Lagoa Real Iron Ore Project

Technical Report and Preliminary Assessment

Report Prepared for

Santa Fé Mineração S/A

Report Prepared by

SRK Consultores do Brasil Ltda.

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Lagoa Real Iron Ore Project

Technical Report and Preliminary Assessment

Santa Fé Mineração S/A

Travessa do Ouvidor, 17/502
Centro – Rio de Janeiro – RJ – Brazil
CEP 20040-040
Phone: +55 21 3553-7585

SRK Consultores do Brasil Ltda.

Av. do Contorno, 6664 – Level 9 – Edifício Britânia
Funcionários – Belo Horizonte – MG – Brazil
CEP 30110-928
Phone: +55 31 3426-6566

SRK Project Number: 054-13

Compiled by

Maria Verônica Pessoa
Senior Consultant
(Geology)

Letícia Albergaria Rodrigues
Senior Consultant
(Geology)

Peer Reviewed by

Cauê Pauli de Araujo
Interim General Manager
(Geology / Project Evaluations)

Email: caraujo@srk.com.au

Authors: Afrânio Machado, Cauê Araujo, Cristiane Abreu, Letícia Rodrigues, Maria Verônica Pessoa

1 Executive Summary

SRK Consultores do Brasil Ltda. (SRK) was commissioned by Santa Fé Mineração S/A (SFM) to prepare a technical report for the Lagoa Real Iron Ore Project (the "Project") located in the municipalities of Brumado and Livramento de Nossa Senhora, southwest of Bahia State, Brazil. The Project head office is located in the municipality of Lagoa Real, a few kilometers from the exploration areas.

The objective of this Technical Report is to present the Project's status as of September 2013. The Project is currently at the exploration stage.

Santa Fé Mineração S/A (SFM) was created in 2007 by the same family that owns Brazil Energy S/A, a company with over 10 years of successful history in the energy sector. SFM is controlled by a holding company called Delta Crescent which also controls the family's power generation companies.

The occurrence of iron formations in the southwest of Bahia State has been known for more than fifty years, but only about 8 years ago significant investments have been done to explore its potential. The region is considered a new iron district, and has been attracting investments since the Federal and State Government railway project FIOL – Ferrovia de Integração Oeste-Leste (East-West Integration Railway) was announced. SFM expects this railway will allow iron ore transport at competitive prices to the future Porto Sul (Sul Port) located in Ilhéus-BA.

The Australian Junior Company Cabral Resources is almost adjacent to SFM's Lagoa Real Iron Ore Project. Bahia Mineração (BAMIN) is controlled by ENRC (a Kazakhstani Company) and has production targets of 20 million metric tons of iron ore per year. BAMIN is located approximately 50km west of the Lagoa Real Iron Ore Project.

The main access to Lagoa Real region is through Vitória da Conquista – BA. The city of Vitória da Conquista is served by daily flights from Salvador – BA as well as from Santos Dumont Airport in Rio de Janeiro - RJ and from the International Airport of Belo Horizonte – MG. Access to the Project area is through local roads in good conditions. Vitória da Conquista and Lagoa Real are linked by an excellent two hundred and thirty kilometres paved highway (BR-030).

Legal mineral rights to these lands have been obtained by SFM through exploration applications. There are currently thirteen exploration licenses (Alvaras de Pesquisa) granted by the National Department of Mineral Production (Departamento Nacional da Produção Mineral - DNPM). There are also three exploration applications in good conditions, totalling 15,600 hectares.

Brumado is the best served neighbouring town in the area and the main trading and supply center of products and services for the Project's region. Brumado has good infrastructure and would be a good location for the Project's communication centre.

All the area electricity is supplied by the Companhia Elétrica do Estado da Bahia (Bahia State Energy Company), COELBA. The Project region's economy is based on mining, refractories industry, farming and cattle. SFM has not identified expressive agricultural or production activity within the exploration target areas.

Lagoa Real, Caetité, Brumado and Vitória da Conquista together have about 600,000 inhabitants, which consists on good source of manpower for the project.

The Brazilian company VOGBR was retained by SFM to assess the water availability in the Project region, and to propose or evaluate sources with potential supply water for the project's development. From the possible location of the processing plant, eleven river sections of interest were identified within a 100km range. According to VOGBR evaluation methodology, the three best water supply

alternatives for the Project are the Anage Dam, the Pedra Dam and Brumado (upstream). The best two alternatives consist of capturing water in existing reservoirs, and the third implies the construction of a new dam to regulate the flow.

The availability of water in river basins is conditioned by the inflow and can be optimized by adjustments along the water courses, construction of dams, flood water storage and water supply increase during the dry season.

SRK reviewed an Interim Environmental Characterization Report produced by Technology and Environmental Studies EKOENGE, June 2012 (also considered a “Reference Terms Report” - RTR). According to SFM the RTR has been submitted and approved by INEMA, the state environmental agency, and is considered the basis for the Environmental Impact Assessment (EIA/RIMA) study, expected to start in January 2014. SFM expects the official publication of the environmental 'Reference Terms' by the end of 2013.

An important aspect of the Project is the fact that none of the areas is located within a Federal or State Conservation Unit, not even Environmental Supporting Areas, according to Bahia State on-line system (GEOBAHIA program i3Geo Version 4.2). The Project’s regional climate is semiarid and the typical vegetation of the region comprises mainly caatinga plants.

In the project area the ore appears to be associated with Algoma-type deposits, with an average content of 30% Fe, according to SFM project team. Around the globe, iron ore deposits in Algoma-type iron-formations consist mainly of oxide and carbonate lithofacies that contain 20 to 40 % Fe as alternating layers and beds of micro- to macro-banded chert or quartz, magnetite, hematite, pyrite, pyrhotite, iron carbonates, iron silicates and manganese oxide and carbonate minerals.

The Lagoa Real Iron Ore deposit is predominantly composed by hard highly magnetic itabirites and some other hard rocks with magnetite (e.g. magnetic amphibolite and amphibole-magnetite-schists). The main mineralized materials in the project area are colluvium, silica banded iron formation, dolomitic iron formation and amphibolitic iron formation, all presenting magnetite-rich bands. The Project area has predominance of hard itabiritic types, commonly with Work Index around 15.

The banded iron formations (BIFs) at the Project areas have dark grey to dark brown colour, with a reddish brown aspect when weathered. The most common aspect is dark bands of millimetre to centimetre thick, rich in iron minerals, which are interspersed with lighter bands, not ferruginous, consisting predominantly of quartz and / or chert. The rocks are dense, compact, magnetic, with fine-grained and subordinate medium-grained. Magnetite is the major iron oxide and can occur with hematite and martite in variable proportions.

Several exploration targets have been identified and the most prospective ones according to SFM are Capão, Lagoa do Sergio, Gameleira, Boi Morto, Sussuarana, Canivete, Mata Pasto, Encosto and Sítio Novo. Most of these targets have been submitted to geophysical surveys, detailed mapping, rock chip sampling and exploration drilling.

SFM has developed a comprehensive geophysical survey program which included the application of Magnetometry, Spectral Induced Polarization (SIP) and Resistivity methods. Geophysical magnetic surveys were conducted in eight targets: Canivete, Mata Pasto, Sítio Novo, Boi Morto, Sussuarana, Gameleira, Lagoa do Sergio and Capão. Due to the high chargeability and low resistivity of the deposit, Spectral Induced Polarization (SIP) and Electroresistivity (ER) methods were applied in the following targets: Boi Morto, Canivete, Capão, Gameleira, Lagoa do Sérgio, Sítio Novo and Sussuarana. According to the geophysical results, the Capão exploration target is the most promising and consists of three mineral rights totalling 4,696.52 hectares.

Preliminary results have indicated an average density value between 2.8 and 3.1 g/cm3. In order to improve its density test methodology, SFM sent a few samples to certificated laboratories to verify

the accuracy of the on-site density determination values. One of the studies has been completed by the Minas Gerais Federal University (UFMG) Laboratory using a picnometer and the dry density results obtained were the following:

- Oxidized banded iron formation – rock chip sample – Sussuarana Exploration Target – 3.52 g/cm^3;
- Banded iron formation – drill core sample – Gameleira Exploration Target – 3.33 g/cm^3.

A preliminary evaluation of the mineral potential of these exploration targets was performed by SFM following the methodology presented below*:

- The area of each target was determined based purely on the existing geophysical results;
- It was assumed by SFM that the mineralized material extends 40 meters in depth;
- Solids were created and the volume calculated using the software SURPAC.
- A total mineralized material volume of 1.234.098.760 m^3 has been calculated;
- Considering an average density of 3.0 and the volume presented above SFM team has delineated an initial exploration target slightly over a billion tonnes of mineralized material, with a potential average grade of 30% Fe.

(*) For additional Information please refer to **Appendix A – Preliminary Assessment**.

Drilling completed until 15/09/2013 in the Project area was executed by SFM 100% own drill rigs and focused on five exploration targets (66 diamond drill holes, 6,574.20 meters). Until the present moment, drill holes executed or in progress had the main of objective of testing the magnetic anomalies detected in ground and aerial geophysical surveys. It also tried to confirm the existence of mineralization in depth. Therefore, these drill holes have not followed a regular grid. SRK recommends drilling in a regular grid to allow a consistent geological model and reliable resource estimation for the next stages of the Project.

Additional drilling is required to bring the project mineralized material to an inferred resource category. There is abundant exploration opportunity for further expansion of the iron resources on the known exploration targets. Continued exploration mapping and geophysical studies hold good potential to turn up new drill targets.

SRK has visited the Project's core storage facilities and observed that appropriate procedures and standards are applied in the handling and storage of core and rock chip samples. In SRK´s opinion, the QA/QC program of SFM is being implemented with a level of acceptable consistency.

With regards to Processing and Metallurgy:

- Testing is preliminary and results must be optimized.
- The Lagoa Real material is amenable to produce pellet feed type of concentrate.
- The mineralized material is hard and significant material comminution effort is expected in order to liberate the mineral species.
- Gravity and magnetic separation seem to be the most suitable methods to treat this material, based on iron oxide particle specific gravity and magnetic susceptibility characteristics. Flotation might also be a candidate but it needs intensive lab research of new reagents and high operating costs.

- SRK recommends SFM to continue the investigation of the best processing route, using gravity and low and high intensity magnetic separations. Laboratory tests should be carefully planned and executed in bench scale.
- In order to evaluate the resources it is recommended to prepare 20-30 core samples covering the most interesting targets and subject them to bench tests, using heavy liquid or shaking tables and magnetic separation devices. Other characterization process tests should also be carried out.

In sum, the metallurgical test work conducted by SFM on the Project has been reviewed by SRK and found to be valid. It is however, the first stage of a multi stage process and further work is required in this area.

SFM project's infrastructure is definitely one of the key characteristics of the project. The company is advancing exploration at the Project area and relying on the development of the FIOL railway by the Brazilian Government and the future construction of the privately owned Sul Port. SFM is in advanced negotiations to ensure access to both.

Detailed engineering studies will be required in the future to determine the mining viability of the Project. Therefore, the Lagoa Real Iron Ore Project development milestones are presented in Figure ES-1 below.

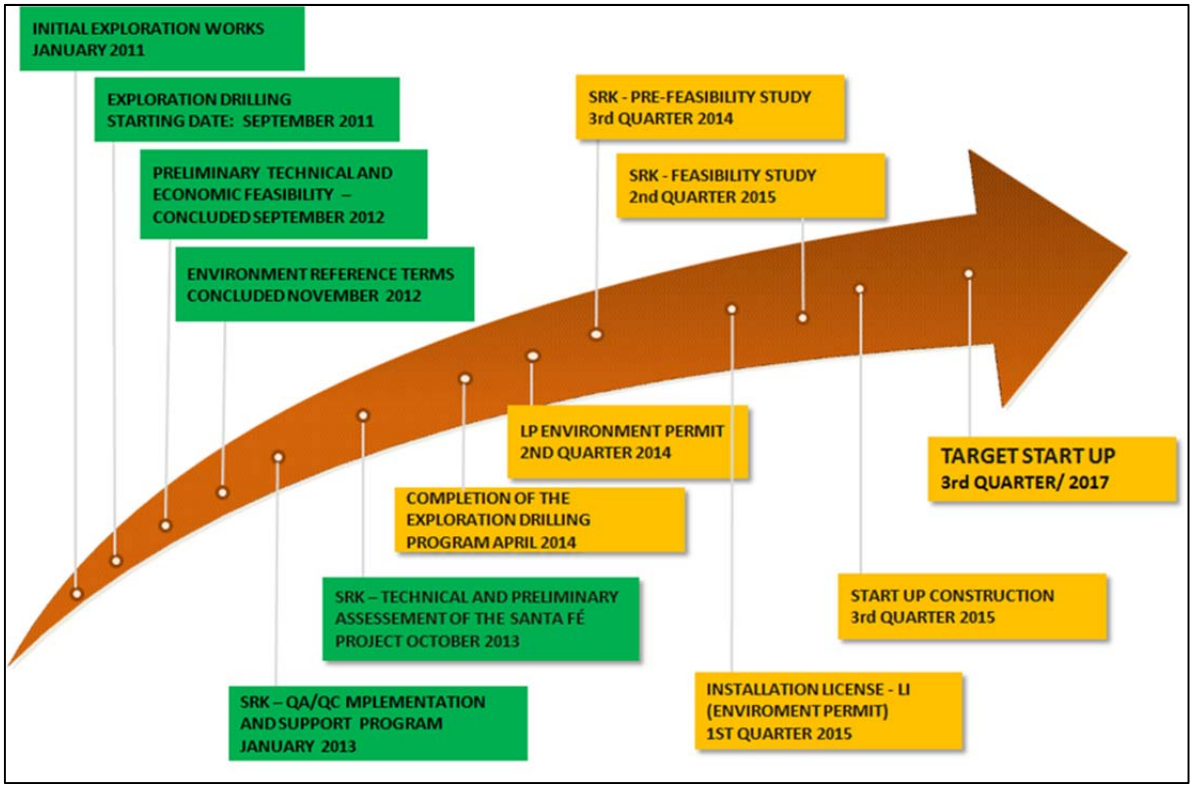

Figure ES-1: Lagoa Real Iron Ore Project Development Milestones

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Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consultores do Brasil Ltda (SRK) by Santa Fé Mineração S/A (SFM) and its contractors. The opinions in this Report are provided in response to a specific request from SFM to do so. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this Report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

SRK has not reviewed or validated the information contained in Appendix A – Preliminary Assessment and, therefore, SFM and its contractors are fully responsible for this Appendix.

2 Introduction

SRK Consultores do Brasil Ltda. (SRK) was commissioned by Santa Fé Mineração S/A (SFM) to prepare a technical report for the Lagoa Real Iron Ore Project (the "Project") located in Bahia State, Brazil. The Project is currently at exploration stage and is 100% owned by SFM. The main objective of this Technical Report is to present the project's status until the end of September 2013.

SRK project team members George Borinski, Maria Veronica Pessoa and Cauê Araujo have been to the project site a few times since January 2013. SRK has been providing technical support on a continuous basis to SFM since June 2013.

The underlying technical information upon which this Technical Report is based represents a compilation of work performed by SFM project team and several independent consulting firms. SRK has reviewed most of the project data and incorporated the results thereof, with appropriate comments and adjustments as needed, in the preparation of this Technical Report.

Neither SRK nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK.

SRK has no prior association with SFM in regard to the mineral assets that are the subject of this Report apart from having provided technical advice to SFM regarding the Project. SRK has no beneficial interest in the outcome of the technical assessment being capable of affecting its independence.

SRK's fee for completing this Report is based on its normal professional daily rates plus reimbursement of incidental expenses. The payment of that professional fee is not contingent upon the outcome of the Report.

Neither the whole, nor any part of this Report, nor any reference to it, may be included in any document for any other purpose without SRK's written consent to the form and context in which it appears.

SRK does not assume responsibility for the information presented in Appendix A – Preliminary Assessment and Appendix B – Mineral Rights Status Report.

3 Reliance on Other Experts

SRK's opinion contained herein is based on information provided to SRK by SFM until the 30th of September 2013, which in turn reflect various technical and economic conditions at the time of writing.

The authors have relied upon others to describe issues of land tenure and land title in Section 4.1 – Mineral Titles. A mineral rights lawyer specialist report is attached on Appendix B (Due Diligence Report - Carlos Alberto Lacerda - October 2013), which confirms the validity and ownership of the exploration licenses.

The authors are not qualified persons with respect to environmental laws in Brazil, regarding issues addressed in Sections 4.2 and 4.3 of this report. SRK has reviewed an Interim Environmental Characterization Report, produced by Technology and Environmental Studies EKOENGE, June 2012.

The consulting company VOGBR was retained by SFM to assess the water availability in the Project region, and to propose or evaluate sources with potential supply water for the project's development. The study was considered by SRK as one of the main sources of Chapter 5 – Accessibility, Climate, Local Resources, Infrastructure and Physiography.

SRK assessment of the metallurgical and processing of the Lagoa Real Iron Ore Project has been based on results obtained by preliminary metallurgical testworks performed by NOMOS, UFMG, Magnetation and Fundação Gorceix laboratories on core and surface samples of the Project provided and collected by SFM.

4 Property Description and Location

The Lagoa Real Iron Ore Project is located in the municipalities of Brumado and Livramento de Nossa Senhora, southwest of Bahia State, Brazil. The Project head office is located in the municipality of Lagoa Real (Figure 4-1).

4.1 Mineral Titles

This section is based on the mineral rights Due Diligence Report completed by the independent lawyer Carlos Alberto Lacerda. Table 4-1 below summarizes the Project's mineral rights status.

Legal mineral rights to these lands have been obtained by SFM through exploration applications. There are currently thirteen exploration licenses (Alvaras de Pesquisa) granted by the National Department of Mineral Production (Departamento Nacional da Produção Mineral - DNPM). There are also three exploration applications in good conditions, totalling 15,600 hectares (Figure 4-2).

Table 4-1: Lagoa Real Iron Ore Project Mineral Rights

DNPM PROCESS	OWNER	TARGET	AREA (ha)	MUNICIPALITY	SUBS	EXPLORATION PERMIT	VALID THROUGH
873.386/08	SANTA FÉ	Gameleira	1.205,99	Livram. N.Sra.	Fe	12348	28.11.2014
873.740/08	SANTA FÉ	Lagoa do Sérgio	1.101,70	Livram. N.Sra.	Fe	13402	07.10.2014
870.224/10	SANTA FÉ	New Prospect	1.813,89	Livram. N.Sra.	Fe	6532	04.09.2016
870.225/10	SANTA FÉ	Gameleira	37,80	Livram. N.Sra.	Fe	6533	04.09.2016
872.259/10	SANTA FÉ	Fabiano	752,31	Livram. N.Sra.	Fe	3871	06.04.2014
870.634/11	SANTA FÉ	Sítio Novo	1.170,98	Livram. N.Sra.	Fe	7237	27.05.2014
870.635/11	SANTA FÉ	Lagoa do Sérgio	1.805,21	Livram. N.Sra.	Fe	7227	27.05.2014
870.636/11	SANTA FÉ	Capão	1.740,21	Livram. N.Sra.	Fe	7156	27.05.2014
870.859/11	SANTA FÉ	Boi Morto	862,64	Brumado	Fe	8255	15.06.2014
871.294/11	SANTA FÉ	Gameleira	56,00	Livram. N.Sra.	Fe	11719	12.08.2014
871.393/11	SANTA FÉ	Capão	1.785,33	Livram. N.Sra.	Fe	11737	12.08.2014
872.212/11	SANTA FÉ	Canivete	240,21	Livram. N.Sra.	Fe	EXPLORATION APPLIC.	WAITING FOR PERMIT
873.181/11	SANTA FÉ	Sussuarana	68,43	Brumado	Fe	15660	05.10.2014
870.537/12	SANTA FÉ	Gameleira	99,92	Livram. N.Sra.	Fe	EXPLORATION APPLIC.	WAITING FOR PERMIT
872.389/12	SANTA FÉ	Gameleira	8,3	Livram. N.Sra.	Fe	EXPLORATION APPLIC.	WAITING FOR PERMIT

(Source: DNPM Website – 10/09/2013).

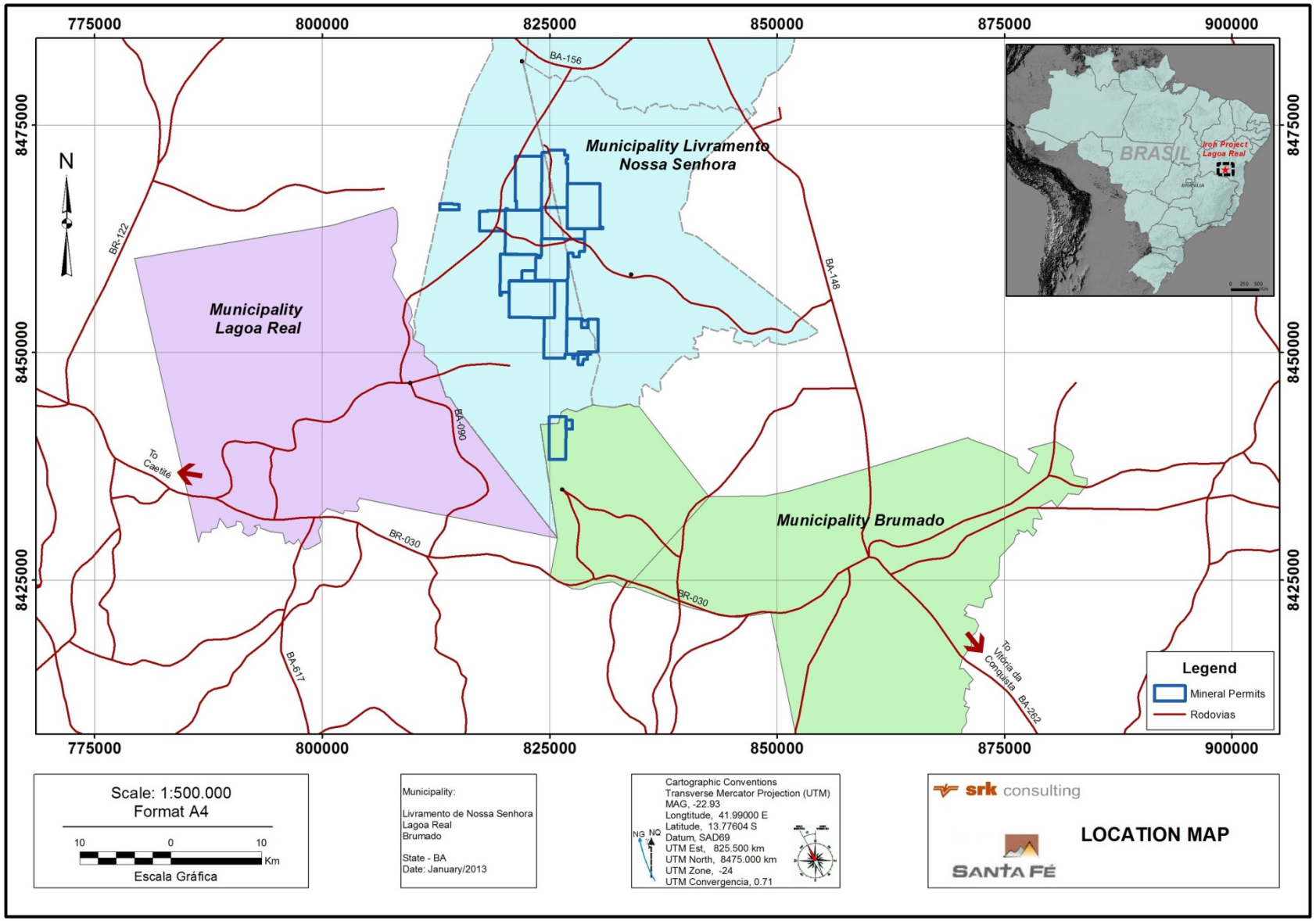


Figure 4-1: Location Map

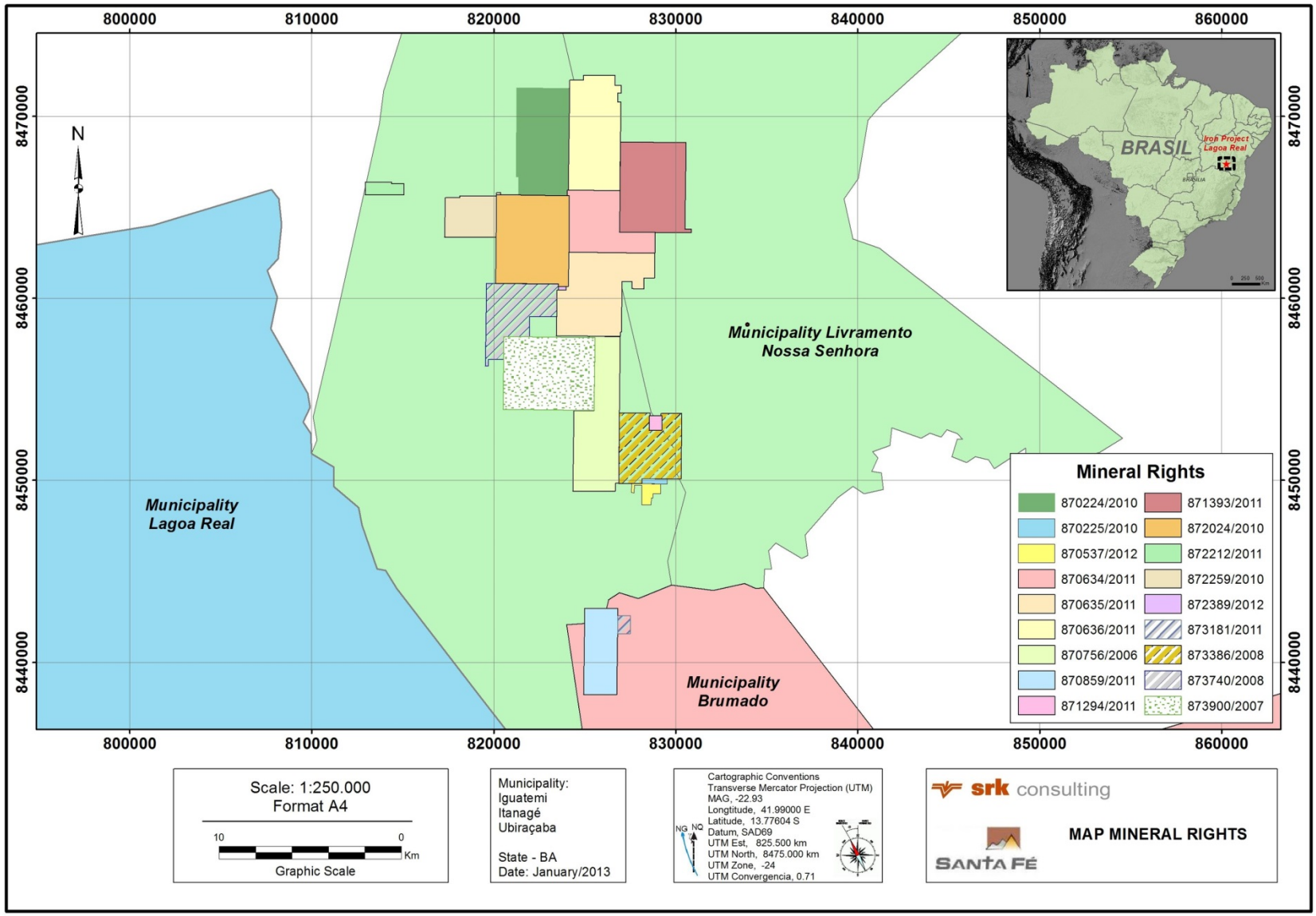


Figure 4-2: Mineral Rights Map

4.2 Environmental Permitting

In contrast to the mining activities which are governed by a Federal Agency and are the same throughout the country, in Brazil the environmental aspects are regulated by State Agencies, which follow general federal procedures. In other words, the Brazilian States have some degree of latitude to establish particular rules normally based on regional and local characteristics.

As required by Brazilian National Environmental Policy established on August 31, 1981 (Federal Law 6.938), all potentially or effectively polluting activities are subject to an environmental licensing process. Applicable rules regarding the licensing procedure were established by Resolution #237 of CONAMA (National Council for Environment) on December 19, 1997.

It is by means of this licensing procedure that the issuing Agency determines the conditions, limits and measures for the control and use of natural resources and allows the installation and implementation of a project. These licenses will be issued by a Federal, State or Municipal Agency. Authority to issue a license is based on the areal extent for the proposed impact and generally follows the rules established by CONAMA's Resolution #237, as below:

- Federal entities are responsible for licensing activities which may cause national or regional environment impacts (more than one Federal State);
- State entities, including the Federal District entity, are responsible for the activities which may cause State environmental impacts (one or more municipalities); and
- Municipal entities are responsible for licensing activities which may cause local environmental impacts, within the city limits.
- In the Bahia State Environmental Licences questions are regulated by Decree n. 14.032, de 2012, which classifies the potentially polluting activities and so needing environmental regulations.

At the geological exploration stage the exploration license holders may require the following environmental permits:

- Vegetation Suppression ("*supressão vegetal*"); and
- Environmental Authorization or license.

The Bahia Environmental State Agency (INEMA) is the public agent responsible for issuing these licenses for the Project.

As a general procedure for all Mining Projects throughout Brazil, the permitting process occurs as follows:

1. Preliminary License (LP):

- It must be demonstrated that the enterprise is environmentally feasible. According to its size or potential environmental impacts, correspondent environmental measures must be anticipated. Besides a detailed Baseline Study, an Environmental Impact Assessment (also known as EIA/RIMA) must be conducted. This phase, for mining projects, also means public hearings. When compared to the two other licenses, this is the most important license; and
- It is a basic condition to obtain the LP that assurances are presented so that preventive measures, recovery, mitigation and compensations are implemented.

Still, important aspects must be evaluated in the environmental impact studies, such as interference on Protected Areas (UCs) and other protected areas such as relevant archaeological and socio-

cultural heritage. With regards to the Lagoa Real Iron Ore Project, SFM's environmental services contractor report (EKOENGE) states these aspects are not of concern.

Negative impacts on the environment, established from EIA/RIMA, should be compensated, according to Brazilian Law 9985 which introduces the System of Conservation Units and determine environmental compensation standards.

2. Installation License (LI):

- At this stage the Basic Engineering shall be presented to the authorities. It is subject to the presentation of an environmental control plan referred to as a PCA (Plano de Controle Ambiental = Environmental Control Plan) together with a PRAD (Plano de Recuperação de Áreas Degradadas = Impacted Areas Recovery Plan), and
- DNPM only issues the Mining Concession if the Installation License is granted.
- At this licensing stage definitions and regularization concerning the "Legal Reserve" must be established. It is an area which size depends on State rules that must preserve the natural biota and shall be clearly legalized at the Real Estate Notary Office as property of the entrepreneur. In Bahia the law has established 20% of the enterprise area.

3. Operational License (LO):

- This license allows the Project to start-up, and is basically issued after all environmental measures are in place and have been duly checked by the authorities.
- During the Life of Mine the company must renew the LO. Being a mining operation, in Bahia State this means between 2 and 8 years (Law#10.431/2006). Along this period the PRAD must be in action. At the time of the renewal a report summarizing environmental performance must be presented.
- If during the operation there are substantial changes to the initial project plan (e.g. an additional treatment plant) this will require another/specific LI which subsequently will become a LO.

The responsibility to protect the environment is shared between the federal, state and municipal. Competence for environmental licensing could be delegated to municipalities through an agreement to impact local environmental activities.

Bahia State through the Resolution # 3.925/2009 State Environment Council - CEPRAM determines the local environmental impact activities that will be evaluated at municipal level.

The recovery of the impacted areas from mineral resource exploitation can be found in the Federal Constitution of Brazil, in 1988, Article 225, § 2, where recovery should be compatible with the technical solution required by the environmental agency.

The National Department of Mineral Production (DNPM) regulated the Mine Closure requirements by the NRM (Normas Reguladoras de Mineração = Mining Regulation Standards) which include the environmental ones. Specifically the NRM # 20 deals with this subject.

At the present moment SFM has a Simplified Environmental License (# 151/13) issued by the Secretary of Agriculture, Water Resources and Environment, Municipality of Brumado, BA, listing the conditions for iron ore exploration in the areas corresponding to DNPM # 870859/2011 and # 873181/2011.

4.3 Environmental Considerations

SRK reviewed an Interim Environmental Characterization Report produced by Technology and Environmental Studies EKOENGE, June 2012 (also considered a “Reference Terms Report” - RTR). According to SFM the RTR has been submitted and approved by INEMA, the state environmental agency, and is considered to be the basis for the Environmental Impact Assessment (EIA/RIMA) study, expected to start in January 2014.

A relevant aspect of the above mentioned report refers to the existence of nineteen quilombola communities in the municipalities of Lagoa Real and Livramento de Nossa Senhora. The presence of these communities may require specific studies regarding the impacts caused by mineral activity in the area. It is important to note that according to SFM none of these communities are settled within the mining areas, only in the surrounding urban areas.

The social-environmental characterization of the Project region was conducted by EKOENGE in 2012. During the site visits, interviews were conducted with local residents to identify the communities potentially impacted by the project, local leaders, recognition of existing access roads, collective equipment, production activities, religious groups, demonstrations / traditional practices, intra and extra group relations, respect for the environment, local perception about SFM actions, location of communities and photographic record.

EKOENGE identified that the largest and/or the closest settlements to SFM exploration targets are Arrecife, Iguatemi, Represo, Gameleira, Salina do Gonzaga, Salina do Pio, Sussuarana, Fabiano, Capão and Boi Morto. However, only an in-depth study such as EIA / RIMA (Environmental Impact Assessment) will be able to identify all the possible impacted communities.

The study conducted by EKOENGE consisted also in the characterization of the physical environment to serve as guide to the preparation of environmental terms of reference for subsequent environmental studies. Therefore, it provides only regional aspects which will need to be detailed in the subsequent licensing stages.

An important aspect of the Project is the fact that none of the exploration areas is located within a Federal or State Conservation Unit, not even in the lowest category of Environmental Supporting Areas, according to Bahia State on-line database system (GEOBAHIA program i3Geo Version 4.2), as presented in Figure 4-3.

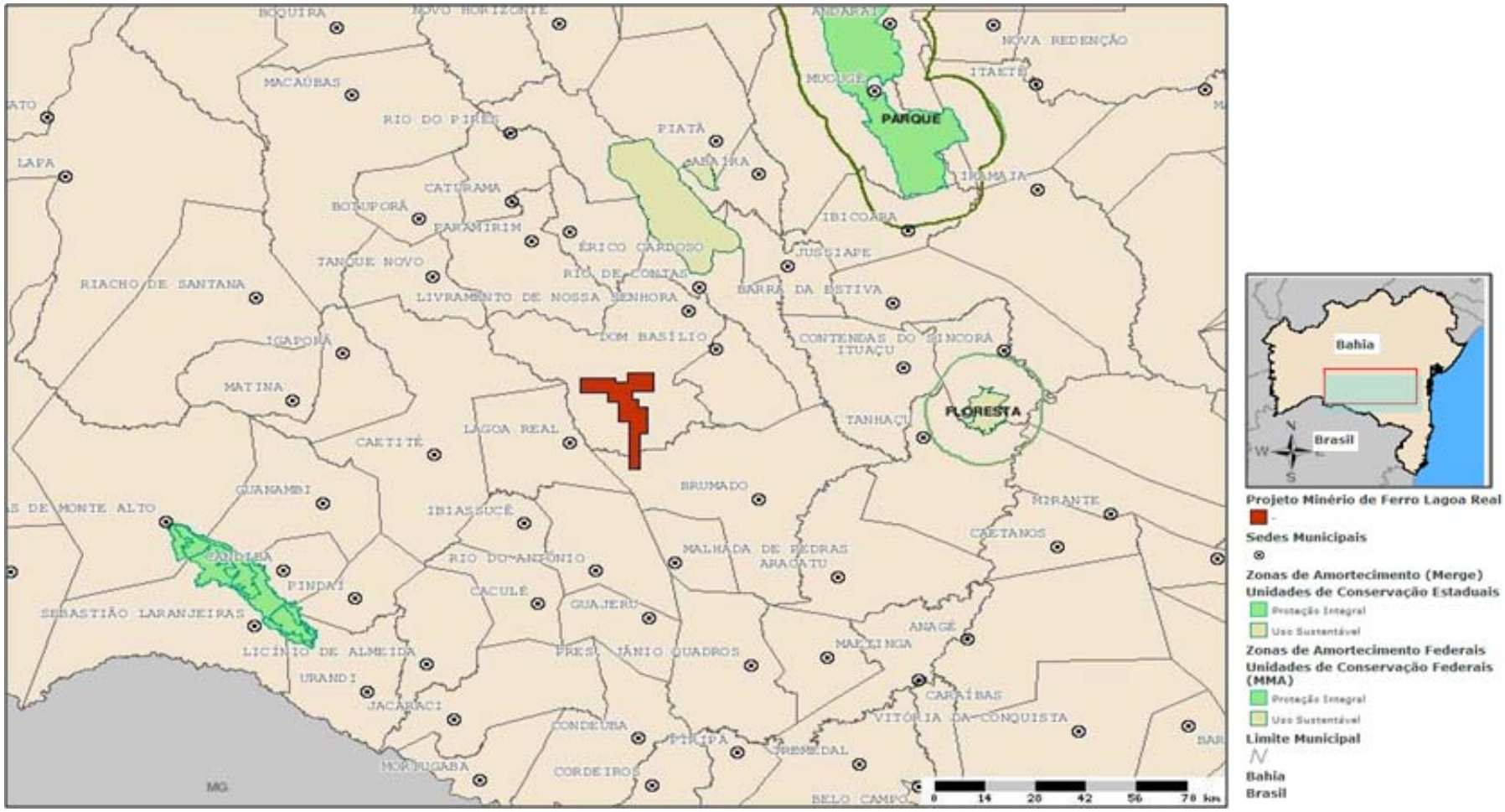


Figure 4-3: Project Location and Regional Conservation Units

Conservation Units: Dark Green=Conserved Areas; Light Green=Sustainable Use

Source: GEOBAHIA i3Geo Version 4.2, 2012.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Access

The nearest capital to the Lagoa Real Iron Ore Project is Salvador, the capital of Bahia State, a well-connected city served by several international airlines. Salvador has great infrastructure and is considered one of the most dynamic cities of Brazil with several international companies from different industrial sectors, such as petrochemical, oil and gas, automobile, steel mill, paper and pulp. Salvador is within a distance of approximately one and half hour flying from Rio de Janeiro and two hours from São Paulo. Another option is the Municipal airport of Brumado, approximately 77 kilometres from Lagoa Real, with capacity for private jets.

The main access to Lagoa Real region is through Vitória da Conquista – BA. The city of Vitória da Conquista is served by daily flights from Salvador – BA as well as from Santos Dumont Airport in Rio de Janeiro - RJ and from the International Airport of Belo Horizonte – MG (Figure 5-1).

Access to the Project area is over local roads in good conditions. Between Vitória da Conquista and Lagoa Real there is an excellent two hundred and thirty kilometres paved highway (BR-030).

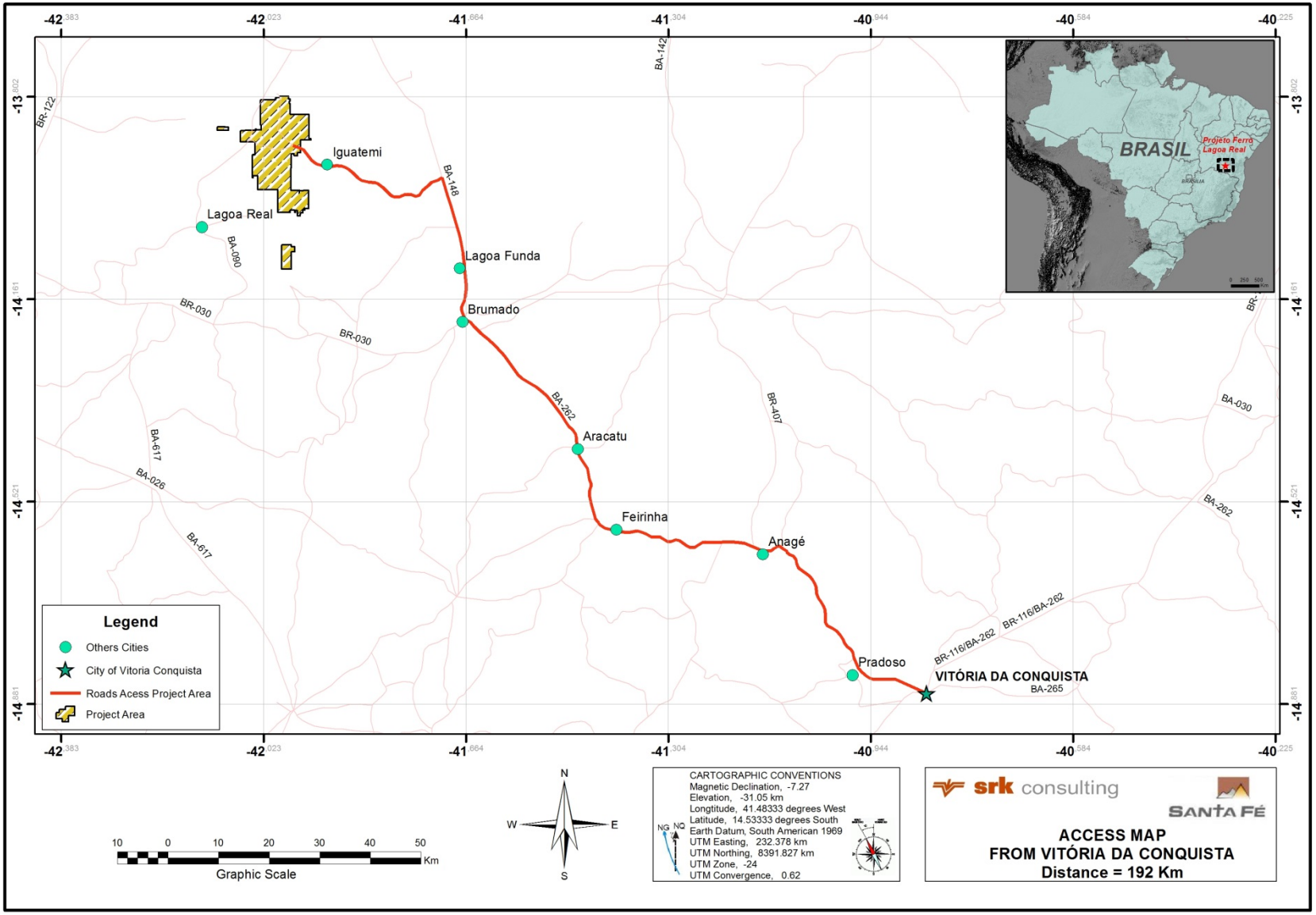


Figure 5-1: Access Map

5.2 Climate and Vegetation

The Project's regional climate is semiarid. The highest temperatures in the area are noted between the months of January to March and the lowest temperatures are recorded between June and August due to the advancement of the Atlantic polar air mass, and have the following variations (Source: INMET, 1992/SEI, 1997):

- Average Temperature (ºC): 20.7 to 26.8
- Lowest Temperature (ºC): 16.1 to 22.3
- Highest Temperature (ºC): 26.0 to 33.0
- Thermal Amplitude (ºC): 7 to 15

The annual average rainfall is 600-700 m. The rainy season is from November to January and the dry season from May to September.

The characteristic climate of Bahia State is tropical, with average annual sunshine of 2,337 hours, average relative humidity of 71.7% and average cloudiness of 5.8 (0-10 range).

In relation to temperature variation, the annual thermal amplitude is low, below 3ºC. High annual average temperatures around 24ºC can be expected, ranging from 20ºC and 26ºC, and milder temperatures occurring in coastal regions and higher regions of the Chapada Diamantina.

The typical vegetation of the region comprises the caatinga plants, with floristic and shrubby composition, uniform, low-growing, thorny, whose leaves fall completely in the dry season (Figure 5-2). The most common species are *Caesalpíncea pyramidalis* (caatinga), Mimosa *caesalpinifolia Benth* (sabiá), *Cróton sp* (marmeleiro), *Pithecolombium diversifolium Benth* (jurema branca), *Cássia escelsa Schrad* (canafistulo) and some species from the *bromeliads* family.

Figure 5-2: Lagoa Real Iron Ore Project Typical Vegetation

Figure 5-3: *Caatinga* Typical Vegetation

According to the Official List of Endangered Brazilian Flora Species some endangered species and/or whose cut is forbidden was found in the Project's area of influence.

Figure 5-4: Example of original Angico (Anadenanthera)

5.3 Local Resources and Infrastructure

The municipality of Lagoa Real borders Caetité (west), Livramento de Nossa Senhora (east and northeast), Ibiassucê and Rio do Antônio (south).

Brumado is the best served neighbouring town in the area and the main trading and supply center of products and services for the Project's region. It has good infrastructure, with schools, universities, roads, electricity, telephone, mobile coverage, water supply, sewage system and hospital and a municipal airport. Energy in the region is supplied by the Companhia Elétrica do Estado da Bahia (Bahia State Energy Company), COELBA. The regional economy is based on mining, refractories industry, farming and cattle.

Lagoa Real also has good infrastructure and good access by paved roads, and in the near future, railway. As a Federal Government initiative, the modern West-East Integration Railway (FIOL - Ferrovia de Integração Oeste Leste) is being built and can connect the Lagoa Real Iron Ore Project to the Sul Port in Ilhéus – BA, which is approximately 484 km away. This railway consists on the best logistic option for the Project.

Lagoa Real, Caetité, Brumado and Vitória da Conquista together have about 600,000 inhabitants, representing a good source of manpower for the Project's construction and development. According to IBGE (Brazilian Institute of Geography and Statistics) the total population of Identidade Sertão Produtivo (Economically Active Population of the Hinterland Territory) is 439,455, of which approximately 51% in rural areas. According to data from the Department of Agriculture (SEAGRI), this territory has 90% its economy based on family farming. The municipalities' population data indicate that only Brumado has a predominant urban population as well as the highest demographic density. The three municipalities have a young representative population.

The southwest region of Bahia State is considered to be also very active in mineral exploration. Uranium, iron ore, magnesium, manganese and talc have been intensively explored over the past years.

The regional agriculture consists especially of passion fruit. At Lagoa Real the importance of cassava in family farming is great, a crop of low profitability in the city's economy as well as that of sugarcane and cotton which lost historical importance. Irrigated agriculture emerges as an economic option in some areas of the municipality.

SFM has not identified expressive agricultural or other productive activities within the exploration target areas.

According to SFM, the power supply system expected to supply the Lagoa Real Iron Ore Project has essentially the following infrastructure:

- Companhia Energética da Bahia (COELBA, Bahia State Energy Company) has an energy transmission line with approximately 2 km long and 13.8 kV, located towards the south of the Project;
- Voltage drop substation, 13.8 kV/ 380 V, containing a three-phase transformer of 1,500 kVA;
- Energy distribution to all industrial and supporting units;

Communication in the municipalities of Brumado, Lagoa Real and Livramento de Nossa Senhora is structured via radio, television, fixed and mobile telephones, internet and postal services. Brumado could be a good location for the Project's communication centre.

5.4 Water

The Project area is supplied by the Empresa Baiana de Água e Saneamento (EMBASA, Water and Sewage Company of Bahia).

The Brazilian company VOGBR was retained by SFM to assess the water availability in the Project region, and to propose or evaluate sources with potential supply water for the project's development. The study was structured as follows: a) Basic design data compilation; b) Methodology, c) Characterization of the project region, covering physical and socioeconomic aspects; d) Methodology regarding legal aspects for water capture; e) Hydrological studies; f) Evaluation of surface water availability; g) Critical evaluation of alternatives; and h) Conclusions and final recommendations.

From the possible location of the processing plant, eleven river sections of interest were identified within a 100km range. According to VOGBR evaluation methodology, the three best water supply alternatives for the Project are:

1st - Anagé Dam (Figure 5-5);

2nd - Pedra Dam, and;

3rd - Brumado (upstream).

This preliminary assessment results are mainly based on the quantitative and cost aspect, providing alternatives regarding attractiveness in technical, economic, legal/institutional and environmental terms. The best two alternatives consist of capturing water in existing reservoirs, and the third implies the construction of a new dam to regulate the water flow.

The availability of water in river basins is conditioned by the inflow and can be optimized by means of adjustments along the water courses, through the construction of dams, storing water during floods and increasing the supply of water during the dry season.

Figure 5-5: Anagé Dam

5.5 On-Site Facilities

The Lagoa Real Project facilities are in very good conditions, with high quality accommodation for employees and project managers, core sheds, communications system, 4x4 vehicles, etc.

SRK believes this is one of the reasons SFM has been able to attract and retain a highly qualified labour force.

Figure 5-6: On site support facilities

5.6 Physiography

The regional geomorphology of the Project is characterized by slightly undulated terrains with low hills. The exploration target areas are located primarily in the high areas, supported by basement rocks in the northwest of Arrecife and southeast of São Timóteo cities. The elevation varies from 350 meters (streams and rivers) to 720 meters (peaks).

The area has several landscape aspects according to King (1956), which were modelled by three cycles: South American (Eocene - Tertiary), Velhas (Neo-Tertiary) and Paraguaçu (Quaternary). These processes originated the following major geomorphologic units observed in the Project region:

- Summit Pediplains;
- Strongly Rugged to Mountainous Relief Zone;
- Hillocky Relief Zone with Residual Crests;

The Project area is located within the Rio De Contas Basin, on the watershed between the basins of the Rio de Contas River (east) and the Sao Francisco River (west). In the region the main branches of the Rio de Contas River are Paiol, Salto and São João das Antas Rivers, all presenting intermittent water flow regimes. The main water stream in the area is characterized as being torrential, fast, with reasonable capacity of erosion and transport competence.

6 History

Santa Fé Mineração S/A (SFM) was created in 2007 by the same family that owns Brazil Energy S/A, a company with over 10 years of successful history in the energy sector. SFM is controlled by a holding company called Delta Crescent which also controls the family's power generation companies.

The occurrence of iron formations in the southwest of Bahia State has been known for more than fifty years, but only about 8 years ago significant investments have been done to explore its potential. The region is considered a new iron district, and has been attracting investments since the Federal and State Government railway project FIOL – Ferrovia de Integração Oeste-Leste (East-West Integration Railway) was announced. SFM expects this railway will allow iron ore transport at competitive prices to the future Porto Sul (Sul Port) located in Ilhéus-BA.

The first iron ore mining rights were granted to SFM by the DNPM - National Department of Mineral Production in early 2008.

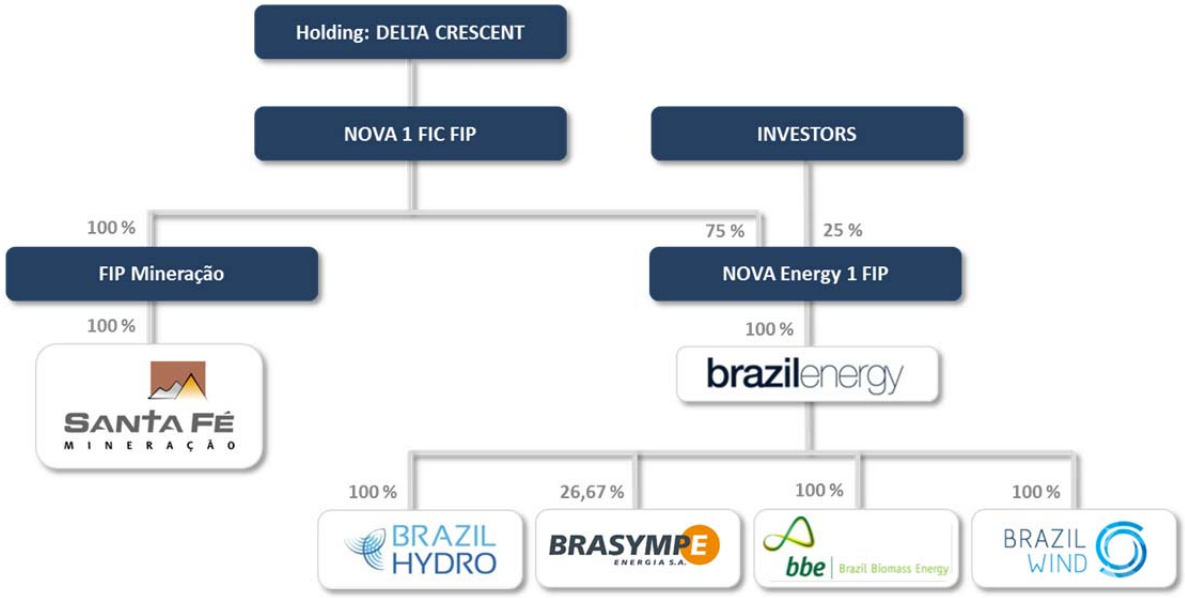


Figure 6-1: SFM Owership Structure

7 Geological Setting

7.1 Regional Geology

The Project area is located in the northern portion of the Gavião Block, which is consisted mainly of Paramirim basement rocks (Pedrosa-Soares et al., 2001), as shown in Figure 7-2. Other geological units such as volcano-sedimentary sequences and lateritic-detritic coverings are also present in the area. Additional details are presented in the simplified stratigraphic column below (Figure 7-1).

PALEOPROTEROZOIC		LAGOA REAL INTRUSIVE SUITE	Intrusive bodies of syenitic-granitic composition, formed by meta-granites, which were deformed in shear zones giving rise to orthogneiss. In the area, São Timóteo granitoid is highlighted which comprises syenites and isotropic granites and slightly foliated, medium to coarse grained, pegmatoidal/porphyritic and mafic enclaves may also occur.
		IGUATEMI MASSIF	Intrusive in vulcanosedimentary rocks of Ibitira-Brumado Complex and Archean TTG terrains. They are usually biotite-granites, varying in color from gray to pinkish-gray, fine to medium grained, homogeneous composition and slightly foliated structure with strong foliation in the marginal portions of the intrusion.
		IBITIRA-UBIRAÇABA METAVULCANOSEDIMENTARY COMPLEX	Vulcanosedimentary sequence, basically formed by banded gneisses with banded iron formations (BIFs). These BIFs are facies, oxide with magnetite, carbonate and silicate. The first ones, more common, present dark gray, dark brown color, taking a reddish brown aspect when changed. They are formed by dark bands, from millimetre to centimetre thickness, rich in iron minerals, intercalated with lighter bands, non-ferruginous, predominantly composed by quartz and/or chert.
ARCHEAN		TAMBORIL DOME	Orthogneiss and migmatites, usually in gray color, with composition ranging from tonalites and granodiorites, with occasional granites. Mafic enclaves (amphibolite) are common. Mineral paragenesis is predominant which includes hornblende and migmatization processes indicative of high amphibolite facies.

Figure 7-1: Simplified Stratigraphic Column

The inverted aulacogen called Paramirim Corridor (Alkmim et al., 1993) corresponds to a deformation zone oriented NNW-SSE which includes the northern regions of Serra do Espinhaço and a small part of São Francisco Basin in the west; the Paramirim and São Francisco valleys in the centre; and western border of the Chapada Diamantina, in the east.

The Project is within an area of intracontinental deformation, developed during the Paramirim Aulacogen inversion in the Neoproterozoic, and presents basement rocks with over 1.8 Ga (Gavião Block), as well as the Lagoa Real Suite (Costa et al.,1985) and all covering units (Espinhaço and São Francisco Supergroups). The Gavião Block is constituted by tonalite–trondhjemite–granodiorite (TTG) gneiss, amphibolites and granulites of Archean-Paleoproterozoic period and portions of Archean metavolcanosedimentary sequences within greenstone belt terrains.

The Lagoa Real Suite occurs as an intrusion in the Gavião Block gneisses, and is comprised by granitic rocks (São Timóteo Granite) and a group of alkali-gneiss derived from them, which host concordant bodies of albitite rocks with uranium (Costa et al., 1985; Cruz & Alkmim, 2002).

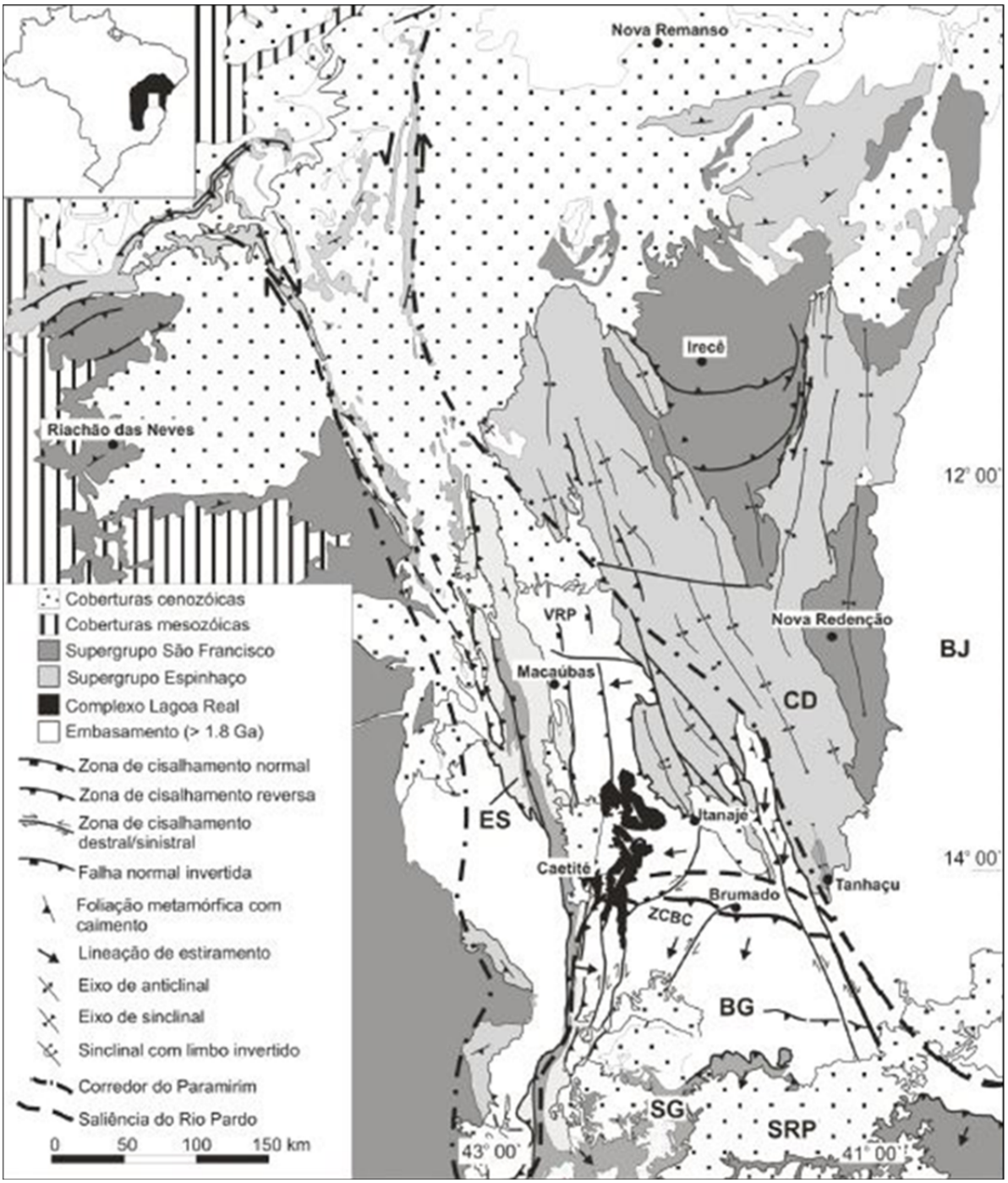


Figure 7-2: Simplified Regional Geological Map

BG – Gavião Block, BJ – Jequié Block, ZCBC – Brumado-Caetité Shear Zone, ES – Northern Espinhaço, CD – Chapada Diamantina, FRP - Rio Preto Belt, SRP – Araçuaí Belt, VRP – Rio Paramirim Valley and SG – Serra Geral.

Source: Cruz (2004).

7.2 Local Geology

The local geology is characterized by an Archean geological substrate, represented by granulite orthogneiss, supracrustal rocks, granulites and migmatites, covered by the Ibitira-Ubiraçaba Complex units. Figure 7-6 shows the geological map of the project area.

The Ibitira-Ubiraçaba sequence comprises a continuous belt, horseshoe shaped, which borders a structure constituted by banded gneiss alternated with biotite/hornblende-gneiss, quartz-feldspatic-gneiss and amphibolites.

In this sequence there are common intercalations of banded iron formation (BIFs), silicates and oxides (magnetite, hematite), which sometimes graduate to metacherts and calc-silicate rocks. There are also levels of talc-tremolite marble, ultramafic schists rich in anthophyllite and quartz, locally with fuchsite.

The banded biotite-gneiss presents high percentage of biotite and quartz, and locally grenade, diopside, actinolite-tremolite and hornblende; there are also subordinated levels of quartzite, calc-silicate rocks and amphibolites.

Figure 7-3: Banded Iron Formation (BIFs)

The local rocks are highly deformed and sheared, characterized by large intra-foliation (Figure 7-4) and folding, as well as for the high rock dip angles.

Figure 7-4: Local Foliation and Folding

The iron ore formation is commonly more resistant to weathering and normally stands out as hills. Figure 7-5 shows the geomorphology of the Project area.

Figure 7-5: Project Geomorphological Landscape

(View from Lagoa do Sérgio Target to Capão Target)

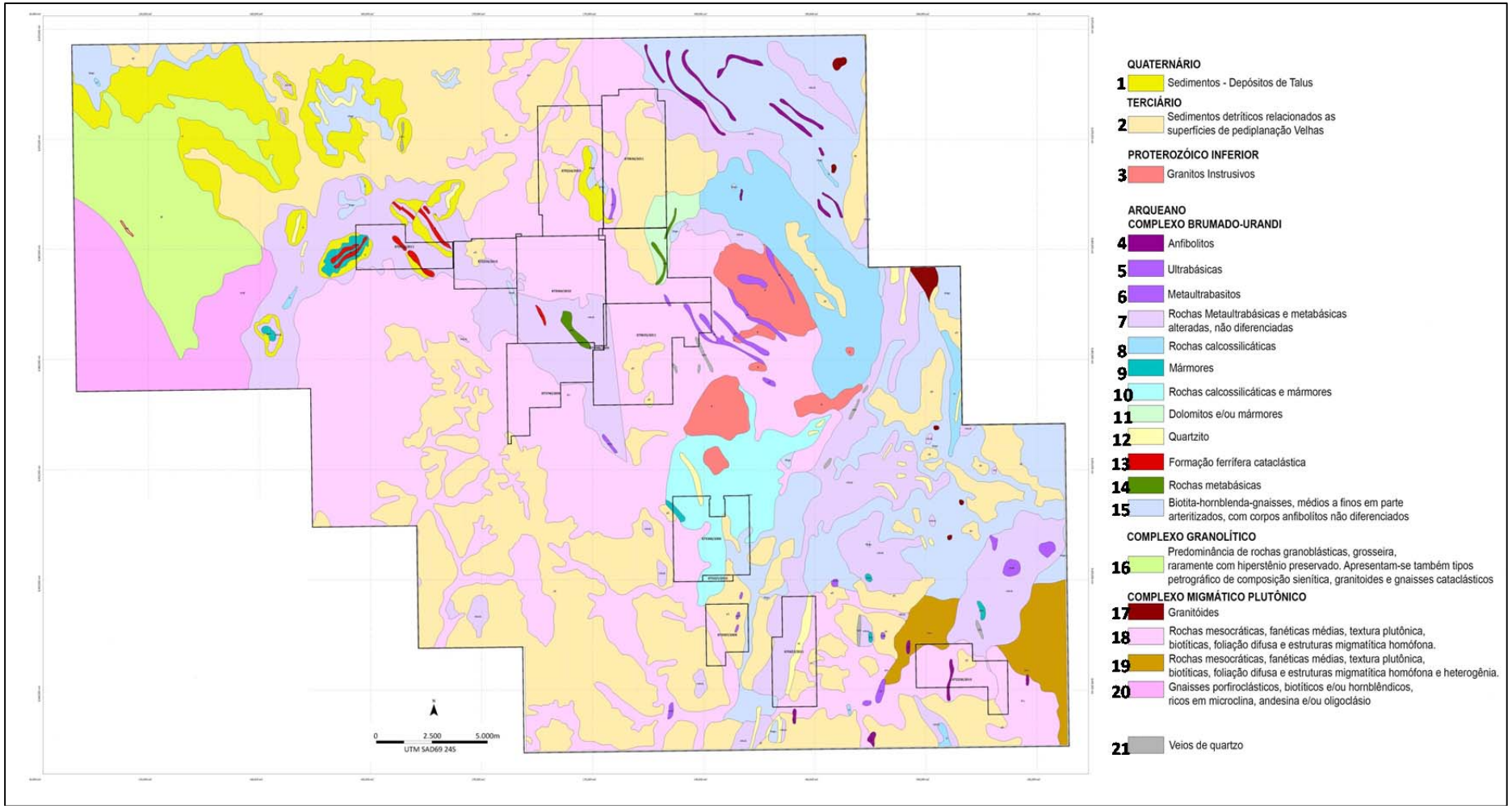


Figure 7-6: Local Geological Map

Quaternary sediments (1); Tertiary sediments (2); Inferior Proterozoic intrusive granites (3); Brumado Urandi Archean Complex: Amphibolites (4), Ultrabasic rocks (5), Meta ultrabasite rocks (6), Meta ultrabasic and meta basic rocks (7), Calc-silicate rocks (8), Marbles (9), Calc-silicate rocks and marbles (10), Dolomites and/or marbles (11), Quartzite (12), Cataclastic iron ore formation (13), Meta basic rocks (14), Biotite-hornblende-gneisses with amphibolites (15); Granulite Complex (16); Magmatic Plutonic Complex: Granitoids (17), Mesocratic rocks (18 and 19), Porphyroclastic gneisses (20); Quartz veins (21).

8 Deposit Types

The Project area is located within the Gavião block and corresponds to the basin where sediments of the Supergroup Espinhaço and the Supergroup São Francisco were deposited.

In the project area the ore appears to be associated with Algoma-type deposits, with an average content of 30% Fe, according to SFM project team.

Algoma-type iron-formations are deposits formed in volcanic arcs and spreading ridges (Gross 1996). Around the globe, iron ore deposits in Algoma-type iron-formations consist mainly of oxide and carbonate lithofacies that contain 20 to 40 % Fe as alternating layers and beds of micro- to macro-banded chert or quartz, magnetite, hematite, pyrite, pyrhotite, iron carbonates, iron silicates and manganese oxide and carbonate minerals.

The main elements were originated from hydrothermal-effusive sources and deposited in euxinic to oxidizing basin environments, in association with clastic and pelagic sediment, tuff, volcanic rocks and a variety of clay minerals.

The variety of metal constituents consistently present as minor or trace elements evidently were derived from the hydrothermal plumes and basin water and adsorbed by amorphous iron and manganese oxides and smectite clay components in the protolithic sediment. Their development and distribution along volcanic belts and deep-seated faults and rift systems was controlled mainly by tectonic rather than by biogenic or atmospheric factors.

In this type of deposits the primary controls are favourable iron-rich stratigraphic horizons with little clastic sedimentation, commonly near volcanic centres.

9 Mineralization

The concentration or predominance of certain minerals qualifies the itabirites as siliceous, limonitic, amphibolitic, dolomitic or manganesiferous. The degree of alteration determines it physical properties as being hard, medium or soft.

The Lagoa Real deposit is predominantly composed by hard highly magnetic itabirites and some other hard rocks with magnetite (e.g. magnetic amphibolite and amphibole-magnetite-schists). The main mineralized materials in the project area are colluvium, silica banded iron formation, dolomitic iron formation and amphibolitic iron formation, all presenting magnetite-rich bands.

Figure 9-1: Hard Highly Magnetic Amphibolitic Itabirites

Hardness of the mineralized material is closely related to weathering, supergene enrichment and hydrothermal alteration. These processes determined the degree of dissociation within the silica bands between the hematite layers. The Project area has predominance of hard types, commonly with Work Index around 15.

Alteration of itabirite is dependent on its exposure to weathering on outcroppings or its relationship to other geologic structures or conditions that may enhance leaching or supergene processes. Likewise, its relationship to other rocks may cause secondary contamination effects, such as dolomitic, amphibolitic or manganese enrichment during leaching processes.

The banded iron formations (BIFs) at the Project areas have dark grey to dark brown colour, with a reddish brown aspect when weathered. The most common aspect is dark bands of millimetre to centimetre thick, rich in iron minerals, which are interspersed with lighter bands, not ferruginous, consisting predominantly of quartz and / or chert. The rocks are dense, compact, magnetic, with fine-grained and subordinate medium-grained. Magnetite is the major iron oxide and can occur with hematite and martite in variable proportions.

10 Exploration

The initial studies performed by geology team of SFM were conducted at a regional scale in order to identify and select targets for detailed survey. These have included the integration of satellite image interpretation (Landsat - true color, pseudocolor), aerial geophysical surveys ("Levantamento Aerogeofísico Campo Alegre de Lourdes - Mortugaba" and "Barra da Estiva - Tremedal Projects") and regional geological reconnaissance mapping. As part of the mapping activities, rock chip samples have been collected and assayed, and presented an average content of 31.86% Fe; 49.89% SiO2; 0.28% Al2O5; 0.08% P2O5; and 0.6% LOI according to the SFM team.

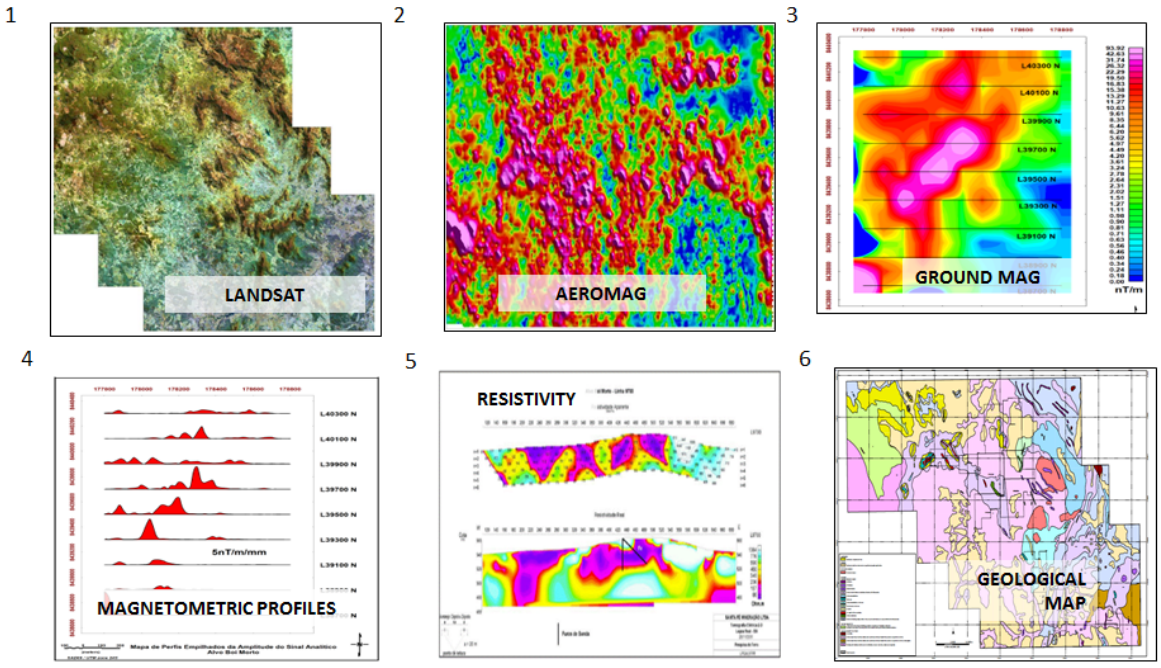


Figure 10-1: Initial Exploration Methodology

Several exploration targets have been identified (Figures 10-2 and 10-3). The most prospective ones according to SFM are Gameleira, Boi Morto, Lagoa do Sergio, Sussuarana, Capão, Canivete, Mata Pasto, Encosto and Sítio Novo. Most of these targets have been submitted to geophysical surveys, detailed mapping, rock chip sampling and exploration drilling. Table 10-1 summarizes the ground geophysical survey and diamond drilling activities.

Table 10-1: Ground Geophysics and Diamond Drilling Summary

Activity	Unit	Completed	Drilling Program in 2013
MAG GROUND SURVEY	m	169.863	
RESISTIVITY GROUND SURVEY	m	7.080	
DRILLING I	m	5.100	
DRILLING II	m		10.000

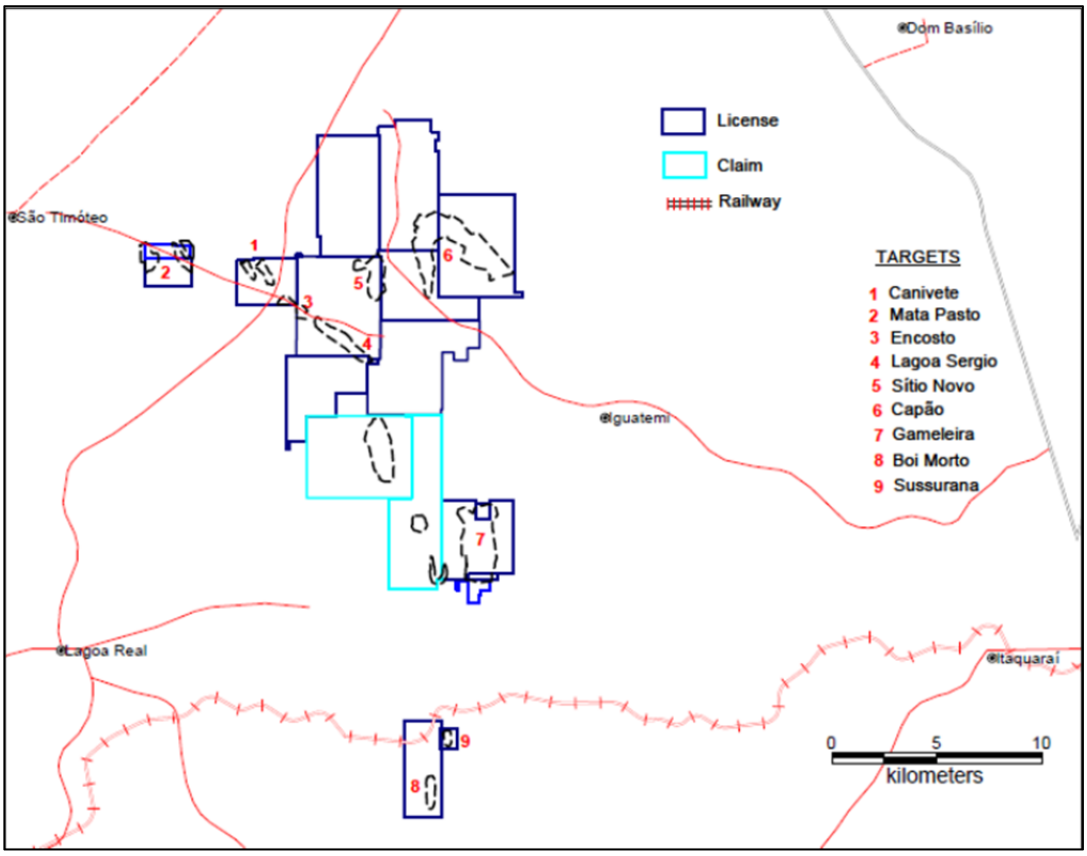


Figure 10-2: Selected Targets – First Stage of Exploration

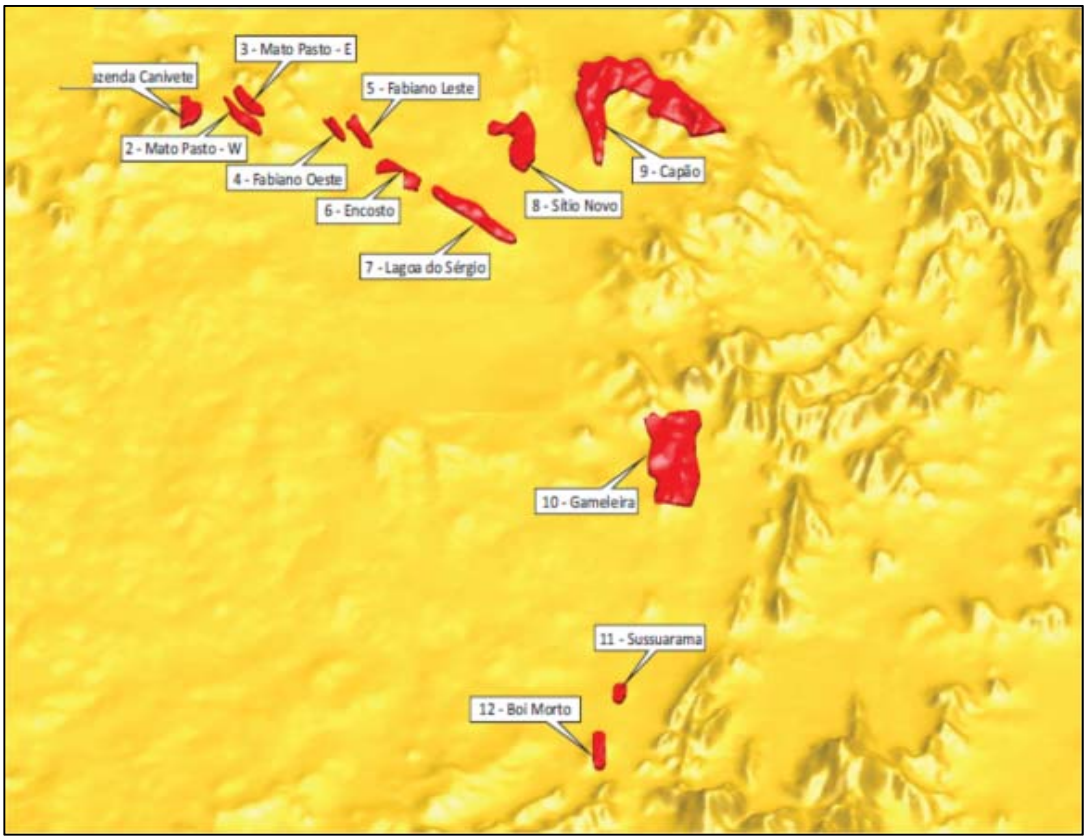


Figure 10-3: Morphology of the Selected Targets

10.1 Density

The variation of the density measurement of rocks is dependent on factors related to the genesis, chemical composition and mineralogy, porosity and percentage of water contained in the rock.

Initial density tests have been performed by the SFM project team on drill core samples utilizing the displacement volume methodology. As the preferred methodology, a SFM technician selects a 10-20 centimetre (cm) section of intact core, wraps it in plastic and returns it the core box in its original position. During logging, the core is weighed in air and submerged in water and the wet bulk density calculated. For core samples only the dry density is considered for the analysis, since the moisture is not displayed on the natural core due to water injection in the drilling process. The wrapped core is transferred to the sample preparation laboratory, dried, and the dry bulk density calculated. The core is then returned to the assay sample bag for preparation.

Preliminary results have indicated an average density value between 2.8 and 3.1 g/cm3. In order to improve its density test methodology, SFM sent a few samples to certificated laboratories to verify the accuracy of the on-site density determination values.

One of the studies has been completed by the Minas Gerais Federal University (UFMG) Laboratory using a picnometer and the dry density results obtained were the following:

- Oxidized banded iron formation – rock chip sample – Sussuarana Exploration Target – 3.52 g/cm^3;
- Banded iron formation – drill core sample – Gameleira Exploration Target – 3.33 g/cm^3.

10.2 Geophysical Survey

SFM has developed a comprehensive geophysical survey program which included the application of Magnetometry, Spectral Induced Polarization (SIP) and Resistivity methods.

Magnetometry

Geophysical magnetic surveys were conducted in eight targets: Canivete, Mata Pasto, Sítio Novo, Boi Morto, Sussuarana, Gameleira, Lagoa do Sergio and Capão.

The magnetic susceptibility is the most important physical property in magnetic surveys. For the same magnetic field, rocks and greater susceptibility structures are able to be more strongly magnetized. In some rocks it can be positive or negative direction of reflecting the intensity of magnetization with respect to the field. The units of magnetization are expressed as ranges in the CGS system or Tesla in the International System (SI).

The magnetic surveys consist of the reading of the geomagnetic field land along profiles or lines arranged perpendicular to the magnetic rocks or structures to be studied. The intensity of the geomagnetic field and other parameters such as inclination and declination magnetic vary in time and space. The magnetic data were acquired with two magnetometers, both model ENVIMAG, manufacturing Scintrex (Canada).

Spectral Induced Polarization (SIP) and Resistivity

Due to the high chargeability and low resistivity of the deposit, Spectral Induced Polarization (SIP) and Electroresistivity (ER) methods were applied in the following targets: Boi Morto, Canivete, Capão, Gameleira, Lagoa do Sérgio, Sítio Novo and Sussuarana. This survey was performed by the Laboratory of Applied Geophysical Research – UFPR. The results represent the limits of what could be iron formation geological bodies. Table 10-2 below summarizes the geophysical survey.

Table 10-2: Spectral Induced Polarization (SIP) / Resistivity Data Summary

TARGET	NUMBER OF LINES	LINES	SURVEYING (m)
Boi Morto	2	L9500, L9700	1,020
Canivete	3	L5600, L5750, L5900	1,860
Capão	9	L00, L3600, L4200, L4400, L5100, L5300, L7200, L7400, L8100	6,620
Gameleira	5	L250, L1250, L1900, L3000, L3350	4,240
Lagoa do Sérgio	15	L700, L800, L900, L1700, L1800E, L1800W, L1900, L2000E, L2000W, L2100E, L2100W, L2200, L2300, L2400, L2500	7,020
Sítio Novo	2	L3900, L4200	700
Sussuarana	8	L1600, L1700, L1800, L1900, L2000, L2100, L2200, L2400	4,060
TOTAL	**44**		**25,520**

The geophysical results per target are described below.

Capão

The Capão exploration target is the most promising and consists of three mineral rights totalling 4,696.52 hectares. Mineralization is subject to a horseshoe-shaped mountain, whose crest extends for about 8 km. The results are presented in Figures 10-4 and 10-5.

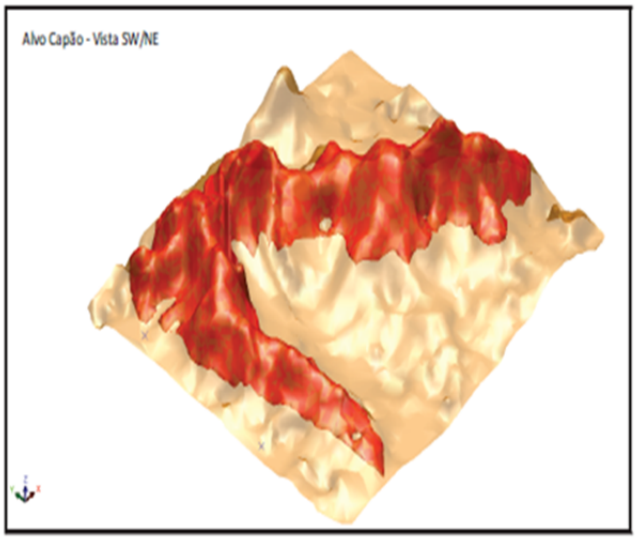


Figure 10-4: Capão Target Magnetometric 3D Interpretation

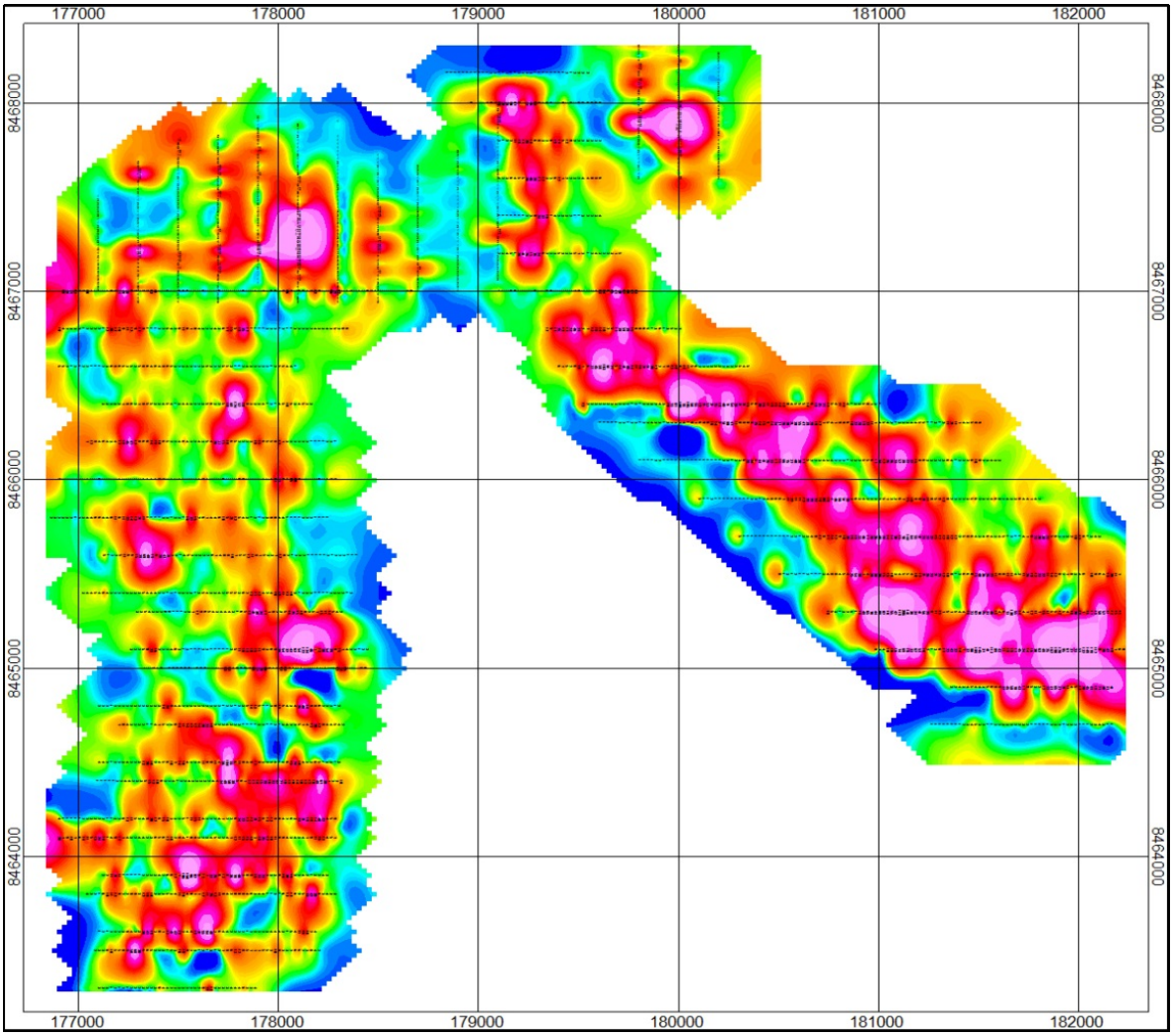


Figure 10-5: Capão Target Magnetometric Map

Gameleira

Iron ore occurs in Banded Iron Formations distributed in general NS zones of hundreds of meters long and tens of meters wide. Surface samples indicate contents of 27-34% Fe in some of the first drilling intersections. Figures 10-6 and 10-7 present the magnetometric survey results.

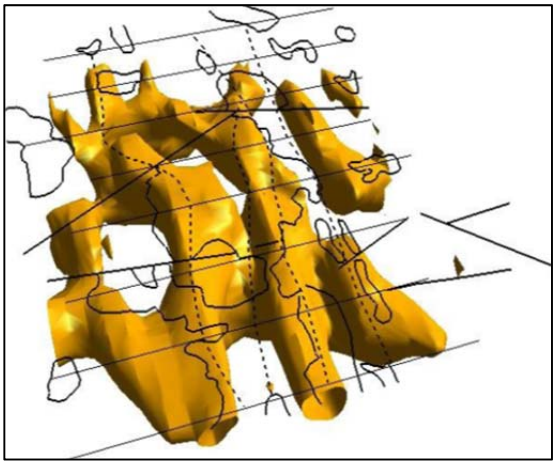


Figure 10-6: Gameleira Target Magnetometric 3D Interpretation

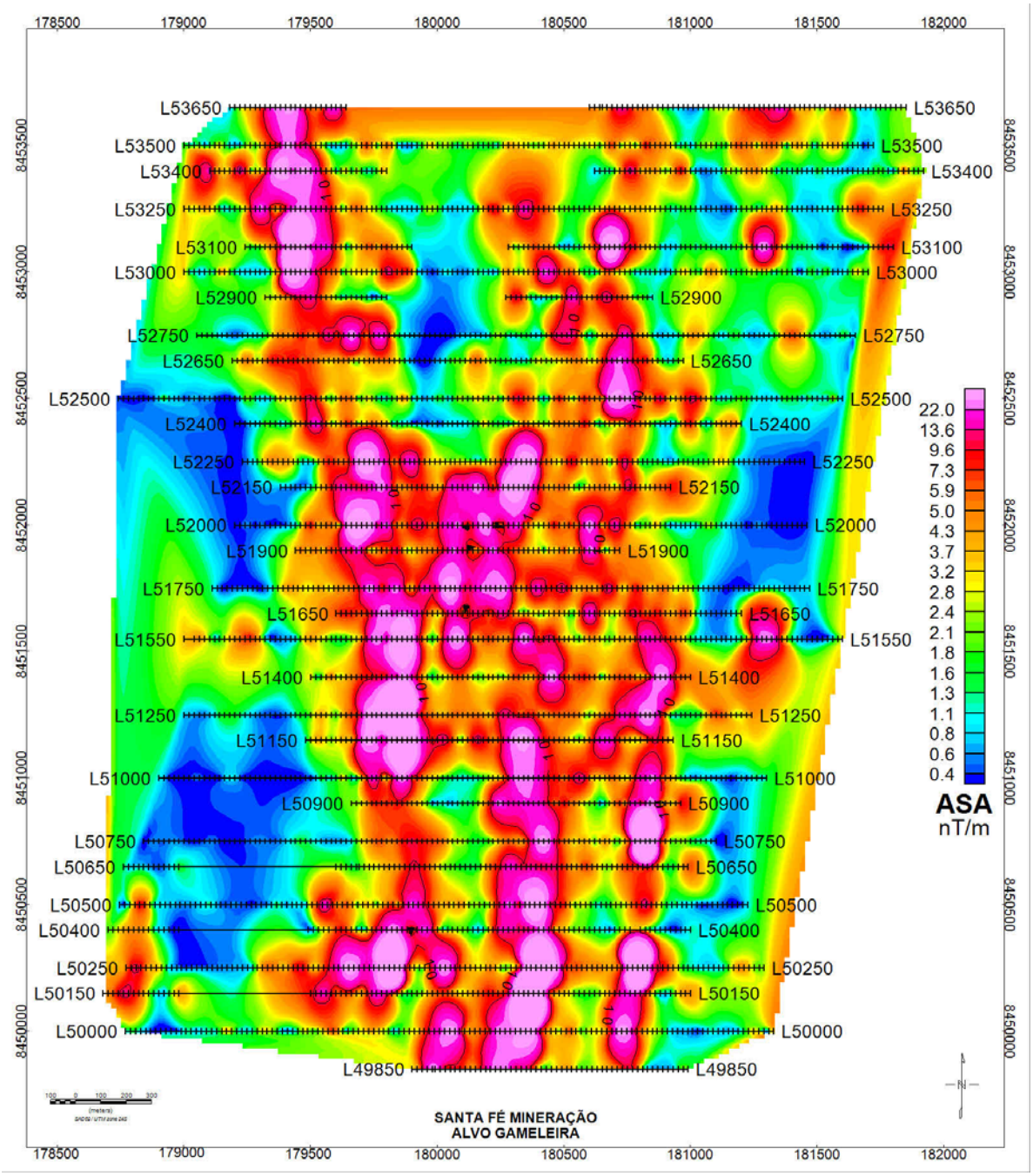


Figure 10-7: Gameleira Target Magnetometric Map

Lagoa do Sergio

In this target iron ore bodies occur within a strike of over 3 km long and 400 meters wide, with N50W direction. These bodies are intensely folded and stretched, with hundreds of meters long and widths up to 50 meters. The Magnetometric Map of the Lagoa do Sergio target is presented in Figure 10-8.

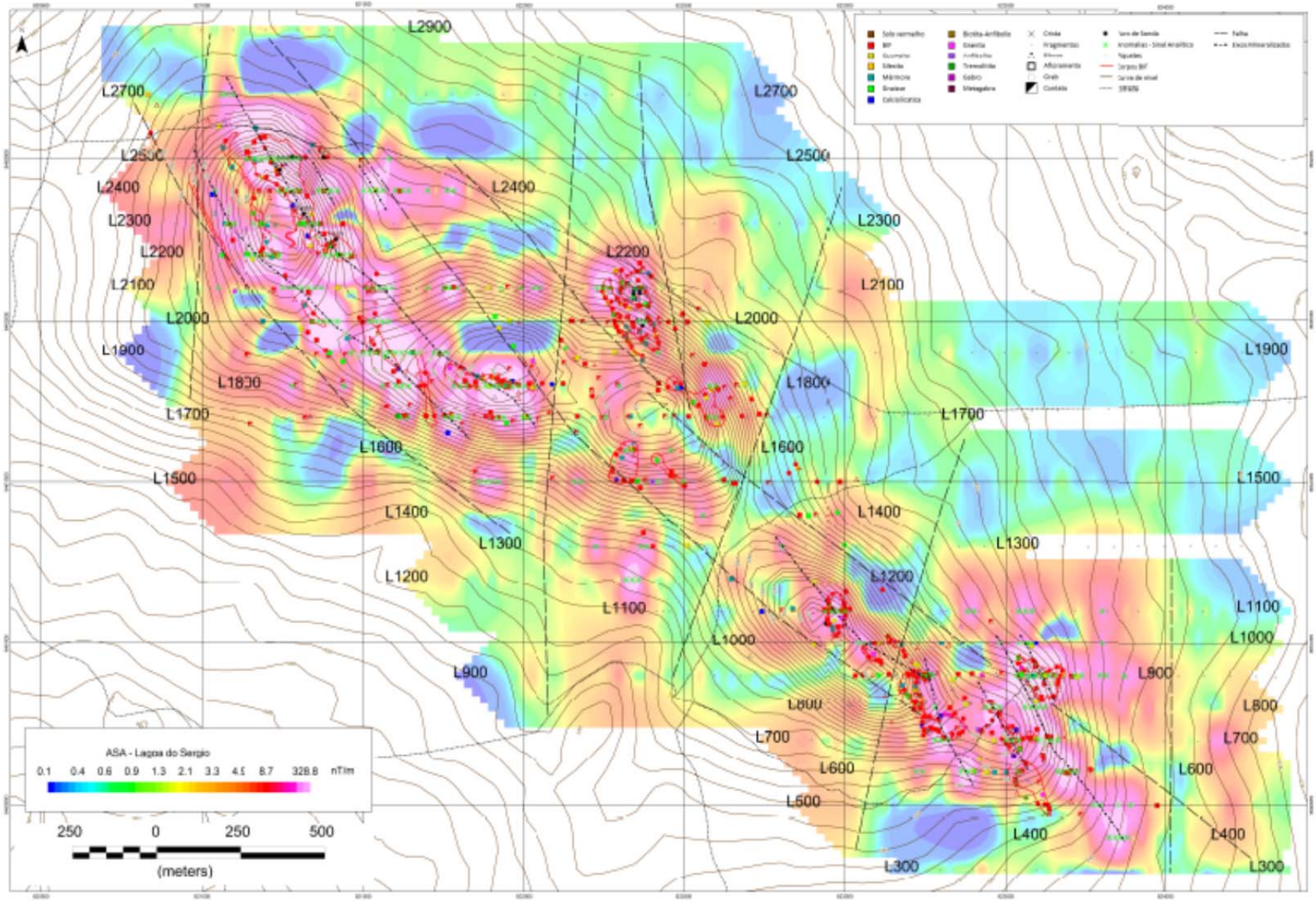


Figure 10-8: Lagoa de Sergio Target Magnetometric Map

Boi Morto

This target presents potential iron formation zones with approximately 1000m long and 150m, consisting of three bodies with variable thickness, sometimes exceeding 30 meters.

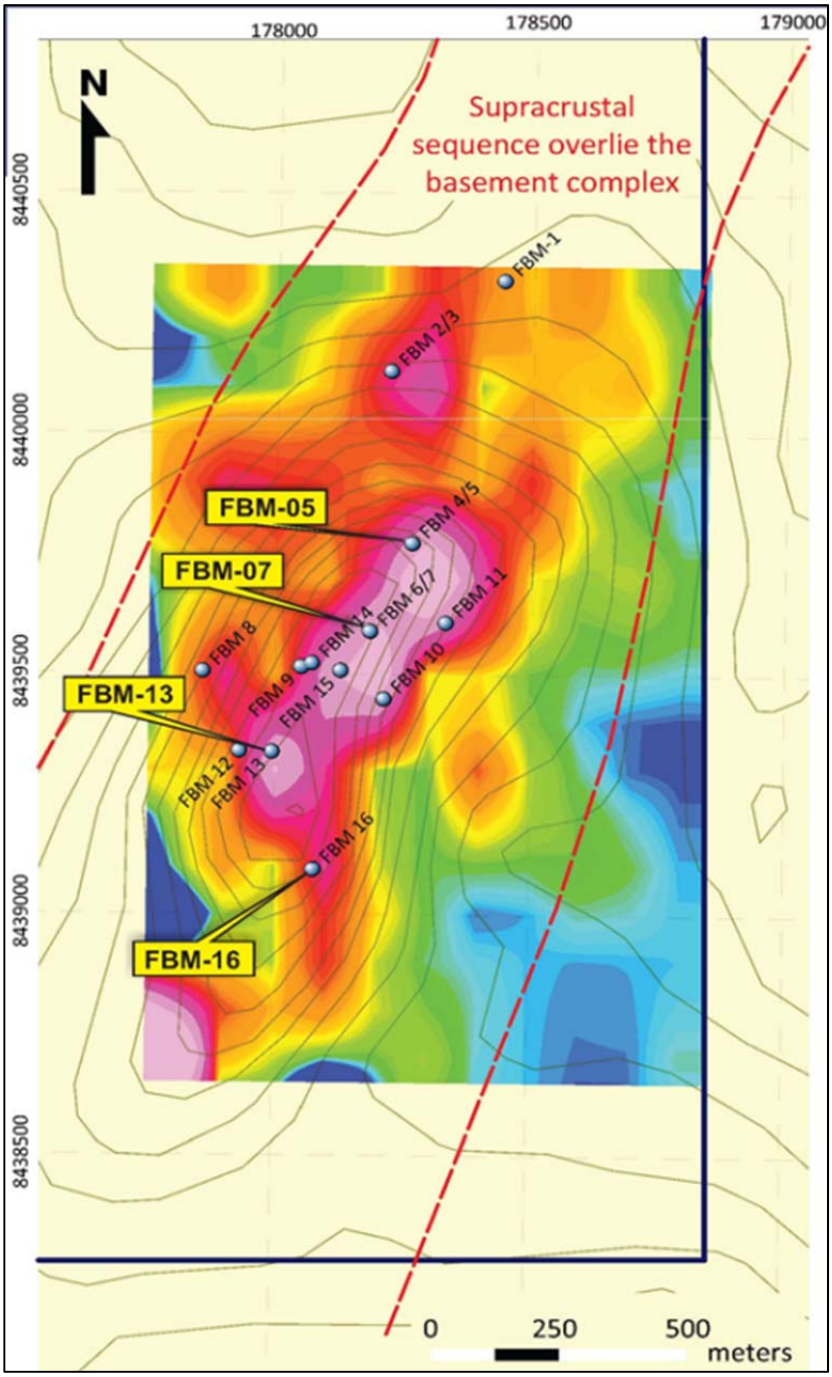


Figure 10-9: Boi Morto Target Magnetometric Map

Sussuarana

This target presents potential iron formation zones with approximately 1350m long and 350m wide as a result of the geophysical survey conducted in the area. The target consists of a main body reaching as much as 200m in width at the widest part and extending to over 1000m. Figure 10-10 below shows the Sussuarana target geophysical chargeability (resistivity) survey results.

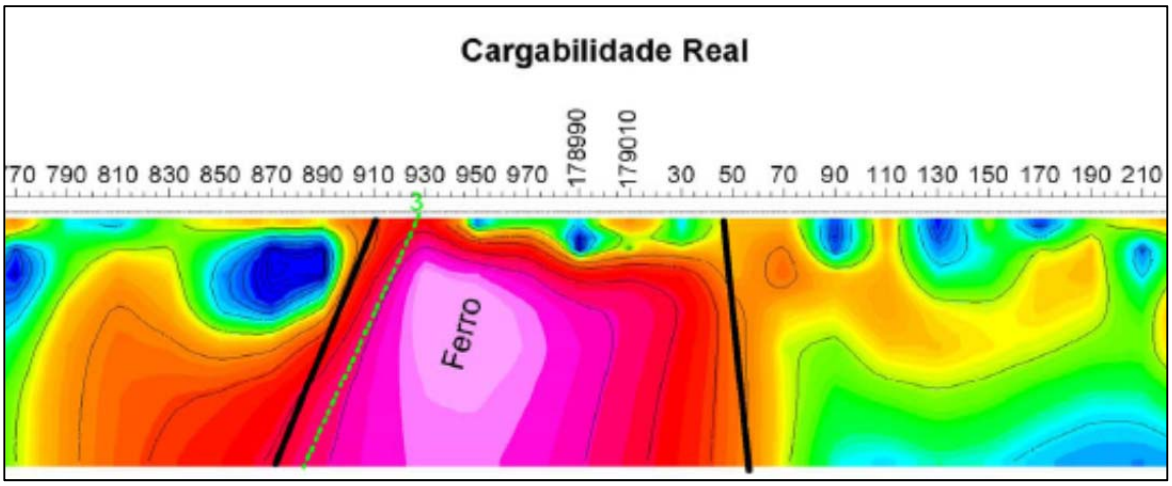


Figure 10-10: Sussuarana Target Chargeability (Resistivity) Map

10.3 Preliminary Potential Assessment based on Geophysics

A preliminary evaluation of the mineral potential of these exploration targets was performed by SFM following the methodology presented below*:

- The area of each target was determined based purely on the existing geophysical results;
- It was assumed by SFM that the mineralized material would extend 40 meters in depth;
- Solids were created and the volume calculated using the software SURPAC;
- A total mineralized material volume of 1.234.098.760 m^3 has been calculated (Table 10-3).

Table 10-3: Total Mineralized Material Volume Calculated by SFM

Santa Fé Volume - 40m depth extension		
Target	**Surface (m²)**	**Volume (m³)**
Area 1 - Fazenda Canivete	1.589.485	51.673.272
Area 2 - Mato Pasto - W	1.357.319	26.511.975
Area 3 - Mato Pasto - E	1.266.940	23.271.875
Area 4 - Encosto	1.397.765	23.500.137
Area 5 - Lagoa do Sérgio	3.455.630	77.109.951
Area 6 - Sítio Novo	3.869.488	74.198.513
Area 7 - Capão	16.042.512	649.726.448
Area 8 - Gameleira	11.280.927	269.703.181
Area 9 - Sussuarana	641.152	11.998.461
Area 10- Boi Morto	1.391.937	26.404.947
TOTAL	**42.293.155**	**1.234.098.760**

Considering an average density of 3.0 and the volume presented above SFM team has delineated an initial exploration target slightly over a billion tons of mineralized material, with a potential average grade of 30% Fe, based on the average grades obtained in rock chip samples assay results.

(*) For more details please refer to **APPENDIX A - Preliminary Assessment.**

11 Drilling

Diamond drilling in the Project area has been executed by SFM 100% own drill rigs (Figure 11-1), and focused on five exploration areas. All drill holes are HQ sized core. Most of the drill holes performed until September 2013 are inclined (45° to 70°) and did not exceed 100m of depth. However, no downhole survey measures have been collected.

The drill hole locations are first determined by the supervising geologist. The proposed collars are located in the field using a geodetic GPS L1/L2 high precision unit, in UTM SAD69 datum (Zone 23S). Drill sites are prepared taking care not to displace the collar location and the hole is drilled. Drill access is provided by the clearing of trails and drilling pads with the use of a dozer or similar equipment followed by the mobilization of drill and support vehicles.

When drilling inclined holes a line is drawn between two stakes in the azimuth direction and the drill rig is aligned with it. Drill inclination is determined by a SFM technician over the drill mandrel using a compass. Upon completion of the drill hole, drill collars are marked with permanent tags.

Figure 11-1: Diamond Drilling Conducted by SFM using its own Drill Rigs

Until the present moment, drill holes executed or in progress had the main of objective of testing the magnetic anomalies detected in ground and aerial geophysical surveys. It also tried to confirm the existence of mineralization in depth. Therefore, these drill holes have not followed a regular grid (Figure 11-2).

Table 11-1 describes some information about the drilling executed until September 2013.

Table 11-1: Exploration Drilling Completed until 15/09/2013

TARGET AREA	NUMBER OF HOLES	TOTAL LENGTH(m)	NUMBER OF SAMPLES
Gameleira	25	2,911.73	387
Boi Morto	16	1,285.09	369
Suçuarana	8	789.00	200
Capão	2	176.85	-
Lagoa do Sérgio	15	1,411.53	117
TOTAL	**66**	**6,574.20**	**1073**

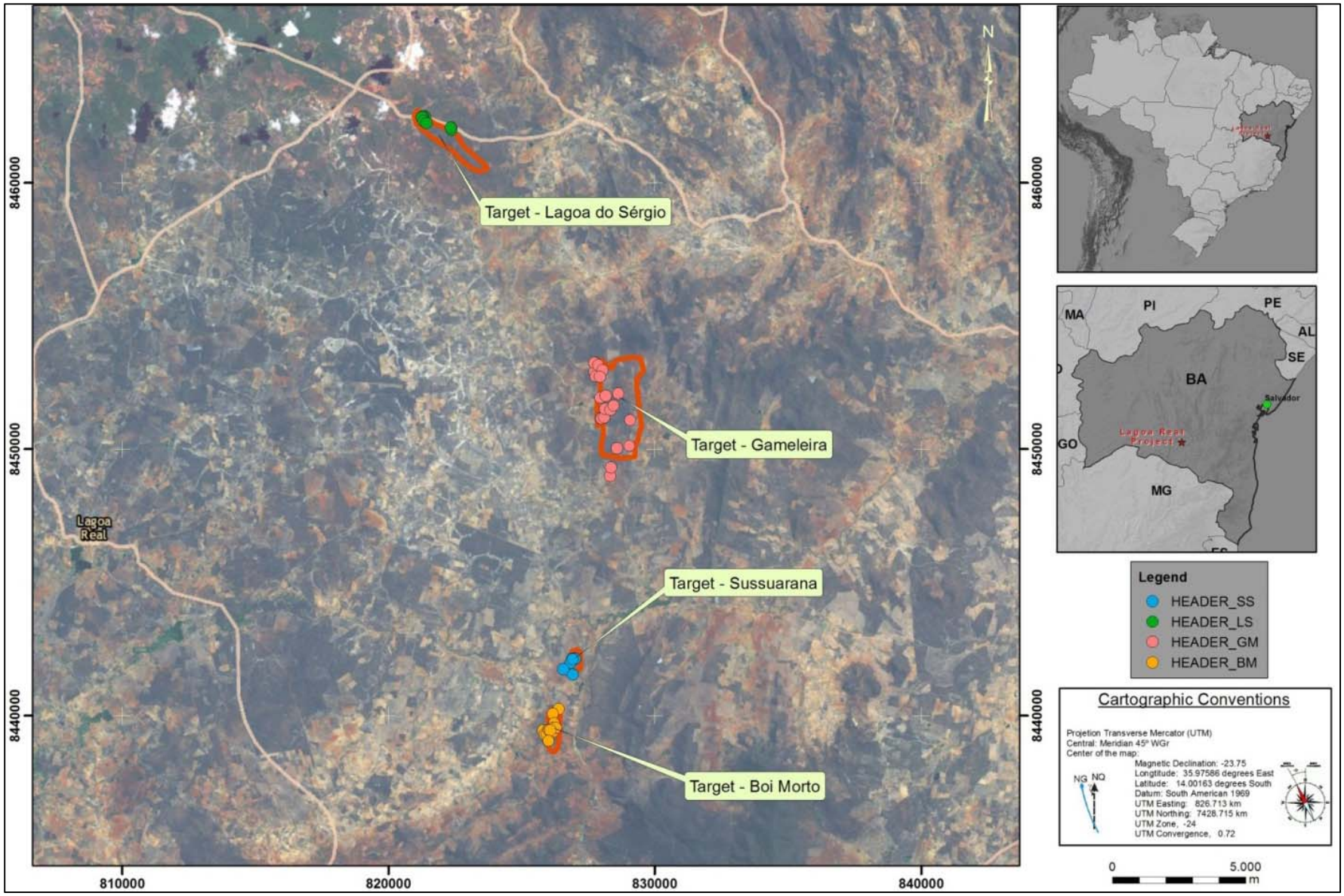


Figure 11-2: Map Showing Drilling Distribution

12 Sampling Method and Approach

12.1 Diamond Drilling

SFM has three 100% own diamond drill rigs, being two Mach FS320 Turbo and one Longyear LY38, all equipped with MWM 4-cylinder diesel engine-turbo, charged 4.10Tc/134hp @1.800 RPM and swivel head 360º with diameter ø 91.7mm. These drill rigs present the following drilling capacities, according to the drill hole diameter: HQ – 480m, NQ – 600m, HW – 430m, NW – 570m and BQ – 730m.

At the drill rig, the drill core is placed in wooden boxes and washed of all foreign material. The boxes are then transported to the logging area by an SFM technician where they are placed either in the sun or under a roof until they are completely air-dried. The drill core samples are photographed before and after sampling to record geological descriptions and sampling intervals.

Geologic logging is carried out in the core sample shed identifying the different lithotypes, geological contacts, zones of fault or fracture, ferruginous levels and zones of internal waste. This information is logged onto standardized paper log forms and later entered into an electronic database.

Core has always been logged using the SFM standard procedures, based on pre-defined codes and additional textual descriptions. According to the current protocol, the following parameters should be registered in the geological database: lithotype, mineralogy, compactness, degree of hydration, contamination, porosity, grain size, magnetism, degree of silica liberation and weathering. All structural features observed in the core have been measured and registered in the structural database.

Sampling is carried out only within the ferruginous zones and sample intervals break at all changes in ore types. Typically, the width of the entire zone is first determined and the preferred sample interval is then determined so that the majority of samples are of equal and whole meter intervals. Once the sample intervals and sample numbers are marked by the core logging geologist on the core boxes the core is halved for sampling.

Individual samples should be restricted to homogeneous lithotypes and major lithotype contacts have to be respected. Core sampling has been performed according to the following criteria:

- Standard length: 2m;
- Maximum length: 2.5m;
- Minimum length: 0.5m;
- Sample weight: at least 30kg;
- All iron formations are sampled;
- Geological domains are being respected for sampling intervals;
- Waste rocks within intercalations of < 50cm are included with the sample.
- Waste intervals > 50cm may or may not be sampled separately, as per the geologist criteria.

The competent core intervals are sawn in half with a diamond saw whereas the highly weathered ore zones are cut by hand using a knife or spatula.

Sample security is supervised by SFM personnel. Drill core is collected from drill sites, logged, sampling and shipped under the direction and control of SFM. Samples are shipped to assay laboratories in well-labeled and sealed bags.

12.2 Reverse Circulation Air Core Drilling

The iron ore exploration over the eluvial and colluvial coverage is being completed using a rented reverse circulation air core drill rig (Air Core), with a special drill for RCVG-50 driven by MWM diesel engine, 4cylinders, stationary, 75HP, fully hydraulic, with a Chicago Pneumatic air compressor, driven by MWM4-cylinder engine with a capacity of 400 cubic feet and 175 pounds of maximum working pressure. This drill can perform holes of up to 80 m deep, with 82mm diameter in Air Core and 3 ½" with hammer drill, with reverse circulation and continuous sampling.

13 Sample Preparation and Assaying

A total of 1,068 core samples have been collected, prepared and assayed. In addition, 264 rock chip samples, 6 samples for Davis Tube Recovery tests and 21 samples for metallurgical testworks have been collected and sent to external laboratories until the present moment by the SFM project team.

13.1 Sample Preparation

SFM sampling of drilling core is nominated at 2-meter lengths; however, it is controlled by lithological and core recovery boundaries, which may result in variable sample lengths.

SRK has visited the Project's core storage facilities and observed that appropriate procedures and standards are applied in the handling and storage of core and rock chip samples.

The samples physical preparation is partially done in SFM's core shed. Half-core samples are stored in plastic bags identified with tags, and then submitted to the laboratory for further physical preparation and assay. The other half-core is kept in the core box (Figure 13-1). On site physical preparation of core samples (Figure 13-2) is carried out by SFM staff and follows the SFM sample physical preparation flowchart (Figure 13-3).

One half of the core is crushed below 10 mm and riffle-splitted until a weight around 300 grams. Before the preparation of each sample, crusher and splitter (stainless steel AISI 304, "Jones" type) are cleaned with "compressed air" to prevent contamination from previous samples.

The remaining material is stored in the core shed as duplicates/reserve, with the same identification of the sample sent to the laboratory.

Each sample is packed in small bags suitable for chemical analysis, while the reserve sample is stored in reinforced plastic bags appropriate to stock large quantities.

Figure 13-1: Core Boxes and Logging

Figure 13-2: Core Box

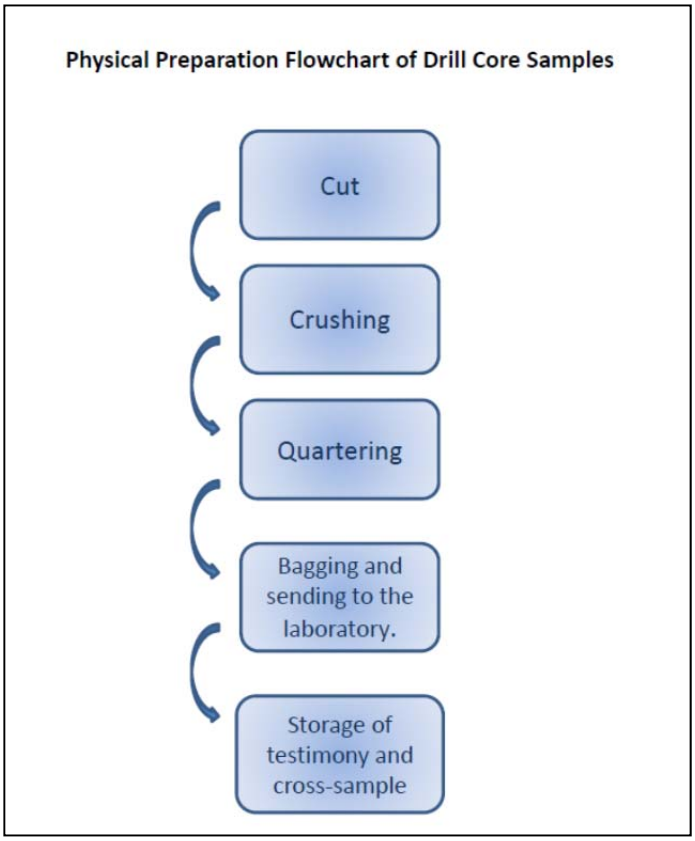


Figure 13-3: On-site Drill Core Samples Physical Preparation Flowchart

13.2 Assay

Assay is being performed by ACME Labs Analytical Laboratory in Vespasiano city, Minas Gerais State, Brazil. The following elements are being analysed: Al2O3%, Ba ppm, CaO%, Cr2O3%, Fe2O3%, K2O%, LOI%, MgO%, MnO%, Na2O, Nb ppm, Ni ppm, P2O5 %, Sc ppm, SiO2 %, Sr ppm, TiO2%, Y ppm, Zr ppm. The method of analysis and detection limits of ACME Brazil laboratory is presented in Table 13-1.

SFM has contracted SGS-Geosol also in Vespasiano-MG as the secondary analytical laboratory for cross validation of the assay results obtained by ACME. ACME 4A02 analytical method consists on the analyses by ICP (Inductively Coupled Plasma-Atomic Emission Spectrometer) of 21 elements and loss on ignition (LOI).

Table 13-1: Analysis Method and Detection Limits of ACME Brazil Laboratory

METHOD	ELEMENT	UNIT	DETECTION LIMIT
4 A 02	Al_2O_3	%	0.01
4 A 02	Ba	ppm	5
4 A 02	CaO	%	0.01
4 A 02	Cr_2O_3	%	0.002
4 A 02	Fe_2O_3	%	0.04
4 A 02	K_2O	%	0.01
4 A 02	LOI	%	-5.1
4 A 02	MgO	%	0.01
4 A 02	MnO	%	0.01
4 A 02	Na_2O	%	0.01
4 A 02	Nb	ppm	5
4 A 02	Ni	ppm	20
4 A 02	P_2O_5	%	0.01
4 A 02	Sc	ppm	1
4 A 02	SiO_2	%	0.01
4 A 02	Sr	ppm	2
4 A 02	TiO_2	%	0.01
4 A 02	Y	ppm	3
4 A 02	Zr	ppm	5

13.3 Quality Control / Quality Assurance Program

SFM has instituted QA/QC procedures to ensure the integrity of the drill core sample analyses.

SFM has followed a QA/QC protocol that considers the use of twin samples (2%), blanks (2%), coarse duplicate (2%), pulp duplicate (2%), standard pulp (4%) and standard coarse (2%). Additionally, 4% cross-check samples are submitted to SGS, the secondary laboratory. Table 13-2 shows the control samples frequency (every 100 samples).

Table 13-2: Summary of the Analytical Quality Control Data Produced by SFM

Santa Fé Mineração Ltda. QA-QC PROTOCOL FOR CORE SAMPLING							
1	**Blank**	26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5	**Standard Pulp**	30		55		80	
6	**Standard Coarse**	31		56		**81**	**Coarse Duplicate (80)**
7		32		57		82	
8		33		58		83	
9		34		59		84	
10	**Cross-checks**	**35**	**Standard Pulp**	**60**	**Cross-checks**	**85**	**Cross-checks**
11		**36**	**Cross-checks**	61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		**65**	**Standard Pulp**	90	
16		**41**	**Pulp Duplicate (40)**	**66**	**Standard Coarse**	**91**	**Pulp Duplicate (90)**
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		**95**	**Standard Pulp**
21	**Coarse Duplicate (20)**	46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		**50**	**Blank**	75		100	

The following items summarize SRK's QA/QC program review and comments.

13.3.1 BLANKS

The blank (clean sample) is used to evaluate the possible swaps and contamination of samples during the preparation process of physical and chemical analyses.

The data reviewed by SRK indicates blank samples do not present significant differences when compared with the average results from laboratory. All analyzed elements indicated absence of contamination and / or sample swap.

Figures 13-4 and 13-5 correspond to the blank assay results for Fe2O3% and SiO2% from the Boi Morto target samples.

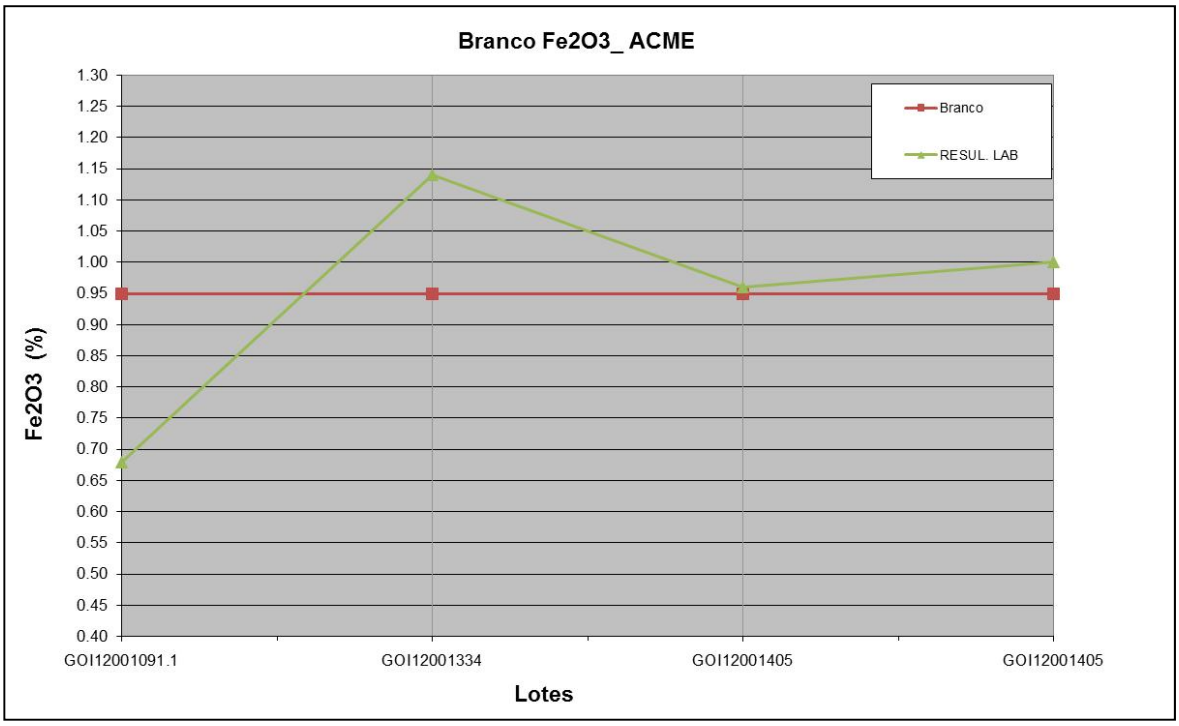


Figure 13-4: Blank Samples from Boi Morto Target (Fe_2O_3)

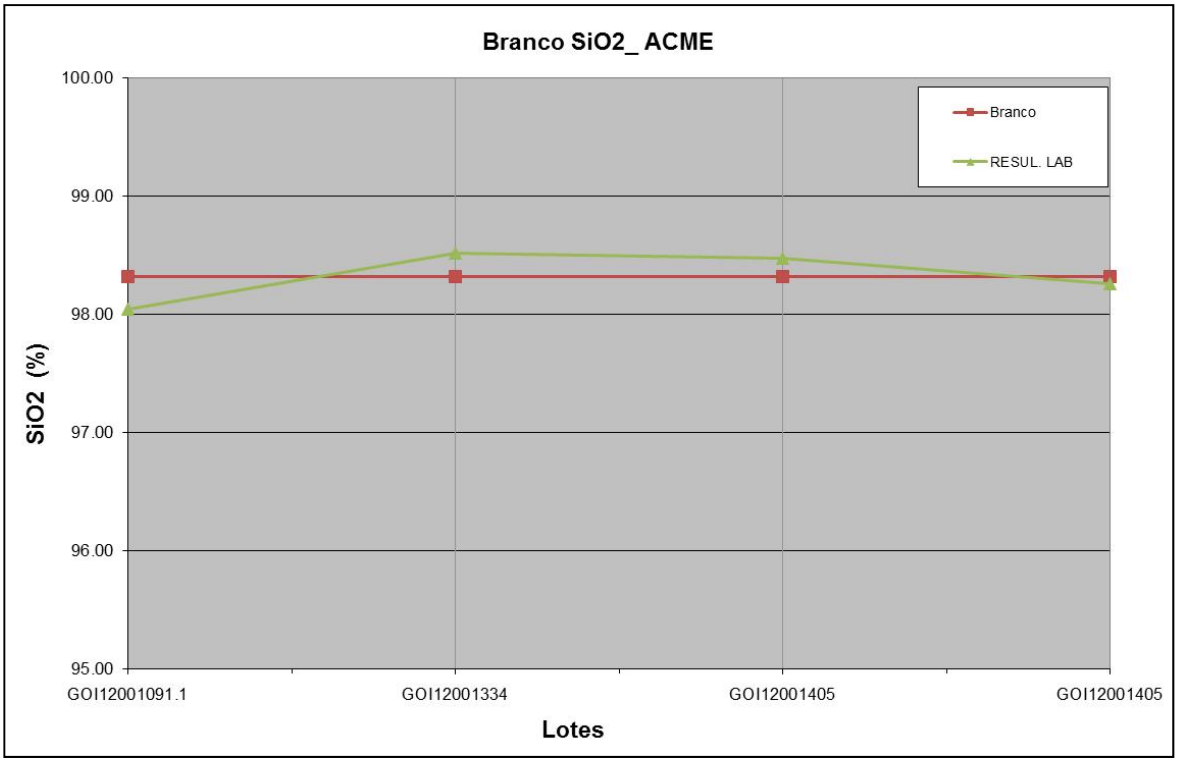


Figure 13-5: Blank Samples from Boi Morto Target (SiO_2)

13.3.2 COARSE DUPLICATES

Coarse duplicate samples are inserted in order to evaluate the physical preparation process.

This study comprised the comparison of chemical analyses results of original samples and its respective duplicates of crushed material.

In general, the graphs show a good correlation between the original samples and the duplicates.

Figures 13-6 and 13-7 correspond to coarse duplicates assay results (Fe2O3 and SiO2) from the Boi Morto target samples.

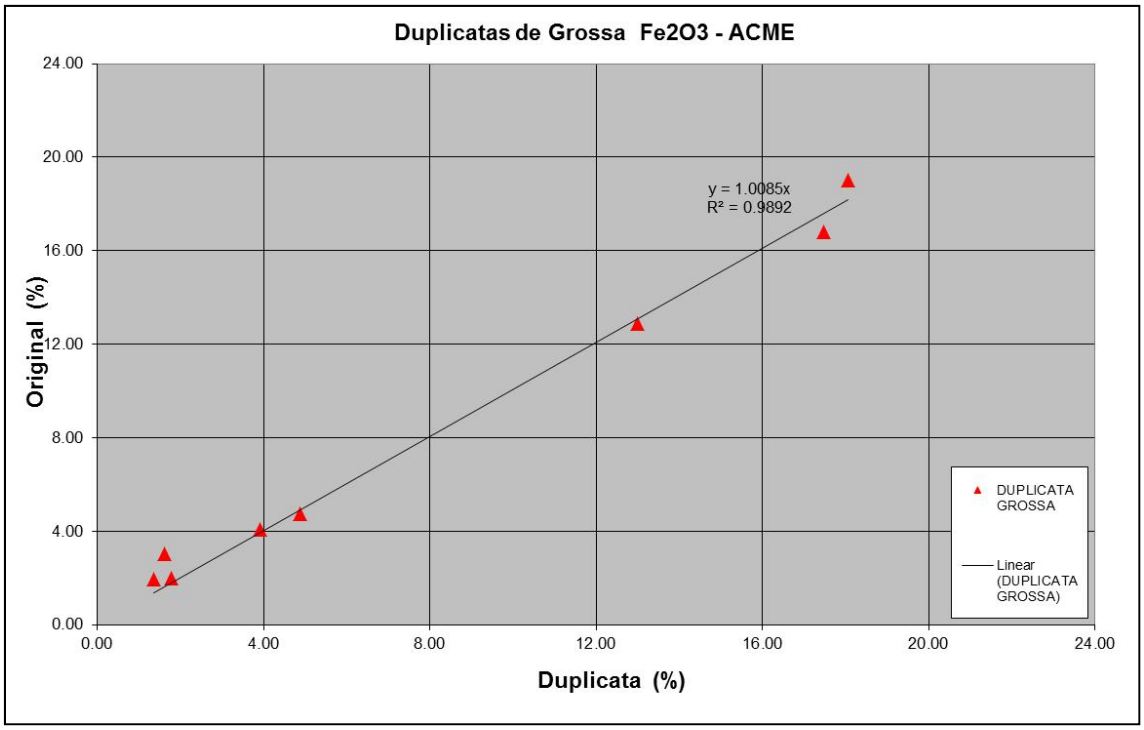


Figure 13-6: Coarse Duplicate Assay Results from Boi Morto Target Samples (Fe_2O_3)

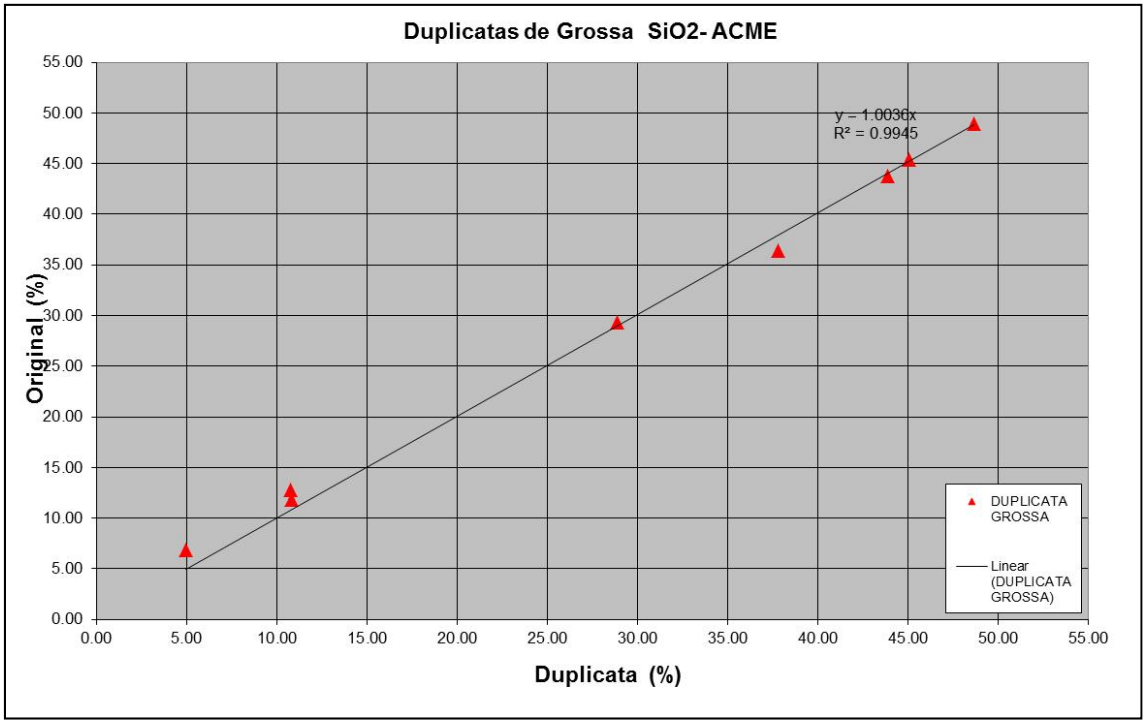


Figure 13-7: Coarse Duplicate Assay Results from Boi Morto Target Samples (SiO_2)

13.3.3 PULP DUPLICATES

Coarse duplicate samples are inserted in order to evaluate the analytical precision of the laboratory.

SRK has compared the original samples assay results with its pulp duplicates.

In general, the graphs showed a good correlation between the original samples and the pulp duplicates.

Figures 13-8 and 13-9 correspond to pulp duplicate assay results (Fe2O3 and SiO2) from Boi Morto Target samples.

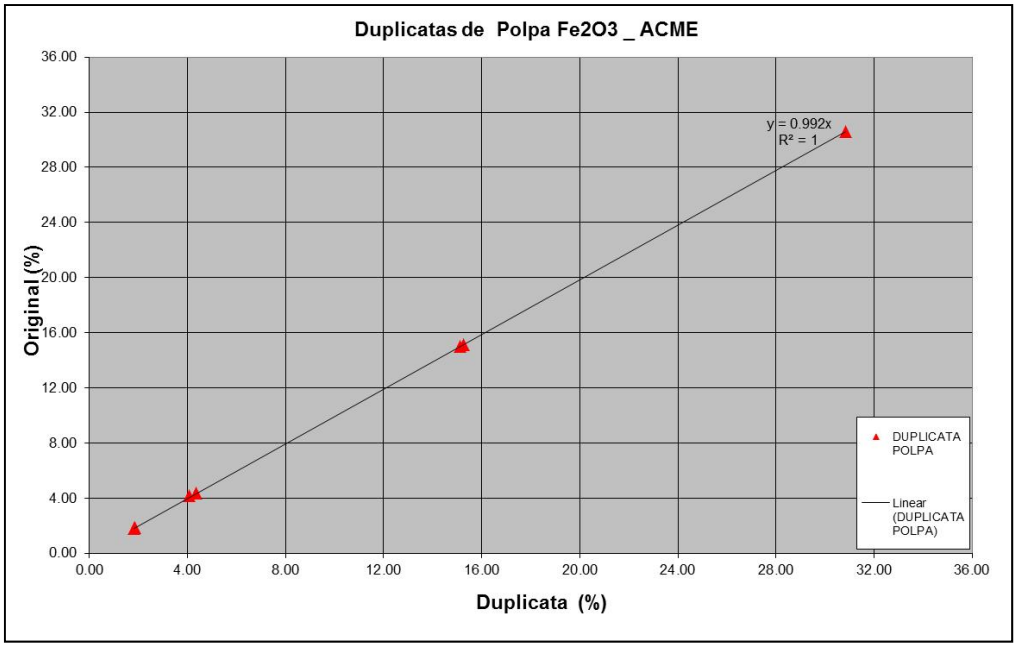


Figure 13-8: Pulp Duplicate Assay Results from Boi Morto Target Samples (Fe_2O_3)

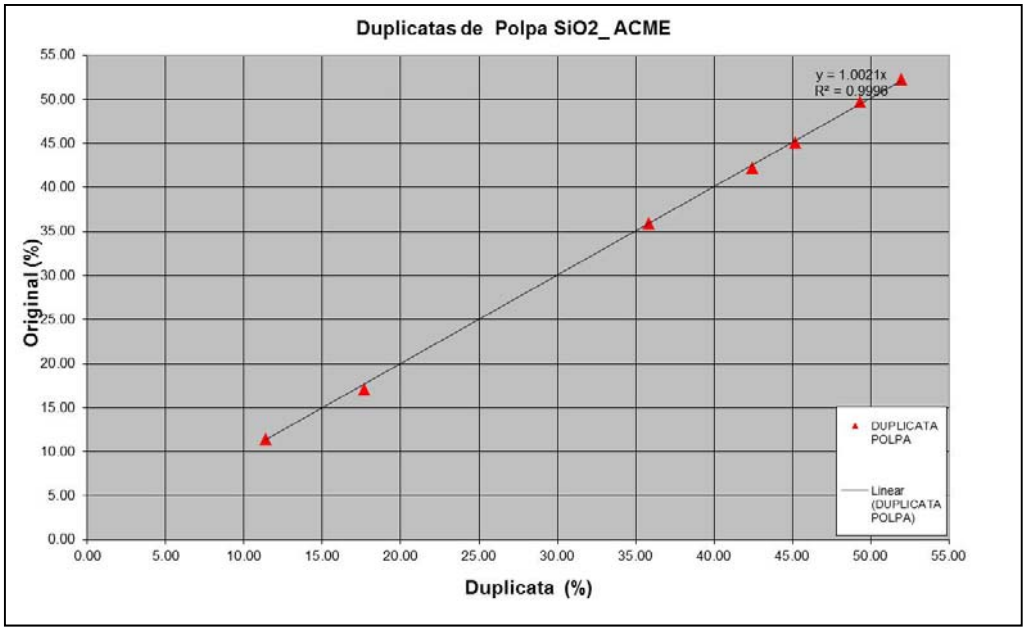


Figure 13-9: Pulp Duplicate Assay Results from Boi Morto Target Samples (SiO_2)

13.3.4 PULP STANDARD

A certified pulp standard (ITAK 017 CRM) has been sent to the laboratory along with the sample batches in order to evaluate the accuracy of analytical results presented by ACME.

In some cases the laboratory provided grades below and above of the mean value of the certified standard, indicating the absence of significant bias, although slightly negative.

SRK does not consider this a major flaw but a reanalysis of 5-10% of the samples with non-compliant results is recommended.

Figures 13-10 and 13-11 correspond to comparative analyzes between pulp standard samples and assay results from the laboratory (Fe2O3 and SiO2) from Boi Morto Target samples.

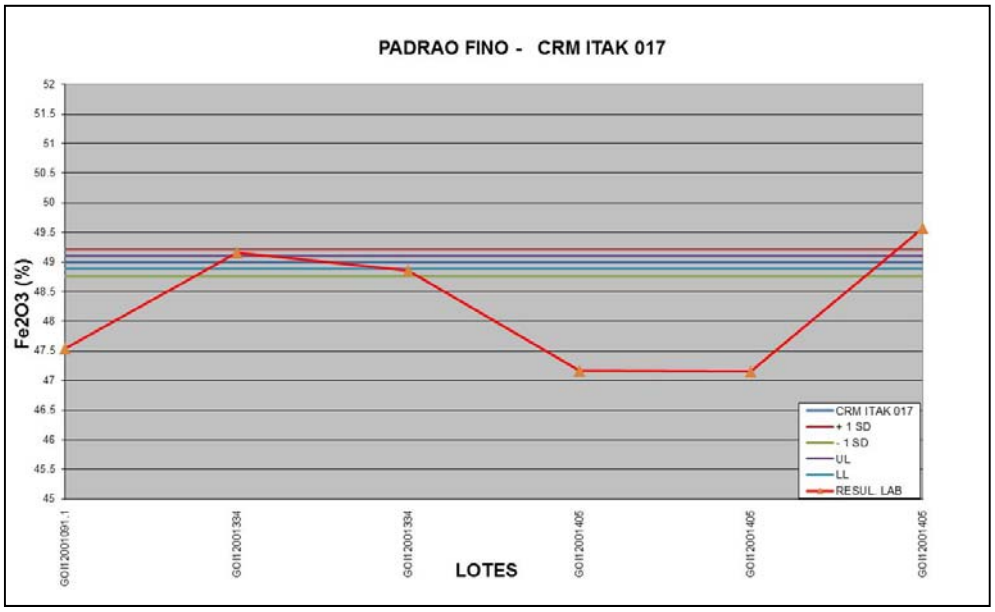


Figure 13-10: Pulp Standard Assay Results from Boi Morto Target Samples (Fe_2O_3)

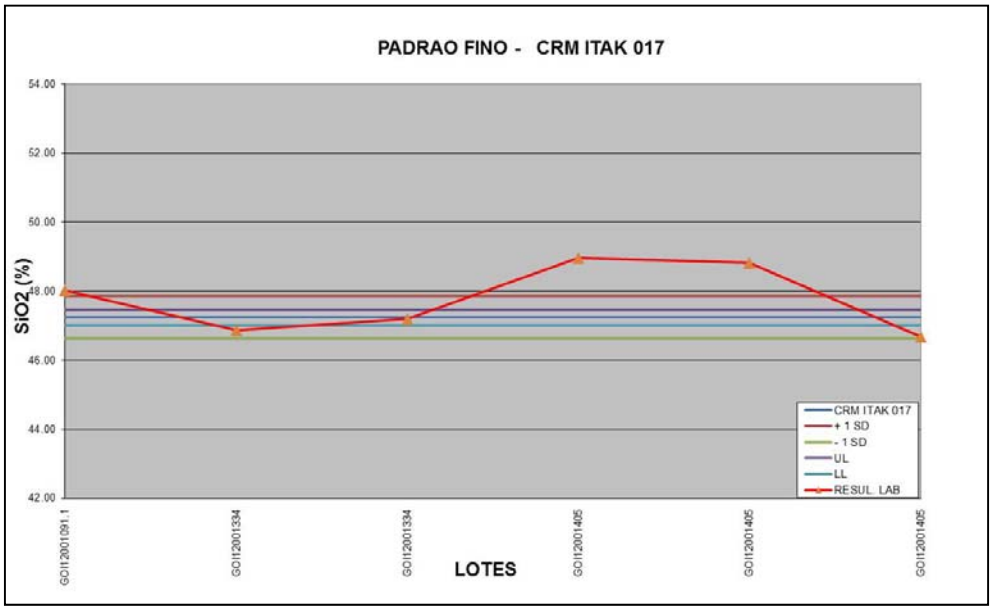


Figure 13-11: Pulp Standard Assay Results from Boi Morto Target Samples (SiO_2)

13.3.5 COARSE STANDARD

Non certified coarse standard material has been sent to the laboratory along with the sample batches. Due to this fact, SRK has only considered these assay results as a reference for plotting graph statistics (average, lower limit and upper limit) between the sample results.

In some cases the laboratory provided grades below and above of the mean value of the standard, indicating the absence of significant bias. However, a low number of samples have been analyzed.

Figures 13-12 and 13-13 show the results of comparative analyzes between coarse standard assay results and the assay results from the laboratory (Fe2O3 and SiO2) from Boi Morto Target samples.

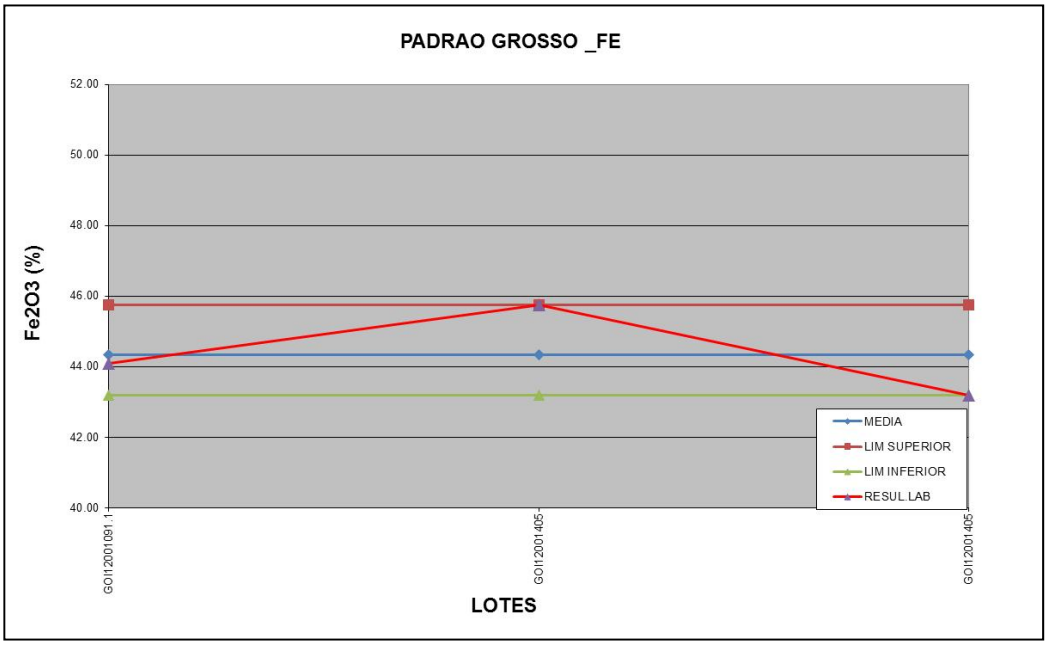


Figure 13-12: Coarse Standard Assay Results from Boi Morto Target Samples (Fe_2O_3)

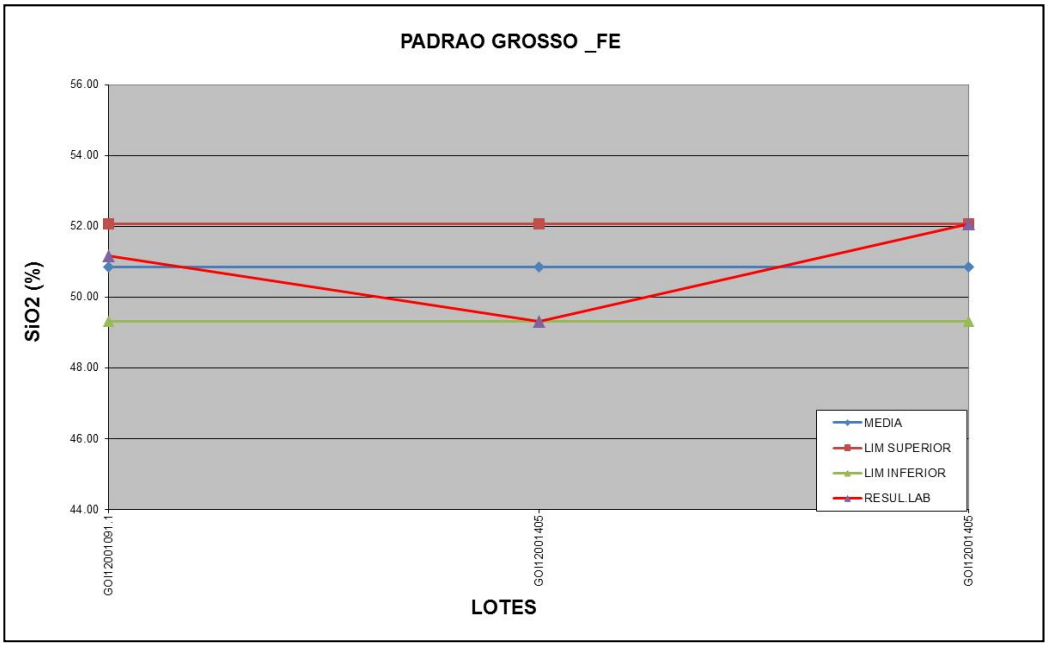


Figure 13-13: Coarse Standard Assay Results from Boi Morto Target Samples (SiO_2)

13.3.6 CROSS-CHECKS

Cross-checks samples are being submitted to SGS, the secondary laboratory. The main purpose is to verify the analytical precision in terms of physical preparation results repeatability and assay results of primary laboratory (ACME) when compared with the second laboratory (SGS).

The comparison shows good correlation between SGS and ACME results.

Figures 13-14 and 13-15 show the comparative analysis between the assay results obtained by ACME and SGS (Fe2O3 and SiO2) from the Boi Morto Target samples.

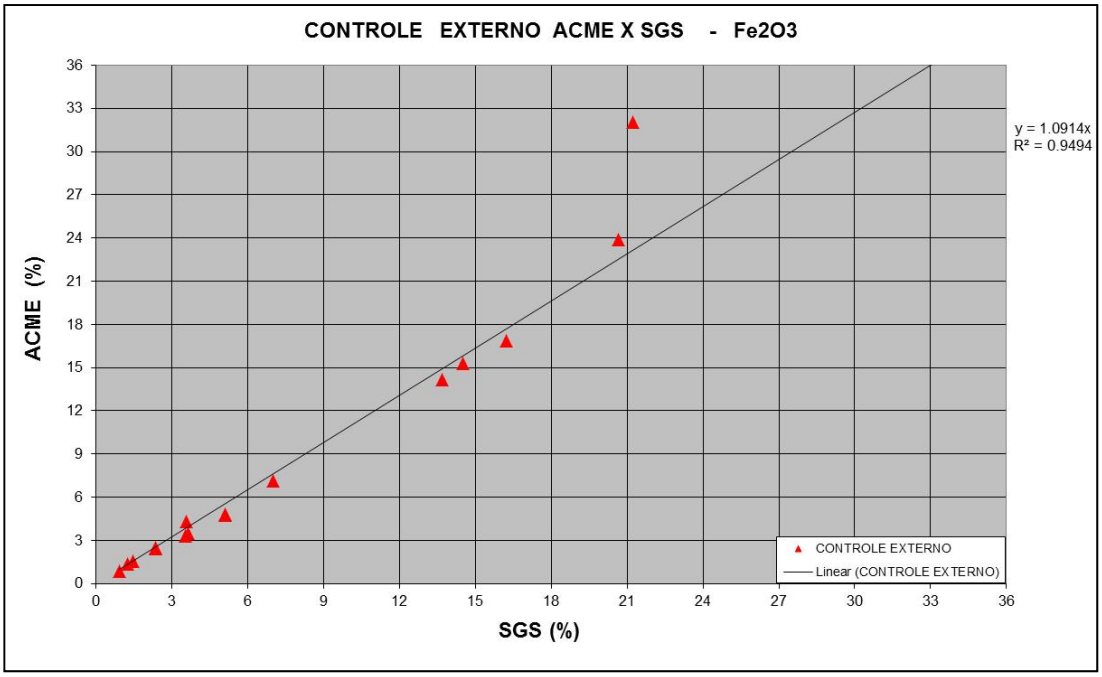


Figure 13-14: Primary Laboratory vs Secondary Laboratory Check (Fe_2O_3)

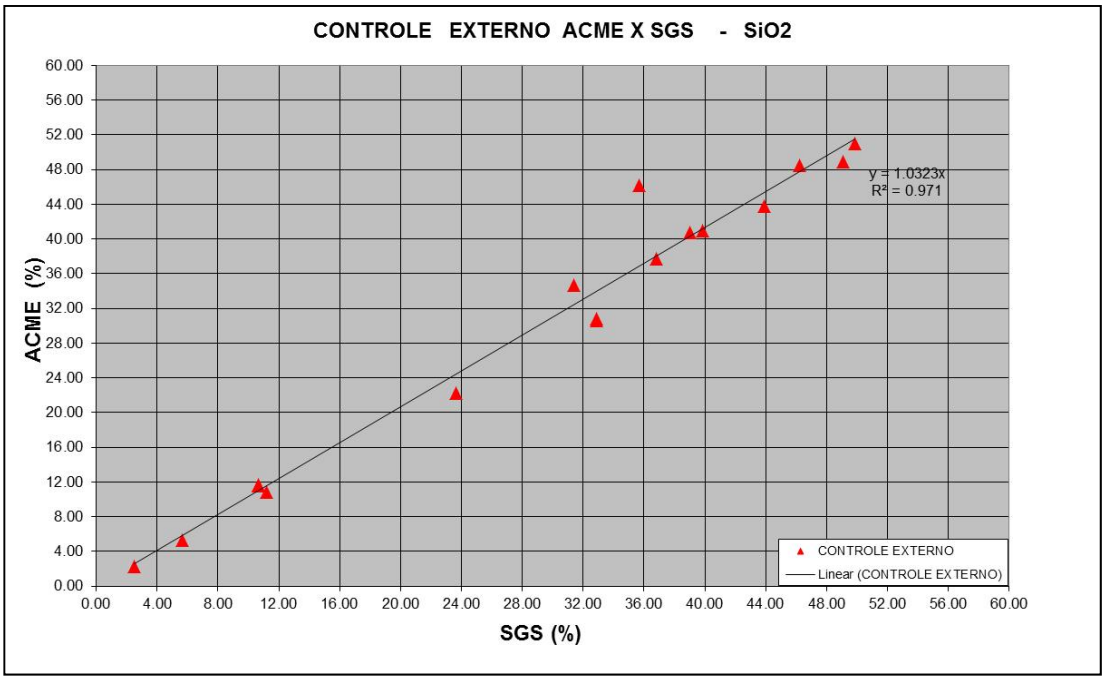


Figure 13-15: Primary Laboratory vs Secondary Laboratory Check (SiO_2)

SRK believes that the data should be better organized and has proposed a consistent directory to insert the data on the Project and some procedures for formatting the tables (header, survey, assay and litho).

In SRK´s opinion, the QA/QC program of SFM is being implemented with a level of acceptable consistency.

14 Data Verification

The data is received from the laboratory as electronic files and as hard copies of the assay certificates. The data is entered into Excel spreadsheets with four sheets for collar coordinates, assays, downhole surveys and lithologic information. The laboratory certificates are received as hard copies.

SRK performed checks on the data against the assay certificates. SRK also checked the drillhole collars against the database and also reviewed selected lithologic intervals against the core photos and drill lots.

SRK did not independently collect samples for assay because the rock shows obvious mineralization and the database samples have undergone extensive assaying and check assaying.

15 Adjacent Properties

The Project is located in a geological prospective region for iron ore, with potential to be a new iron ore district in Brazil, as presented in Figure 15-1 below.

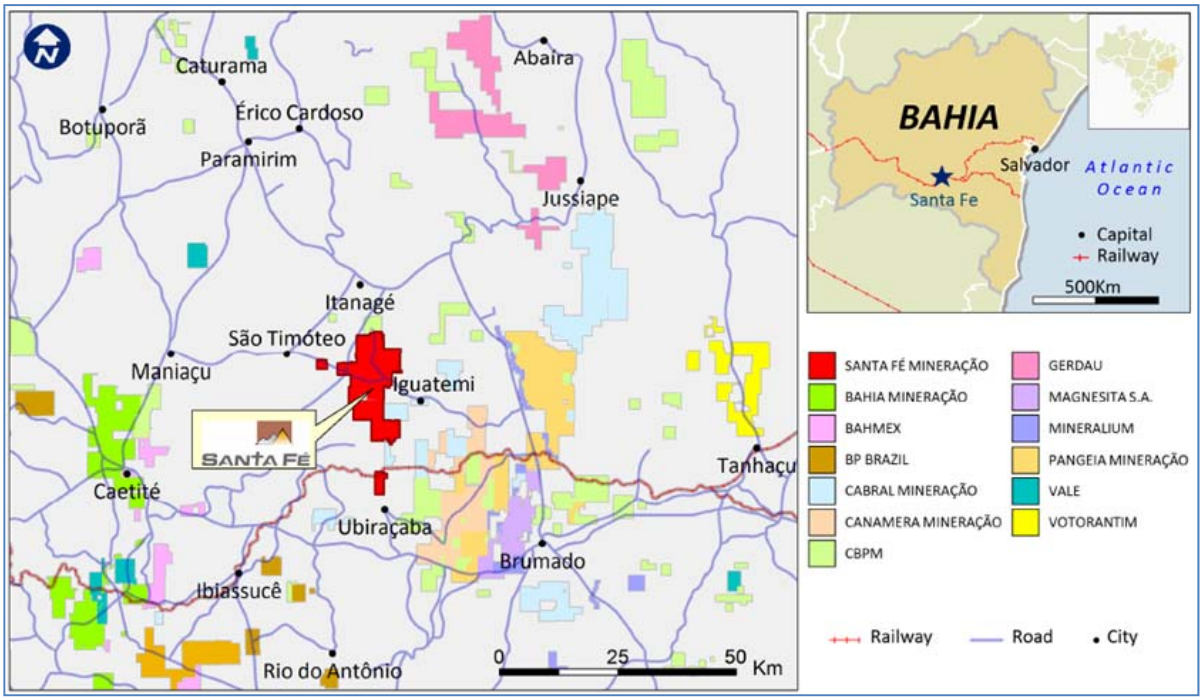


Figure 15-1: Adjacent Properties Map

The Australian Junior Company Cabral Resources is almost adjacent to SFM's Lagoa Real Iron Ore Project. Bahia Mineração (BAMIN) is controlled by ENRC (a Kazakhstani Company) and has production targets of 20 million metric tons of iron ore per year. BAMIN is located approximately 50km west of the Lagoa Real Iron Ore Project.

16 Metallurgy

A brief review of the metallurgical testing for the development of the Lagoa Real Iron Ore Project is presented here. Three Brazilian laboratories were commissioned to carry out tests on samples collected from targets of the area in the municipalities of Livramento de Nossa Senhora, Brumado and Lagoa Real, in the southwest of Bahia State, Brazil. They are Nomos, UFMG Mining Department and Fundação Gorceix. There are also some minor works performed in Minnesota, USA by the company Magnetation.

16.1 Nomos Laboratory

A composite surface sample identified as 10619, collected at Gameleira, Sussuarana and Boi Morto targets, was subjected to gravity and magnetic separation tests. The sample was crushed to minus 1/4" and ground to minus 65 # (0.21 mm) and then treated on a shaking table and later in wet high intensity magnetic separation (WHIMS) devices. Testing results are presented in Figure 16-1 as follows.

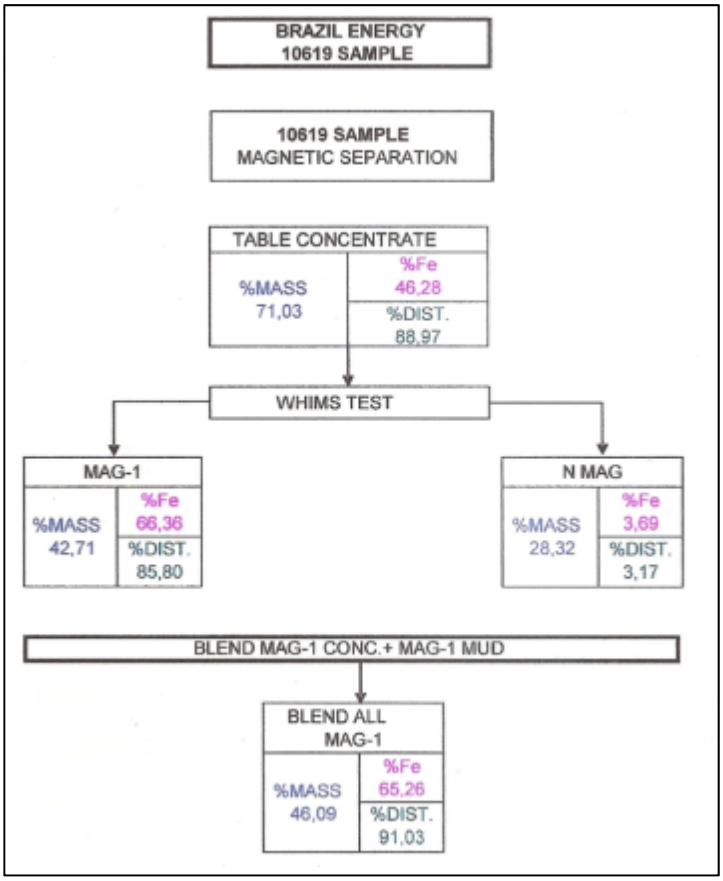


Figure 16-1: Nomos Laboratory Results

Source: NOMOS – 'Brazil Energy 10619 Sample Report – Slightly Magnetic Sample (Itabirite-Hematite)'

The feed to the table assayed 24.43% Fe. Results are good showing a final concentrate with 65.26% Fe grade and a Fe recovery of 91.03%.

16.2 UFMG Laboratory

A composite sample from the Gameleira target was subjected to the following tests: mineralogical characterization, chemical analysis, Bond Work Index, liberation degree, flotation and low and high intensity magnetic separation. Semi-quantitative mineralogical analysis by X-ray diffraction (DRX) indicated that the sample is essentially composed of Magnetite (Fe3O4), Hematite (Fe2O3), Quartz (SiO2), Amphibolites (Grunerite) (Fe6,2Mg0,8Si8O22(OH)1,5F0,5). Bond Work Index for the sample was determined to be 15.4 kWh/st at 75 µm. Liberation degree studies showed that the sample is liberated below 75 µm.

Flotation tests did not provide a final concentrate with adequate quality. Concentrate Fe grades varied from 38% to 46%, which is considered very low. Flotation tests were carried out with reagents normally used in Brazil to remove quartz from the iron oxides. Those reagents are not suitable to remove silicates.

Magnetic separation tests consisted of LIMS (low intensity magnetic separation) in three stages and WHIMS (wet high intensity magnetic separation) on the LIMS rougher tails in three stages.

Magnetic separation results are presented in Table 16-1 below. Results show that quality can be reached at the LIMS (low intensity magnetic separation) portion of the flowsheet but at low Fe recovery.

Table 16-1: Magnetic Separation Results

					Recuperação do Circuito		Recuperação etapa		Teor											
			Campo		Massa	Fe	Massa	Fe	Fe	SiO_2	Al_2O_3	P	Mn	TiO_2	CaO	MgO	K_2O	Na_2O	LOI
teste	matriz	% solidos	(kGauss)	produto					>65	<2	<1,2	<0,05	<0,3	<0,7	<1,2	<1,8	<0,1	<1,2	
Rougher LIMS				Alimentação	100,0	100,0	100,0	100,0	**34,36**	**47,33**	0,12	0,02	0,22	0,01	0,58	1,57	0,01	0,10	0,81
		30	0,8	Concentrado	31,9	61,0	31,9	61,0	65,60	**6,68**	0,11	0,01	0,07	0,01	0,08	0,22	0,01	0,10	-1,32
				Rejeito					**19,70**	**66,40**	0,13	0,02	0,29	0,01	0,82	**2,21**	0,01	0,10	**1,81**
Cleaner LIMS				Alimentação	31,9	61,0	100,0	100,0	65,60	**6,68**	0,11	0,01	0,07	0,01	0,08	0,22	0,01	0,10	-1,32
		30	0,8	Concentrado	26,3	52,5	82,3	86,0	68,54	**3,19**	0,12	0,00	0,06	0,01	0,04	0,10	0,01	0,11	-1,65
				Rejeito					**51,89**	**22,98**	0,07	0,01	0,13	0,01	0,26	0,76	0,01	0,07	0,21
Re-Cleaner LIMS				Alimentação	26,3	52,5	100,0	100,0	68,54	**3,19**	0,12	0,00	0,06	0,01	0,04	0,10	0,01	0,11	-1,65
		30	0,8	Concentrado	24,2	49,1	92,1	93,5	69,61	1,82	0,09	0,00	0,05	0,01	0,02	0,05	0,01	0,10	-1,85
				Rejeito					**56,16**	**19,08**	0,40	0,02	0,15	0,01	0,29	0,71	0,02	0,20	0,71
Rougher WHIMS				Alimentação	68,1	39,0	100,0	100,0	**19,70**	**66,40**	0,13	0,02	0,29	0,01	0,82	**2,21**	0,01	0,10	**1,81**
	1,5mm	20	8,0	Concentrado	31,5	27,9	46,3	71,6	**30,47**	**50,39**	0,14	0,01	0,40	0,01	1,08	**3,37**	0,01	0,10	**2,14**
				Rejeito					**10,41**	**80,20**	0,12	0,02	0,19	0,01	0,59	1,21	0,01	0,10	**1,52**
Cleaner WHIMS				Alimentação	31,5	27,9	100,0	100,0	**30,47**	**50,39**	0,14	0,01	0,40	0,01	1,08	**3,37**	0,01	0,10	**2,14**
	1,5mm	20	8,0	Concentrado	22,8	23,1	72,4	82,7	**34,78**	**43,91**	0,13	0,01	0,40	0,01	1,09	**3,53**	0,01	0,10	**1,85**
				Rejeito					**19,13**	**67,43**	0,17	0,02	0,42	0,01	1,05	**2,95**	0,01	0,10	**2,91**
Re-Cleaner WHIMS				Alimentação	22,8	23,1	100,0	100,0	**34,78**	**43,91**	0,13	0,01	0,40	0,01	1,09	**3,53**	0,01	0,10	**1,85**
	1,5mm	20	8,0	Concentrado	12,0	16,0	52,4	69,1	**45,88**	**30,20**	0,11	0,01	0,31	0,01	0,79	**2,86**	0,01	0,10	1,01
				Rejeito					**22,56**	**59,00**	0,15	0,02	0,49	0,01	**1,43**	**4,27**	0,01	0,10	**2,77**

Source: UFMG, DEPARTMENT OF MINING ENGINEERING – 'Technological Characterization of Iron Ore Project – Santa Fe Mineracao – Target - Gameleira'

16.3 Fundação Gorceix Laboratory

Drill core samples were treated at Fundação Gorceix in Ouro Preto, MG, Brazil. They were composed of selected cores representing different types of the iron formation (amphibolitic, dolomitic and siliceous samples). Cores were collected at the following targets: Lagoa do Sérgio, Gameleira, Sussuarana and Boi Morto.

The mineralogical compositon of the samples is shown in Figure 16-2 below.

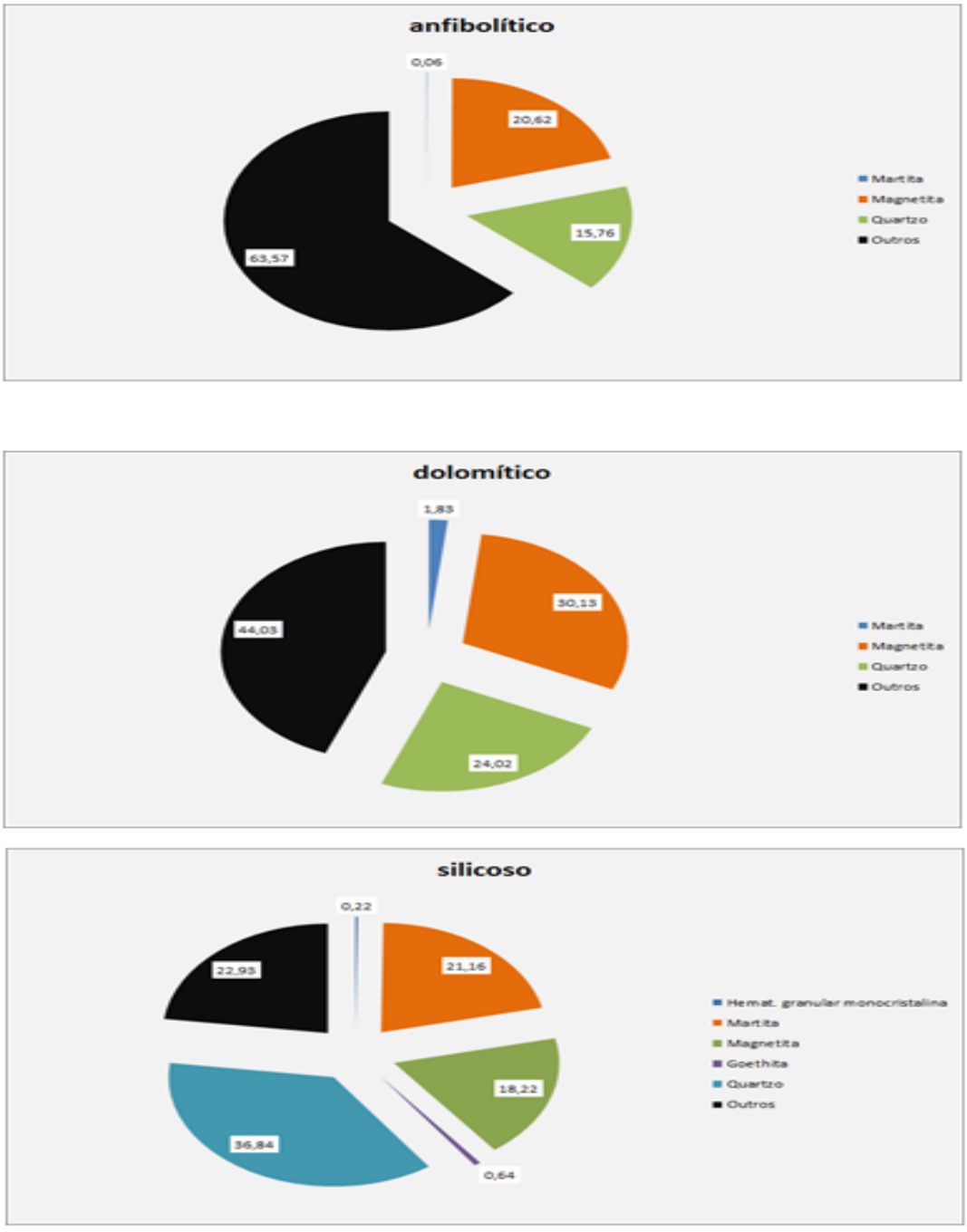


Figure 16-2: Mineralogical Composition

Source: FUNDAÇÃO GORCEIX – MINERAL-METALLURGICAL TECHNOLOGY DEPARTMENT – 'Preliminary Concentration Studies of Iron Ore Samples – Mineração Santa Fé – Progress Report 01'

Liberation degree results are presented in Table 16-2 as follows.

Table 16-2: Liberation Degree Results

Gangue Liberation Degre By Size Fraction (%)			
	anfibol	silic	dolom
>1,00mm	55	38	46
<1,00mm e >0,500mm	47	30	71
<0,500mm e >0,210mm	76	71	87
<0,210mm e >0,105mm	89	85	95
<0,105mm e >0,075mm	97	93	99
<0,075mm e >0,044mm	99	97	100
<0,044mm e >0,010mm	100	99	100

Source: FUNDAÇÃO GORCEIX – MINERAL-METALLURGICAL TECHNOLOGY DEPARTMENT – 'Preliminary Concentration Studies of Iron Ore Samples – Mineração Santa Fé – Progress Report 01'

Magnetic separation tests were carried out in two sizes, namely, at P90 = 0.15 mm and at P90 = 0.075 mm. The coarse magnetic separation results are presented in Table 16-3 below. The coarse separation was performed with only one stage of low intensity magnetic separation at 1,200 Gauss. The fine separation was carried out with desliming followed by one magnetic separation rougher at 1,200 Gauss and one magnetic separation cleaner at 800 Gauss.

Table 16-3: Coarse magnetic separation Results

	PROJETO	SANTA FÉ																					
	TESTE	SEPARAÇÃO MAGNÉTICA PÓS MOAGEM EM P90=0,15 mm																					
ANFIBOLÍTICO																							
CÓD	PRODUTOS	REC. MASSA		ANÁLISE - FG		ANÁLISE - SGS																ETAPA	EQUIP.
		% ETAPA	% GLOBAL	% Fe	% SiO_2	Fe	SiO2	Al2O3	CaO	Mn	TiO2	MgO	P	K2O	Na2O	Cr2O3	LOI	SUM	% Fe	% SiO_2	% ETAPA	% GLOBAL		
	ALIM NOVA	100,00	100,00																18,87	40,93	100,00	100,00		
67	CONC. MAG.WD 1200 G	22,47	22,47	43,3	29,5	46,00	18,60	1,39	4,22	0,11	0,80	8,40	0,02	0,20	0,32	0,24	-0,58	99,62			54,79	54,79	RG	WD
70	REJ. MAG.WD 1200 G	77,53	77,53	11,00	47,40	11,00	47,40	3,31	13,70	0,24	0,75	13,80	0,07	0,71	0,78	0,04	3,69	100,53			45,21	45,21		
DOLOMÍTICO																							
CÓD	PRODUTOS	REC. MASSA		ANÁLISE - FG		ANÁLISE - SGS																ETAPA	EQUIP.
		% ETAPA	% GLOBAL	% Fe	% SiO_2	Fe	SiO2	Al2O3	CaO	Mn	TiO2	MgO	P	K2O	Na2O	Cr2O3	LOI	SUM	% Fe	% SiO_2	% ETAPA	% GLOBAL		
	ALIMENTAÇÃO NOVA	100,00	100,00																22,15	34,70	100,00	100,00		
69	CONC. MAG.WD 1200 G	23,31	23,31	60,9	11,7	62,10	7,38	0,24	2,69	0,12	0,13	1,76	<0,005	0,03	<0,1	0,04	-1,55	99,62			65,37	65,37	RG	WD
72	REJ. MAG.WD 1200 G	76,69	76,69			10,00	43,00	0,90	21,30	0,34	0,07	8,68	0,03	0,23	0,24	0,01	11,05	100,32			34,63	34,63		
SILICOSO																							
CÓD	PRODUTOS	REC. MASSA		ANÁLISE - FG		ANÁLISE - SGS																ETAPA	EQUIP.
		% ETAPA	% GLOBAL	% Fe	% SiO_2	Fe	SiO2	Al2O3	CaO	Mn	TiO2	MgO	P	K2O	Na2O	Cr2O3	LOI	SUM	% Fe	% SiO_2	% ETAPA	% GLOBAL		
	ALIMENTAÇÃO NOVA	100,00	100,00																29,05	51,00	100,00	100,00		
68	CONC. MAG.WD 1200 G	23,76	23,76	59,2	15,7	59,70	12,80	0,18	0,71	0,09	0,06	0,60	0,01	<0,01	<0,1	0,05	-1,17	98,74			48,82	48,82	RG	WD
71	REJ. MAG.WD 1200 G	76,24	76,24			19,50	62,90	0,53	3,16	0,17	<0,01	2,26	0,04	0,08	0,12	<0,01	1,68	98,85			51,18	51,18		

Source: FUNDAÇÃO GORCEIX – MINERAL-METALLURGICAL TECHNOLOGY DEPARTMENT – 'Preliminary Concentration Studies of Iron Ore Samples – Mineração Santa Fé – Progress Report 01'

The coarse magnetic separation results are summarized in Table 16-4 as follows.

Table 16-4: Coarse Magnetic Separation Results

Coarse Magnetic Separation - Amphibolitic				
Stream	% Fe	% SiO_2	% Mass	% Fe Recov
Feed	18,87	40,93	100,0	100,0
Concentrate	46,00	18,60	22,5	54,8
Tails	11,00	47,40	77,5	45,2
Coarse Magnetic Separation - Dolomitic				
Stream	% Fe	% SiO_2	% Mass	% Fe Recov
Feed	22,15	34,7	100,0	100,0
Concentrate	62,10	7,38	23,3	65,4
Tails	10,00	43,00	76,7	34,6
Coarse Magnetic Separation - Siliceous				
Stream	% Fe	% SiO_2	% Mass	% Fe Recov
Feed	29,05	51,00	100,0	100,0
Concentrate	59,70	12,80	23,8	48,8
Tails	19,50	62,90	76,2	51,2

Source: FUNDAÇÃO GORCEIX – MINERAL-METALLURGICAL TECHNOLOGY DEPARTMENT – 'Preliminary Concentration Studies of Iron Ore Samples – Mineração Santa Fé – Progress Report 01'

The following comments refer to Tables 16-3 and 16-4 above:

- At the coarse grind, the amphibolitic sample produced the lowest concentrate Fe grade (46 %), whereas the dolomitic sample presented the highest concentrate Fe grade (62.10%). The siliceous sample presented an intermediate Fe grade (59.70%).

- Fe recoveries are low for the three samples (Amphibolitic – 54.8%, dolomitic – 65.4% and siliceous – 48.8%).

The fine magnetic separation results are summarized in Table 16-5 as follows.

Table 16-5: Fine Magnetic Separation Results

Fine Magnetic Separation - Amphibolitic				
Stream	% Fe	% SiO_2	% Mass	% Fe Recov
Feed	13,13	63,79	100,0	100,0
Final Concentrate	64,00	8,10	16,39	80,93
Fine Magnetic Separation - Dolomitic				
Stream	% Fe	% SiO_2	% Mass	% Fe Recov
Feed	16,31	53,5	100,0	100,0
Final Concentrate	69,30	3,10	20,1	85,51
Fine Magnetic Separation - Siliceous				
Stream	% Fe	% SiO_2	% Mass	% Fe Recov
Feed	24,98	59,24	100,0	100,0
Final Concentrate	69,40	2,70	17,73	48,64

Source: FUNDAÇÃO GORCEIX – MINERAL-METALLURGICAL TECHNOLOGY DEPARTMENT – 'Preliminary Concentration Studies of Iron Ore Samples – Mineração Santa Fé – Progress Report 01'

The following comments are pertinent with regards to Table 16-5 above.

- At the fine grind, the amphibolitic sample produced the lowest concentrate Fe grade (64 %), whereas the dolomitic and siliceous sample presented the highest concentrate Fe grades (69.3% and 69.4%, respectively).

- The amphibolitic and the dolomitic samples presented high Fe recoveries (80.93% and 85.51%, respectively). On the other hand the siliceous sample presented a very low Fe recovery (48.64%).

It is important to notice that results of the fine separation used chemical analysis results from Fundação Gorceix, whereas results of coarse separation results are shown with SGS chemical analysis data. Gorceix final report will be submitted when SGS chemical data are available, which could bring about different conclusions.

16.4 Magnetation Laboratory

Three surface samples (#11067, #11072 and #11073) were treated in the Magnetation Laboratory in Minnesota, USA. The main characteristics of the samples are given as follows.

Sample ID 11067 – Gameleira Target

Rock: Itabirite, with cm-bands Fe and quartzite+silexite bands.

Sample type: outcrop

WP (SAD69): Zona 24L; E 180829; N 8451242

Sample ID 11072 – Gameleira Target

Rock: Itabirite, with cm-bands Fe and quartzite+silexite bands.

Sample type: outcrop

WP (SAD69): Zona 24L; E 179410; N 8453007.

Sample ID 11073 – Lagoa do Sérgio Target

Rock: Itabirite, with cm-bands Fe and quartzite+silexite bands.

Sample type: outcrop

WP (SAD69): Zona 23L; E 822529; N 8462099.

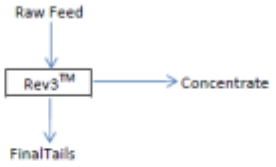
The available information is given in Figure 16-3 as follows.

Details of the concentration procedure were not provided to SRK.

Santa Fé Mineração

Sample # 11067

Feed Date	n/a
Test Date	8/28/2011
Feed	# 11067
Grinding	100% - 150 mesh
Screening	No
Scavenging	No



Cell	Denotes input cell.
Cell	Denotes calculated cell.

		Weight [g]	TFe [%]	Fe [g]	Si2O3 [%]	Fe++ [%]	Al2O3 [%]	LOI [%]	WR(scale)	WR (calc)	IR(scale)	IR (calc)
Rev3	Concentrate	89.40	63.48%	56.75	7.77%	18.09%		2.03%	49.49%	52.23%	86.45%	91.23%
	Raw Feed	180.64	36.34%	65.64		10.47%		0.61%				
	Final Tails	76.70	6.67%	5.12		1.90%		-1.13%				

Test Notes

Test objective was to make grade, regardless of recovery.

Santa Fé Mineração

Sample # 11072

Feed Date	n/a
Test Date	8/28/2011
Feed	# 11072
Grinding	100% - 150 mesh
Screening	No
Scavenging	No

Cell	Denotes input cell.
Cell	Denotes calculated cell.

		Weight [g]	TFe [%]	Fe [g]	Si2O3 [%]	Fe++ [%]	Al2O3 [%]	LOI [%]	WR(scale)	WR (calc)	IR(scale)	IR (calc)
Rev3	Concentrate	55.70	61.73%	34.38	10.05%	11.58%		0.10%	30.90%	31.86%	59.23%	61.05%
	Raw Feed	180.24	32.21%	58.06		5.24%		-2.00%				
	Final Tails	107.60	18.41%	19.81		2.38%		-3.22%				

Test Notes

Test objective was to make grade, regardless of recovery.

Santa Fé Mineração

Sample # 11073

Feed Date	n/a
Test Date	8/28/2011
Feed	# 11073
Grinding	100% - 150 mesh
Screening	No
Scavenging	No

Cell	Denotes input cell.
Cell	Denotes calculated cell.

		Weight [g]	TFe [%]	Fe [g]	Si2O3 [%]	Fe++ [%]	Al2O3 [%]	LOI [%]	WR(scale)	WR (calc)	IR(scale)	IR (calc)
Rev3	Concentrate	53.84	58.56%	31.53	14.20%	2.38%		-1.14%	29.91%	32.37%	60.98%	65.99%
	Raw Feed	180.02	28.72%	51.70		1.75%		-2.07%				
	Final Tails	108.90	14.44%	15.73		0.32%		-2.74%				

Test Notes

Test objective was to make grade, regardless of recovery.

Figure 16-3: Magnetation Results

Source: MAGNETATION – 'Santa Fe Mineracao – Samples #11067, #11072 and #11073'

The summary of the above results is presented in Table 16-6 below.

Table 16-6: Magnetation Result Summary

Sample	Feed % Fe	Concentrate % Fe	Concentrate % Fe Recov.	Grinding
#11067	36.34	63,48	91,23	100% < 150 #
#11072	32,21	61,73	61,23	100% < 150 #
#11073	28,72	58,56	65,99	100% < 150 #

Source: MAGNETATION – 'Santa Fe Mineracao – Samples #11067, #11072 and #11073'

16.5 Conclusions and Recommendations

The following conclusions can be drawn based on the available information.

- Testing is preliminary and results must be optimized.
- The Lagoa Real material is amenable to produce pellet feed type of concentrate.
- The mineralized material is hard and significant material comminution effort is expected in order to liberate the mineral species.
- Gravity and magnetic separation seem to be the most suitable methods to treat the ore, based on iron oxide particle specific gravity and magnetic susceptibility characteristics. Flotation might also be a candidate but it needs intensive lab research of new reagents and high operating costs.

SRK recommends the following:

- Continue the investigation of the best processing route, using gravity and low and high intensity magnetic separations. Laboratory tests should be carefully planned and executed in bench scale.
- In order to evaluate the resources it is recommended to prepare 20-30 core samples covering the most interesting targets and subject them to bench tests, using heavy liquid or shaking tables and magnetic separation devices. Other characterization process tests should also be carried out.

17 Other Relevant Data

SFM has acquired the surface rights for an area adjacent to the Ferrovia de Integração Oeste-Leste (FIOL Railway, East-West Integration Railway). This area is expected to be the Project's future train loading and stock pile facilities (Figure 17-1).

Figure 17-1: Future Project Stock Pile Area

SFM has two main logistic solutions for the Lagoa Real Iron Ore Project Development (Figure 17-2). The best one is the combination of the new FIOL railway (under construction) with the future Sul Port located 484km from the Project in Ilhéus, Bahia State coast. Another option is to truck the ore to the existing FCA Railway and ship the ore to the Aratu Port.

Figure 17-2: FCA railway to Aratu Port and FIOL to Ilhéus (Sul Port), both in Bahia State

17.1 FIOL Railway and Sul Port Logistic Option

The FIOL railway consists on a high speed heavy haul railway. Its start-up is scheduled for December 2014. The Project is located approximately 12 km from this railway. FIOL railway specifications are:

- Concrete sleepers;
- 1,60 meters gauge;
- Rail UIC 60;
- Axle 32,5 t;
- Maximum speed 80km/h;
- Net capacity per wagon 110 t;
- 4500 HP Locomotives.

The FIOL annual capacity is expected to be initially 60Mtpa, but there will be significant expansion capabilities. FIOL railway will be operated as an “open access railway”, where the railway owner charges the cargo owner a fee per ton/km. SFM is currently in advanced negotiations with FIOL railway management to transport up to 20Mtpa of iron ore.

Figure 17-3: FIOL Railway Map

Figure 17-4: FIOL Railway Works Adjacent to the South of the Project Area

Figure 17-5: FIOL Railway Works

The Sul Port is located to the north of the city of Ilhéus state of Bahia and is expected to provide open access to deep water. The Port is in development by a consortium of companies, composed by future port users, investors and the State of Bahia as a minor shareholder.

The Sul Port environmental license was granted in the first half of 2013 and construction work is expected to kick off in the first quarter of 2014. The port startup is scheduled for the fourth quarter of 2016. SFM has the option to have access to the Sul Port.

The Sul Port will have the following characteristics:

- Public Port (PP) – Public terminals dedicated to export and storage of iron ore, soybean and other bulk solids with nominal capacity of 80 Mtpa, being 75Mtpa exports and 5Mtpa imports;
- Logistics Support Area (ZAL) – Iron ore and other bulk commodities stockpile area;
- Private-Use Terminal (TUP) – BAMIN Port Terminal (iron ore export);

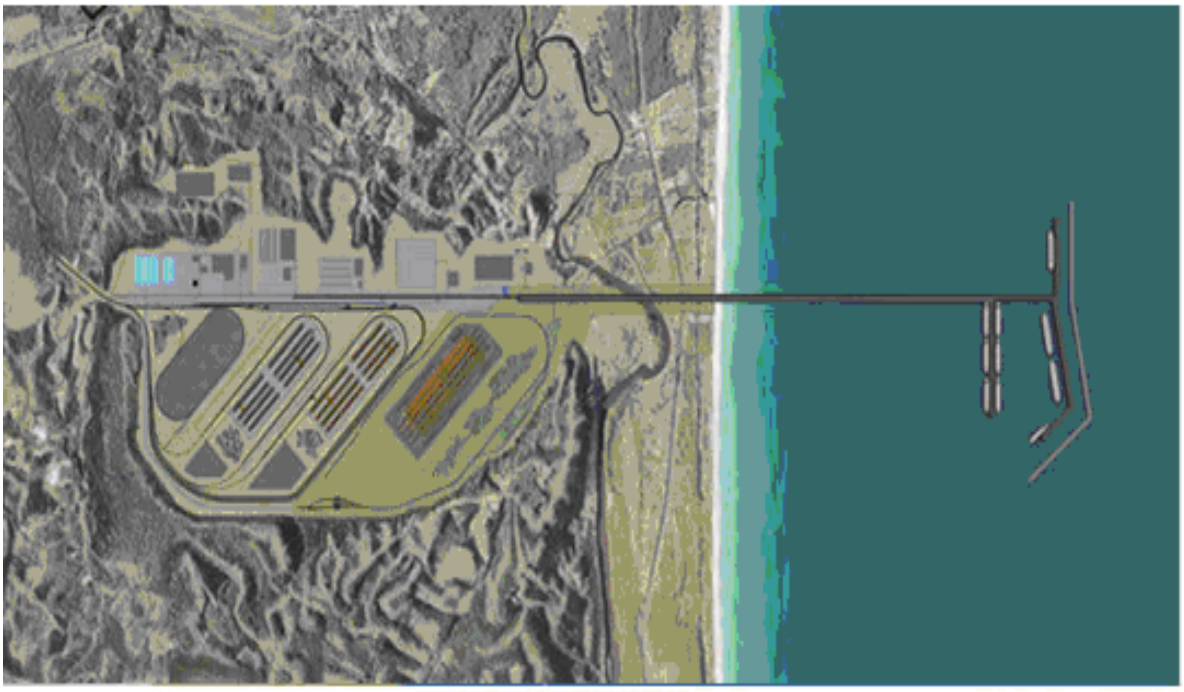


Figure 17-6: Sul Port – Future Layout

17.2 FCA Railway and Aratu Port Logistic Option

The “Ferrovia Centro-Atlântico” or Center-Atlantic Railway (FCA) is another alternative to reach the Atlantic Ocean via Aratu Port. FCA integrated logistic system could transport iron ore from the Project to the Aratu Port (550 km), at least in the medium term. FCA railways loading facilities are located nearby Brumado city. SFM has signed a Memorandum of Understanding (MOU) with FCA in September 2012 to ensure this logistic system remains an option to access the Atlantic coast.

The Aratu Port is the main port for bulk cargo in the state of Bahia. It is managed by the Bahia State Docks Company (CODEBA) and is responsible for 60% of the movement of all sea freight in Bahia.

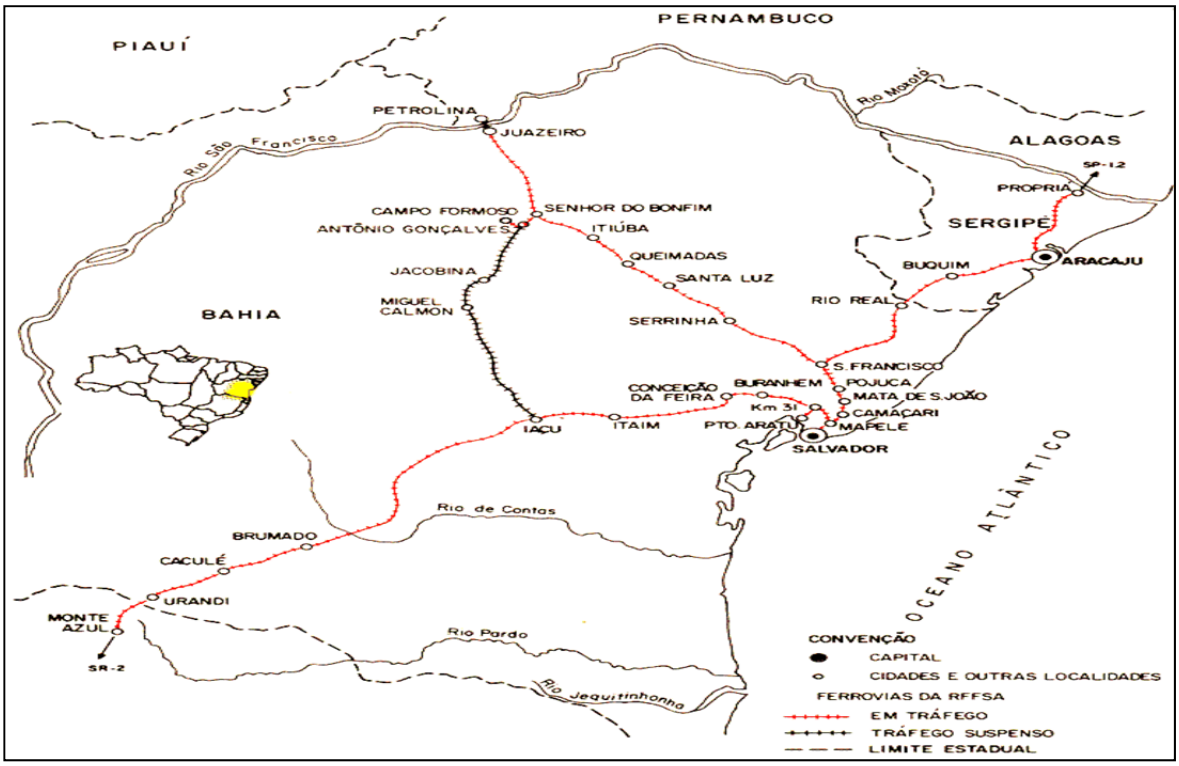


Figure 17-7: FCA Railway – Brumado to Aratu Port

Figure 17-8: General View of Aratu Port

18 Interpretations and Conclusions

The Lagoa Real Iron Ore Project consists of a block of concessions owned by Santa Fé Mineração (SFM) in the State of Bahia, Brazil. The Project is at the exploration stage and a mineral resource has not been drill-indicated yet.

The exploration activities to date have consisted of geologic mapping, rock chip sampling, geophysical investigations, including land and airborne magnetics, diamond drilling and reverse circulation air core drilling programs.

Additional drilling is required to bring the project mineralized material to an inferred resource category.

The Lagoa Real Iron Project is reasonably well documented with original sources of drill logs, assays, and various reports, as well as an initial electronic database. There is abundant exploration opportunity for further expansion of the iron resources on the known exploration targets. Continued exploration mapping and geophysical studies hold good potential to turn up new drill targets.

SRK has verified the electronic databases, topography, geologic interpretation of the mineralization and conducted preliminary statistical analyses. The next stage may include the development of initial vertical sections and a drilling plan.

In SRK´s opinion, the QA/QC program of SFM is being implemented with a level of acceptable consistency.

The metallurgical test work conducted by SFM on the Project has been reviewed by SRK and found to be valid. It is however, the first stage of a multi stage process and further work is required in this area.

SFM expects the official publication of the environmental 'Reference Terms' by the end of 2013. This document is an important step in obtaining a Preliminary License (LP), as it will serve as the basis for the Environmental Impact Assessment (EIA/RIMA) report.

SFM project’s infrastructure is definitely one of the key characteristics of the project. The company is advancing exploration at the Project area and relying on the Brazilian Government Plans to develop the FIOL railway, and the future construction of the privately owned Sul Port.

Detailed engineering studies will be required in the future to determine the mining viability of the Project.

19 Recommendations

Additional drilling will be required to upgrade mineralized material into mineral resources.

SRK recommends drilling in a regular grid to allow a consistent geological model and reliable resource estimation for the next stages of the Project.

Drill holes exceeding 100 meters should be down-hole surveyed.

Core recovery information needs to be collected and recorded.

SRK recommends the establishment of a new procedure for iron formation internal waste zones and external margins in order to provide a higher certainty of the actual ore grade and the potential internal waste material.

Preliminary geologic and block models may assist on the development of drilling plans and project presentation.

SRK recommends that systematic bulk density determinations be conducted on drilled core, preferably using the water displacement method. SRK also recommends that SFM studies the relationship between bulk density and Fe content for different lithotypes. The density measurements have been done but improvements to the methodology and amount of samples is recommended.

SRK recommends assaying of FeO in order to permit the calculation of the perceptual of magnetite in the analyzed samples. This should also be considered when assaying metallurgical test samples.

SFM has conducted initial metallurgical testwork with encouraging results. SRK recommends that SFM continue with the metallurgical testing to determine and optimize the beneficiation process at the Project and notes that this part of SFM's plan for the project. Additional metallurgical testwork based on larger samples will be required to confirm preliminary results.

In SRK´s opinion the QA/QC program of SFM is being implemented with a level of acceptable consistency. SRK believes that the QA/QC sample insertion rate is reasonable aside from blanks. Generally, SRK expects 5% blanks, 5% standards and 5% duplicates for an overall insertion rate of 15%.

The conclusions and recommendations for this preliminary QA/QC evaluation of the Lagoa Real Project are the following:

- Sample contamination has not been identified in the evaluated samples;
- In terms of accuracy / repeatability (standard), some results from the ACME lab have indicated some bias. Although SRK does not consider this a major flaw, the reanalysis of 5-10% of the samples with discrepant results is desirable;
- SRK recommends QA/QC analysis of the exploration data systematically after receipt of batches of lab results in time for possible corrections and / or reanalysis, and to avoid accumulation of several batches;
- The reproducibility of the secondary laboratory (SGS) is very close to the ACME laboratory, and very few samples are out of range;

Compiled by:

Maria Verônica Pessoa

Senior Consultant (Geology)

Leticia Albergaria Rodrigues

Senior Consultant (Geology)

Peer Reviewed by:

Cauê Pauli de Araujo

SRK Brazil Interim General Manager (Geology / Project Evaluations)

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Website: www.dnpm.gov.br

Appendix A - Preliminary Assessment

Completed by:

Santa Fé Mineração

and

Mineralium Deposita Consultoria Ltda *

(*) This section was based on the Technical Report "Digressions About the Technical and Economic Feasibility of Santa Fé Iron Ore Mine by Emulating the Lagoa Real Iron Ore Bed" developed by Professor Antônio Carlos Girodo - CREA 19828/D-SP-Mining Engineer and Metallurgist - AusIMM Member - Register Member of SME-Society of Mining Engineering - Qualified and Competent Person according to JORC (Australia) and SME (USA).

PRELIMINARY ASSESSMENT – LAGOA REAL IRON ORE PROJECT

BASIC PROJECT CONCEPTS

1 INTRODUCTION

The Santa Fé Project estimates an annual production of 20 million iron tons containing 64% of iron (Fe) during a period of twenty-five years.The mining will be open pits and it will be required, construction of an ore processing plant and all operational structure, including access, constructions of tailings basins and decantation of water and tailings piles.

The full project area covers 22,039.04 hectares, covering the towns of Livramento de Nossa Senhora and Brumado-Bahia,Brazil and its physical facilities shall occupy approximately 500 hectares.

2 MINING AREA IN ITS DIFFERENT TARGETS

It is estimated 25 (twente five) years of mining, where two concomitant fronts will be operated until they are exhausted, with approximate length of time of twelve (8) years, when change to other mining fronts will occur.

The table below presents target areas with their specific characteristics, considering the estimated reserves up to 40 m below zero quote.

Volume Santa Fé - 40m below the surface		
Target	Surface (m²)	Volume (m³)
Target1 - Fazenda Canivete	1.589.485	51.673.272
Target2 - Mato Pasto – W	1.357.319	26.511.975
Target3 - Mato Pasto – E	1.266.940	23.271.875
Target4 - Fabiano Oeste	689.902	11.555.400
Target5 - Fabiano Leste	1.050.602	17.993.380
Target6 – Encosto	1.397.765	23.500.137
Target7 - Lagoa do Sérgio	3.455.630	77.109.951
Target8 - Sítio Novo	3.869.488	74.198.513
Target9 – Capão	16.042.512	649.726.448
Target10 – Gameleira	11.280.927	269.703.181
Target11 – Sussuarama	641.152	11.998.461
Target12 - Boi Morto	1.391.937	26.404.947
TOTAL	**44.033.659**	**1.263.647.540**

Table 1 - Santa Fé volume - 40m below the surface

Considering the ore with a density of 3.0 and an average mass recovery of 30% Fe, at this regional stage, it was estimated a potential reserve of 1.137 Bt Fe, of commercial ore >64% Fe.

Since research is still ongoing, the evaluation of the potential resources made in the regional phase, and shown in Table 1, a planialtimetric reconstitution of the mineralized surface was performed defined by outcrops of magnetic anomaly, using the digital terrain model, then it was considered the approximate average of the topography and projected 40 meters in the subsurface, and from there the solids were generated and sent to SURPAC to calculate the volume.

To produce 20 million tons/year with content >64% Fe, during period os twente five (25) years the project will require a reserve of 500 million tons of iron ore >64% iron content.Even having an estimated reserve superior to the demand, all areas shall be researched and included in the general exploration planning.

3 PROJECT BASIS AND CRITERIA

The magnetic separation process could be developed by dry or wet system. For the Santa Fé Iron Ore Project, the decision making for magnetic separation process it will be made in a later stage, when the final metalurgical test is completed.

After processing the ore, it will be transported through a conveyor belt leading to the ore storage yard for transportation by railroad.

Therefore, the ore processing plant will be well established and operated properly to minimize the environmental impacts of the activity.

As a general ore processing criterion, ore was chosen from Gameleira target, although this ore has similarities with ores from other targets. Therefore, most of the Santa Fe ore corresponds to compact Itabirite (IC). For this reason, for the calculation of CAPEX and OPEX we considered only IC as Santa Fe typical ore.

There are three basic processes to concentrate iron ores, namely: hydrogravitic process, magnetic process, and flotation. These processes are competitive, but depending upon the particular characteristics of each ore, some of these processes will outperform others in terms of metallurgical efficiency, lower capital cost and lower operating cost.

4 Process Plant and area for the Beneficiation Plant

The project includes the installation of one (01) beneficiation plant of iron ore, with a process route here summarized: It begins with fragmentation steps (crushing and milling), particle size classification and magnetic separation (Figure below). The plant with the storage yard, will occupy a total area of seven (7) hectares.

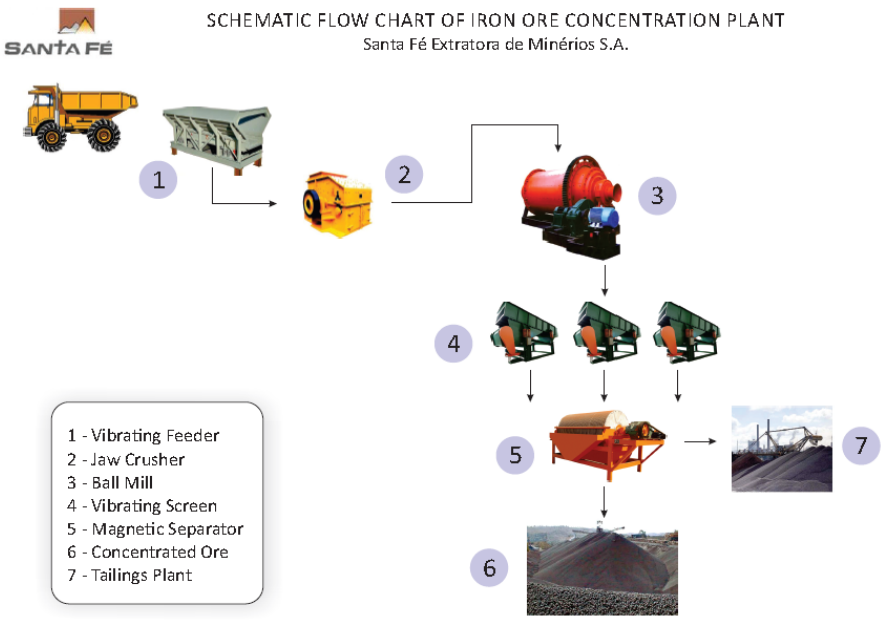

Figure1- Process Flow Diagram

5 PROCESS DESCRIPTION

According to the previous simplified flow diagram, a brief description of the manufacturing process is as follows:

The crude ore from the mine is transported by off-road trucks with 250 tons of payload and are dumped into a large gyratory crusher (BR01) that breaks it at a topsize of approximately 300mm. The crushed material is transported to a storage pile lung (PP01) that holds the material to face any eventual breakdown in the primary crusher and to avoid discontinuities in the process.

The ore taken back from the lung pile is transported by belt conveyors to a secondary scalp crushing of 10x24 ft to the front of an 800 HP cone crusher operating in open circuit. The crushed ore, with 55mm top size is, in sequence, transported to a tertiary crusher, where it is fragmented to less 25mm. The tertiary crushing circuit also comprises a 10 x 24 ft, vibrating sieve and an 800 HP cone crusher, working with 16mm CSS.

The crushed ore is further transported to a High Gradient Roller Press that fragments all of the material below 12mm. The discharge from the Roller Press is transferred to a ball mill MB01 in closed circuit with 26-in hydrocyclones. The granulometry coming out of this system is 80% less than 150µm

The crushed material is poured into a spiral concentrators organized in a rougher-cleaner scheme, yielding an intermediate concentrate and approximately 50% of iron plus an end reject of 12% iron. The concentrate from the spirals are transferred to a low intensity magnetic concentrator with ferrite magnets that produces a rougher concentrate of approximately 60% iron. This Rougher concentrate is passed through another drum magnetic concentrator with low intensity permanent magnets which increases the concentrate content up to 66% iron.

This material is transported by truck or by conveyor belt to the rail terminal from where it will be transported by rail to a port in the Atlantic.

6 CAPITAL EXPENSES & OPERATING COSTS (*)

CAPEX ESTIMATES

Santa Fé has concentrated on developing the Capex for the mine site and for the processing Plant, and has not targeted off Mine and off Plant Capex.

OFF MINE SITE INFRASTRUCTURE

Capex for infrastructure located off mine has not been estimated by Santa Fé since independent port and rail infrastructure Companies will construct these facilities.

MINE SITE INFRASTRUCTURE, MINE FACILITIES AND MINING EQUIPMENT AND FLEET

The Capex requirements for Site infrastructure, Facilities and equipment, and equipment Fleet are estimated for 20Mtpa Mine and scaled for the 15Mpta and 10Mtpa case. The Santa Fé Capex was estimated and consolidated according to the items below.

Production Capacity Mtpa	Capex U$ M	Capex per U$ /t Product
10	164,6	16,46
15	225,3	15,02
20	264,3	13,22

Table 2 - Estimated Mine Capex and Production Capacity

BENEFICIATION PLANT

Capex estimates have been developed for the beneficiation plant flow sheet, to a level equivalent to a scope study. The plants have been scaled or based on estimates for Capacity of 20Mtpa down to 15 and 10Mtpa.

Production Mtpa Capacity	Total Plant US$M (1)	Capex US$ per t of product
10	375,6	37,6
15	386,7	25,8
20	585,5	29,3

Table 3 - Beneficiation Plant Capex Estimate and Production Capacity

(1) Capex includes U$40,0 M water supply system and pre operational expenses of U$21,5 M.

(*) The assumptions of the figures of this section was based on the capex and opex estimates on the study of Minerallium Deposita Consultores Limitada "Digressions About the Technical and Economic Feasibility of Santa Fé Iron Ore Mine by emulating the Lagoa Real iron ore bed".

SUSTAINING CAPITAL

Sustaining Cost has been estimated on the basis of U$ 1,5 per ton of product per year of operation.

OPERATION EXPENSES - OPEX

The Opex estimates represent the direct cost and are exclusive of contingency (exception for mine), taxes and cost of capital.

OPEX FOR THE MINING

The opex mine estimated is presented, in U$ per ton of product.

Production Costs	10Mtpa U$/t product	15Mtpa U$/t product	20Mtpa U$/t product
	5,90	5,30	4,80

Table 4 - Mine Opex Estimate and Production Capacity

ESTIMATE OPEX FOR THE BENEFICIATION PLANT

Opex estimates have been prepared for processing plant flow sheets, 20Mtpa and scaled for 15 and 10Mtpa.

Operational Costs	U$/t product		
	10Mtpa	15Mtpa	20Mtpa
	13,1	12,9	12,5

Table 5 - Beneficiation Plant Opex and Production Capacity

SG&AC :

SG&AC was estimate by Santa Fe Staff and , does not include sales expenses, and U$ 2,0 per ton of product.

7 ECONOMIC ANALYSIS

Note that this preliminary analysis is preliminary in nature. It should be taken in consideration that the assumptions applied in this analysis were based during the initial stage of geological exploration program. This report is the first approach of the potential mineral resources of Santa Fé. The assumptions and figures presented in the report below should be considered in a preliminary stage.

Santa Fe economic analysis was prepared for a production of 20Mpta and scaled for 10, 15Mtpa.The other parameters used in Santa Fe Preliminary Financial Model are presented below.

Preliminary Financial Model Production for 10, 15, 20Mtpa –Revenue				
REVENUE ASSUMPTIONS	**unit**	20Mtpa	15Mtpa	10Mtpa
Price CFR China Platts 62% Fe	**US$ / Ton**	89	89	89
1% Fe Differential	**US$ / Ton**	3	3	3
Quality	**%**	64,00%	64,00%	64,00%
Moisture	**%**	6,00%	6,00%	6,00%
CFR China@64Fe	**US$ / Ton**	89,3	89,3	89,3
Ocean Freight - Porto Sul - China	**US$ / Ton**	20,5	20,5	20,5
Ore Fob Price - Porto Sul	**US$ / Ton**	68,8	68,8	68,8

Table 6 - Preliminary Financial Model Production for 10, 15, 20Mtpa –Revenue

CAPEX ASSUMPTIONS	**unit**	20Mtpa	15Mtpa	10Mtpa
Capex	US$ MM	848,9	**612,3**	527
Construction Period	Years	3,0	3,0	3,0
Life of Mine	Years	25,0	33,0	50,0
Mineral Exploration	US$ MM	27,5	27,5	27,5
Environment	US$ MM	1,5	1,5	1,5
PFS + FS	US$ MM	5,0	5,0	5,0
Others	US$ MM	1,0	1,0	1,0
Total Pre Operational	US$ MM	**35,0**	**35,0**	**35,0**

Table 7 - Preliminary Financial Model Production for 10, 15, 20Mtpa- Capital Expenditure

OPEX ASSUMPTIONS	**unit**	**20Mtpa**	15Mtpa	10Mtpa
Mining Cost	US$ / Ton	4,8	5,3	5,9
Beneficiation Cost	US$ / Ton	12,5	12,9	13,1
Sustaining	US$ / Ton	1,5	1,5	1,5
SG&A	US$ / Ton	2,0	2,0	2,0
Mining and Beneficiation Cost	US$ / Ton	**20,8**	**21,7**	**22,5**
Railway Freigth - Mine - Porto Sul	US$ / Ton	**14,1**	**14,1**	**14,1**
Port tariff - Porto Sul	US$ / Ton	**7,6**	**7,6**	**7,6**
Iron Ore Fob Cost - Porto Sul	US$ / Ton	**42,5**	**43,4**	**44,2**
Annual Depreciation	Years	**15,0**	**15,0**	**15,0**

Table 8 - Preliminary Financial Model Production for 10, 15, 20Mtpa -Operating Costs

FINANCIAL ASSUMPTIONS	**unit**	**20Mtpa**	**15 Mtpa**	**10 Mtpa**
Equity/ Debt	%	30/70	30/70	30/70
Discount Rate (Project)	%	15%	15%	15%
Interest	%	8%	8%	8%
Amortization Period	Years	10	10	10
Grace Period	Years	2	2	2

Table 9 - Preliminary Financial Model production for 10, 15, 20Mtpa- Finance

8 COMMENTS ON PROJECT

Logistics is the great differential of the Santa Fé Project. The railway, the shipping port, and all off mine infrastructure will be built by third parties. There will be no Capital expenditure required in the Railway and the shipping port. Santa Fé business model creates a significant reduction in the Capex of the project Capex estimated in approx. U$1,6 billion ,U$ 800 million for railway and U$800 for the Porto Sul in Ilhéus - BA.

The strategy established by Santa Fé to access rail and Port is to develop a partnership with the railway and the port owners thereby reducing considerably the project Capex. Below is the summary of Santa Fé Capex and Opex for the mine and plant for 20Mtpa scaled to 15and 10 Mtpa.

Production Capacity Mtpa	Capex U$ per t of product		
	Mine	Plant	Mine + Plant
10	16,4	36,3	52,7
15	15,0	24,5	39,5
20	13,2	28,5	41,7

Table 9 - Mine and Beneficiation Plant Capex estimate per t and Production Capacity

The Santa Fé Project Opex is very competitive compared with other magnetite projects that have been installed recently in the world market.

Production Capacity Mtpa	Opex U$ / t of product		
	Mina	Planta	Mine + Plant
10	5,9	13,1	19
15	5,3	12,9	18,2
20	4,8	12,5	17,3

Table 10 - Mine and Beneficiation Plant Opex estimate per t and Production Capacity

Production Capacity Mtpa	Capex U$ M			Capex/ U$//t
	Mine	Concentration Plant	Total (Mine + Plant) (*)	
10	164,6	376	540,6	54,1
15	225,3	387	612,3	40,8
20	264,3	586	850,3	42,5

Table 11 - Mine and Beneficiation Plant - Capex Estimates (*)

(*)Capex includes: Water Supply system ($40M) and - Operational Expenses ($35M)

9 PRELIMINARY CASH COSTS ESTIMATES FOR SANTA FÉ IRON ORE PROJECT

Cash Costs	US$ / Product
1- Mine Opex	4,8
2- Plant Opex	12,5
3- Sustain Capital	1,5
4 SG&A	2,0
5 Rail Freigth	14,1
6- Port Tariff	7,6
7-Financial Cost	2,4
Interest	0,9
Amortization	1,5
Cash Cost (With Moisture)	44,94

Table 12 - Cash Cost Estimates for production of 20 Mtpa

(1) **Maintenance already included in the Opex**

Items	US$ / Product
1-CRF Port North China DMT @64%	89,3
2-Ocean freigth MT	20,5
3-Price Fob Porto Sul	68,8
4- Total Cash cost	44,9
5-Gross Margin in the Mine	23,9
6-Less Moisture	2,6
Gross Margin	21,26

Table 13 - Gross Margin Estimates for Production of 20 Mtpa

Appendix B - Mineral Rights Status Report

MINING AUDIT LEGAL REPORT

I)- INTRODUCTION

Due to request from **SANTA FÉ EXTRAÇÃO DE MINÉRIOS S/A**, by formal e-mail sent by **Dr. Frederico Robalinho**, we conducted a legal audit on the mining administrative proceedings listed below, hereinafter referred to as "Mining Rights", which are being processed at the National Department of Mineral Production [*Departamento Nacional de Produção Mineral*] ("**DNPM**"), an instrumentality linked to the Brazilian Ministry of Mines and Energy ("**MME**"), two bodies integrating the Federative Republic of Brazil.

II)- OBJECTIVE

This work aims at checking if the Mining Rights below comply with the formalities addressed in Decree-Law nº 227, of 1967 ("**Mining Code**"), and supplementary regulations.

III)- METHODOLOGY

In order to conduct our work, on **August 22, 2013**, we visited **Cadastro Mineiro** [*Minas Gerais' Records*] website of the DNPM in the world wide web,[1] when we had the opportunity to examine the data entered by the DNPM in each Mining Right.Exceptionally, on **October 7, 2013** we visited **Cadastro Mineiro** website of the DNPM on the *Internet* in regard to DNPM Proceeding nº 872.024/2010.

It is important to emphasize that our work is based only on information contained and available at the aforementioned website, as we did not have access to the proceedings that are being processed at the Superintendent's Office of the DNPM in **Salvador, State of Bahia.**

In order to make this report more elucidative, the information obtained in DNPM

[1] Hereinafter referred to as Internet.

On July 25, 2011, the exploration work start was informed to the DNPM.

On September 1, 2011, the proceedings transfer was requested to the DNPM.

On February 17, 2012, it was published on the DOU, an order by the DNPM approving the proceedings transfer to Santa Fé.

On July 25, 2012, the payment of the 2nd TAH was made.

On July 31, 2012, the payment of the 3rd TAH was made.

7.2)- Initial Considerations

Nothing to declare.

7.3)- Opinion:In compliance

7.4)- Final Considerations

Nothing to declare.

8)- DNPM nº 870.635/2011

8.1)- Information

On February 16, 2011, Delta Crescent Investimentos e Participações S/A requested to the DNPM an authorization to explore iron ore in the Municipality of Livramento de Nossa Senhora, State of Bahia.

On May 27, 2011, it was published on the DOU, Exploration License nº 7.227, valid for 3 years.

On June 3, 2011, the exploration work start was informed to the DNPM.

On July 21, 2011, the payment of the 1st TAH was made.
On September 1, 2011, the proceedings transfer was requested to the DNPM.

On February 17, 2012, it was published on the DOU, an order by the DNPM approving the proceedings transfer to Santa Fé.

On July 25, 2012, the payment of the 2nd TAH was made.

On July 31, 2012, the payment of the 3rd TAH was made.

8.2)- Initial Considerations

Nothing to declare.

8.3)- Opinion: In compliance

8.4)- Final Considerations

Nothing to declare.

9)- DNPM nº 870.636/2011

9.1)- Information

On February 16, 2011, Delta Crescent Investimentos e Participações S/A requested to the DNPM an authorization to explore iron ore in the Municipality of Livramento de Nossa Senhora, State of Bahia.

On May 27, 2011, it was published on the DOU, Exploration License nº 7.156, valid for 3 years.

On July 21, 2011, the payment of the 1st TAH was made.

On July 25, 2011, the exploration work start was informed to the DNPM.

On September 1, 2011, the proceedings transfer was requested to the DNPM.

On February 17, 2012, it was published on the DOU, an order by the DNPM approving the proceedings transfer to Santa Fé.

On July 25, 2012, the payment of the 2nd TAH was made.

On July 31, 2012, the payment of the 3rd TAH was made.

9.2)- Initial Considerations

Nothing to declare.

9.3)- Opinion: In compliance

9.4)- Final Considerations

Nothing to declare.

10)- DNPM nº 870.859/2011

10.1)- Information

On March 10, 2011, Santa Fé Extração de Minérios S/A requested to the DNPM an authorization to explore iron ore in the Municipalities of Brumado and Livramento de Nossa Senhora, State of Bahia.

On June 15, 2011, it was published on the DOU, Exploration License nº 8.255, valid for 3 years.

On July 21, 2011, the payment of the 1st TAH was made.

On July 25, 2011, the exploration work start was informed to the DNPM.

On December 12, 2011, it was informed to the DNPM the occurrence of a new mineral substance.

On July 25, 2012, the payment of the 2nd TAH was made.

On July 31, 2012, the payment of the 3rd TAH was made.

10.2)- Initial Considerations

Nothing to declare.

10.3)- Opinion:In compliance

10.4)- Final Considerations

Nothing to declare.

11)- DNPM nº 871.294/2011

11.1)- Information

On April 12, 2011, Santa Fé Extração de Minérios S/A requested to the DNPM an authorization to explore iron ore in the Municipality of Livramento de Nossa Senhora, State of Bahia.

On August 12, 2011, it was published on the DOU, Exploration License nº 11.719, valid for 3 years.

On August 23, 2011, the exploration work start was informed to the DNPM.

On January 31, 2012, the payment of the 1st TAH was made.

On January 31, 2013 the payment of the 2nd TAH was made.

11.2)- Initial Considerations

Nothing to declare.

11.3)- Opinion:In compliance

11.4)- Final Considerations

Nothing to declare.

12)- DNPM nº 871.393/2011

12.1)- Information

On April 26, 2011, Santa Fé Extração de Minérios S/A requested to the DNPM an authorization to explore iron ore in the Municipality of Livramento de Nossa Senhora, State of Bahia.

On August 12, 2011, it was published on the DOU, Exploration License nº 11.737, valid for 3 years.

On January 31, 2012 the payment of the 1st TAH was made.

On January 31, 2013 the payment of the 2nd TAH was made.

12.2)- Initial Considerations

The exploration work start was not informed to the DNPM.

12.3)- Opinion:Noncompliance

12.4)- Final Considerations

The DNPM shall issue a tax assessment notice and apply fine due to the non-communication of the exploration work start.

13)- DNPM nº 872.212/2011

13.1)- Information

On May 31, 2011, Santa Fé Extração de Minérios S/A requested to the DNPM an authorization to explore iron ore in the Municipality of Livramento de Nossa Senhora, State of Bahia.

13.2)- Initial Considerations

The Exploration License was not issued.

13.3)- Opinion:In compliance

13.4)- Final Considerations

Nothing to declare.

14)- DNPM nº 873.181/2011

14.1)- Information

On August 11, 2011, Santa Fé Extração de Minérios S/A requested to the DNPM an authorization to explore iron ore in the Municipality of Brumado, State of Bahia.

On October 5, 2011, it was published on the DOU, Exploration License nº 15.660, valid for 3 years.

On October 28, 2011, the exploration work start was informed to the DNPM.

On January 31, 2012 the payment of the 1st TAH was made.

On January 31, 2013 the payment of the 2nd TAH was made.

14.2)- Initial Considerations

Nothing to declare.

14.3)- Opinion:In compliance

14.4)- Final Considerations

Nothing to declare.

15)- DNPM nº 870.537/2012

15.1)- Information

On February 28, 2011, Santa Fé Extração de Minérios S/A requested to the DNPM an authorization to explore iron ore in the Municipality of Livramento de Nossa Senhora, State of Bahia.

15.2)- Initial Considerations

The Exploration License was not issued.

15.3)- Opinion:In compliance

15.4)- Final Considerations

Nothing to declare.

16)- DNPM nº 872.389/2012

16.1)- Information

On November 12, 2011, Santa Fé Extração de Minérios S/A requested to the DNPM an authorization to explore iron ore in the Municipality of Livramento de Nossa Senhora, State of Bahia.

16.2)- Initial Considerations

The Exploration License was not issued.
16.3)- Opinion:In compliance
16.4)- Final Considerations Nothing to declare.

V)- FINAL CONSIDERATIONS

These are our observations, we reserve the right to present other considerations in timely manner, if applicable.

Rio de Janeiro, October 7, 2013

Carlos Alberto Lacerda
Lawyer