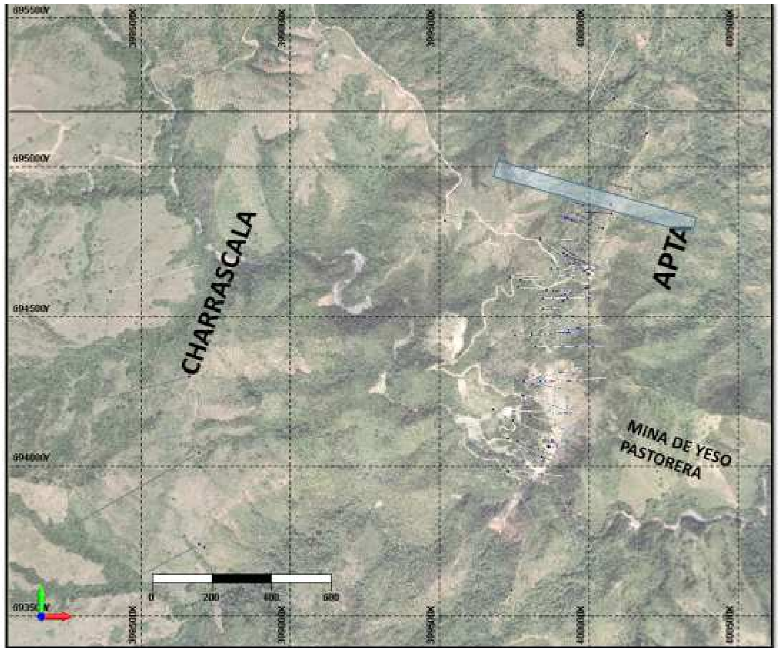
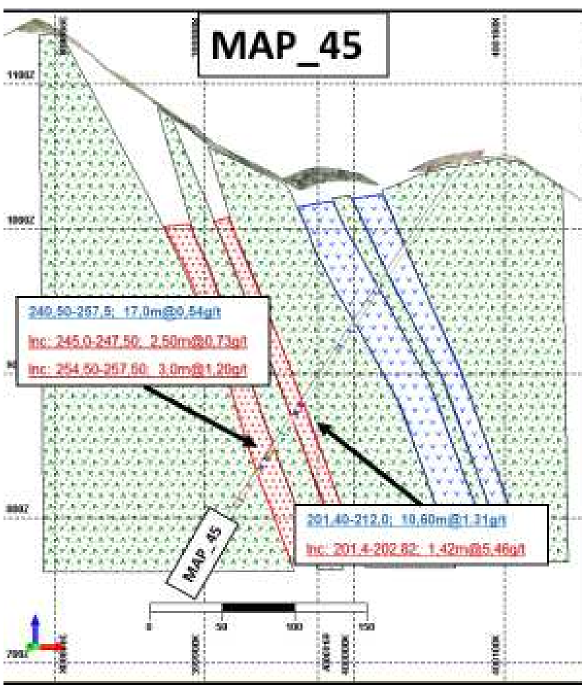


Figure 37: Drillhole MAP_45 in APTA (Sections of drillholes zone APTA, Minera Anzá. (2018)).



Hole Number	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Zn (%)
MAP_45	201,40	212,00	10,60	1,31	0,93	0,36
Including	201,40	202,82	1,42	5,46	1,40	0,20
	240,50	257,50	17,00	0,54	0,75	0,22
Including	245,00	247,50	2,50	0,73	0,60	0,24
Including	254,50	257,50	3,00	1,20	1,75	0,64
	269,50	271,00	1,50	1,49	0,60	-
	280,50	282,00	1,50	1,43	0,50	0,03

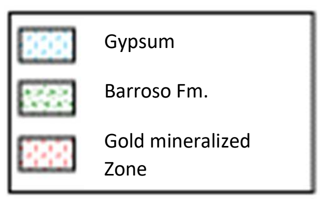
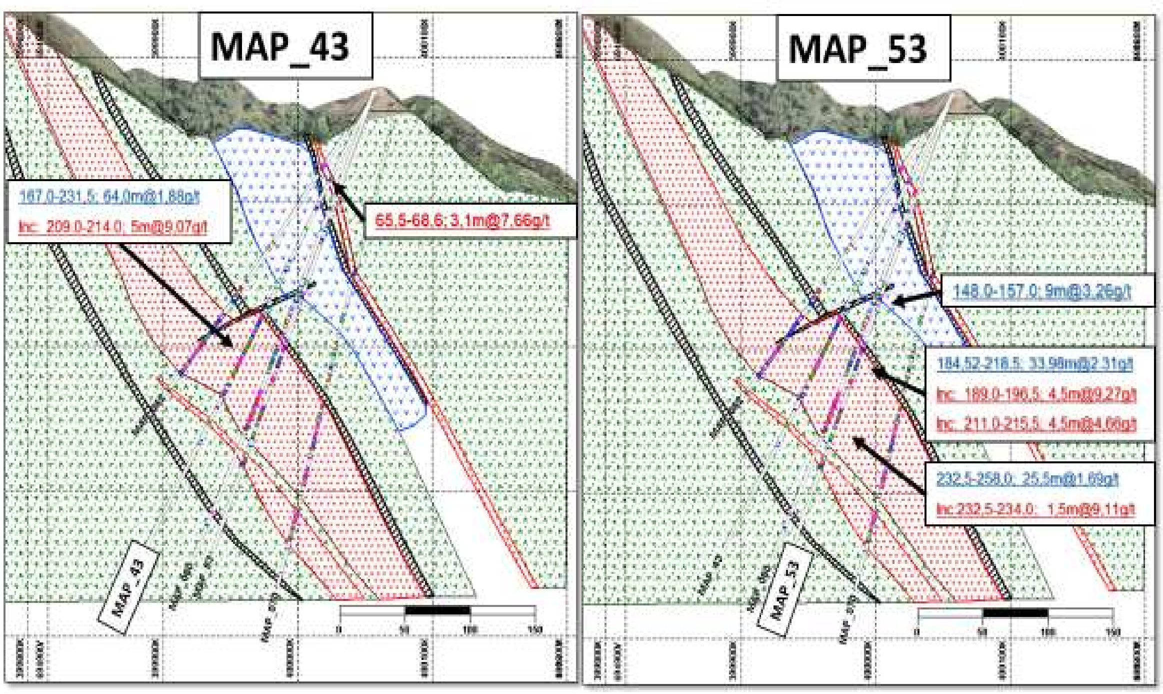
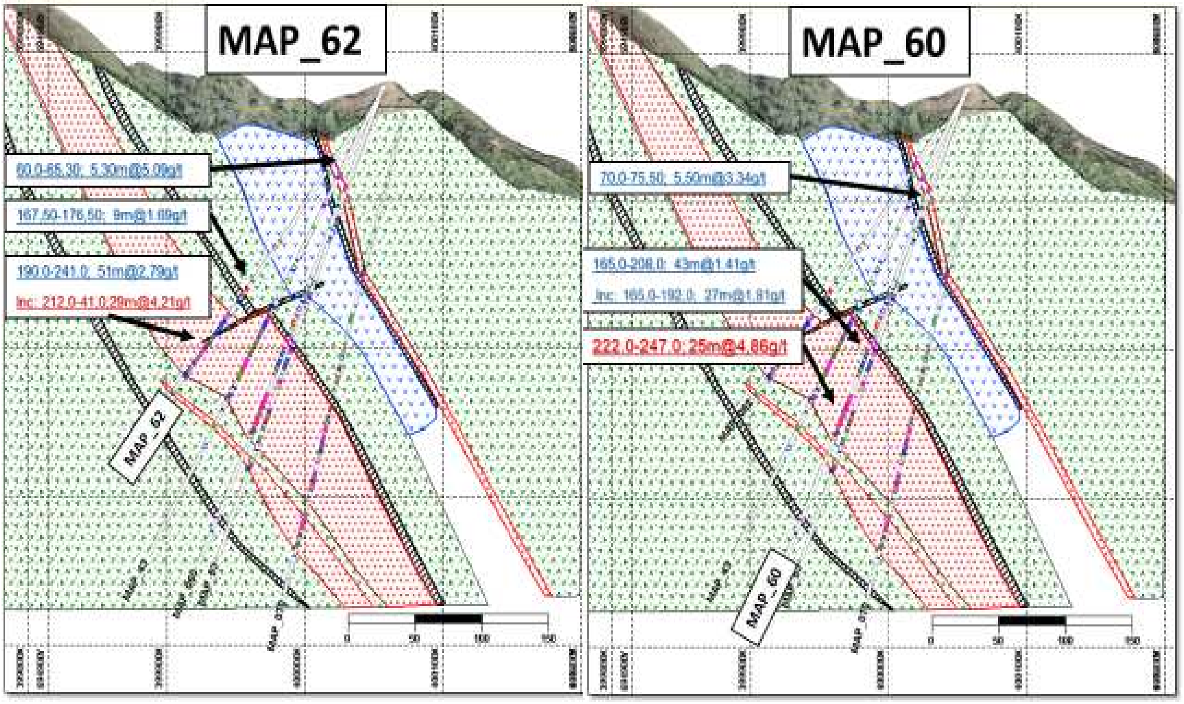
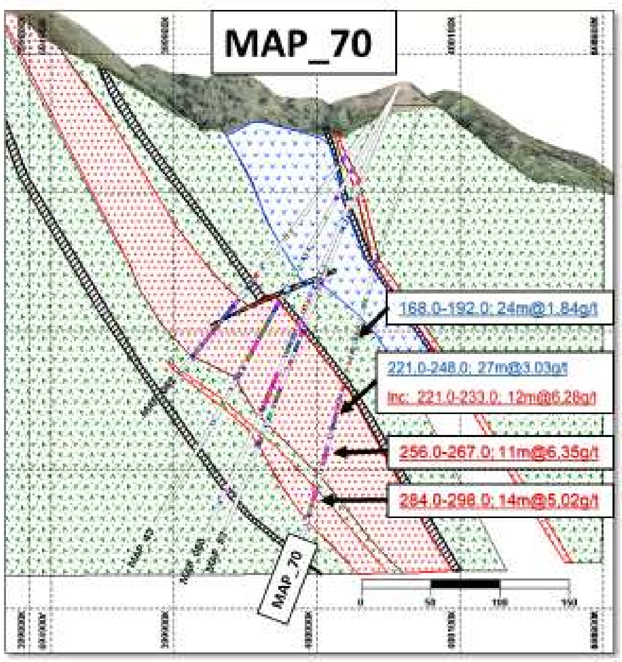


Figure 38: Section view MAP_45 with lithology schematic. Besides, show Au, Ag and Zn concentration of the drillhole (Sections of drillholes zone APTA, Minera Anzá. (2018)).

Figure 39: Drillhole trace MAP_43, MAP_53, MAP_62, MAP_60 and MAP_70 in APTA (Sections of drillholes zone APTA, Minera Anzá. (2018)).







Hole Number	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Zn (%)
MAP_60	70.00	75.50	5.50	3.34	13.32	0.19
	165,00	208,00	43,00	1,41	1,84	0,07
Including	165.00	192.00	27.00	1.81	0.87	0.33
Including	192,00	208,00	16,00	0,71	3.46	1.42
	222.00	247.00	25.00	4.86	3.23	1.73
Including	222.00	226.00	4.00	7.92	4.13	1.94
Including	235.00	238.00	3.00	9.54	6.37	0.33
Including	245.00	246.00	1.00	14.43	3.40	0.95
	248,00	253,50	5,50	0,68	0,99	0,31
MAP_62	60.00	65.30	5.30	5.09	12.06	0.37
	167,50	176,50	9,00	1,69	0,62	-
	190,00	241,00	51,00	2,79	3,01	0,66
Including	190,00	212,00	22,00	1,03	2,63	1,00
Including	212,00	241,00	29,00	4,12	3,31	0,36
MAP_070	110,00	114,00	4,00	0,67	13,55	0,19
	147,25	150,40	3,15	0,90	1,87	0,66
	168,00	192,00	24,00	1,84	1,64	1,09
	208,00	212,00	4,00	1,13	1,72	0,61
	221,00	248,00	27,00	3,03	1,87	0,66
Including	221,00	233,00	12,00	5,28	2,48	1,10
Including	233,00	242,00	9,00	0,63	0,54	0,13
Including	246,00	248,00	2,00	6,28	6,30	1,41
	256,00	267,00	11,00	6,35	2,73	1,55
Including	256,00	263,00	7,00	9,42	3,92	2,27
	284,00	298,00	14,00	5,02	2,23	1,10
Including	286,00	292,00	6,00	9,62	2,90	1,75
	302,00	307,00	5,00	1,57	3,94	1,67
MAP-43	65.5	68.6	3.1	7.66	73.04	0.68
	167.5	231.5	64.0	1.88	1.08	0.70
including	209.0	214.0	5.0	9.07	3.40	0.70
MAP_53	148,00	157,00	9,00	3,26	0,66	0,33
	184.52	218,50	33,98	2,31	2,59	0,60
including	189,00	196,50	4,50	9,27	2,70	1,71
Including	211,00	215,50	4,50	4,66	1,50	0,11
	232,50	258,00	25,50	1,69	1,78	0,93
Including	232,50	234,00	1,50	9,11	3,00	1,35
	271,00	279,07	8,07	1,31	1,44	0,70

Figure 40: Section view MAP_43, MAP_53, MAP_62, MAP_60 y MAP_ 70 with lithology schematic. Besides, show Au, Ag and Zn concentration of the drillhole (Sections of drillholes zone APTA, Minera Anzá. (2018)).

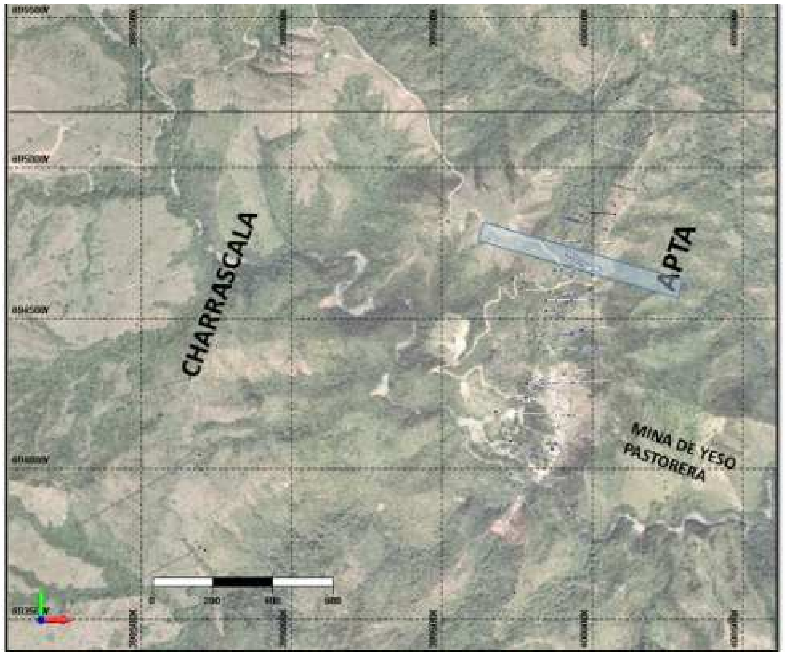
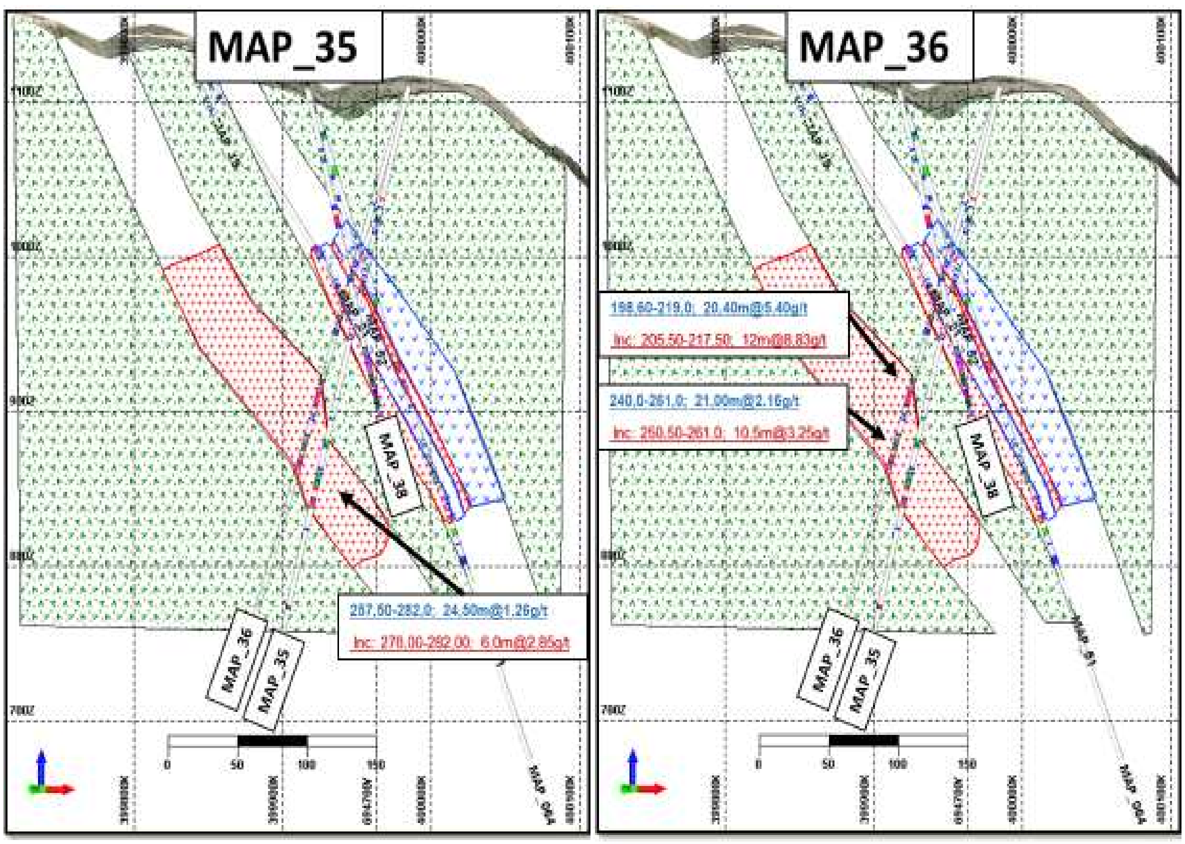
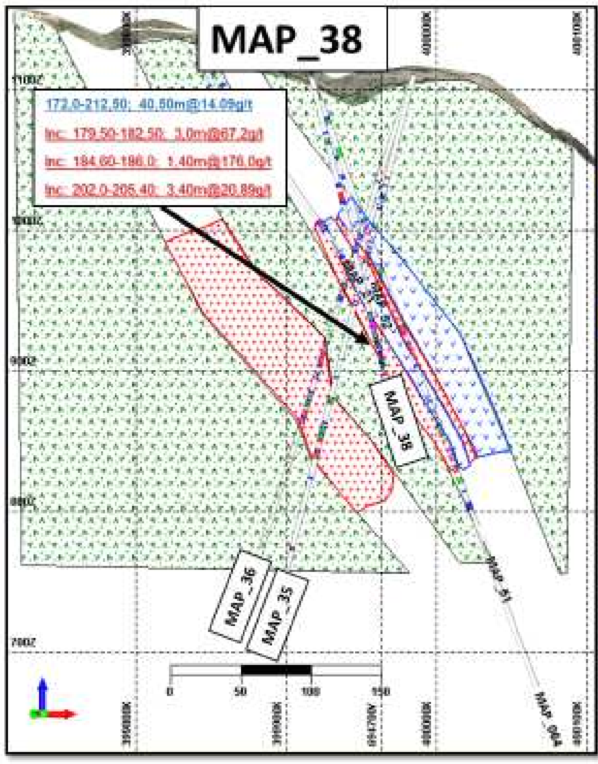


Figure 41: Drillhole view MAP_35, MAP_36 and MAP_38 in APTA (Sections of drillholes zone APTA, Minera Anzá. (2018)).





Hole Number	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Zn (%)
MAP_035	133,50	138,05	4,55	1,52	1,26	2,06
	165,00	169,27	4,27	1,28	0,53	0,18
	236,00	242,00	6,00	0,54	0,45	0,14
	257,50	282,00	24,50	1,26	0,91	0,61
Including	276,00	282,00	6,00	2,85	1,75	0,48
MAP_036	130,00	144,50	14,50	0,98	1,70	0,93
	198,60	219,00	20,40	5,40	1,68	0,61
Including	205,50	217,50	12,00	8,83	2,65	0,59
	240,00	261,00	21,00	2,16	0,85	0,26
Including	250,50	261,00	10,50	3,25	1,17	0,42
MAP_38	123,35	129,00	5,65	3,49	2,88	1,56
	172,00	212,50	40,50	14,09	3,82	1,95
Including	179,50	182,50	3,00	67,20	6,10	0,03
Including	184,60	186,00	1,40	176,00	15,20	0,38
Including	202,00	205,40	3,40	20,89	9,71	4,75
	216,50	219,10	2,60	2,92	3,98	1,95

Gypsum
Barroso Fm.
Gold mineralized Zone

Figure 42: Section view MAP_35, MAP_36 and MAP_38 with lithology schematic. Besides, show Au, Ag and Zn concentration of the drillhole (Sections of drillholes zone APTA, Minera Anzá. (2018)).

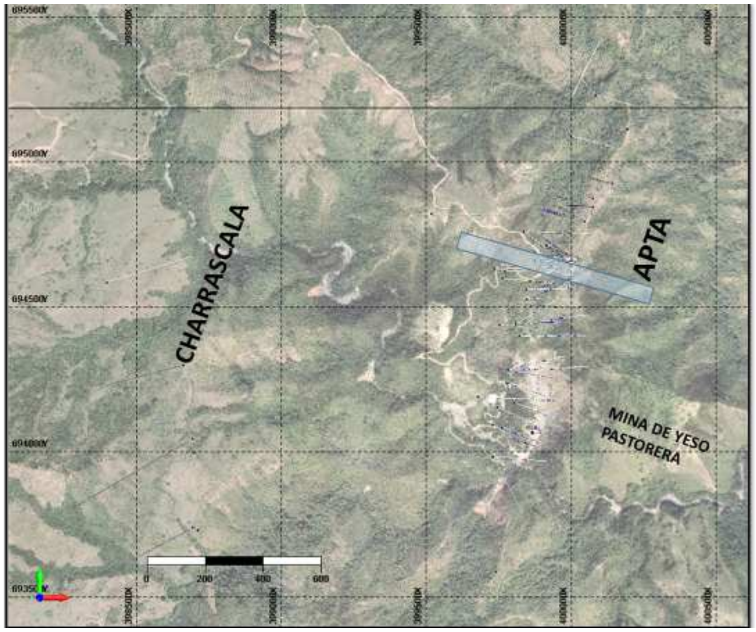
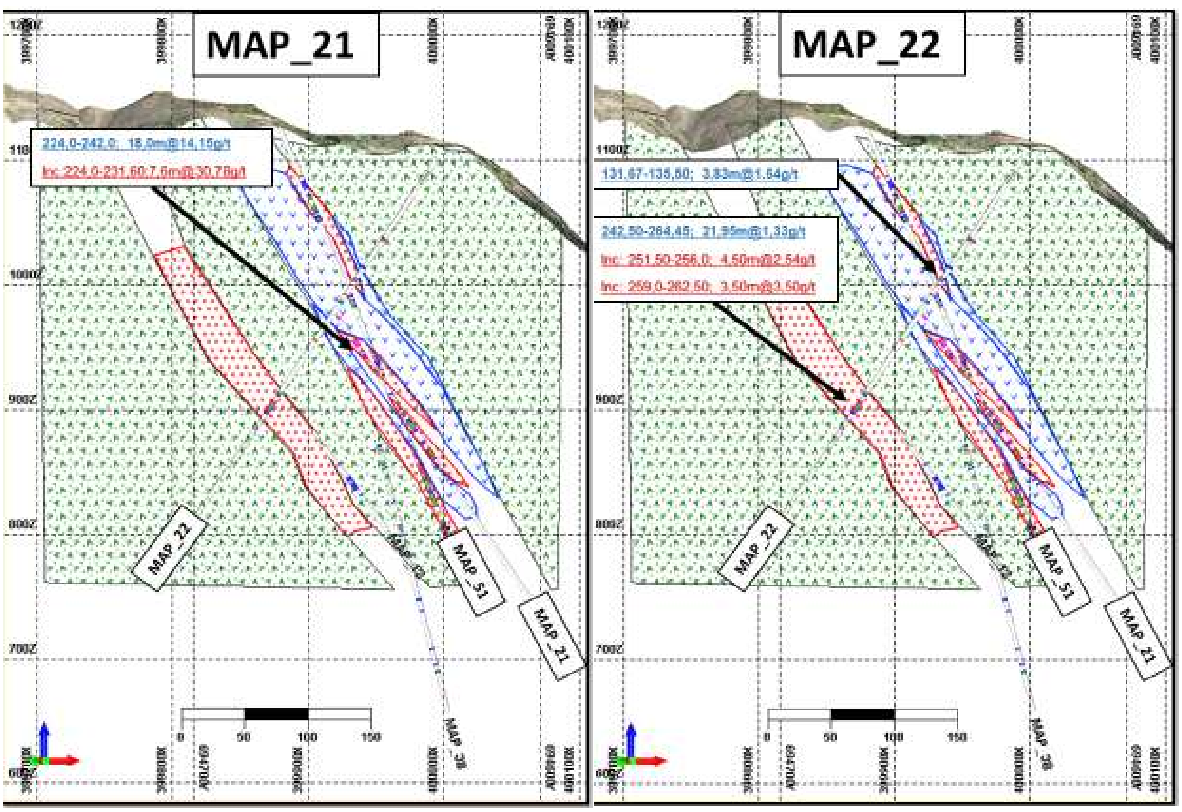
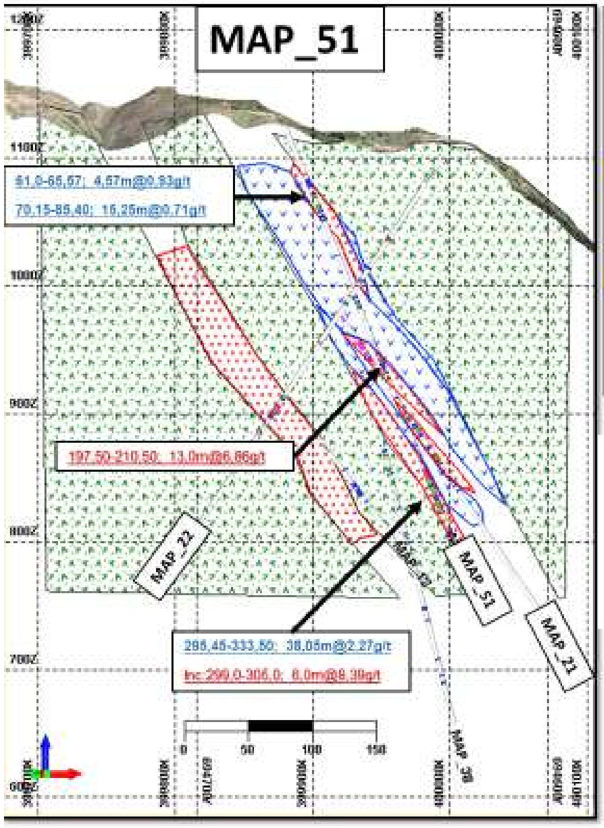


Figure 43: Drillhole view MAP_21, MAP_22 and MAP_51 in APTA (Sections of drillholes zone APTA, Minera Anzá. (2018)).





Hole Number	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Zn (%)
MAP_21	224,00	242,00	18,00	14,15	2,04	2,82
Including	224,00	231,60	7,60	30,78	4,43	6,05
	252,00	256,50	4,50	3,26	2,39	4,07
	301,50	314,00	12,50	0,81	1,51	1,24
	330,00	337,00	7,00	1,38	3,12	0,01
MAP_22	131,67	135,50	3,83	1,64	0,95	0,71
	242,50	264,45	21,95	1,33	2,94	0,30
Including	251,50	256,00	4,50	2,54	1,47	0,25
Including	259,00	262,50	3,50	3,34	1,44	0,15
MAP_51	61,00	65,57	4,57	0,93	14,59	0,08
	70,15	85,40	15,25	0,71	17,35	0,09
	197,50	210,50	13,00	6,86	1,38	1,99
	295,45	333,50	38,05	2,27	2,94	3,84
Including	299,00	305,00	6,00	8,39	4,11	5,27

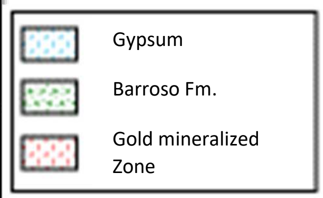


Figure 44: Section view MAP_21, MAP_22 and MAP_51 with lithology schematic. Besides, show Au, Ag and Zn concentration of the drillhole (Sections of drillholes zone APTA, Minera Anzá. (2018)).

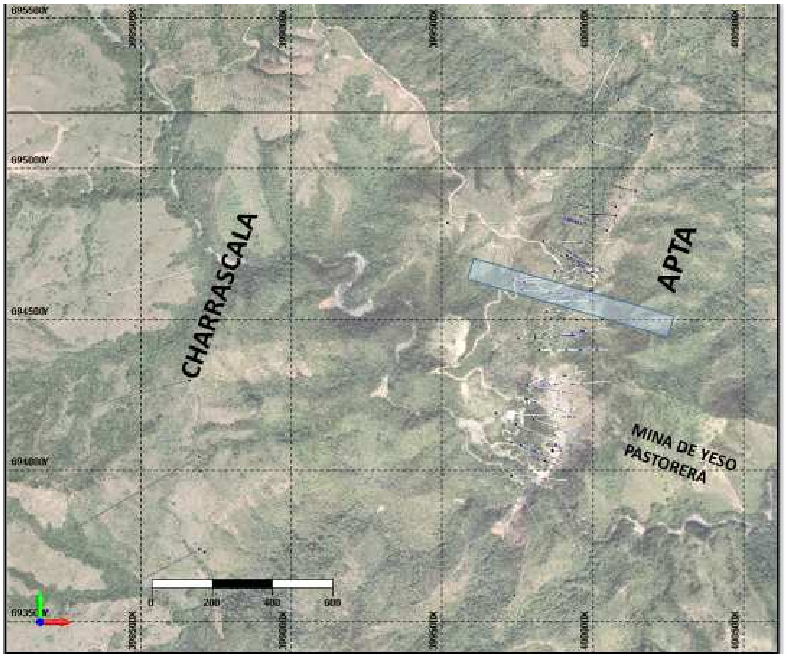
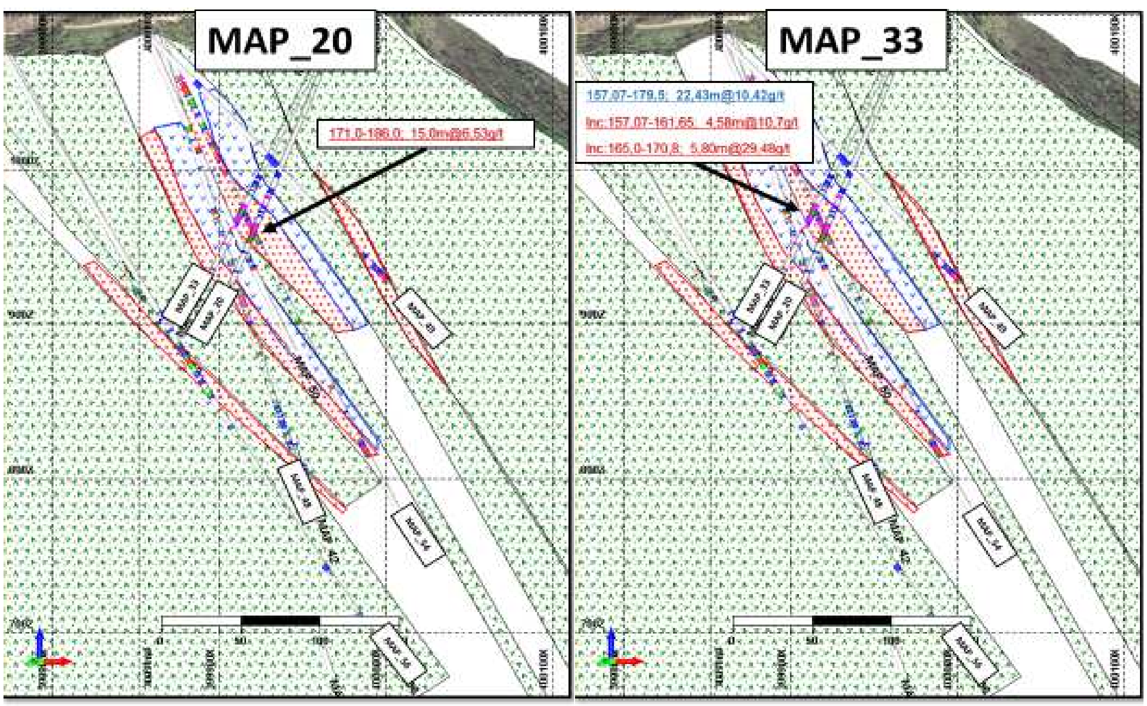
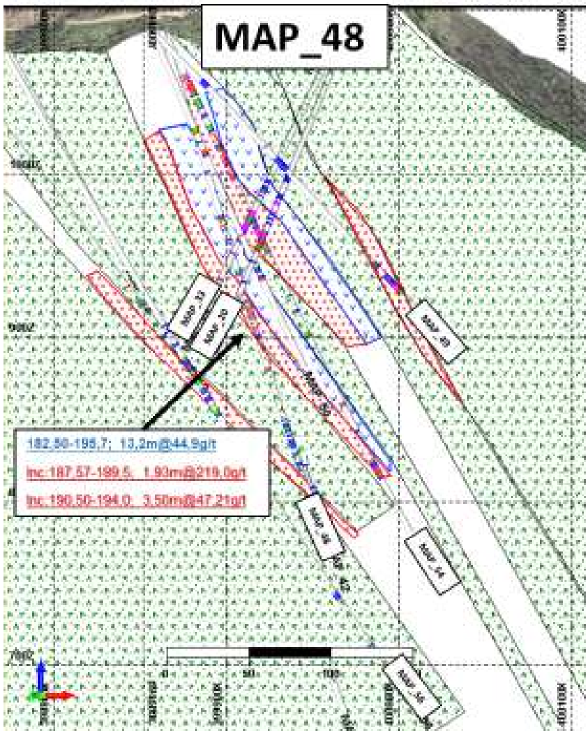
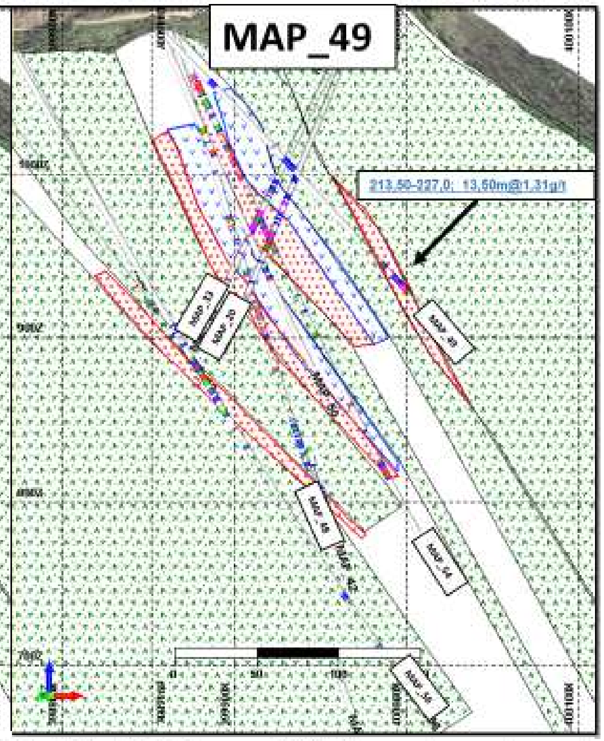
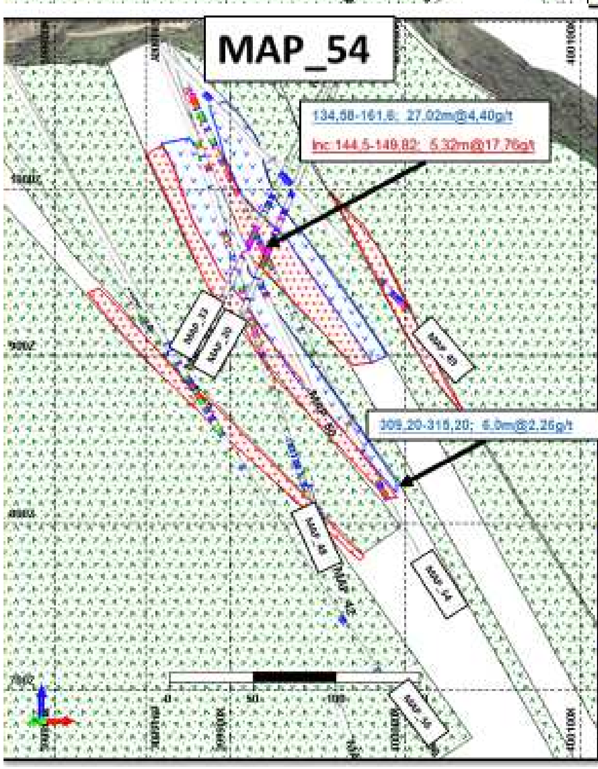


Figure 45: Drillhole view MAP_20, MAP_33, MAP_48, MAP_49 and MAP_54 in APTA (Sections of drillholes zone APTA, Minera Anzá. (2018)).









Hole Number	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Zn (%)
MAP_020	145,00	153,00	8,00	1,86	2,58	2,50
	171,00	186,00	15,00	6,53	1,62	1,34
	278,00	295,70	17,70	0,74	1,31	0,04
MAP_033	140,00	145,10	5,10	1,48	1,29	2,63
	157,07	179,50	22,43	10,42	1,87	1,55
Including	157,07	161,65	4,58	10,70	3,15	1,99
Including	165,00	170,80	5,80	29,48	3,37	2,80
	204,75	211,50	6,75	1,35	0,70	0,54
MAP_48	163,00	172,00	9,00	1,25	0,45	1,61
	182,50	195,70	13,20	44,90	10,28	3,78
Including	187,57	189,50	1,93	219,00	29,50	6,55
Including	190,50	194,00	3,50	47,21	7,35	5,75
	199,25	201,50	2,25	7,80	2,19	0,29
	261,50	277,55	16,05	0,40	4,26	-
MAP_49	200,50	203,50	3,00	0,43	3,20	-
	213,50	227,00	13,50	1,31	10,52	0,03
MAP_54	44,70	53,25	8,55	3,01	29,10	0,32
	56,20	63,10	6,90	0,87	13,22	0,05
	97,10	101,73	4,63	5,47	1,59	1,44
	134,58	161,60	27,02	4,40	0,86	2,10
Including	144,5	149,82	5,32	17,76	1,55	4,74
	309,20	315,20	6,00	2,26	4,53	0,28
MAP_56	223,00	237,00	14,00	1,26	0,99	0,12
	239,00	243,00	4,00	0,41	0,87	0,07
	254,50	259,50	5,00	0,48	0,78	0,08

Figure 46: Section view MAP_20, MAP_33, MAP_48, MAP_49 and MAP_54 with lithology schematic. Besides, show Au, Ag and Zn concentration of the drillhole (Sections of drillholes zone APTA, Minera Anzá. (2018)).

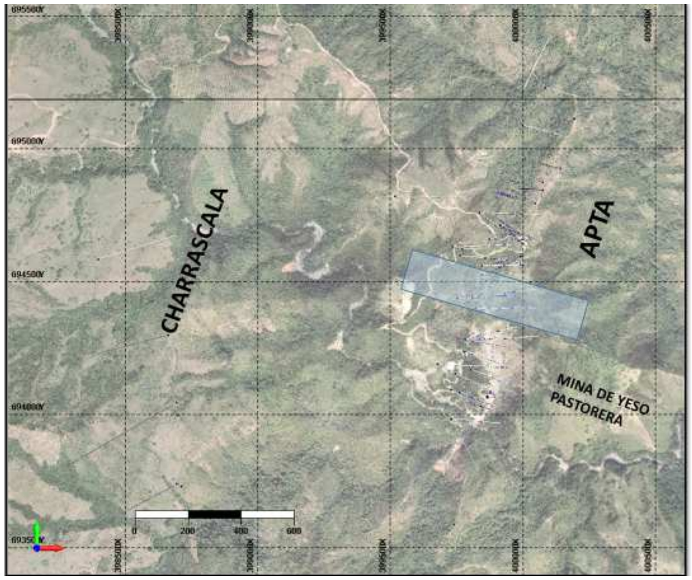
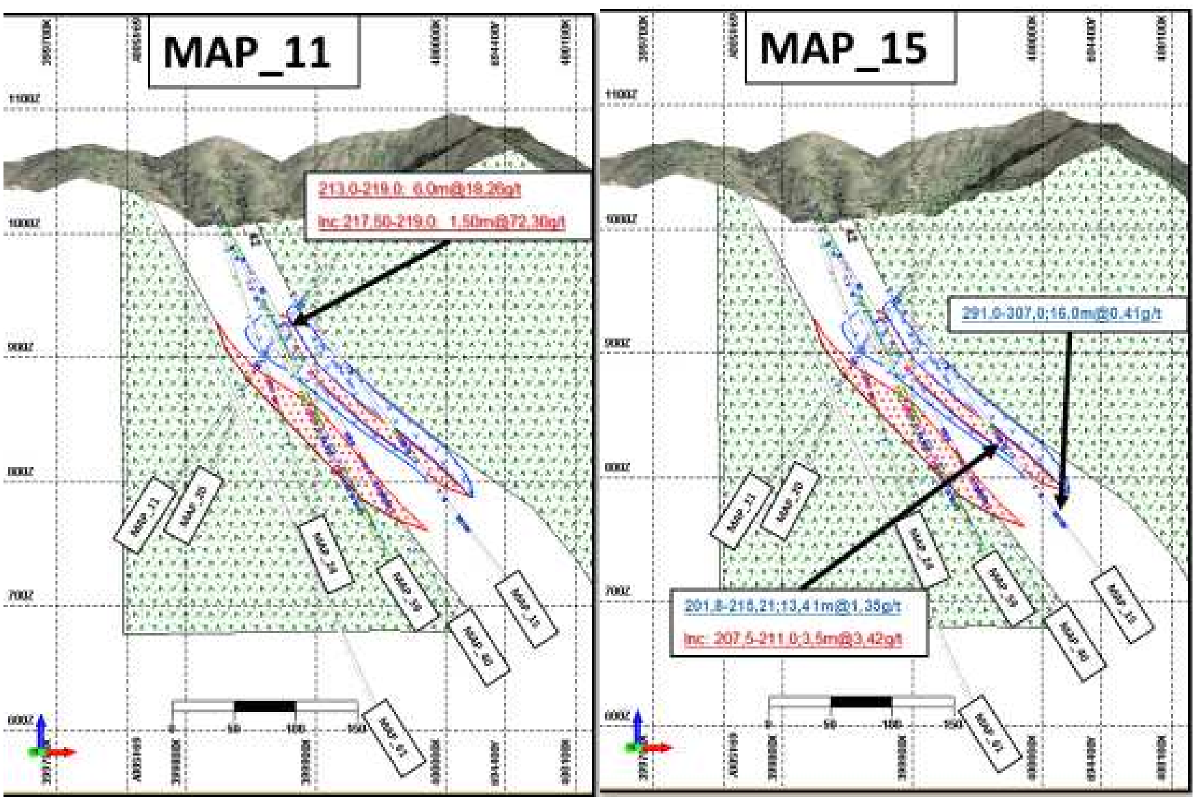
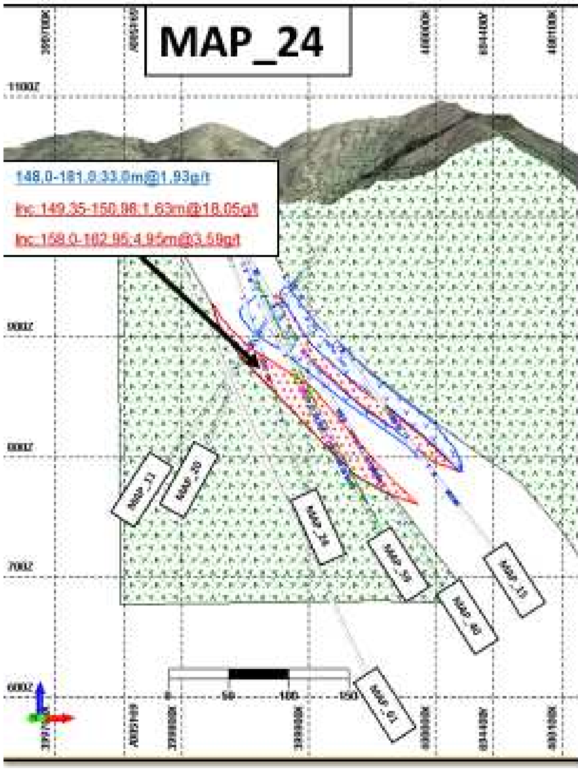
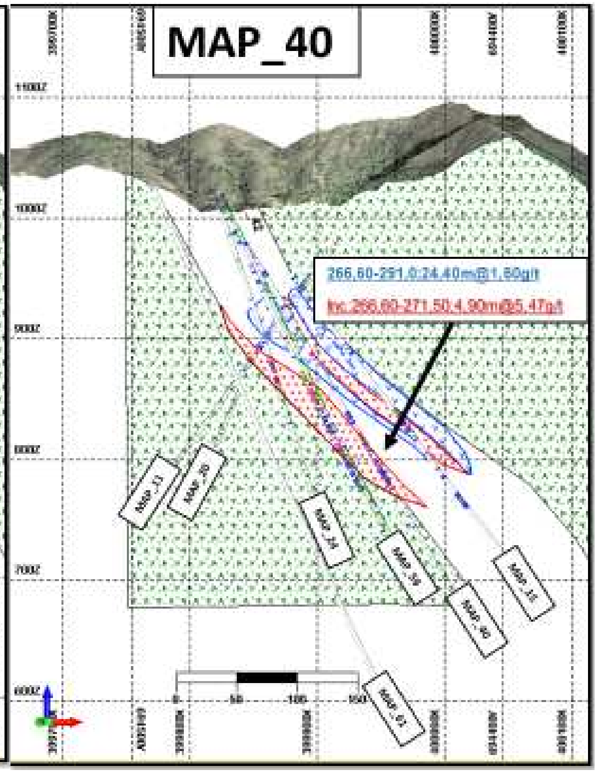
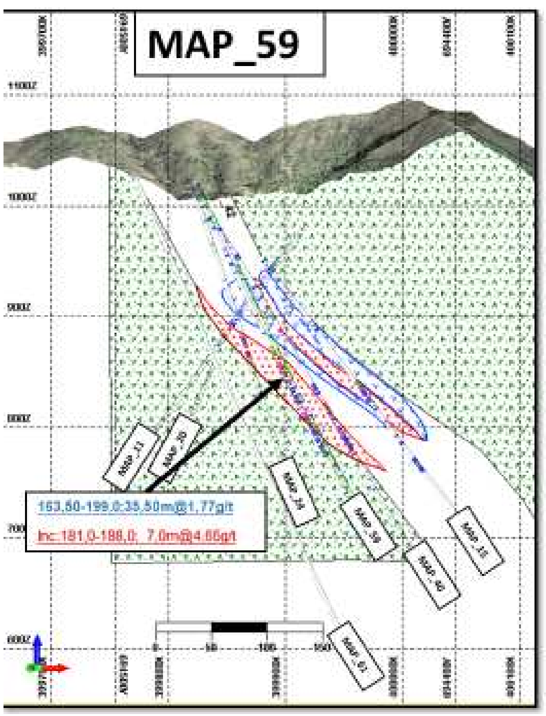


Figure 47: Drillhole view MAP_11, MAP_15, MAP_24, MAP_40 and MAP_59 in APTA (Sections of drillholes zone APTA, Minera Anzá. (2018)).









Hole Number	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)	Zn (%)
MAP_11	213,00	219,00	6,00	18,26	1,95	0,35
Including	217,50	219,00	1,50	72,30	6,90	0,92
	268,90	273,00	4,10	0,79	0,30	0,09
MAP_15	201,80	215,21	13,41	1,35	3,08	1,64
Including	207,50	211,00	3,50	3,42	2,62	0,51
	221,00	226,00	5,00	0,45	4,02	0,29
	291,00	307,00	16,00	0,41	5,46	0,55
MAP_24	148,00	181,00	33,00	1,93	1,24	0,52
Including	149,35	150,98	1,63	18,05	2,30	1,98
Including	158,00	162,95	4,95	3,59	1,06	0,37
MAP_40	129,90	143,50	13,60	0,83	17,64	0,43
	154,30	158,70	4,40	2,46	5,20	3,79
	266,60	291,00	24,40	1,60	2,91	0,56
Including	266,60	271,50	4,90	5,47	5,96	1,07
MAP_59	163,50	199,00	35,50	1,77	2,36	0,45
Including	181,00	188,00	7,00	4,65	2,17	0,26
	213,00	223,00	10,00	0,64	1,24	0,02
	230,50	242,50	12,00	1,96	2,72	0,50
Including	230,50	234,50	4,00	3,89	1,10	0,81
	257,00	276,00	19,00	0,42	2,42	0,05

Figure 48: Section view MAP_11, MAP_15, MAP_24, MAP_40 and MAP_59 with lithology schematic. Besides, show Au, Ag and Zn concentration of the drillhole (Sections of drillholes zone APTA, Minera Anzá. (2018)).

Drill holes photography

Photo 10: Mudstone: Fine rock colour black/grey. It has a moderate to strong propylitic alteration. Millimeter-wave quartz/calcite veinlets. Seen levels with texture matrix supported l breccia (matrix fine with gypsum) and laminated textures. Fine pyrite mineralization, granular disseminated and fine sphalerite disseminated and massive. Also stand sectors intercalated with gypsum (Logging of geological drilling, Minera Anzá (2017)).

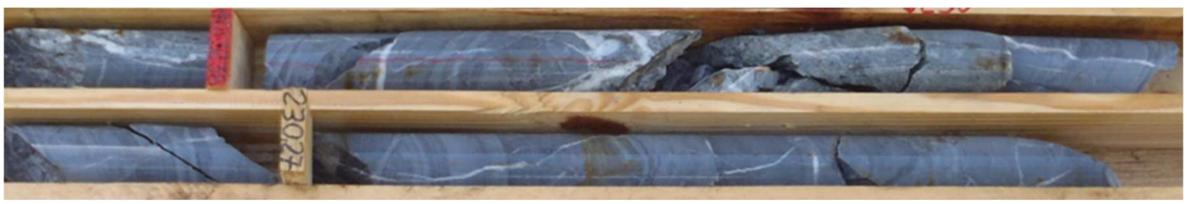


Photo 11: Chert: fine grain with a strong pervasive silicified rock. It has banded texture, manifesting itself in thin sheets of marbled quartz alternating in different shades. It has the appearance of a strongly silicified mudstone. They may have disseminated pyrite (Logging of geological drilling, Minera Anzá (2017)).

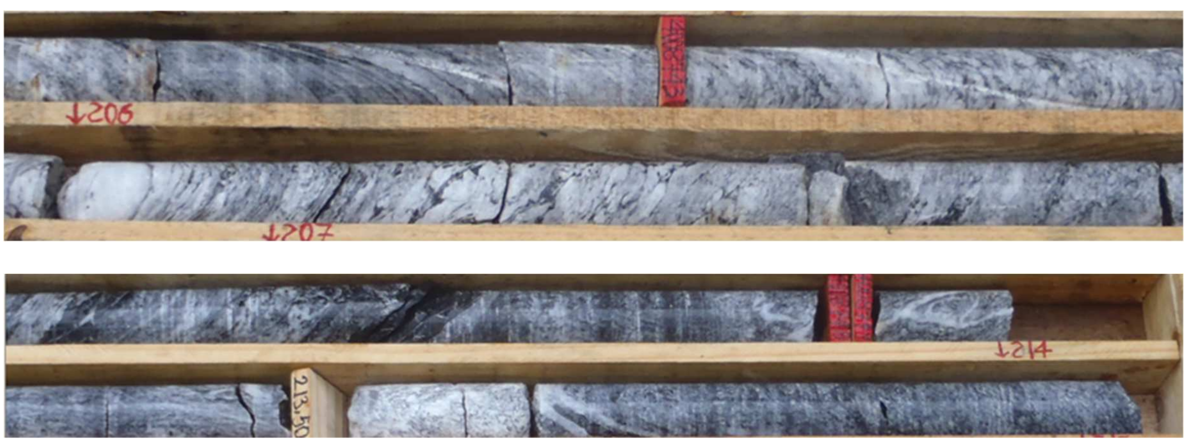


Photo 12: gypsum: sample of gypsum with mudstone intercalated (Logging of geological drilling, Minera Anzá (2017)).

Photo 13: Tuff: Fine to medium rock of grey to green olive colour. It presents veinlets of quartz/calcite and epidote/Quartz. Silicification moderate to low, overprinted and argillization in fractures. Sometimes it is intercalated with mudstones (Logging of geological drilling, Minera Anzá (2017)).

Photo 14: Mafic dyque: Dyque of green colour, porphyritic texture (amphibol euhedral porphyroblasts). It has veinlet of quartz/calcite. Chlorite alteration pervasive and moderate silicified (Logging of geological drilling, Minera Anzá (2017)).

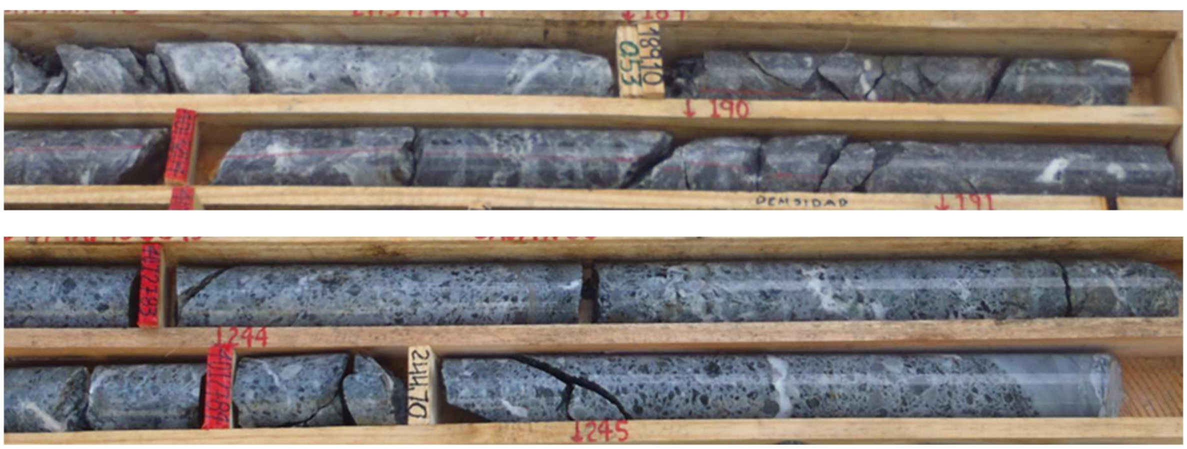


Photo 15: Breccia: Matrix supported rock fine to medium textured breccia. It is composed of clasts of fine to medium tuff chloritization and silicification, angular to sub angular and silicified grey mudstone and quartz (Logging of geological drilling, Minera Anzá (2017)).

Photo 16: Breccia: Matrix supported rock fine to medium textured breccia. It is composed of clasts of fine to medium tuff chloritization and silicification, angular to sub angular and silicified grey mudstone and quartz (Logging of geological drilling, Minera Anzá (2017)).

11 Sampling Preparation, Analyses and Security

11.1 Drillholes: Sampling, Handling and Logging

Anzá mining company, have methods for sampling, preparation and handling of drillholes stated in manuals of procedures, step by step establishing drillhole logging. This is defined as a collection and registration through written, and graphic methods of geological data from samples collected for borehole of the subsoil; Also, the procedures for cut, photograph and geomechanical logging of them. The data are stored in paper and digital formats, which are finally saved on the server of the company. In addition, each manual presents the risks and control measures, materials and activities team to perform.

During 2010 when Anzá Project was launched, it was thought like a potential massive sulphide type deposit or OICG; However, with the data of the first drillholes were detected Au anomalies and values, associated, mainly, with gypsum mine areas, this generated a change in the objective and with the campaign advance, it was identifying that Anzá project has a potential for gold.

The information is logged continuously, i.e., it cannot be sections without data, except in roofs and floors. For intervals without recovery, therefore, without logging, it assigns "SI" (no information). The information is captured in predesigned mapping (.xls) formats, which are preset terminology and codes (dictionary) that are used. Finished logging, this is encoded in log sheets, which are entered into the geological database of Minera Anzá through Microsoft Access (Waymar) and Fusion Datamine (Orosur) software for later to observe the mineralized body behavior therefore optimize the campaign. This information is processed in several geological activities (sections and plants, interpretations or geological modelling). Below, it describes the preparation and logging procedures established by the mining company:

DESCRIPTION OF THE DRILLHOLES PREPARATION ACTIVITIES

- **Drillhole cleaning:** Drillholes must be clean, free of soil and mud or sediments of drilling.
- **Drillhole regularization**: Drillholes must be regularized, with markers (wood) (advance, recovery, lost) reviewed and validated by the geologist and/or supervisor**.**
- **Recovery measurements**: During drilling control it should have measured drillholes recoveries, in accordance with the procedures.
- **Drillhole photography**: It must take pictures of the drillholes according to relevant procedures and validate them according to the standards accepted by the geology management.
- **Drillcore cutting:** Drillcore must be split parallel to its axis in accordance with the guidance given by the shift geologist, to expose fresh surfaces for logging (photo 13).

Photo 17: Drillcore cutting in machine with diamond disc, the procedure varies depending on material consolidated or non-consolidated. It uses all equipment and materials set in the Minera Anzá procedures, with the geologist (Logging of geological drilling, Minera Anzá (2017)).

INSTRUCTIONS:

- The geologist must request to warehouse staff to extend the drillcore boxes their logging.
- Proceed to moisten the drillcore using the manual sprayer, for better viewing of the different geological variables to log; taking care of making greater disintegration, especially in the least qualified intervals.
- Geological logging starts completing the standardized login template.
- Complete drillcore logging, it requests to warehouse staff to remove the boxes and extend the next one drillcore.
- Proceed to encode all the variables of the geological logging in the templates designed for this purpose, which once validated will be transferred to the Minera Anzá database, coding for now will be made by the geologist which log the drillcore and sent to the GIS to incorporate it into the database.

Subsequently and as indicated by the instructions, it proceed to encode variables of the geological logging in the template (Figure 50) and following the code table for each feature taken from the protocol. Logging geologic drillholes, Minera Anzá (2017).

Samples logging

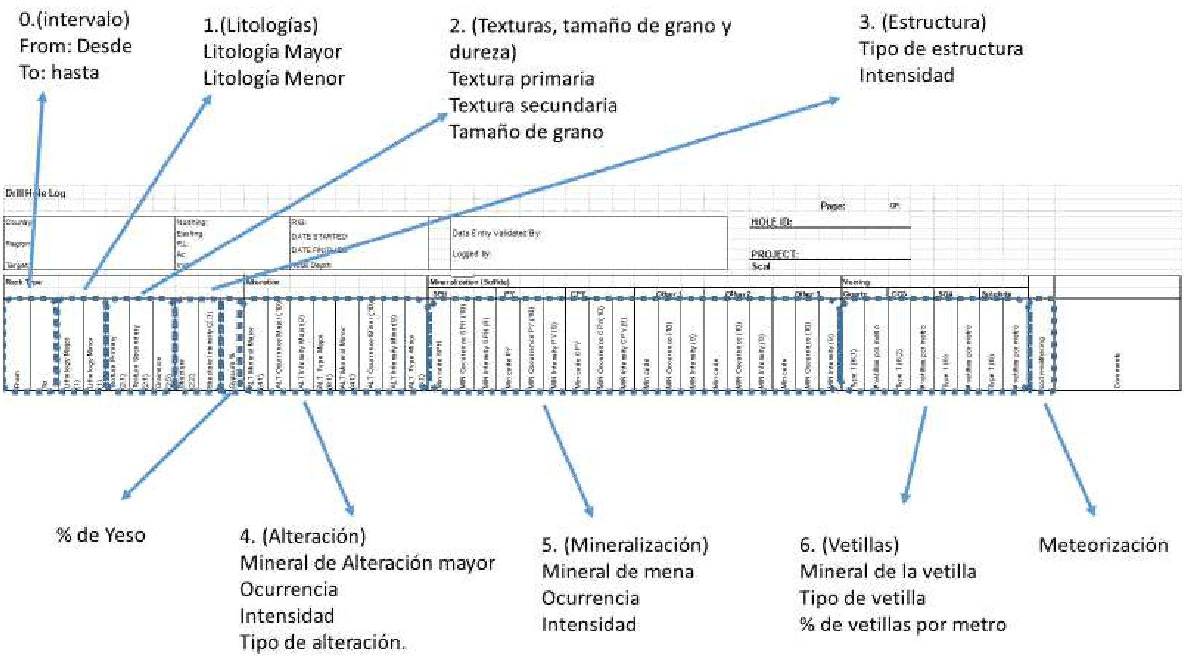


Figure 49: Drillcore geological logging templates (Logging of geological drilling, Minera Anzá (2017)).

Lithology

Code Lithology	Rock Type (1)
All	Alluvial
BA	Basalt
BX	Breccia
Bx_S	Silica Breccia
Bx_T	Tuff Breccia
CHERT	Chert, as Radiolarite of Waymar
DACITA	Dacite
DyM	Mafic Dique
AN	Andesite
DIA	Diabase
FBX	Fault Breccia
FLT	Fault
GD	Granodiorite
GYP	Gypsum
GYP_L	Gypsum and Mudstones Intercalated
IDU	Undifferentiated Dique
IDO	Diorite
IGR	Granite
ITO	Tonalite
L_GYP	Mudstones and Gypsum Intercalated
SLS	Limestones
M_sh	Metamudstone
SMS	Calcareous Mud
NOLOG	No Logging
OB	Overburden
Ot	Intercalation
SAP	Saprolitic
LO	Lost Drillcore
NS	No Sample
SH	Lutite
SHL	Sillstone
Sh_Ss	Mudstone and Sandstone Intercalated
Sltst	Silt
Soil	Soil
Ss	Sandstone
TUFF	Tuff
VeinMat	Vein

Figure 50: Code table for lithological logging (Logging of geological drilling, Minera Anzá (2017)).

Texture and grain size

CodeTex	Texture (2.1)
AM	Amorphous
AP	Aphanitic
BN	Banding
BX	Brecciated
FG	Fragmental
FR	Fractured
GB	Granoblastic
GN	Gneiss Texture
GR	Granular
ED	Equigranular
MX	Massive
NM	Nematoblastic
PEG	Pegmatite
PH	Phaneritic
PB	Porphyroblastic
PO	Porphyritic
VE	Vesicular Amygdaloidal

Size (2.5)	Size(2.5)
Boulder	Bloques
Cobble	Guijo
Pebble	Guijarro
Gravel	Grava
Sand	Arena
Silt	Limo
Clay	Arcilla
Very corse	Muy grueso
C	Grueso
M	Medio
F	Fino
Very fine	Muy fino

Figure 51: Code table for textures and grain size logging (Logging of geological drilling, Minera Anzá (2017)).

Structures type and intensity

CodeStr	Structure (2.2)
BD	Bedded
BN	Banding
BX	Brecciated
DK	Dique
FD	Fold (axis)
FG	Fragmental
FT	Fault
FO	Foliated
FR	Fractured
JN	Joints
LM	Lamination
LE	Lens
MX	Massive
OT	Other
SZ	Shear zone
SW	Stockwork
VN	Vein
VLT	Veinlet

ST Intensity	Intensity (2.3)
1	Weak
2	Moderate
3	Strong
4	Very Strong
5	Intense

Figure 52: Code table for structures and intensity (Logging of geological drilling, Minera Anzá (2017)).

Alteration type, occurrence and alteration intensity

Code_Min	Mineral (4.1)
AB	Albite
BI	Biotite
ANH	Anhydride
CA	Calcite
CB	Carbonate
CD	Chalcedony
CL	Clay
CH	Chlorite
EP	Epidote
FP	Feldspar
GH	Goethite
HM	Hematite
GYP	Gypsum
JR	Jarosite
KA	Kaolinite
KFD	K-Feldspar
MUS	Muscovite
OT	Other
QZ	Quartz
SE	Sericite
SK	Silica
SM	Smectite
TALC	Talc

Mineralization/ Alteration Intensity (9)	
5	Very Strong >30%
4	Strong 15-30%
3	Moderate 5-15%
2	Weak 1-5%
1	Trace <1%

CodeAlt	Alteration (8.1)
Alb	Albitization
Arg	Argillic
Biotc	Biotitic
Ca-Na	Sodium Calcium
Carb	Carbonatization
CH	Chloritic
ChSer	
Ep	Epidotic
FeOx	FeOx
Lchd	Leaching
No	No
Ot	Other
Phy	Phyllitic
Pir	Pyritic
Pot	Potassic
Prop	Propylitic
QtzSer	Quartz Sericitic
Ser	Sericitic
Sil	Silicify

Code_Dist	Ocurrence (10)
D	Disseminated
FR	Fractures
M	Massive
MT	Matrix
Ot	Other
PA	Patchy
SPOT	Spotted
PV	Pervasively
RP	Replacement
SL	Selective
ST	Stockwork
VG	Vuggy
VN	Vein
VLT	Veinlet

Figure 53: Code table for logging alteration, occurrence and alteration intensity (Logging of geological drilling, Minera Anzá (2017)).

Ore mineral, occurrence and intensity

Code_Min	Mineral
AS	Arsenopyrite
Au	Gold
BA	Baryte
CA	Calcite
CB	Carbonate
CPY	Chalcopyrite
CuOx	Copper Oxide
FL	Fluorite
GA	Galena
GT	Garnet
GYP	Gypsum
HM	Hematite
MnOx	Manganese Oxide
MO	Molybdenite
MG	Magnetite
PO	Pyrrhotite
PY	Pyrite
S	Sulphur
SD	Siderite
SPH	Sphalerite

Code_Dist	Ocurrence (10)
D	Diseminated
FR	Fractures
M	Massive
MT	Matrix
Ot	Other
PA	Patchy
SPOT	Spotted
PV	Pervasively
RP	Replacement
SL	Selective
ST	Stockwork
VG	Vuggy
VN	Vein
VLT	Veinlet

Mineralization/ Alteration Intensity (9)	
5	Very Strong >30%
4	Strong 15-30%
3	Moderate 5-15%
2	Weak 1-5%
1	Trace <1%

Figure 54: Code table for logging ore mineral, occurrence and intensity (Logging of geological drilling, Minera Anzá (2017)).

Vein, minerals, vein types and % veins by meter

Vein Type	
BR	Brecciated
CO	Colloform
CR	Crackle vein
FB	Fibrous
LM	Laminated
MK	Milky
MX	Massive
SH	Sheared
SM	Smokey
ST	Stringer
SW	Stockwork

Carbonate Type	
AN	Ankerite
CA	Calcite
CB	Carbonate
DL	Dolomite
SI	Siderite

SO_4 Type	
ANH	Anhydride
GYP	Gypsum

Quartz Type	
QZ	Quartz
QZCB	Quartz-Carbonate
QZg	Gray Quartz
QZm	Milky Quartz
QZmGAPY	Milky Quartz-Galena-Pyrite
QZPY	Quartz-Pyrite
QZPYCB	Quartz-Pyrite-Carbonate

Sulphide Type	
AS	Arsenopyrite
GA	Galena
MG	Magnetite
PO	Pyrrhotite
PY	Pyrite
PYCP	Pyrite-Chalcopyrite
PYGA	Pyrite-Galena
SPH	Sphalerite
CPY	Chalcopyrite

Weathering

Weathering	
1F	Fresh – No Oxidation
2W	Weakly – Weak Oxidation in Fractures
3M	Moderately – Mod Oxidation in Fractures
4H	Highly – Pervasive Oxidation
5E	Extreme – No Internal Struct Remaining

Figure 55: Code table for logging vein and weathering (Logging of geological drilling, Minera Anzá (2017)).

11.2 Geochemical Samples

About to the procedures used for soil samples in geochemical exploration campaigns, was according to the following:

- Pre-existing grid following geophysical lines survey.
- Collected by manual auger.
- Sampling of C horizon.
- Sampling of rock samples with the presence of outcrops.
- Take of geographic and geological information on templates provided by Minera Anzá SA.
- Development of digital database in Excel worksheet.

Also, it was used the existence of the underground works of the gypsum mine for collected geochemical sampling, specifically in La Pastorera tunnel, where the rock samples were collected in the following way:

- Use of existing topography.
- Use of pneumatic hammer.
- Continuous rock chips over a line of 2 m maximum length.
- Preference of siliceous with sulphides presence intervals.
- Share zones sampling.
- Geological and topographical survey of the zones and structures sampled.
- Sampling marks with compass and measure.
- Take information on templates provided by Minera Anzá SA.
- Development of digital database in Excel worksheet.

Others sampling were commended to the Gemi SA Company, which in October 2011 completed 230 samples collected of active sediments. Sampling quality assurance followed a protocol of agreement with Minera Anzá S A and included the following:

- Use of thick plastic bags, whose final status was checked at the sampling site.
- Map marking of the sampling point and register in the registration card provided by Minera Anzá.
- GPS use to locate and map marking the sampling point.
- Sieved in mesh - 200 ground
- Adding 16 ml of flocculent (aluminum sulfate) and removal of the liquid with plastic syringe.
- Mark in two tags, one to the inside and another on the outside of the bag.

- Washing and cleaning of equipment prior to each sampling.
- Sampling at various points (at least 20) across the course and for 50 m of longitudinal.
- Avoid pollution factors such as waste, metal objects, roads and landslides.
- Avoid personal metal objects such as rings, chains and watches.
- Privilege use plastic and wood tools above the metal tools.
- Register contamination possible causes.
- Have the permissions to access to the sampling points.

Total of active sediment samples, six corresponds to pan concentrations. Besides, during the campaign reported in October 2011, Gemi SA also collected 84 rock samples of "channel" and "linear" type according to the following protocol:

- Delimitation with parallel lines separated by 30 cm and crossing the entire structure
- Cleaning the surface with water or simple removal of surface layer
- Channel of few centimetres deep with stone-hammer and chisel
- Use of personal protective
- Channels of no more than 2 m length
- Collection of fragments in bags or tarps laid on the floor
- Packaging in plastic bags following described procedures
- Mapping and register on card provided by Minera Anzá SA (Fig. 24b)
- Avoid possible pollution factors
- Register in digital database in Excel worksheet
- Have the permissions to access to the sampling points.

11.3 Geotechnical and Structures: Procedures and Logging

Geotechnical and structures logging is regulated by a procedures protocol established by Minera Anzá. As the logging of drillholes with geological description has a series of edges to complete, establishing parameters and characteristics geotechnical of the drillcore, besides to its general information on a similar template.

11.3.1Geotechnical logging

Geotechnical Log

PROJECT NAME:	HOLE NUMBER

a)
Country
Region
Project
Target:

Drill Data
RIG:
DATE STARTED:
DATE FINISHED:
Total Depth:

PAGE___OF___
Data Entry Validated By:
Signed:

b)				Datos de recuperación						Datos de dureza		
Desde (From)	**Hasta** (To)	**Intervalo de corrida** (Drilled mts)	**Dominio Litológico** (Descripción)	c) **Recuperación (m)** (Recovery meter)	**Recuperación %** (Recovery %)	**Cantidad de Fracturas** (Quantity of fractures)	d) **Frecuencia de fracturas**	**Suma de trozos >10cm (m)** RQD meter	e) **RQD %**	f) **Indice de dureza** (Hard Index)	g) **Indice meteorización** (Weather Index)	**Comments**
0,00	2,60	2,60		2,60	100	18	7	1,75	68	R-3	W-2	
2,60	5,60	3,00		2,95	98	2	1	2,95	98	R-3	W-2	
5,60	8,50	2,90		2,80	97	15	5	2,10	72	R-3	W-2	
8,50	11,60	3,10		2,90	94	5	2	2,80	90	R-3	W-2	
11,60	14,60	3,00		3,00	100	16	5	2,55	85	R-3	W-2	
14,60	17,60	3,00		3,00	100	8	3	2,50	83	R-3	W-2	
17,60	20,60	3,00		3,00	100	11	4	2,60	87	R-3	W-2	
20,60	23,50	2,90		2,90	100	19	7	2,00	69	R-3	W-2	
23,50	26,60	3,10		3,10	100	6	2	3,00	97	R-3	W-2	
26,60	2.9.6	3,00		3,00	100	9	3	2,80	93	R-3	W-2	
2.9.6	32,60	3,00		3,00	100	11	4	2,75	92	R-3	W-2	
32,60	35,60	3,00		3,00	100	7	2	2,90	97	R-3	W-2	
35,60	38,60	3,00		3,00	100	8	3	2,85	95	R-3	W-2	
38,60	41,60	3,00		3,00	100	11	4	2,55	85	R-3	W-2	

Figure 56: Geotechnical logging template (Logging of geological drilling, Minera Anzá (2017)).

a) **General information:** Project name, number of drillhole, date, logged by, etc.

b) **Depth and intervals**: from: beginning; To: End; and intervals (from mark to mark).

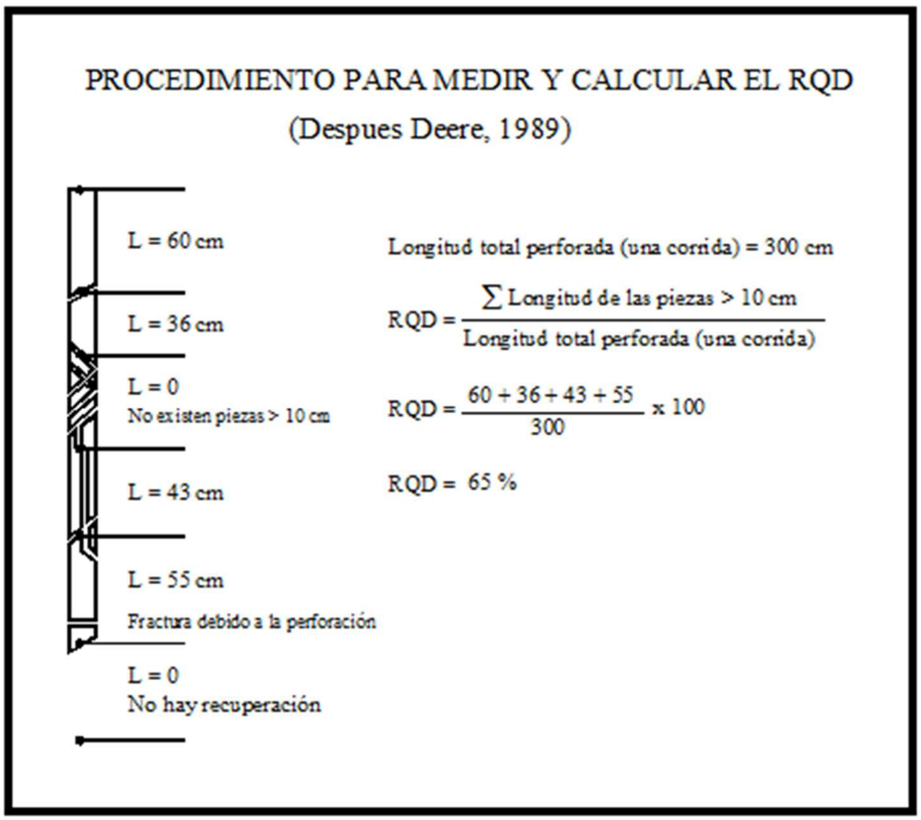
c) **Drillcore recovery**: total amount of drillcore recovered on measured length drilled. The % recovery is obtained from the following formula (Logging of geological drilling, Minera Anzá (2017)).
Minera Anzá (2017)).

$$\%Recovery = \frac{\text{Drillcore recovery length}}{\text{Drilcore drilled length}} \times 100$$

d) Frequency of fractures: number of natural discontinuities observed in the length of the drillcore examined (Logging of geological drilling, Minera Anzá (2017)).

$$\textbf{Frequency of fractures} = \frac{\textbf{Drillcore discontinuities number}}{\textbf{Drilcore drilled length (m)}}$$

e) Rock quality designation: The RQD is a quantitative index of the quality of the Rock based on the recovery drillcore, which considered only those pieces drillcore whose length is at least twice the diameter of the drillcore (Logging of geological drilling, Minera Anzá (2017)).



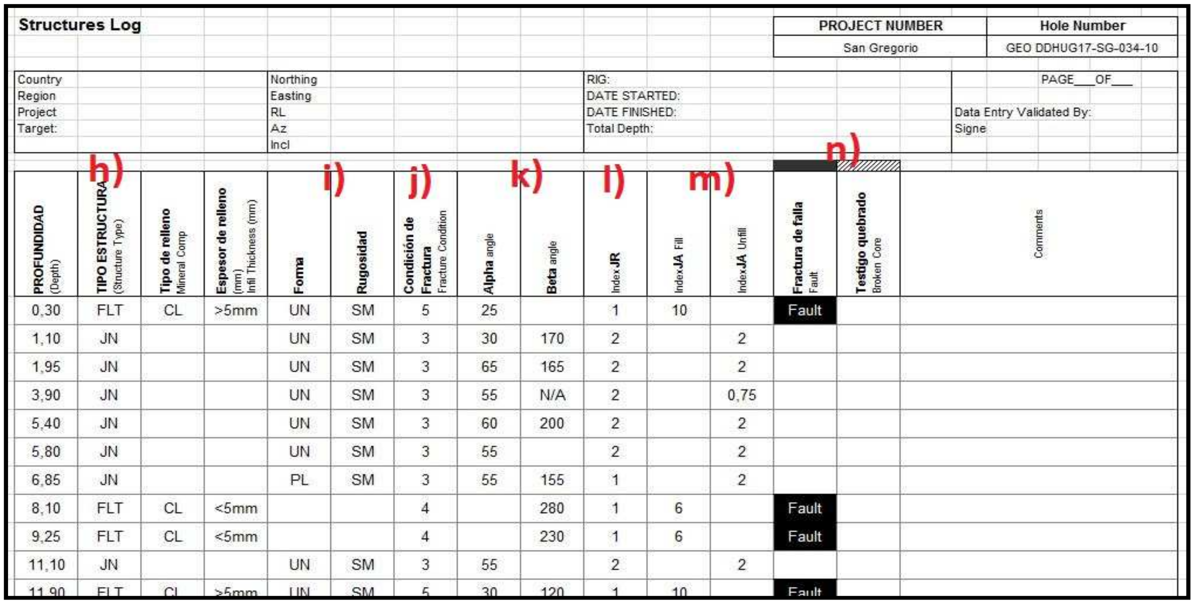
f) Hardness index (Logging of geological drilling, Minera Anzá (2017)).

Grade	Description	Field Identification	Approximate Range of Resistance to Uniaxial Compression (Mpa)
R0	Extremely Weak Rock	Scratching by nail.	0.25 – 1.0
R1	Very Weak Rock	It disintegrates by a swipe of the geological hammer tip, it can be scratched by penknife.	1.0 – 5.0
R2	Weak Rock	It can be scratched by penknife with difficulty, deforms or breaks up by a strong swipe of the geological hammer tip.	5.0 - 25
R3	Moderately Strong Rock	It cannot be scratched or disaggregated by penknife, the sample splits by one firmly swipe of the geological hammer.	25 -50
R4	Strong Rock	The sample requires more than one swipe of the geological hammer to be fractured.	50 - 100
R5	Very Strong Rock	The sample requires many swipe of the geological hammer to be fractured.	100 - 250
R6	Extremely Strong Rock	The sample can only be splintered by the geological hammer.	>250

g) Weathering index (Geological Logging of Drillhole, Minera Anzá (2017)).

Symbol	Expression	Description	Extension of discoloration	Fracture Condition	Superficial Characteristic
W1	Fresh, no Weathering.	No visible signs of weathering	No.	Close or decolorada	No Changes.
W2	Slightly Weathering.	Discoloration indicates weathering of the rock on the surface of the discontinuities.	< 20% spacing fracture on both sides of the fracture.	Decolored, may contain fillings of little thickness	Partial discolored.
W3	Moderately Weathering.	< 50% of rocky material is decomposed and/or disintegrated to the point of looks like soil. Fresh rock or discolored, it is discontinuous or like cores.	>20% spacing fracture on both sides of the fracture.	Discolored, may contain fillings of significant thickness.	Partial to total discoloration, not disintegrate except in poorly cemented rocks
W4	Very Weathering.	< 50% of rocky material is decomposed and/or disintegrated to the point of looks like soil. Fresh rock or discolored, it is discontinuous or like cores.	Completely.	Filled with alteration mineral.	Disintegrate and possibly with punctures or holes
W5	Completely Weathering.	100% of rocky material is decomposed and/or disintegrated to ground. The original structure is still largely intact.	Completely.	Filled with alteration mineral.	Look like soil.
W6	Residual Soil.	All rock is converted into soil. The rock fabric and original structure are destroyed. There are changes in volume. However, the soil has not been significantly transported.	Completely.	N/A	Look like soil.

11.3.2 Structural Logging



PROFUNDIDAD (Depth)	TIPO ESTRUCTURA (Structure Type)	Tipo de relleno Mineral Comp	Espesor de relleno (mm) Infil Thickness (mm)	Forma	Rugosidad	Condición de Fractura Fracture Condition	Alpha angle	Beta angle	Index JR	Index JA Fill	Index JA Unfill	Fractura de falla Fault	Testigo quebrado Broken Core	Comments
0,30	FLT	CL	>5mm	UN	SM	5	25		1	10		Fault		
1,10	JN			UN	SM	3	30	170	2		2			
1,95	JN			UN	SM	3	65	165	2		2			
3,90	JN			UN	SM	3	55	N/A	2		0,75			
5,40	JN			UN	SM	3	60	200	2		2			
5,80	JN			UN	SM	3	55		2		2			
6,85	JN			PL	SM	3	55	155	1		2			
8,10	FLT	CL	<5mm			4		280	1	6		Fault		
9,25	FLT	CL	<5mm			4		230	1	6		Fault		
11,10	JN			UN	SM	3	55		2		2			
11,90	FLT	CL	>5mm	UN	SM	5	30	120	1	10		Fault		

Figure 57: Structural logging template (Logging of geological drilling, Minera Anzá (2017)).

h) Structures type: register of fractures in the interval drillcore logging, are used the definitions and abbreviations given in the table (Logging of geological drilling, Minera Anzá (2017)).

Type	Abridgement	Definition
Fracture	JN	Any surface through which the rock has been broken now or in the past.
Fault	FT	Fracture along which the rock has been misplaced.
Shear	SH	Area of intense fracturing, in general, greater than 15 fractures per linear metre.
Vein - Veinlets	VN	Fracture with finite thickness which is filled by minerals.
Bedded	BD	Structural weakness plane caused by sedimentary processes.
Foliation	FO	Sheets disposition which minerals acquires forming certain rocks when they are under strength.
Contact	CO	Surface that separates the body rocks of different lithologies.

i) Form and roughness

Form (Logging of geological drilling, Minera Anzá (2017)).

Surface	Abridgement
Plain	PL
Curl	CU
Irregular	IR

Roughness (Logging of geological drilling, Minera Anzá (2017)).

Surface	Abridgement
Polished	PO
Striate	K
Smooth	SM
Rough	RO
Very Rough	VR

j) **Fracture condition** (Logging of geological drilling, Minera Anzá (2017)).

Code	Fracture Condition
1	Very rough, staple, surfaces without separation (closed)
2	Slightly rough surfaces, separation < 1mm (hard cut between walls)
3	Slightly rough surfaces, separation < 1mm (soft cut walls)
4	Striated surface or fault gouge < 5mm. Open from 1 to 5 mm
5	Fault gouge > 5mm or open joints > 5mm

k) Measurement of α y β angles

Dip angle α (“*Dip*”).

It is the angle between the discontinuity plane and the drillcore axis. It can be measured easily with the help of a geoflex.

Dip direction angle β (“*Dip Direction*”).

It is the circumferential angle between the reference line and the straight line of maximum gradient (or vector DIP maximum) of discontinuity. With a linear protractor (geoflex) is measured in the direction of the clock pointers and looking in the drilling direction.

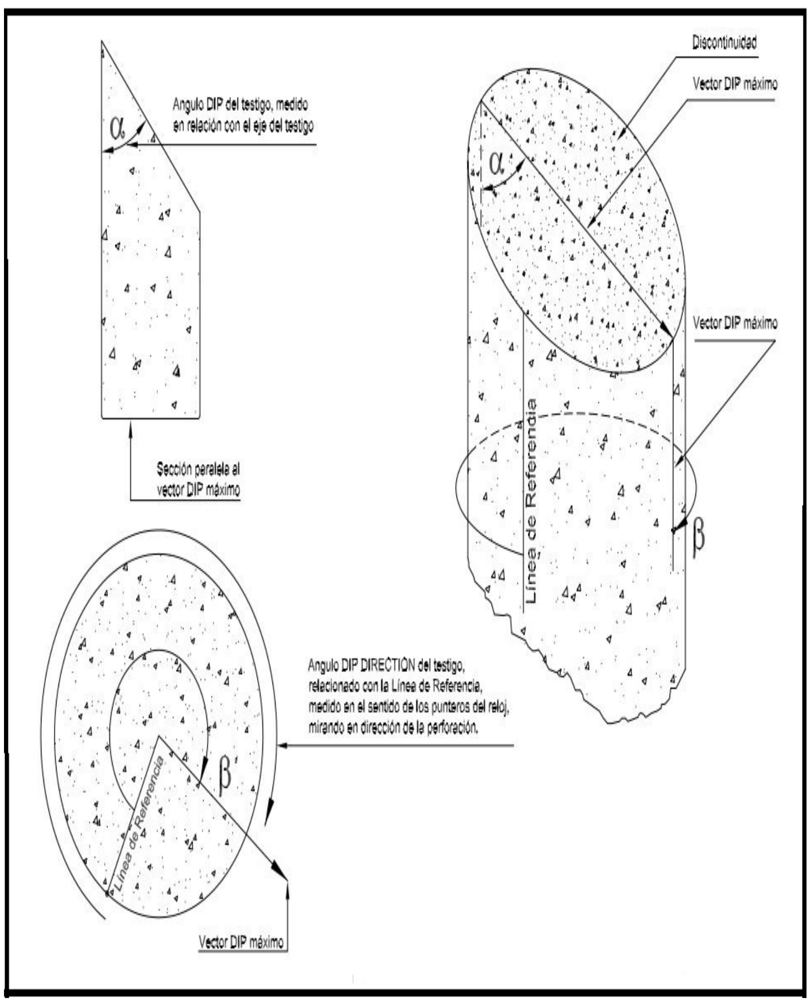


Figure 58: Dip angle and dip direction angle in a drill-hole (Logging of geological drilling, Minera Anzá (2017)).

l) **Fractures roughness (Jr):** It must observe the fractures roughness and record the value based on the table considering a roughness average for the interval. Each individual fracture roughness must not be registered.

m) **Fractures alteration (Ja):** In addition to the fracture's roughness, their filling also has an important meaning in the discontinuities friction. When considering the filling, two aspects have much relevance: the thickness and the mineral composition.

- With (JA Fill)
- Without (JA Unfill)

n) **Fault and broken:** It paints completely if the structure described is a fault and in box broken drillcore only fill it with diagonal lines when there is a large interval with mechanical or induced fractures.

To finish geo-mechanical and structural logging should be take the photography of the drillcore boxes, following the procedure in "taking photography of drillcore". Completed the geo-mechanical and structural record it should be clean and in order the room. To culminate, the geologist sign the logging sheets and shall deliver them to personnel responsible for the database for their income. The information generated will be recorded in two types of support: paper and digital.

Logging sheets will be identified the number of drill and will be saved in a folder (box file) in ascending order. Folders will be identified as "geotechnical and structural logging of diamantine drill holes" indicating the year. These will be archived for an indefinite time in the offices of Geology Library.

The digital registry as much of the templates as photographs will be done by database staff. This information will be saved in the network of the company. At the same time, it will have a backup in the senior geologist pc.

11.4 QA/QC

QA / QC controls have been used in 2011-2012 and 2017-2018 drillholes campaigns by Waymar and Orosur respectively. In which 76 diamond drillholes were carried out and include standard reference materials, blanks and field duplicates to check QA/QC controls in laboratories. Drilling samples were sent to SGS Colombia SA and ALS Colombia Ltd. in Medellín, Colombia, both facilities are ISO 9001 certified.

ICP analyses for silver, copper, lead and zinc use a digestion of four acids of atomic absorption spectroscopy for values on the limits. 30 grams nominal weight sample and fire assay analysis is used for gold. Standard reference materials have been inserted 1 per each 23 samples, blanks have been inserted 1 per every 26 samples and duplicates are analyzed 1 per every 32 samples. Samples taken in the drilling program more than 10% are part of QA/QC control. Labs also used their own internal QA/QC control as part of its analytical procedures.

STANDARD REFERENCE MATERIALS.

Have been used 14 standard reference material during the drilling campaign:

Sample No.	Name	Metals
Rocklabs Limited		
1	OxB130	Au
2	OxE86	Au
3	OxJ80	Au
4	OxL118	Au
5	OxL78	Au
6	Oxi121	Au
7	SE86	Au
8	SH55	Au
9	SJ53	Au
10	SJ80	Au
11	SN97	Au
12	SP37	Au
CDN Resource Laboratories Ltd.		
13	CDN-FCM-6	Au, Ag, Cu, Pb, Zn
14	CDN-ME-18	Au, Ag, Cu, Pb, Zn

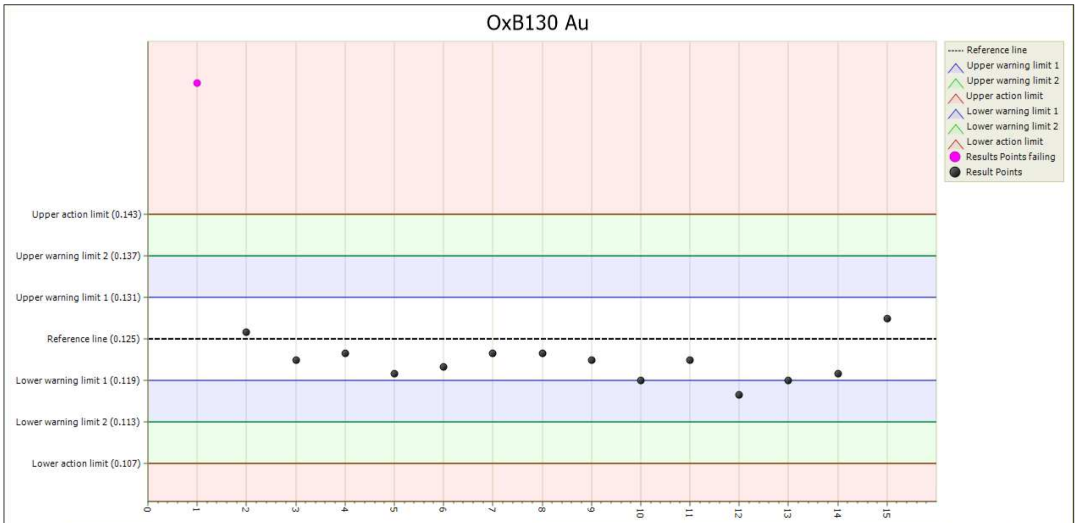
Table 10: Standards used in drilling campaign (Flash report QA / QC, Minera Anzá (2018)).

Recommended values and the standard deviation value are shown in the following table:

Standard	Metal	Recommended Value ± 1SD
CDN-FCM-6	Au	2.15 g/t ± 0.16 g/t
CDN-FCM-6	Ag	156.8 g/t ± 7.9 g/t
CDN-FCM-6	Cu	1.251 % ± 0.064 %
CDN-FCM-6	Pb	1.52 % ± 0.06 %
CDN-FCM-6	Zn	9.27 % ± 0.44 %
CDN-ME-18	Au	0.512 g/t ± 0.070 g/t
CDN-ME-18	Ag	58.2 g/t ± 5.1 g/t
CDN-ME-18	Cu	1.931 % ± 0.086 %
CDN-ME-18	Pb	0.098 % ± 0.012 %
CDN-ME-18	Zn	4.60 % ± 0.22 %
OxB130	Au	0.125 ± 0.006 g/t
OxE86	Au	0.613 ± 0.021 g/t
OxJ80	Au	2.331 ± 0.042 g/t
OxL118	Au	5.828 ± 0.149 g/t
OxL78	Au	5.876 ± 0.153 g/t
Oxi121	Au	1.834 ± 0.05 g/t
SE86	Au	0.595 ± 0.015 g/t
SH55	Au	1.375 ± 0.045 g/t
SJ53	Au	2.637 ± 0.048 g/t
SJ80	Au	2.656 ± 0.057 g/t
SN97	Au	9.026 ± 0.2 g/t
SP37	Au	18.14 ± 0.38 g/t

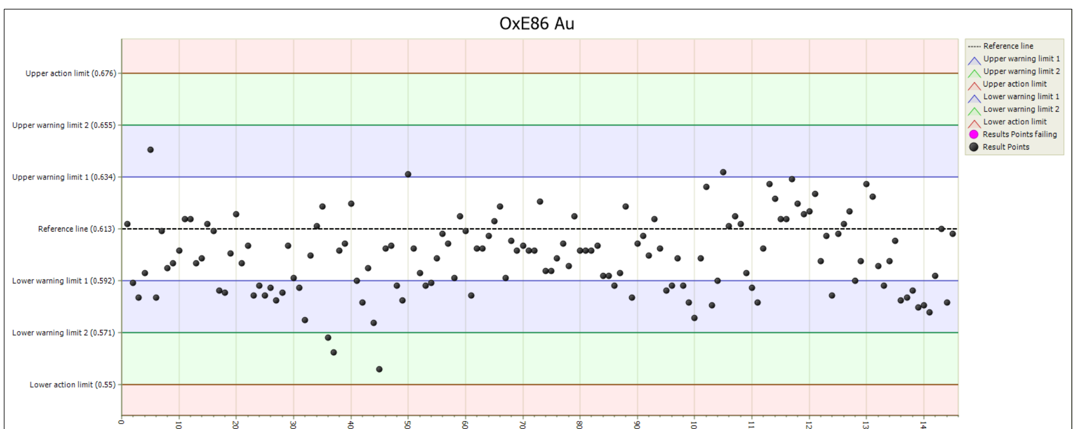
Table 11: Recommended values and standard deviation values (Flash report QA / QC, Minera Anzá (2018)).

Statistical analysis of median and standard deviations from standard reference materials are represented graphically in figures below. Values within two standard deviations are considered approved (pass). A value between two standard deviations and three standard deviations are considered with slight approval (soft pass). Any value of more than three standard deviations was rejected (fail).



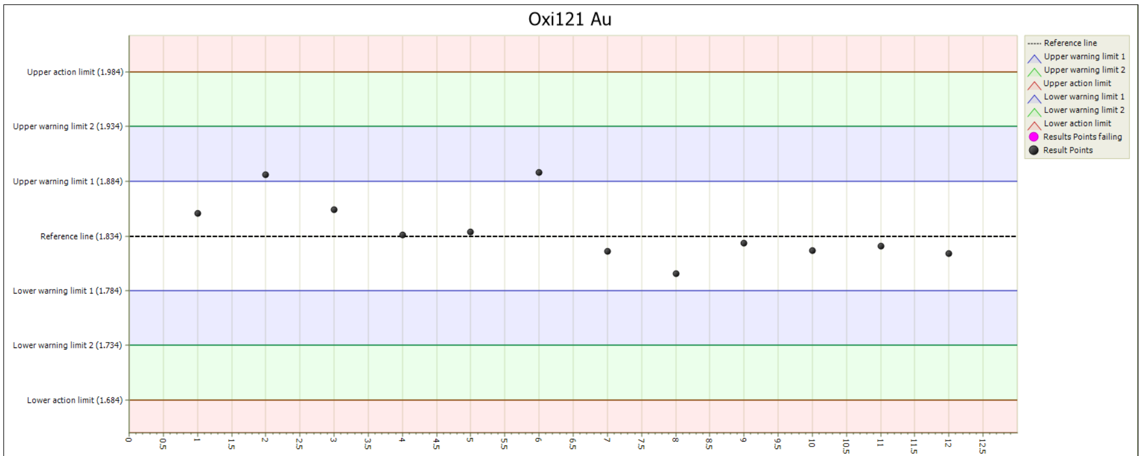
File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	0.1220	Range	0.0450	-1SD to -2SD	3 (20.00%)
Field Name	Au_ppm	Mode	0.1219	Minimum	0.1170	1SD to 2SD	3 (20.00%)
Action Level	99.7300	Mean	0.1245	Maximum	0.1620	+2SD to +3SD	0 (0.00%)
Groups	15	Std Dev	0.0107	Expected to +1SD	2 (13.33%)	-2SD to -3SD	0 (0.00%)
Group Size	1	Variance	0.0001	Expected	0 (0.00%)	2SD to 3SD	0 (0.00%)
Ref Mean	0.13	Coeff. of Variation	0.0863	Expected to -1SD	9 (60.00%)	+3SD	1 (6.67%)
Ref Std Dev	0.01	Kurtosis	8.4382	Inside 1SD	11 (73.33%)	-3SD	0 (0.00%)
Count	15	Skewness	3.0953	+1SD to +2SD	0 (0.00%)	Outside 3SD	1 (6.67%)

Figure 59: Standard deviation graph for sample OxB130 Au. Shows only one failed sample, the graph shows good accuracy and precision (Flash report QA / QC, Minera Anzá (2018)).



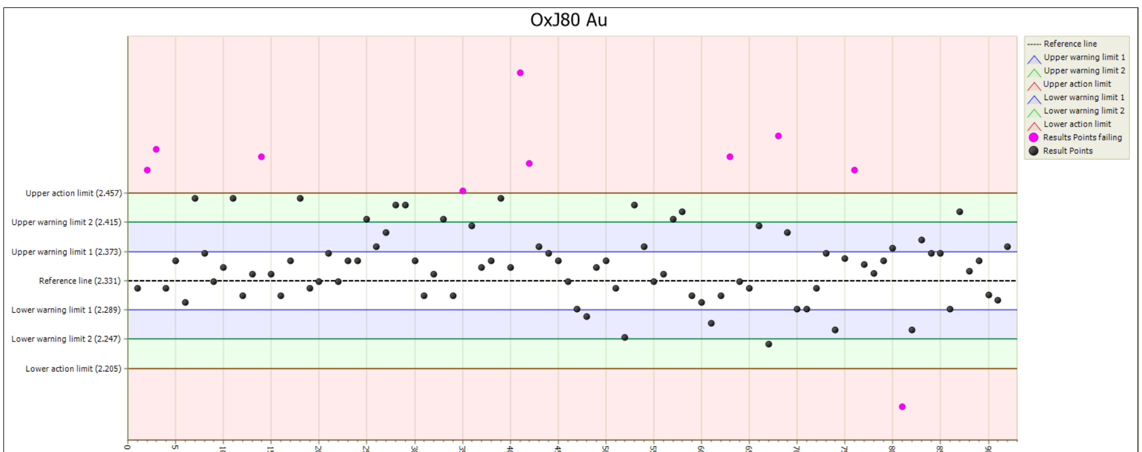
File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	0.6020	Range	0.0890	-1SD to -2SD	42 (28.97%)
Field Name	Au_ppm	Mode	0.6045	Minimum	0.5560	1SD to 2SD	45 (31.03%)
Action Level	99.7300	Mean	0.6018	Maximum	0.6450	+2SD to +3SD	0 (0.00%)
Groups	145	Std Dev	0.0154	Expected to +1SD	32 (22.07%)	-2SD to -3SD	3 (2.07%)
Group Size	1	Variance	0.0002	Expected	1 (0.69%)	2SD to 3SD	3 (2.07%)
Ref Mean	0.61	Coeff. of Variation	0.0257	Expected to -1SD	64 (44.14%)	+3SD	0 (0.00%)
Ref Std Dev	0.02	Kurtosis	-0.0146	Inside 1SD	97 (66.90%)	-3SD	0 (0.00%)
Count	145	Skewness	0.0747	+1SD to +2SD	3 (2.07%)	Outside 3SD	0 (0.00%)

Figure 60: Standard deviation graph for sample OxE86 Au. It does not show any failed sample and all samples have accuracy and precision in the laboratories (Flash report QA / QC, Minera Anzá (2018)).



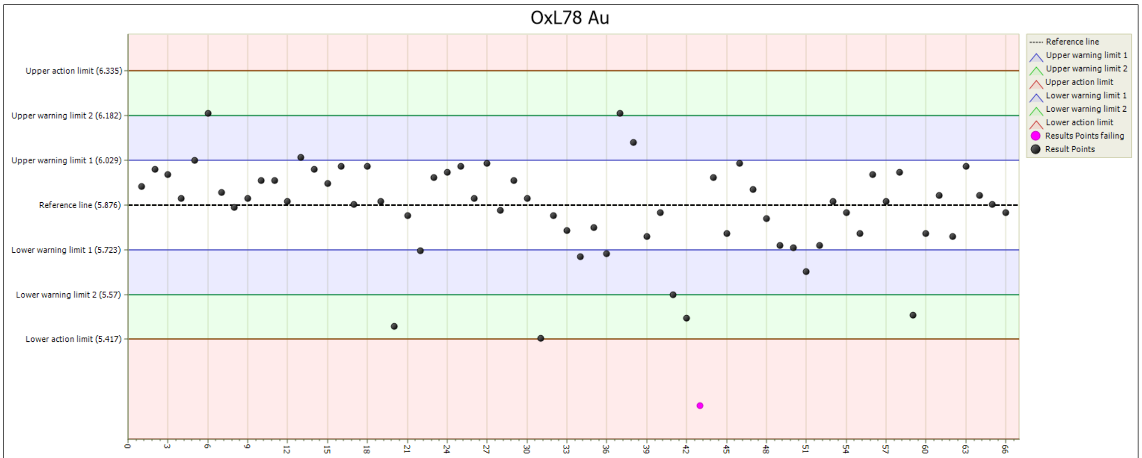
File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	1.8315	Range	0.0920	-1SD to -2SD	0 (0.00%)
Field Name	Au_ppm	Mode	1.8205	Minimum	1.8000	1SD to 2SD	2 (16.67%)
Action Level	99.7300	Mean	1.8400	Maximum	1.8920	+2SD to +3SD	0 (0.00%)
Groups	12	Std Dev	0.0286	Expected to +1SD	4 (33.33%)	-2SD to -3SD	0 (0.00%)
Group Size	1	Variance	0.0008	Expected	0 (0.00%)	2SD to 3SD	0 (0.00%)
Ref Mean	1.83	Coeff. of Variation	0.0155	Expected to -1SD	6 (50.00%)	+3SD	0 (0.00%)
Ref Std Dev	0.05	Kurtosis	-0.4980	Inside 1SD	10 (83.33%)	-3SD	0 (0.00%)
Count	12	Skewness	0.7311	+1SD to +2SD	2 (16.67%)	Outside 3SD	0 (0.00%)

Figure 61: Standard deviation graph for sample Oxi121 Au. This standard have few samples and any shows failed samples (Flash report QA / QC, Minera Anzá (2018)).



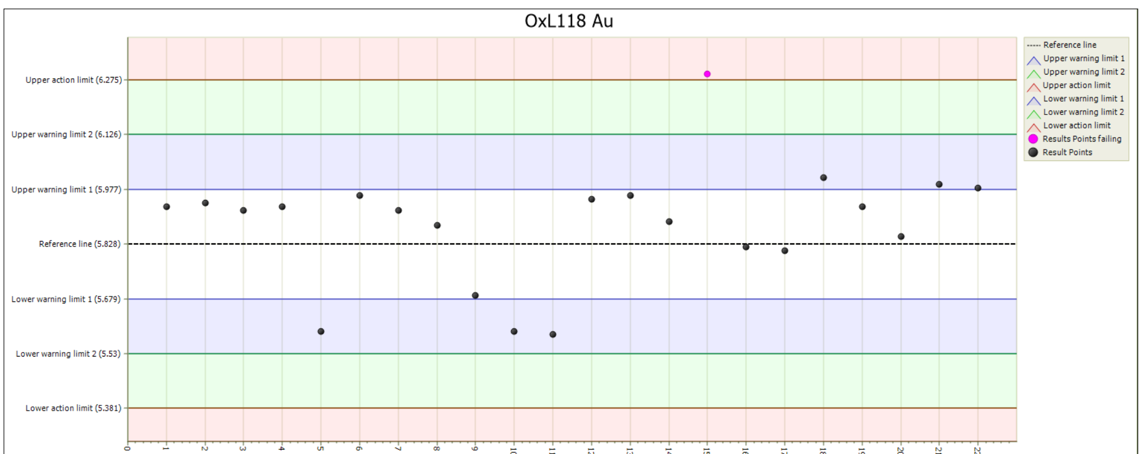
File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	2.3600	Range	0.4800	-1SD to -2SD	5 (5.43%)
Field Name	Au_ppm	Mode	2.3575	Minimum	2.1500	1SD to 2SD	15 (16.30%)
Action Level	99.7300	Mean	2.3655	Maximum	2.6300	+2SD to +3SD	12 (13.04%)
Groups	92	Std Dev	0.0734	Expected to +1SD	28 (30.43%)	-2SD to -3SD	1 (1.09%)
Group Size	1	Variance	0.0054	Expected	0 (0.00%)	2SD to 3SD	13 (14.13%)
Ref Mean	2.33	Coeff. of Variation	0.0310	Expected to -1SD	26 (28.26%)	+3SD	9 (9.78%)
Ref Std Dev	0.04	Kurtosis	1.5019	Inside 1SD	54 (58.70%)	-3SD	1 (1.09%)
Count	92	Skewness	0.6594	+1SD to +2SD	10 (10.87%)	Outside 3SD	10 (10.87%)

Figure 62: Standard deviation graph for sample OxJ80 Au. There is evidence of some kind of problem with this reference material, the results have positive bias and this behavior is observed distributed in homogeneous form meanwhile other reference materials have good behavior (Flash report QA / QC, Minera Anzá (2018)).



File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	5.8900	Range	1.0000	-1SD to -2SD	4 (6.06%)
Field Name	Au_ppm	Mode	5.8890	Minimum	5.1900	1SD to 2SD	7 (10.61%)
Action Level	99.7300	Mean	5.8597	Maximum	6.1900	+2SD to +3SD	2 (3.03%)
Groups	66	Std Dev	0.1765	Expected to +1SD	33 (50.00%)	-2SD to -3SD	5 (7.58%)
Group Size	1	Variance	0.0311	Expected	0 (0.00%)	2SD to 3SD	7 (10.61%)
Ref Mean	5.88	Coeff. of Variation	0.0301	Expected to -1SD	18 (27.27%)	+3SD	0 (0.00%)
Ref Std Dev	0.15	Kurtosis	2.5612	Inside 1SD	51 (77.27%)	-3SD	1 (1.52%)
Count	66	Skewness	-1.2990	+1SD to +2SD	3 (4.55%)	Outside 3SD	1 (1.52%)

Figure 63: Standard deviation graph for sample OxL78 Au. Shows only one failed sample and all samples have precision and accuracy in laboratories (Flash report QA / QC, Minera Anzá (2018)).



File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	5.9250	Range	0.7090	-1SD to -2SD	3 (13.64%)
Field Name	Au_ppm	Mode	5.9282	Minimum	5.5810	1SD to 2SD	6 (27.27%)
Action Level	99.7300	Mean	5.8823	Maximum	6.2900	+2SD to +3SD	0 (0.00%)
Groups	22	Std Dev	0.1607	Expected to +1SD	12 (54.55%)	-2SD to -3SD	0 (0.00%)
Group Size	1	Variance	0.0258	Expected	0 (0.00%)	2SD to 3SD	0 (0.00%)
Ref Mean	5.83	Coeff. of Variation	0.0273	Expected to -1SD	3 (13.64%)	+3SD	1 (4.55%)
Ref Std Dev	0.15	Kurtosis	0.9289	Inside 1SD	15 (68.18%)	-3SD	0 (0.00%)
Count	22	Skewness	-0.1315	+1SD to +2SD	3 (13.64%)	Outside 3SD	1 (4.55%)

Figure 64: Standard deviation graph for sample OxL118 Au. Shows only one failed sample close to upper limit and all samples have precision and accuracy in laboratories (Flash report QA / QC, Minera Anzá (2018)).

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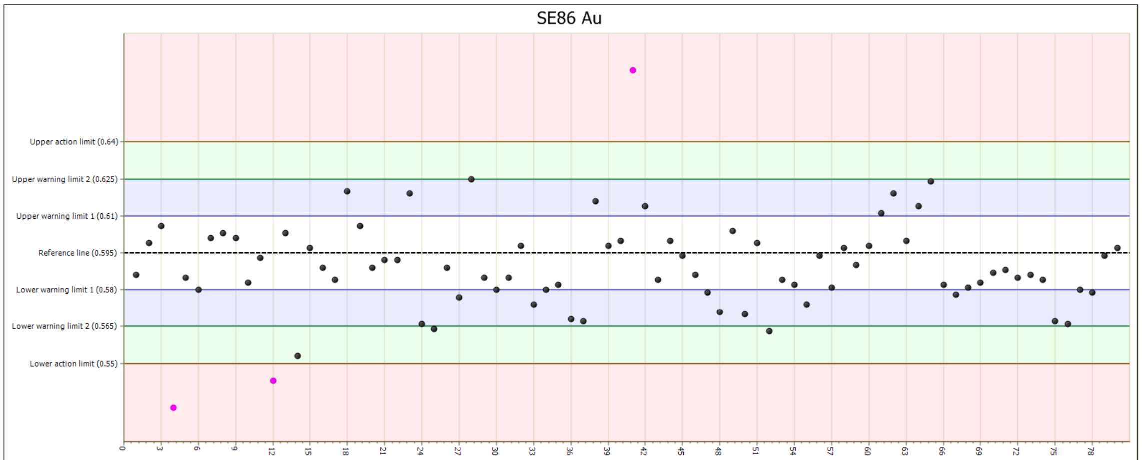
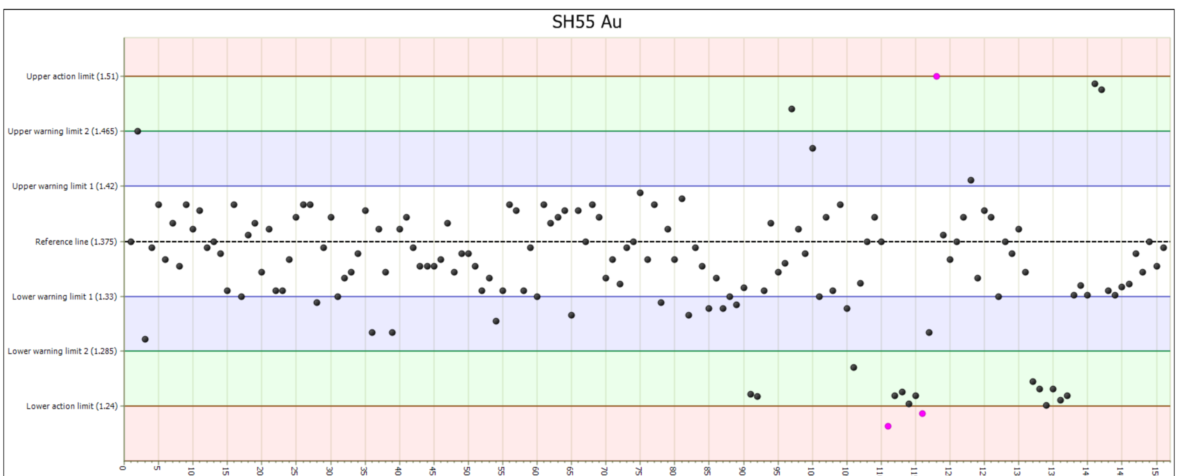


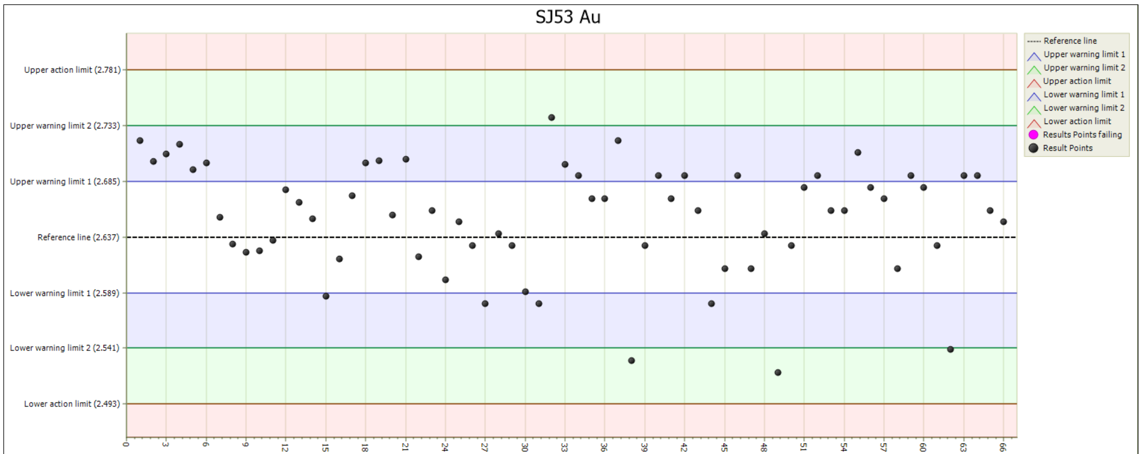
File Name	C:\Users\jjanez\Documents\h0y\11 QA_QC\Results Drilling Campaings JJ	Median	0.5865	Range	0.1370	-1SD to -2SD	17 (21.25%)
Field Name	Au_ppm	Mode	0.5805	Minimum	0.5320	1SD to 2SD	25 (31.25%)
Action Level	99.7300	Mean	0.5894	Maximum	0.6690	+2SD to +3SD	1 (1.25%)
Groups	80	Std Dev	0.0194	Expected to +1SD	18 (22.50%)	-2SD to -3SD	3 (3.75%)
Group Size	1	Variance	0.0004	Expected	0 (0.00%)	2SD to 3SD	4 (5.00%)
Ref Mean	0.59	Coeff. of Variation	0.0329	Expected to -1SD	30 (37.50%)	+3SD	1 (1.25%)
Ref Std Dev	0.01	Kurtosis	3.1491	Inside 1SD	48 (60.00%)	-3SD	2 (2.50%)
Count	80	Skewness	0.5265	+1SD to +2SD	8 (10.00%)	Outside 3SD	3 (3.75%)

Figure 65: Standard deviation graph for sample SE86 Au. Shows only one failed sample and all samples have precision and accuracy in laboratories (Flash report QA / QC, Minera Anzá (2018)).



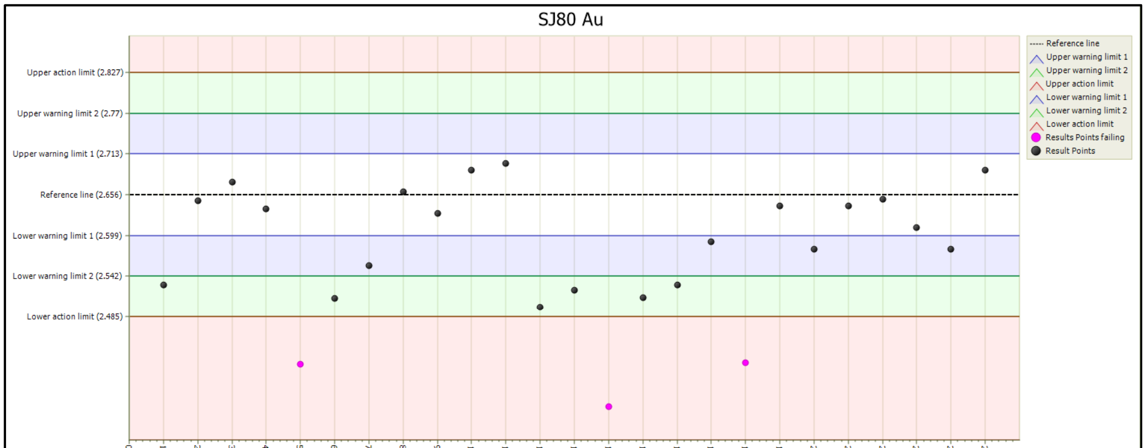
File Name	C:\Users\jjanez\Documents\h0y\11 QA_QC\Results Drilling Campaings JJ	Median	1.3600	Range	0.2860	-1SD to -2SD	19 (12.58%)
Field Name	Au_ppm	Mode	1.4050	Minimum	1.2240	1SD to 2SD	21 (13.91%)
Action Level	99.7300	Mean	1.3564	Maximum	1.5100	+2SD to +3SD	4 (2.65%)
Groups	151	Std Dev	0.0514	Expected to +1SD	41 (27.15%)	-2SD to -3SD	13 (8.61%)
Group Size	1	Variance	0.0026	Expected	9 (5.96%)	2SD to 3SD	17 (11.26%)
Ref Mean	1.38	Coeff. of Variation	0.0379	Expected to -1SD	60 (39.74%)	+3SD	1 (0.66%)
Ref Std Dev	0.04	Kurtosis	1.1620	Inside 1SD	110 (72.85%)	-3SD	2 (1.32%)
Count	151	Skewness	-0.1908	+1SD to +2SD	2 (1.32%)	Outside 3SD	3 (1.99%)

Figure 66: Standard deviation graph for sample SH55 Au. Shows three failed sample and all samples have precision and accuracy in laboratories (Flash report QA / QC, Minera Anzá (2018)).



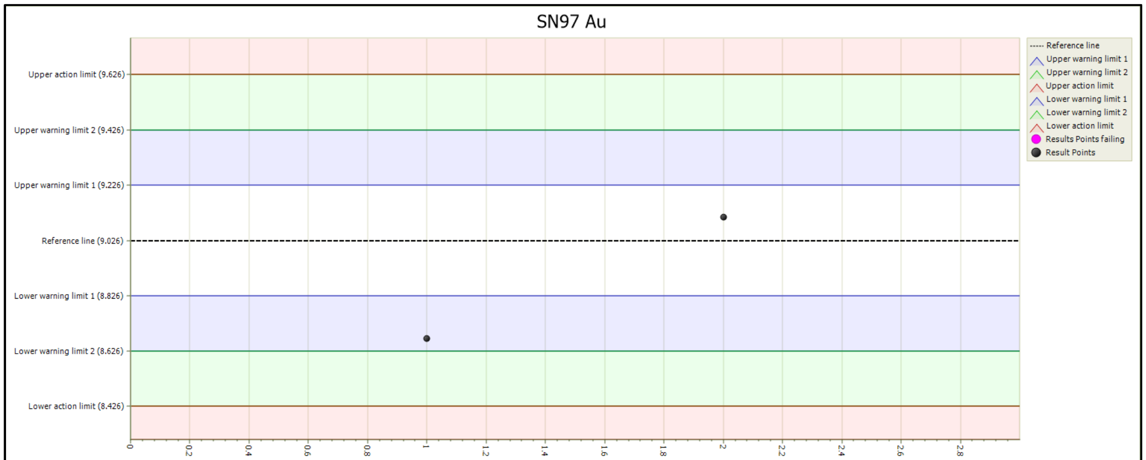
File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	2.6600	Range	0.2200	-1SD to -2SD	4 (6.06%)
Field Name	Au_ppm	Mode	2.6910	Minimum	2.5200	1SD to 2SD	24 (36.36%)
Action Level	99.7300	Mean	2.6540	Maximum	2.7400	+2SD to +3SD	1 (1.52%)
Groups	66	Std Dev	0.0472	Expected to +1SD	22 (33.33%)	-2SD to -3SD	3 (4.55%)
Group Size	1	Variance	0.0022	Expected	0 (0.00%)	2SD to 3SD	4 (6.06%)
Ref Mean	2.64	Coeff. of Variation	0.0178	Expected to -1SD	16 (24.24%)	+3SD	0 (0.00%)
Ref Std Dev	0.05	Kurtosis	0.3236	Inside 1SD	38 (57.58%)	-3SD	0 (0.00%)
Count	66	Skewness	-0.7674	+1SD to +2SD	20 (30.30%)	Outside 3SD	0 (0.00%)

Figure 67: Standard deviation graph for sample SJ53 Au. It does not show any failed sample and all samples have accuracy and precision in the laboratories (Flash report QA / QC, Minera Anzá (2018)).



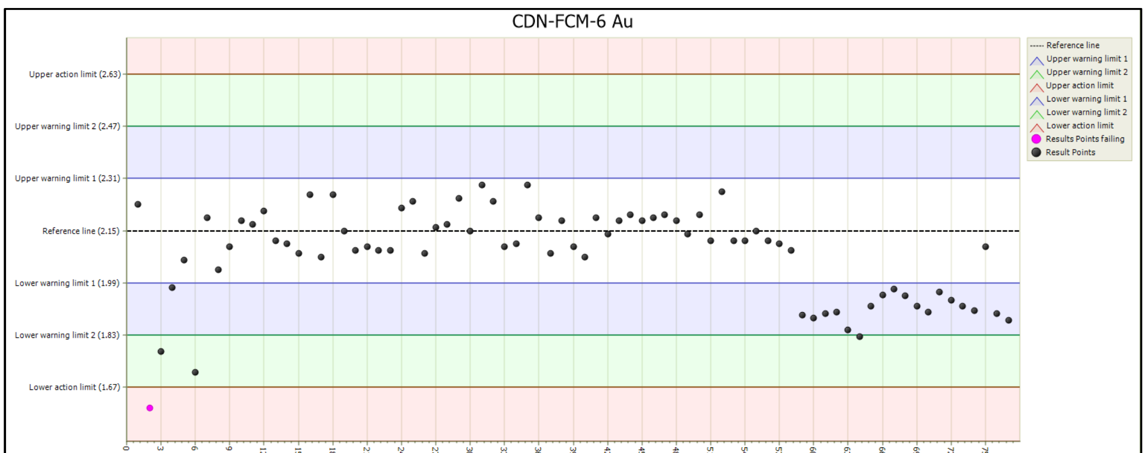
File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	2.5900	Range	0.3420	-1SD to -2SD	4 (16.00%)
Field Name	Au_ppm	Mode	2.5114	Minimum	2.3580	1SD to 2SD	4 (16.00%)
Action Level	99.7300	Mean	2.5790	Maximum	2.7000	+2SD to +3SD	0 (0.00%)
Groups	25	Std Dev	0.0920	Expected to +1SD	5 (20.00%)	-2SD to -3SD	6 (24.00%)
Group Size	1	Variance	0.0085	Expected	0 (0.00%)	2SD to 3SD	6 (24.00%)
Ref Mean	2.66	Coeff. of Variation	0.0357	Expected to -1SD	7 (28.00%)	+3SD	0 (0.00%)
Ref Std Dev	0.06	Kurtosis	-0.2552	Inside 1SD	12 (48.00%)	-3SD	3 (12.00%)
Count	25	Skewness	-0.7176	+1SD to +2SD	0 (0.00%)	Outside 3SD	3 (12.00%)

Figure 68: Standard deviation graph for sample SJ80 Au. Three samples (12%) of a relatively small group are rejected, bias is always negative and both laboratories have reject samples, also considering that the rest of the samples have negative bias with respect to the expected value (Flash report QA / QC, Minera Anzá (2018)).



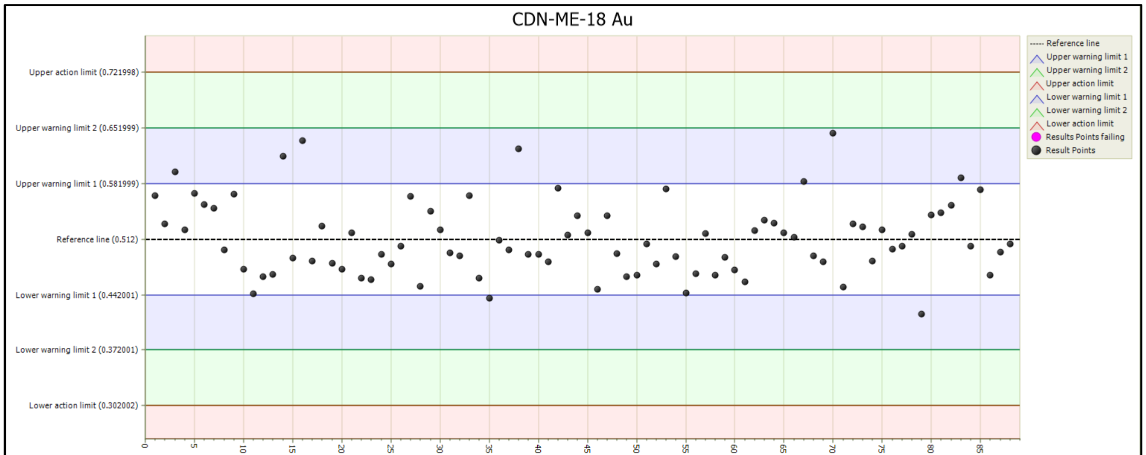
File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	8.8900	Range	0.4400	-1SD to -2SD	1 (50.00%)
Field Name	Au_ppm	Mode	8.6654	Minimum	8.6700	1SD to 2SD	1 (50.00%)
Action Level	99.7300	Mean	8.8900	Maximum	9.1100	+2SD to +3SD	0 (0.00%)
Groups	2	Std Dev	0.3111	Expected to +1SD	1 (50.00%)	-2SD to -3SD	0 (0.00%)
Group Size	1	Variance	0.0968	Expected	0 (0.00%)	2SD to 3SD	0 (0.00%)
Ref Mean	9.03	Coeff. of Variation	0.0350	Expected to -1SD	0 (0.00%)	+3SD	0 (0.00%)
Ref Std Dev	0.20	Kurtosis	-2.0000	Inside 1SD	1 (50.00%)	-3SD	0 (0.00%)
Count	2	Skewness	0.0000	+1SD to +2SD	0 (0.00%)	Outside 3SD	0 (0.00%)

Figure 69: Standard deviation graph for sample SN97 Au. Good results with few samples (Flash report QA / QC, Minera Anzá (2018)).



File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	2.1100	Range	0.6850	-1SD to -2SD	18 (23.38%)
Field Name	Au_ppm	Mode	2.1012	Minimum	1.6050	1SD to 2SD	18 (23.38%)
Action Level	99.7300	Mean	2.0769	Maximum	2.2900	+2SD to +3SD	0 (0.00%)
Groups	77	Std Dev	0.1427	Expected to +1SD	26 (33.77%)	-2SD to -3SD	3 (3.90%)
Group Size	1	Variance	0.0204	Expected	3 (3.90%)	2SD to 3SD	3 (3.90%)
Ref Mean	2.15	Coeff. of Variation	0.0687	Expected to -1SD	26 (33.77%)	+3SD	0 (0.00%)
Ref Std Dev	0.16	Kurtosis	0.4539	Inside 1SD	55 (71.43%)	-3SD	1 (1.30%)
Count	77	Skewness	-0.8978	+1SD to +2SD	0 (0.00%)	Outside 3SD	1 (1.30%)

Figure 70: Standard deviation graph for sample CDN-FCM-6 Au. Shows only one failed sample and a certain number of samples have precision and accuracy in laboratories. There is a decrease in the accuracy of SGS in the Orosur campaign, although it remains been precise and within the acceptable limits (Flash report QA / QC, Minera Anzá (2018)).



File Name	D:\LaptopVieja\Documents\GMS Andes TR\11 QA_QC\Results Drilling Campaings JJ	Median	0.5030	Range	0.2290	-1SD to -2SD	2 (2.27%)
Field Name	Au_ppm	Mode	0.4680	Minimum	0.4170	1SD to 2SD	9 (10.23%)
Action Level	99.7300	Mean	0.5126	Maximum	0.6460	+2SD to +3SD	0 (0.00%)
Groups	88	Std Dev	0.0470	Expected to +1SD	33 (37.50%)	-2SD to -3SD	0 (0.00%)
Group Size	1	Variance	0.0022	Expected	0 (0.00%)	2SD to 3SD	0 (0.00%)
Ref Mean	0.51	Coeff. of Variation	0.0916	Expected to -1SD	46 (52.27%)	+3SD	0 (0.00%)
Ref Std Dev	0.07	Kurtosis	0.1777	Inside 1SD	79 (89.77%)	-3SD	0 (0.00%)
Count	88	Skewness	0.6648	+1SD to +2SD	7 (7.95%)	Outside 3SD	0 (0.00%)

Figure 71: Standard deviation graph for sample CDN-ME-18 Au. It does not show any failed sample and all samples have accuracy and precision in the laboratories (Flash report QA / QC, Minera Anzá (2018)).

BLANKS

Blanks are used to monitor calibration and analytical procedure in the laboratories and to identify possible contamination of the sample during the preparation stage or sample analysis. For drilling campaigns were used 806 samples of quartz gravel as blanks providers by “Indusilika y Granitos Antioquía”. Different threshold values were used based on detection limit of the element to classify the samples in approval / rejection and the results are graphically represented for different metals. The samples do not contain any mineralization above the detection limit, which were analyzed by SGS and ALS laboratories.

The results show that zinc is failing more than other metals and, in both laboratories, this may be due to the composition of quartz gravel. Blank samples used during the drilling program are acceptable, however, there were some failures for Cu, Pb, and Zn. These failures could be due to selection of quartz gravel as blanks.

Blanks graphic analysed in ALS

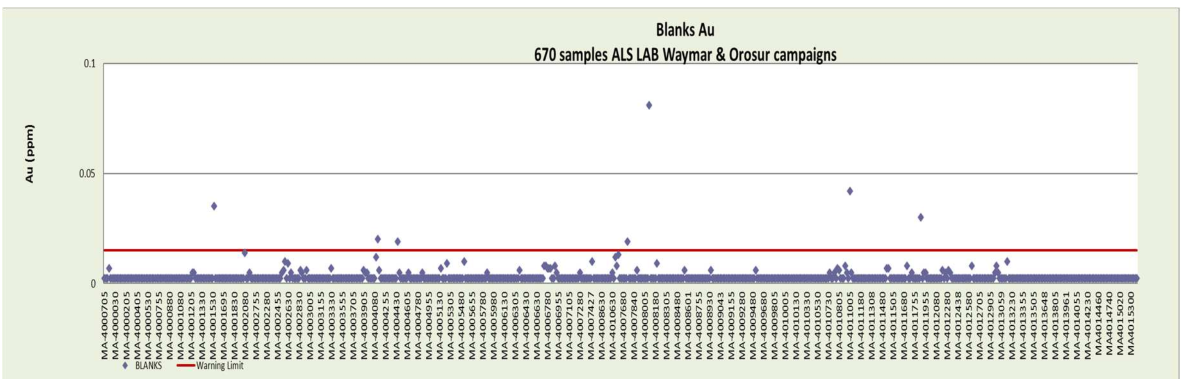


Figure 72: Blank analysis graph in Au (Flash report QA / QC, Minera Anzá (2018)).

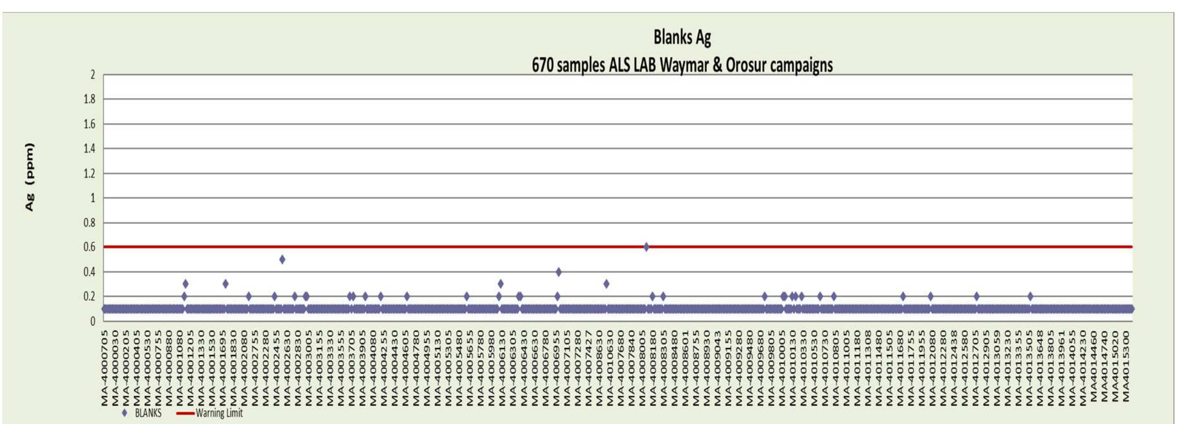


Figure 73: Blank analysis graph in Ag (Flash report QA / QC, Minera Anzá (2018)).

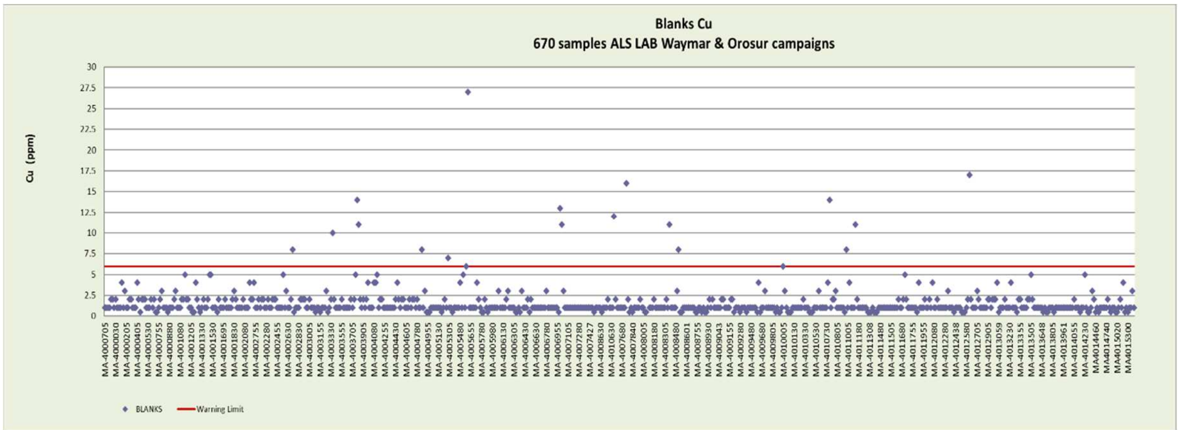


Figure 74: Blank analysis graph in Cu (Flash report QA / QC, Minera Anzá (2018)).

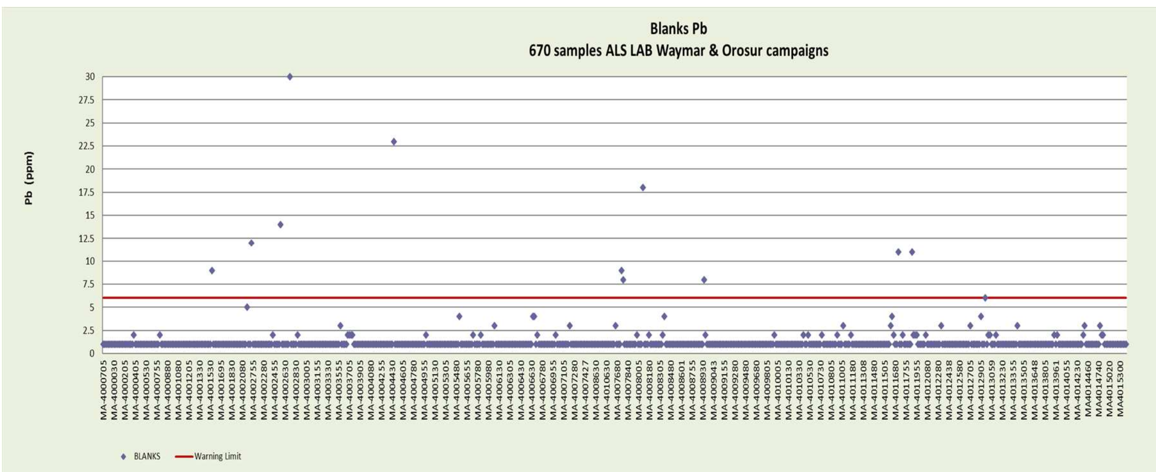


Figure 75: Blank analysis graph in Pb (Flash report QA / QC, Minera Anzá (2018)).

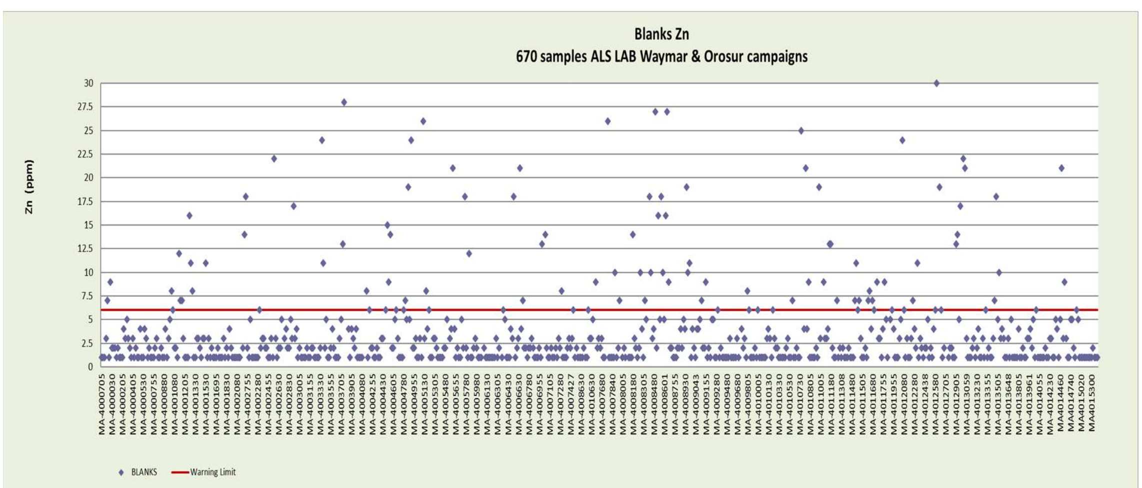


Figure 76: Blank analysis graph in Zn (Flash report QA / QC, Minera Anzá (2018)).

Blanks graphic analysed in SGS

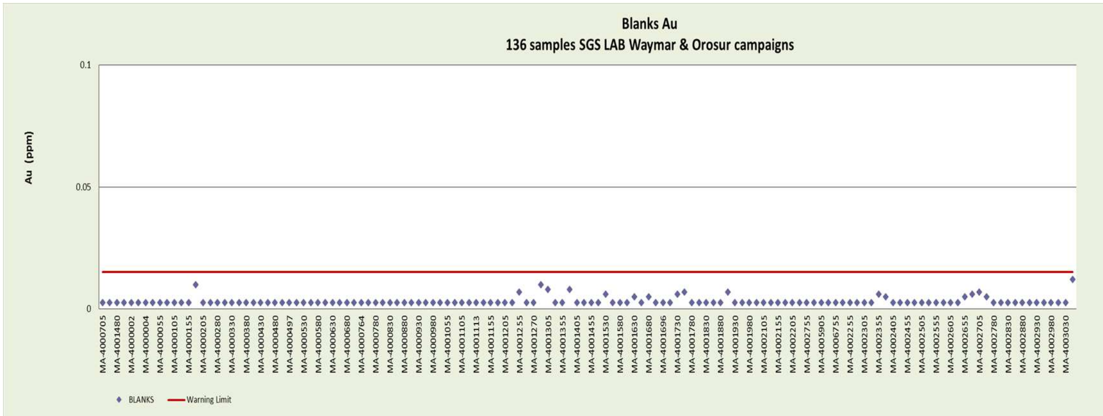


Figure 77: Blank analysis graph in Au (Flash report QA / QC, Minera Anzá (2018)).

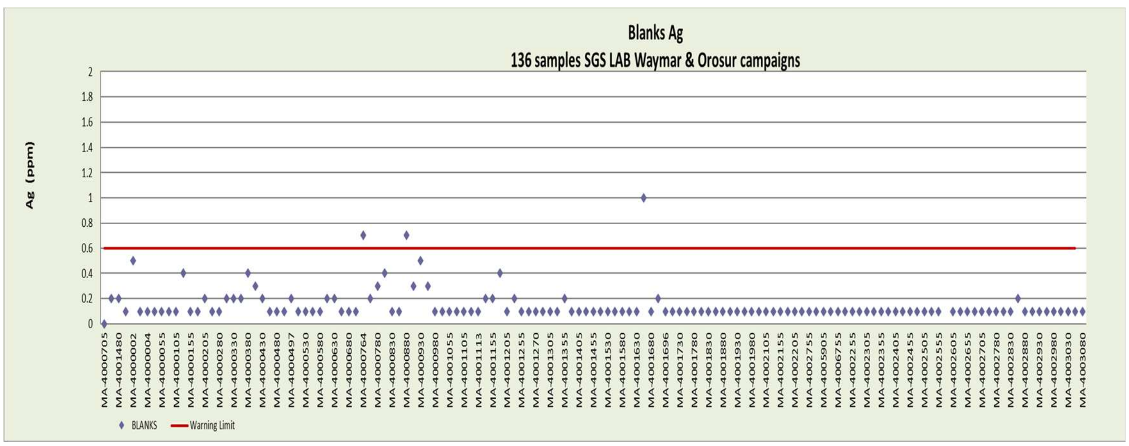


Figure 78: Blank analysis graph in Ag (Flash report QA / QC, Minera Anzá (2018)).

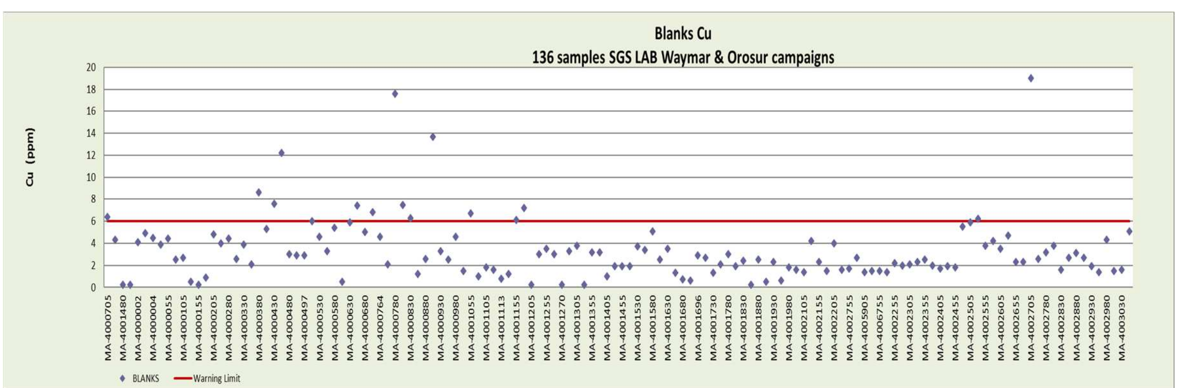


Figure 79: Blank analysis graph in Cu (Flash report QA / QC, Minera Anzá (2018)).

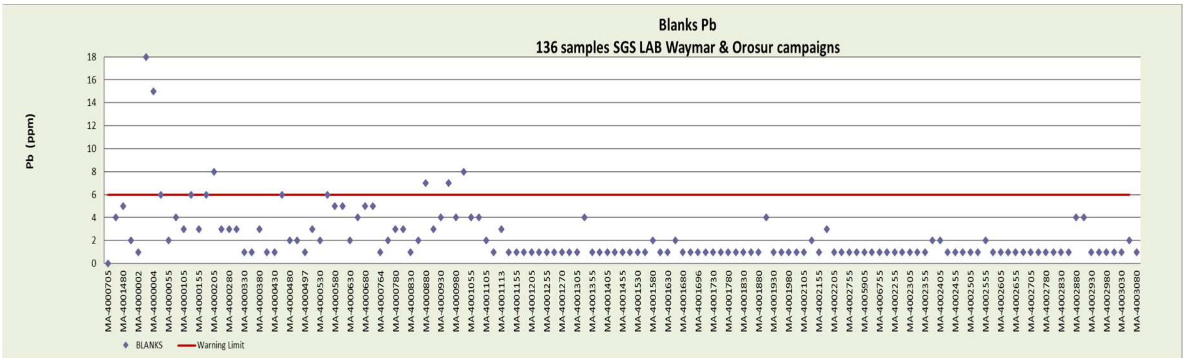


Figure 80: Blank analysis graph in Pb (Flash report QA / QC, Minera Anzá (2018)).

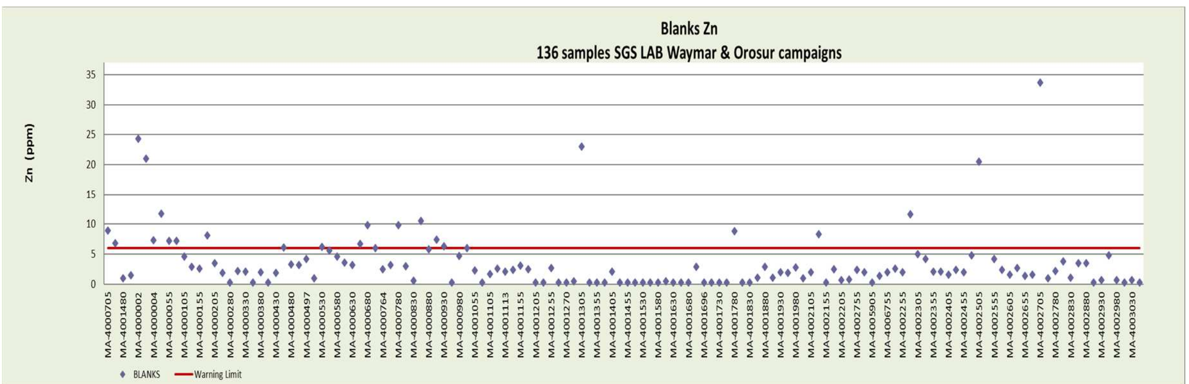


Figure 81: Blank analysis graph in Zn (Flash report QA / QC, Minera Anzá (2018)).

DUPLICATES

645 field duplicates were taken during the drilling program of Waymar and Orosur. For this drillcore samples were divided in half and in half again, thus having two quarters of drillcore, which were sent to the same laboratory for comparison. Duplicate samples for the greater part of Au, Ag, Cu, Pb and Zn showed very good correlation. As the pair of samples tested have higher grade, the comparison tends to be slightly less correlative as would be expect in such ore deposits. Differences in the high-grade samples are probably due to the distribution of metals within the drillcore and in low-grade samples due to background values versus limit of detection.

Cleaning of data between 20 and 25% based on the relative error and the method of the Hyperbola with acceptable results (less than 30% for field duplicates) was made for the charting and calculate the correlation coefficient.

		DATA SUMMARY Au				
	Original	Duplicate	DIFERENCES	Pair Mean	Dif Rel %	VAR. REL.
NUMBER	645	645	645	645	645	645
MINIMUM	0.003	0.003	-2.016	0.003	-196.880	0.000
MAXIMUM	12.850	11.300	1.950	11.875	199.101	1.982
AVERAGE	0.180	0.185	-0.005	0.182	-1.856	0.271
MEDIAN	0.023	0.023	0.000	0.030	0.000	0.019
DEV. EST.	0.813	0.834	0.260			
TEST T			-0.532			
ERR. REL. MEAN BIAS (%)	-3.04					52.02

Table 12: Data summary for duplicates in Au (Flash report QA / QC, Minera Anzá (2018)).

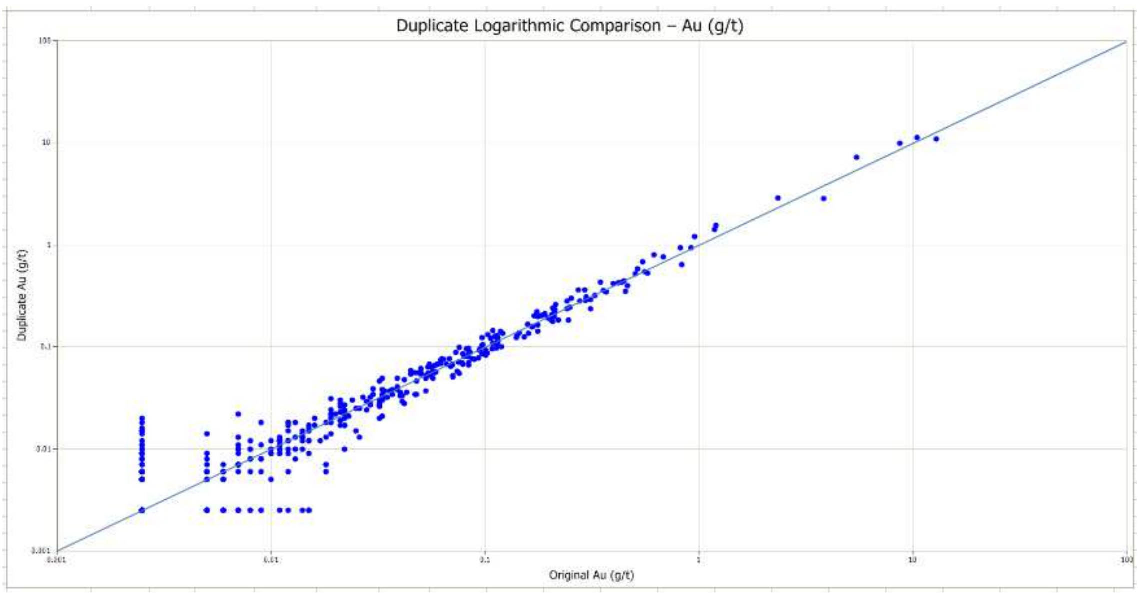


Figure 82: Au duplicate correlation graph. Correlation coefficient 0.96617 (Flash report QA / QC, Minera Anzá (2018)).

	DATA SUMMARY Ag					
	Original	Duplicate	DIFERENCE	Pair Mean	Dif Rel %	VAR. REL.
NUMBER	645	645	645	645	645	645
MINIMUM	0.100	0.100	-35.500	0.100	-192.982	0.000
MAXIMUM	62.500	98.000	22.100	80.250	193.846	1.879
AVERAGE	1.164	1.202	-0.038	1.183	-0.306	0.210
MEDIAN	0.300	0.300	0.000	0.300	0.000	0.009
DEV. EST.	3.760	4.678	1.990			
TEST T			-0.479			
ERR. REL. MEAN						45.85
BIAS (%)	-3.22					

Table 13: Data summary for duplicates in Ag (Flash report QA / QC, Minera Anzá (2018)).

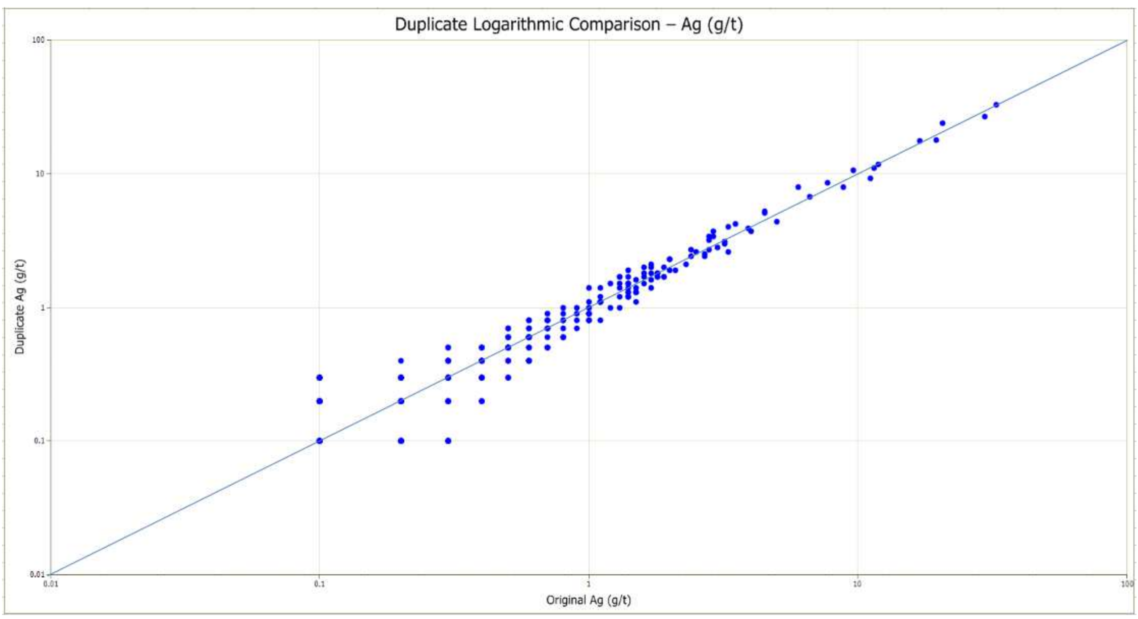


Figure 83: Ag duplicate correlation graph. Correlation coefficient 0.95993 (Flash report QA / QC, Minera Anzá (2018)).

		DATA SUMMERY Cu				
	Original	Duplicate	DIFERENCE	Pair Mean	Dif Rel %	VAR. REL.
NUMBER	645	645	645	645	645	645
MINIMUM	0.000	0.000	-0.338	0.000	-197.088	0.000
MAXIMUM	0.767	0.954	0.184	0.861	197.636	1.953
AVERAGE	0.013	0.013	0.000	0.013	0.675	0.236
MEDIAN	0.004	0.004	0.000	0.004	0.000	0.023
DEV. EST.	0.043	0.047	0.025			
TEST T			0.380			
ERR. REL. MEAN						48.58
BIAS (%)	2.92					

Table 14: Data summary for duplicates in Cu (Flash report QA / QC, Minera Anzá (2018)).

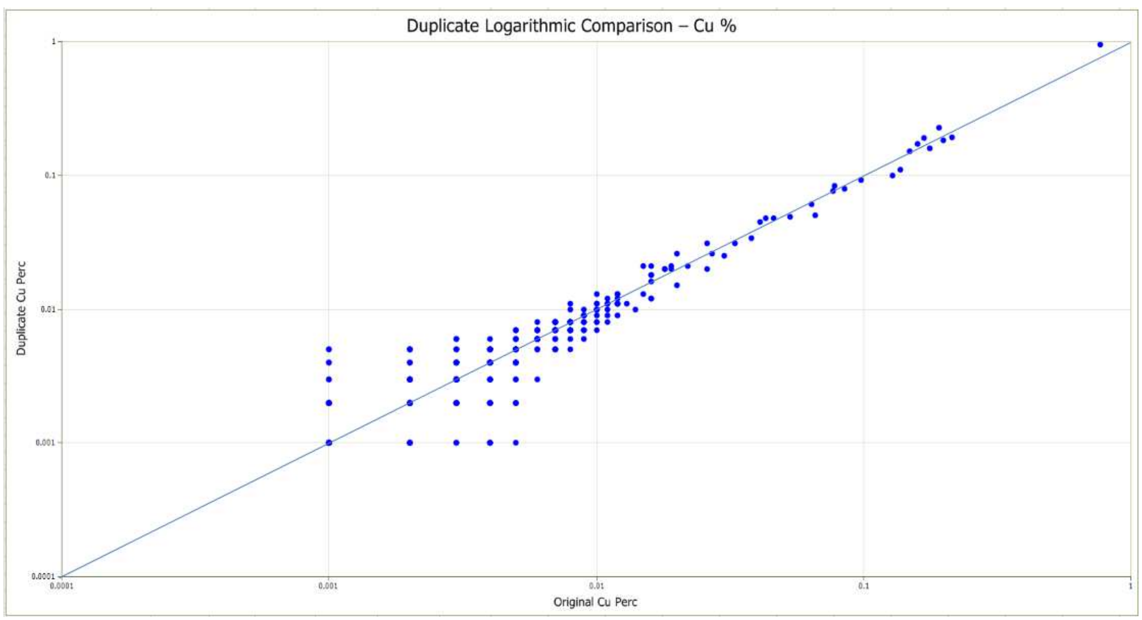


Figure 84: Cu duplicate correlation graph. Correlation coefficient 0.9456 (Flash report QA / QC, Minera Anzá (2018)).

		DATA SUMMARY Pb				
	Original	Duplicate	DIFERENCE	Pair Mean	Dif Rel %	VAR. REL.
NUMBER	645	645	645	645	645	645
MINIMUM	0.000	0.000	-0.275	0.000	-196.800	0.000
MAXIMUM	0.567	0.622	0.118	0.595	196.758	1.937
AVERAGE	0.006	0.007	-0.001	0.006	0.468	0.240
MEDIAN	0.001	0.001	0.000	0.001	0.000	0.027
DEV. EST.	0.033	0.037	0.016			
TEST T			-1.116			
ERR. REL. MEAN						49.03
BIAS (%)	-11.50					

Table 15: Data summary for duplicates in Pb (Flash report QA / QC, Minera Anzá (2018)).

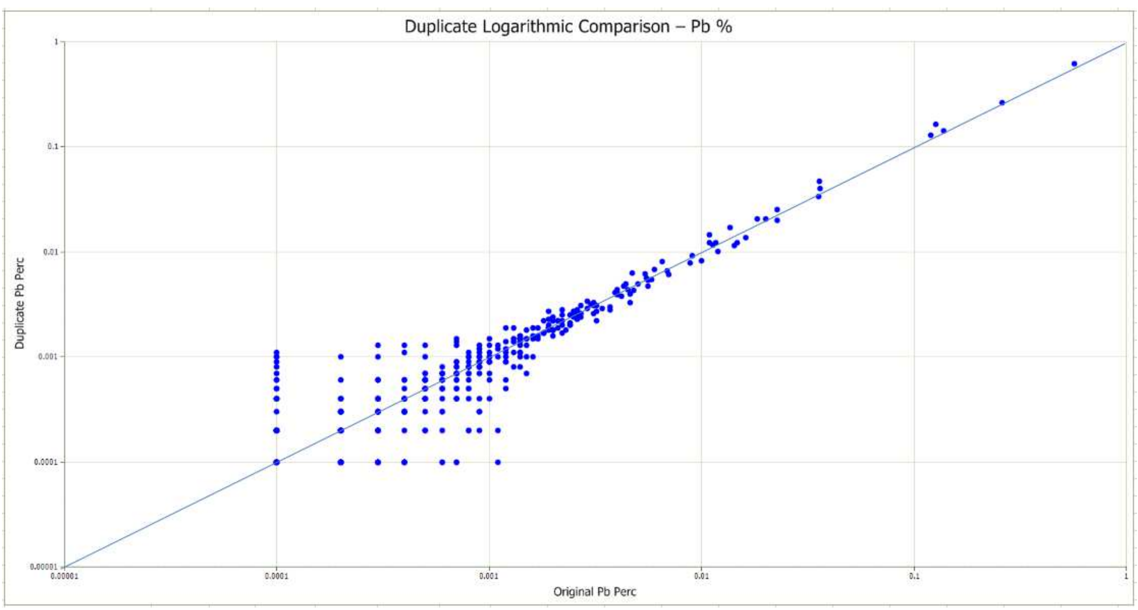


Figure 85: Pb duplicate correlation graph. Correlation coefficient 0.92976 (Flash report QA / QC, Minera Anzá (2018)).

	DATA SUMMARY Zn					
	Original	Duplicate	DIFERENCE	Pair Mean	Dif Rel %	VAR. REL.
NUMBER	645	645	645	645	645	645
MINIMUM	0.000	0.000	-4.000	0.000	-198.698	0.000
MAXIMUM	19.600	23.600	1.947	21.600	198.289	1.974
AVERAGE	0.148	0.168	-0.020	0.158	-0.633	0.205
MEDIAN	0.011	0.011	0.000	0.013	0.000	0.011
DEV. EST.	1.003	1.194	0.332			
TEST T			-1.506			
ERR. REL. MEAN						45.24
BIAS (%)	-13.30					

Table 16: Data summary for duplicates in Zn (Flash report QA / QC, Minera Anzá (2018)).

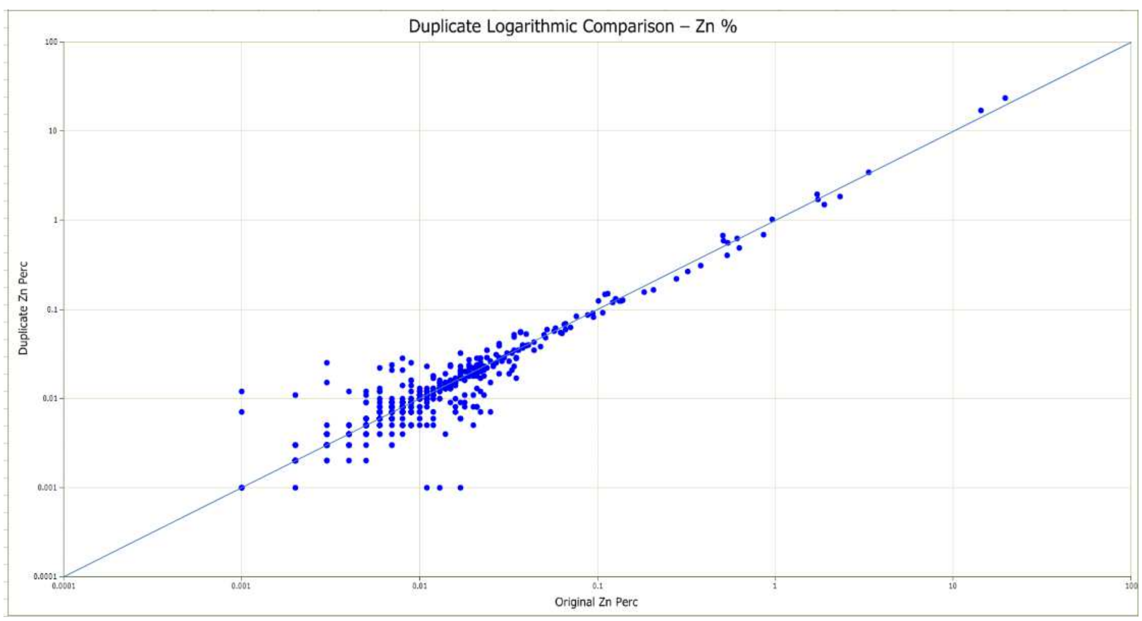


Figure 86: Zn duplicate correlation graph. Correlation coefficient 0.94068 (Flash report QA / QC, Minera Anzá (2018)).

EQUIPMENT

SGS Laboratory

Jaw crusher

Trademark	Tm-engineering
Model	Jct #1 al
Nº serie	201006
Fab year	2006
Motor	7.5 hp
Stage	Active

Grinder rock labs

Trademark	Rocklabs
Model	Ao rm2000
Nº serie	No refiere
Fab year	2012
Motor	3 hp
Stage	Active

Smelting Furnace

Trademark	Furnace industries
Model	50pf ng
Nº serie	No refiere
Fab year	2011
Motor	Na
Stage	Active

Cupellation Furnace

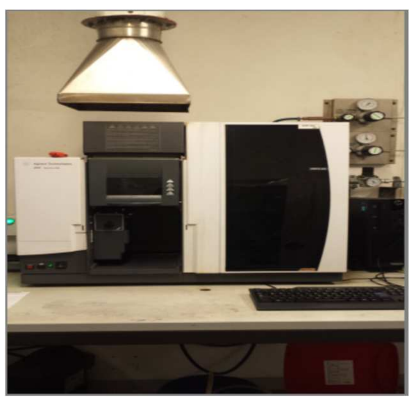
Trademark	Furnace industries
Model	Mfd ng
Nº serie	No refiere
Fab year	2011
Motor	Na
Stage	Active

Mass Spectrometer

Trademark	Perkin elmer
Model	300d
Nº serie	342728351
Fab year	No refiere
Motor	Na
Stage	Active

Atomic Absorption Spectrophotometer

Trademark	Agilent
Model	280fs
Nº serie	Aa1110m090
Fab year	No refiere
Motor	Na
Stage	Active



ALS Laboratory

Figure 87: AAS: Atomic Absorption Spectroscopy equipment.

Figure 88: ICP-OES: Inductively coupled plasma - optical emission spectrometry equipment.

11.5 Samples Chain of Custody

Samples chain of custody has a methodology established for the activity; this corresponds to sending samples to laboratories assuring the inalterability of these during his transfer. In addition, details the equipment and materials to use.

PROCEDURE

Completed sampling is to prepare samples for shipment and delivery to the laboratory. For this work should be a strict control since Minera Anzá does not have its own laboratory and the chain of custody of the samples must be respected.

Steps to follow are:

- Sampling shall be carried out by an expert designated by the Department of geology. This sampling carried out respecting the intervals designated by the geologist (previously marked with wooden marks and pointed in a sampling form-sheet is stored in digital form and on paper).
- Rock fragments putted into plastic bags, which are marked with the sample number. Also putted a ticket (which corresponds to the number of sample) and then closed with a plastic seal.
- Due samples must be moved to the laboratory located at 114 Km, it must be ensured that there is no alteration in the samples. For this purpose putted 4 bags of samples within a larger bag and closes with a numbered seal. In the sack is also putted the number of numbered seal and completing the form of control of bags (one per shipment).
- Samples sent in the van arranged by the company, respecting the maximum weight transfer (maximum 72 samples including control samples). The designated driver shall carry the relevant documentation for the transport and dispatch of sample to the laboratory (control of sacks form sheet and shipment of samples sheet to the laboratory). This documentation also sent by mail to the laboratory, previously.
- Documents that delivered to the laboratory are forms sheets that indicate the number of sack and samples that are inside each sack.
- The laboratory must control that sacks have not alteration. Later the seals removed and held control of the samples.
- Ending control, laboratory should perform the signing of documents and deliver it to the driver.
- The documents kept in the offices of Minera Anzá.

11.6 Interpretation and Conclusions

The program of quality control and quality control standard, which includes materials of standard reference, blanks and duplicates, used from the beginning and throughout the drilling program. The analysis in general shows that data are acceptable for this phase of exploration in this property. More than 10% of samples used during Anza drilling program as part of the controls of QA / QC.

12 Data Verification

As a competent person, responsible for the reliability of the results delivered by the external laboratories, their chemical preparation and analysis processes were verified, through a technical visit made to the SGS and ALS laboratories in Colombia. During the visit, the certifications, preparation protocols and QA / QC controls are reviewed. As a result, the following is observed:

1. The ALS laboratory is requested to have their certifications in visible place, and that the reference materials are silica and not from a quarry close to Medellin. The samples prepared and analyzed in the ALS laboratory correspond to 80% of the total samples of the Anzá project.

2. The SGS laboratory shows high standards of certifications, protocols and QA / QC controls.

3. Both laboratories have granulometry controls greater than 85% reliability.

4. The data of quality control samples, were verified internally by the QP and Orosur personnel.

In the site visit, the logging folders were reviewed and it was verified that each one contains their certificates of analysis, geological and geotechnical loggings.

Also, 3 diamond drillholes were relogged, and compared with the grades and results from the project, finding a good correlation.

Finally, the position and existence of 2 drill holes were verified on the field (as the rest of the drilling holes collars have difficult access).

It is recommended that in future drilling campaigns, downhole surveys are carried out with a gyroscope type of instrument and, in addition, validation of these downhole surveys is performed with a second method of downhole survey of 15% of the total number of holes drilled.

13 Mineral Processing and Metallurgical Testing

The metallurgical work in the Anzá deposits was carried out by the ALS laboratories in Chile. The testing program consists of a scoping study that included the following tests: crushing, leaching, flotation and gravity concentration. The samples have been selected in order to represent the different types of mineralization observed in the drilling.

Testing was performed on 113 individual bags weighing, in total, approximately 405 kilograms, of which each package weighed approximately 14 kg. The lab prepared a total of 378 kg in 3 master composites and 13 variability samples. The sample was homogenized, passed through the nª 6 (3.36 mm) mesh and the largest sizes were ground to a 100%. Finally, each sample was dried at 40 ° C and then powdered before submitting it for chemical and mineralogy testing.

13.1 Grinding

The results of the work index (WI) assessed the energy level needed for processing, and involved a series of test to resolve the work index WI in kWh / ton. The test was performed for all samples. The following figure shows the results.

Índice de trabajo	
Muestra	kWh/ton
M1	20.3
M2	23.4
M3	20.6
V1	22.6
V2	18.0
V3	15.8
V4	20.0
V5	22.5
V6	13.4
V7	23.6
V8	22.4
V9	22.3
V10	20.1
V11	14.9
V12	15.8
V13	13.4

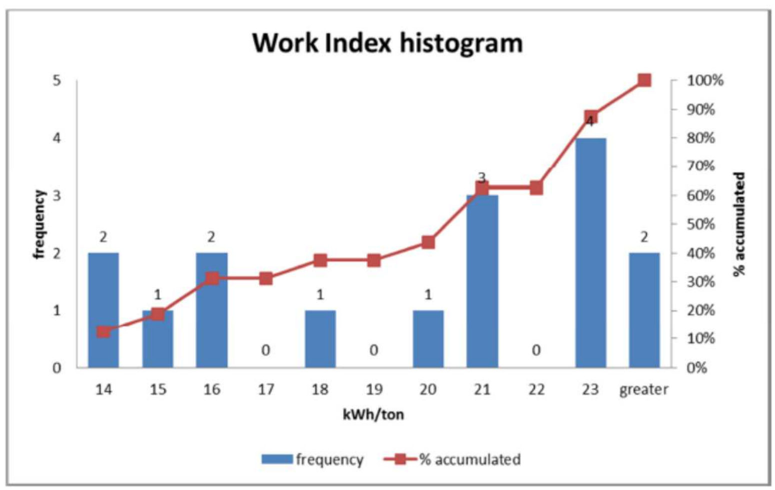


Figure 89: Table and chart showing the results of the work index (WI) in kWh/ton for each sample (Metallurgical testing ALS, Minera Anzá).

The average is 19.3 kWh / ton, the lower value is 13.4 kWh / ton, and the highest is 23.6 kWh / ton. It defines range of classes with an amplitude of 1 kWh / ton, the highest frequency is in the range 22-23.

The presence of quartz has an impact on the values of the work index. When the amount of quartz is higher, the WI also increases, whereas when the presence of calcium sulphate increases, the WI reduces.

13.2 Leaching Bottle Testing

Leaching test was performed with 1 kg of mineral sample, 0.05% of NaCN, 10 ppm of dissolved O2, pH 10.5, 45% solids and 72 hours as leaching time, with extraction of sample at 2, 4, 6, 24, 48 and 72 hours. The first phase (include master sample and variability samples) had p80 = 105 Microns as main grinding target and p80 = 75 microns for the second phase (include only master samples). Also, it carried out series of leaching testing with nitrate of lead as an additive and also series of CIL test (only with master samples).

The leaching results are between 0.1% and 94.3% of gold recovery. The average is 67.8%. Here it is important to highlight the different behavior between at least two groups of samples. To perform a data analysis of correlation with mineralogical composition and leaching results, the presence of talc and carbonate of calcium has the greatest impact in recovery performance, meaning, when the presence of talc and carbonate of calcium increases in the mineralogical composition, the recovery performance has a significant decrease.

Without considering the samples with high amounts of pollutants, the average recovery is 87.7%. The consumption of NaCN is 1.31 kg / ton on average. The consumption of lime is 2.88 kg / ton on average. Therefore, it is necessary to pursue a new metallurgical program to improve recovery in samples with talc and/or calcium carbonate.

13.3 Flotation

The three samples, M1, M2 and M3 have been tested with flotation test. Flotation program consisted of two tests, grinding and cleaners, and the last one again with grinding. The chemical elements measured were Cu, Fe, Zn, Pb, S and Au

For the rougher test, the CuSO4 was the activator, the collector was 3418A and the atomizer was MIBC. The average recovery of gold was 77.8% and recovery zinc averaged 93.3%. In the preliminary test of cleaning it was used PAX as collector and MIBC as steamer. The average recovery of gold was 80.8%, and the average recovery of zinc was 90.2%. In the preliminary test, the cleaning with grinding was used PAX as collector and MIBC as a steamer. The average recovery of gold was 79.8%, and recovery of zinc was average 91.2%.

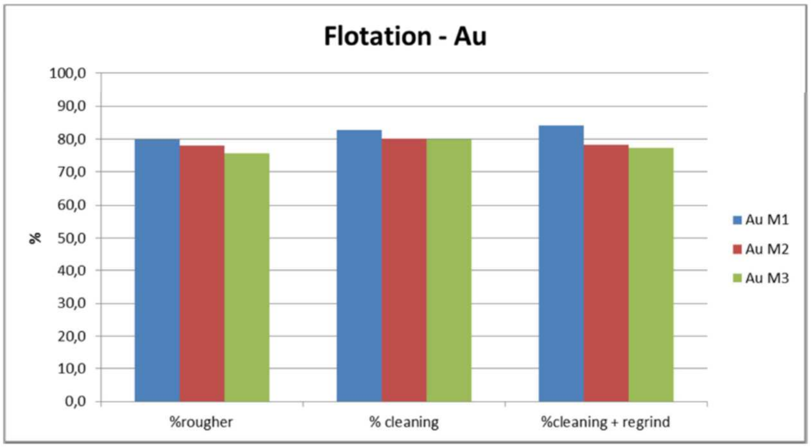


Figure 90: Recovery of Gold for the samples by flotation process for three different conditions.

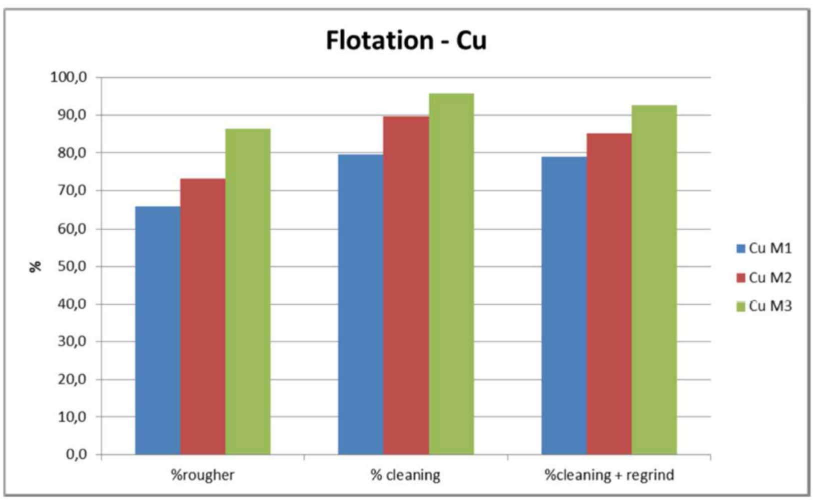


Figure 91: Recovery of Cooper for the samples by flotation process for three different conditions.

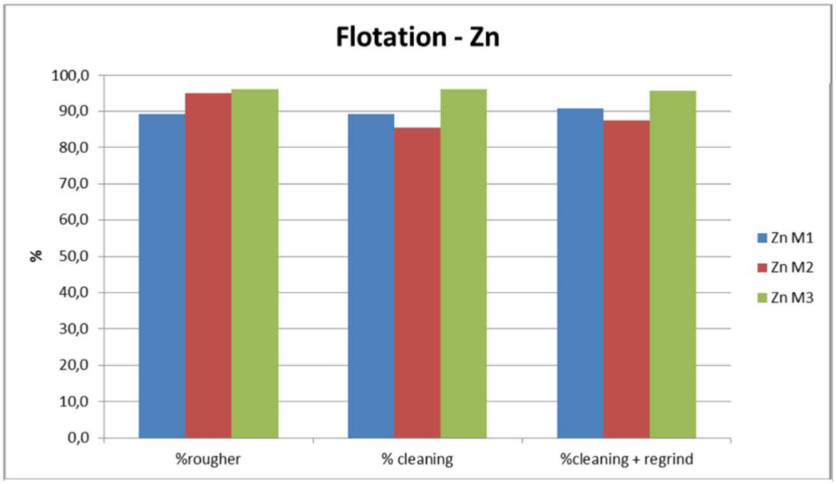


Figure 92: Recovery of Zinc for the samples by flotation process for three different conditions.

The last two processes, leaching and flotation, suggests to consider both processes at least, due both processes are good, but not enough to achieve the best gold recovery. The maximum value is 84.6% (M1, preliminary cleaning and regrinding). A combination of both processes could be a solution to increase the gold recovery performance, for this reason the next work of metallurgical testing must be done this way.

Zinc has a good recovery, therefore, within a new metallurgical testing program, suggests to consider more flotation test for this element. Zinc could be a metal with good probability of recovery and which will increase the Anzá Project profits.

13.4 Gold Recovery Gravity (GRG)

GRG was developed due there is free gold in the Anzá deposit, is therefore, suitable to explore GRG in this scoping study.

The best value of GRG is obtained with sample M3 (37.4%). The GRG in coarse grinding is low (best results are 10.2% in the sample M1). In a medium grind (p80 200 microns), GRG has better performance. Finally, in the grinding fine 75 microns there is a recovery of 22.6%.

P80	M1	M2	M3
850	10.2	5.0	7.6
200	17.7	26.3	25.5
75	22.6	33.4	37.4

Table 17: Gold recovery with GRG process of the samples with different grind (Metallurgical testing ALS, Minera Anzá).

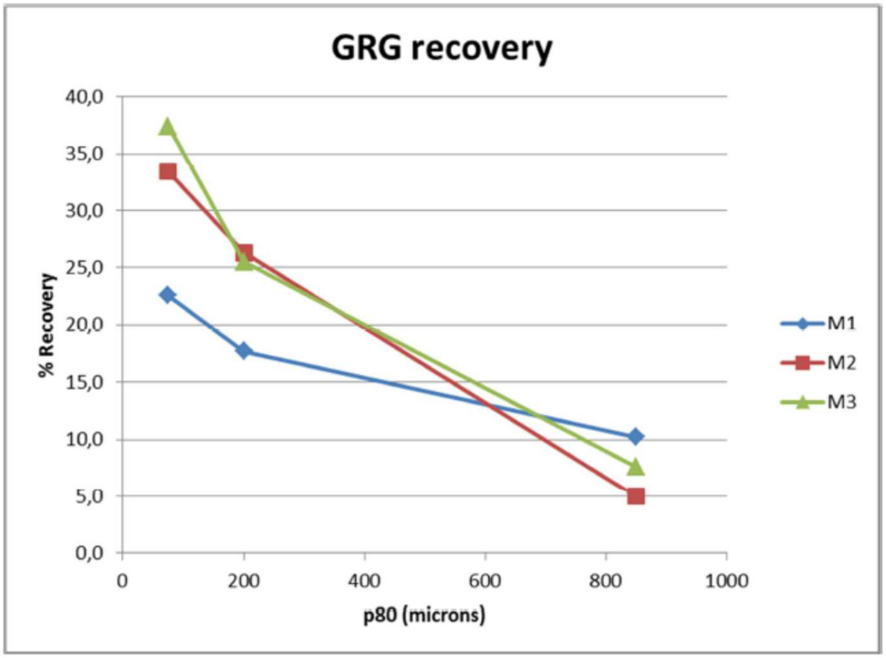


Figure 93: % gold recovery with a grind p80 200 microns for the study samples (Metallurgical testing ALS, Minera Anzá).

Besides, if it add a leaching test to flotation tails, the recovery increases to 98.4% (average).

Prueba	M1	M2	M3
GRG	22.6	33.4	37.4
GRG+lix	83.3	73.8	80.9

Table 18: Gold recovery in GRG + samples leaching with different grind (Metallurgical testing ALS, Minera Anzá).

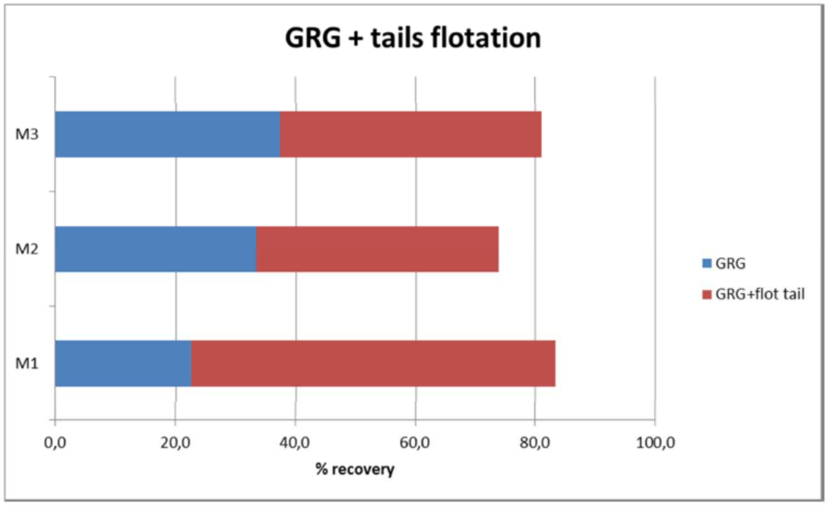


Figure 94: Comparison chart of % gold recovery between GRG in blue and GRG + leaching in study samples (Metallurgical testing ALS, Minera Anzá).

A combination of leaching GRG™ by flotation reaches 97.3%, 99.2% and 98.7% in samples M1, M2 and M3.

Prueba	M1	M2	M3
GRG	22.6	33.4	37.4
GRG+Lix	83.3	73.8	80.9
GRG+Lix+Flot	97.3	99.2	98.7

Table 19: Gold recovery in GRG + leaching + flotation of the study samples (Metallurgical testing ALS, Minera Anzá).

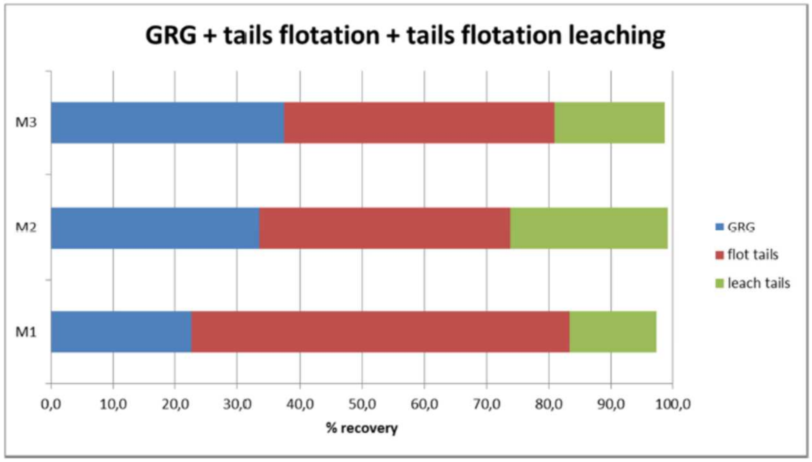


Figure 95: Comparison chart of % gold recovery between GRG (blue) and GRG + leaching (red) and GRG+ leaching + flotation (green) in study samples (Metallurgical testing ALS, Minera Anzá).

With these results, gravity recovery is not good as the only solution for Anzá, however it suggests to consider this process as an option within the flowchart, exploring leaching and flotation combinations.

14 Mineral Resources Estimate

Not applicable to the Report.

15 Mineral Reserve Estimates

Not applicable to the Report.

16 Mining Methods

Not applicable to the Report.

17 Recovery Methods

Not applicable to the Report.

18 Project Infrastructure

Not applicable to the Report.

19 Market Studies and Contracts

Not applicable to the Report.

20 Environmental Studies, Permitting and Community Impact

Not applicable to the Report.

21 Capital and Operating Costs

Not applicable to the Report.

22 Economic Analysis

Not applicable to the Report.

23 Adjacent Property

Not applicable to the Report.

24 Other Revelant Data and Information

Not applicable to the Report.

25 Interpretation and Conclusions

The geological information indicates that the direction of Minera Anzá and its recent use of a VMS geological model has created positive results. The work onfirms that mineralization is related to a hydrothermal system, with a strong structural control, showing a structural zone with hydrothermal brecciation; that there are two mineralization events, one in bands and veins, associated with mudstones and tuffs units and other event superimposed on the previous one, associated with hydrothermal events. It also indiacates that there are silica breccias with presence of sulfides in the matrix and faults zones, related to gold mineralization.

The company has established policies on environment and communities.

26 Recommendations

The present project is in an advanced exploration stage. It is recommended to continue advancing in knowledge and verification of the "VMS" geological model, overprinted with hydrothermal mineralization. In addition, it is recommended to install groundwater wells, to identify and measure the water table of the area.

Additionally, it is recommended in future drilling campaigns, to carry out downhole survey with an instrument of the gyroscope type and, in addition, to perform validation of these downhole survey, with a second method of downhole survey, 15% of the total number of drillholes made.

Also, it is recommended to advance with the exploration in ANZA, starting with the Guaimarala and Jesuitas targets, because they are interpreted and related to the same regional structure of APTA. It is proposed to carry out a soil sampling campaign, in a grid of 100x100m, complemented with rock sampling and geological mapping. In this first phase of exploration, it is also recommended to carry out a geophysical study with the DAS method in APTA, to recognize the geometry and potential of the mineralized structure. In a second stage, it is recommended to plan a diamond drilling campaign in APTA, based on the results interpreted with the DAS geophysics to check the dip to the east, in the central and southern zone, 5,000 meters of drilling would meet this objective. A budget of 2.2M usd is estimated to carry out the proposed exploration program.

27 Certificate of Qualified Person

As the author of the technical report entitled "Technical Report Minera Anzá, Antioquia, Colombia" dated January 24, 2019 ("Technical Report"), I, Román Edmundo Flores Villalobos, certify that:

1. Currently I am an Expert Consultant in Flores y Flores Cia. Ltda. located in Camino Liray s/n, Parcela 15, Lote 15, Colina, Santiago, Chile. Tel +56 9 9277 0243, email: romaneflores@gmail.com.

2. I am a Geologist at the Universidad Católica del Norte-Chile.

3. I have worked as a geologist in the minerals industry and have more than 44 years of experience in the mining industry of gold, silver and copper, with strong development of exploration in greenfield, brownfield and advanced projects, on Chile and other countries of Sudamerica (Peru, Argentina, Brazil and Colombia).

4. I do, by reason of education, experience and professional registration, fulfil the requirements of a Qualified Person as defined in National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101"). I have certificate of Registered Member # 186 of Chilean Mining Commission. I have certified a technical report, under NI-43-101 standard, for Los Andes Copper Ltd. (¨Los Andes Announces Filing of Updated Preliminary Economic Assessment and Updated Mineral Resources for Vizcachitas, Chile, 2014¨)

5. I visited Anzá Project, in January 23 y 24, 2019

6. I am independent of Orosur Mining Inc. applying the test in section 1.5 of NI 43-101.

7. I have had no prior involvement with the mineral properties in question

8. As of the date of this certificate, to the best of my knowledge, information and belief, I certify that the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading

9. I have read and I know, NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101

11. I am responsible for all items in this Technical Report

Dated January 24, 2019

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