Introduction

SPG Mineração S. A. is a holding company of Mineral Rights in Amapa State, northern of Brazil. His main area of activity is a development of new business related to the exploitation of deposits of iron ore.

Founded in 2006 by three partners / shareholders, SPG Mineração S. A. has been preparing since then, the consolidation of the Greenfield Project, Tartarugal Grande Iron Ore, located in Tartarugalzinho County, Amapa State.

Currently the structure of SPG Mineração S.A is made up of 88% of own Shares and 12% of company shares Acquired by a Russian company, SEVERSTAL in 2011.

This document is a brief presentation of all aspects related to the design, quality of the ore, the DNPM processes and drilling studies already performed.
Location

Northern Brazilian state with population of 734 th. people.

The state’s GDP (2010: c. $4.2bn) is dominated by services (69%), followed by agriculture and forestry (19%) and industrial production (12%).

Mining products (iron ore, manganese) account for more than 90% of the state’s exports, followed by timber (5%) and agriculture products (1-2%).

The state has a great amount of high quality highways with extremely low load rate, the capital Macapa has an international airport. The first railroad from the port Macapa was built in 1940s when a huge manganese deposit was discovered.

The state has c. 237 Mwatt /h. power generation supply and c. 200 Mwatt/h. power generation demand. Currently 4 new dams are being built with total generation capacity of 1.000 Mwatt/h. The Brazilian government wants the Amapa state to become a net exporter of electricity.
BR-156 Road, near the access to SPG Mineração S. A.
ANM Process

ANM Processes with Final Report approved by National Mining Agency (ANM).
858.009/2006 - 8593.75 Hectars
858.046/2006 - 6453.32 Hectars
858.048/2006 - 6839.93 Hectars
858.049/2006 - 8250.1 Hectars

ANM Processes with Partial Report approved by National Mining Agency (ANM).
858.043/2010 - 7639.15 Hectars
858.039/2010 - 1891.78 Hectars

SPG Mineração S. A. Areas: 39,668.04 Hectars.

All of these processes can be checked on the following address:
http://sigmine.dnpm.gov.br/webmap/

SPG Mineração S. A. and their respective DNPM processes.
Final Report Approval

To access the Final Report Approved by ANM, you must visit the following link:
http://www.spgmineracao.com.br/relatorio_final

Some instructions will be available to Download the file.

The Official Report about this Approval is presented in Diário Oficial da União (The Brazilian Government Newspaper).

These Newspaper is available in the following link:
http://www.portal.in.gov.br
Elevation Data

The elevation data was provided by Shuttle Radar Topography Mission (SRTM) 1 Arc-Second Global.

The Maximum Elevation Field, was 155 Meters above Sea Level, and the Minimum is 17 Meters.
Geophysical Modelling

In December 2011, Reconsult Geofísica was hired to QC, process and interpret a new Magnetic and radiometric survey, in Amapa State, Brasil. The main target of interpretation is to help Iron exploration around the survey area.

The following subjects were covered:

1) Global interpretation and geological understanding from geophysical data.
2) Magnetic modelling in ALL the magnetic anomalies (65).
3) Magnetic detailed interpretation on the main targets.
4) Confrontation to the geological surface observation.
5) Drill hole locations (4).
6) Recommendations for the future strategy.

To access the Geophysical Modelling Report, please, access: http://www.spgmineracao.com.br/report_reconsult.pdf
Magnetic Intensity

Magnetic method uses the Earth magnetic field to help mapping the subsurface. This is possible because some rocks are more magnetic than others. Magnetic Field can be measured through magnetometers. The obtained magnetic anomalies depend on the position of the rock. A fixed certain body will cause different anomalies if it is located in Australia, Africa, Canada, Brazil. In study area, the magnetic inclination is around 0° making the anomalies like a “low magnetic”, with the negative pole much higher than the positive. Figure 2 shows a typical magnetic anomaly in this latitude, in profile and in map:

Figure 4: Total Magnetic Intensity Block 1 Map.

Radiometrics is a measure of the natural radiation in the earth’s surface, which can tell us about the distribution of certain soils and rocks. Geologists and geophysicists routinely use it as a geological mapping tool to tell them where certain rock types change.

Some Geophysical Data interpreted by RECONSULT.
Reduction to the Pole

The geophysic map presented on this page was generated from a preliminary study of aerial geophysical interpretation, produced by RECONSULT Geofisica and supervised by technical staff of SPG Mineração S. A.

Figure 7: Magnetic Analytic Signal Block 1 Map.

Flight parameters - 1 (TFTGN) and 2 (TFTG):
Line Direction: N/S
Tie Line Direction: E-W
Line spacing: 100m
Tie line Spacing (Global): 1000m (infill 200m)
Crystal Volume (down): 2048 pol3
Nominal clearance: 100m
Sampling Interval: 0.1s (mag), 1s (gamma).
Contractor: FUGRO Airborne

Some Geophysical Data interpreted by RECONSULT.
## Occurencies and Trenches

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SPG Mineração S. A.

Tartarugal Grande Iron Ore

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nascimento@spgmineracao.com.br
SPG Mineração S. A.

Tartarugal Grande Iron Ore
SPG Mineração S. A.

Tartarugal Grande Iron Ore
SPG Mineração S. A.

Tartarugal Grande Iron Ore
Drill Hole Location

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SPG Mineração S. A.

Tartarugal Grande Iron Ore
Drilling Job

The work were made by drilling by the company BOART LONGYEAR, totaling 24 holes around the areas 858.009/2006, 858.046/2006, 858.048/2006 858.049/2006. The 24 holes has on average 118 meters each, totaling 2851.28 meters linear samples.

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<th>Y</th>
<th>Z</th>
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Table A.4.1: Reservas de dados relevante ao programa de sondagens realizadas.
SPG Mineração S. A.

Tartarugal Grande Iron Ore
SPG Mineração S. A.

Tartarugal Grande Iron Ore
## RELATÓRIO DE ANÁLISE – Nº CB 9411364/12

**Clinte:** SRK Consulores do Brasil Ltda (SPG Mineração S.A.)  
Av. Conferência n° 6004 - Fundicionários  
Belo Horizonte - MG  
CEP: 30110-928  
At: Leandro Rais  
Jonas José Costa de Oliveira  
leia@srk.com.br  
Pjm@srk.com.br

**Data:** 18/04/2012  
**Nº. Amostras:** 13  
**Tipo de amostra:** Rocha

**Proj. Clinte**: Fe Tartarugatinha/SPG

### Resultados

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<th>SiO2</th>
<th>Al2O3</th>
<th>P</th>
<th>MgO</th>
<th>K2O</th>
<th>Na2O</th>
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</table>
| P1  | 44.25 | 23.52 | 56.75 | 1.19 | 0.04 | 0.20 | 0.02 | 0.02 |   | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.00 | 0.18 | 0.02  
| P2  | 59.04 | 20.21 | 44.45 | 0.36 | 0.14 | 0.09 | 0.00 | 0.00 |   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.36 | 0.02  
| P3  | 59.04 | 20.21 | 44.45 | 0.36 | 0.14 | 0.09 | 0.00 | 0.00 |   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.36 | 0.02  
| P4  | 52.45 | 50.50 | 46.50 | 5.12 | 0.06 | 0.30 | 0.02 | 0.20 |   | 0.20 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.20 | 0.02  
| P5  | 46.19 | 12.77 | 12.25 | 3.29 | 0.12 | 0.20 | 0.02 | 0.02 |   | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.20 | 0.02  
| P6  | 42.02 | 9.79 | 9.62 | 0.29 | 0.92 | 0.20 | 0.04 | 0.04 |   | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.20 | 0.04  
| P7  | 38.02 | 6.33 | 10.41 | 15.39 | 0.059 | 0.03 | 0.01 | 0.01 |   | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01  
| P8  | 34.47 | 9.69 | 9.62 | 0.29 | 0.92 | 0.20 | 0.04 | 0.04 |   | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.20 | 0.04  
| P9  | 34.47 | 9.69 | 9.62 | 0.29 | 0.92 | 0.20 | 0.04 | 0.04 |   | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.20 | 0.04  
| P10 | 41.08 | 9.59 | 15.49 | 14.70 | 0.036 | 0.15 | 0.02 | 0.02 |   | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.20 | 0.02  
| P11 | 34.21 | 9.79 | 9.62 | 0.29 | 0.92 | 0.20 | 0.04 | 0.04 |   | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.20 | 0.04  

**Controle de Qualidade**

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| ST2 | 41.63 | 23.52 | 56.75 | 1.19 | 0.04 | 0.20 | 0.02 | 0.02 |   | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02  
| ST3 | 41.63 | 23.52 | 56.75 | 1.19 | 0.04 | 0.20 | 0.02 | 0.02 |   | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02  
| ST4 | 41.63 | 23.52 | 56.75 | 1.19 | 0.04 | 0.20 | 0.02 | 0.02 |   | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02  

*Perda por calcinação (ou perda ao forno)*

### Tartarugatinha

**Iron Ore**

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**nascimento@spgmineração.com.br**