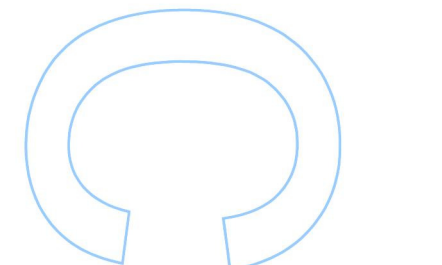
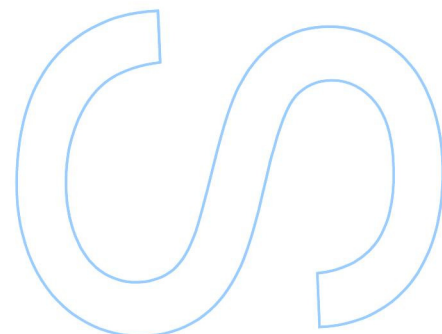
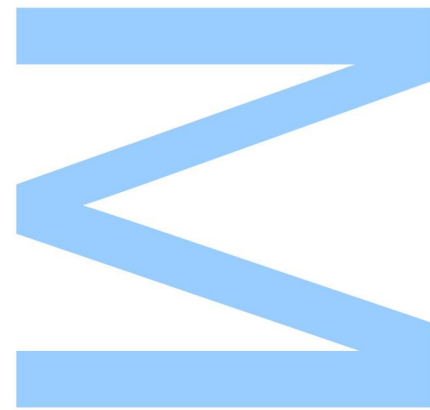


The Exploration and Research of Polimetallic Massive Sulphides in Iberian Pyrite Belt. New Data About the Lagoa Salgada Deposit



João Fernando Neiva Ervedosa Barros
 Mestrado em Geologia
 Departamento de Geociências, Ambiente e Ordenamento do Território
 2013

Orientador

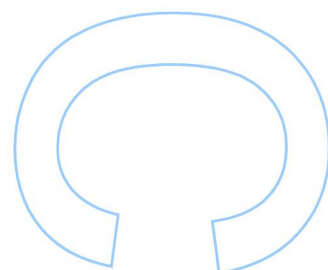
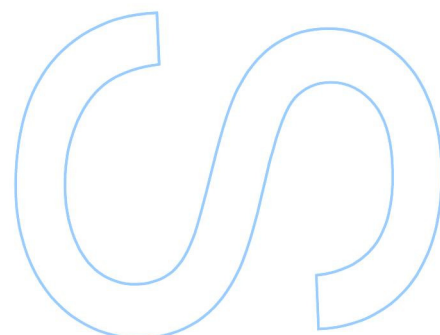
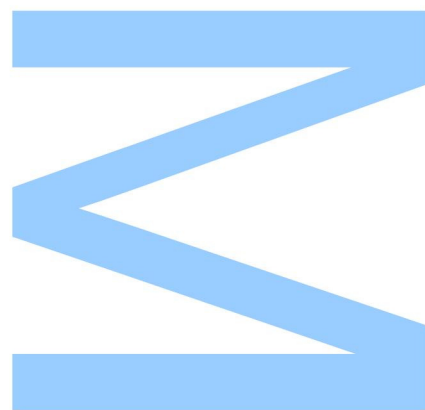
Alexandre Lima, Professor Auxiliar, Faculdade de Ciências da Universidade do Porto



Todas as correções determinadas pelo júri, e só essas, foram efetuadas.

O Presidente do Júri,

Porto, ____ / ____ / ____





**THE EXPLORATION AND RESEARCH OF POLIMETALIC MASSIVE
SULPHIDES IN THE IBERIAN PYRITE BELT.
NEW DATA ABOUT THE LAGOA SALGADA DEPOSIT**

Dedicatória

Ao meu Pai

Este homem que eu tanto admiro,
com todas as suas virtudes e também com seus limites.
Este homem com olhar de menino, sempre pronto e atento,
mostrando-me o caminho da vida, que está pela frente.

Este mestre contador de histórias
traz em seu coração tantas memórias,
espalha no meu caminhar muitas esperanças,
certezas e confiança.

Este homem alegre e brincalhão,
mas também, às vezes, silencioso e pensativo,
homem de fé e grande luta,
sensível e generoso.

O abraço acolhedor que me acolher, este homem,
meu Pai, com quem aprendo a viver.

Pai,
meu velho, meu grande conselheiro e leal amigo:
infinito é teu coração.

Obrigado, Pai, por orientares o meu caminho,
feito de lutas e incertezas
mas também de muitas esperanças e sonhos!

À minha Mãe

MÃE...

que na presença constante me ensinaste
na pureza do teu coração seguir os teus
caminhos...

MÃE...

do amor sem dimensão, de cada momento,
dos atos de cada capítulo da minha vida
não ensaiados, mas vividos em cada
emoção...

MÃE...

do abraço, do beijo que tenho sempre na
lembrança...

MÃE...

Mulher a quem devemos a vida,
que merece o nosso respeito,
nossa gratidão e nosso afeto.

AGREDECIMENTOS

Aos meus Pais Adriano Fernando Barros e Maria Manuela Ribeiro Neiva Barros por tudo o que sempre fizeram e continuam a fazer por mim, a eles que devo aquilo o que hoje sou.

Ao meu irmão, Adriano Fernando Neiva Barros, Homem de uma capacidade de trabalho invejável, sempre disponível para me ajudar e com um coração do tamanho do mundo.

À minha Mulher, que tem sido uma companheira de vida em todos os momentos, e que nunca me deixa esmorecer.

Ao meu orientador da Dissertação, Professor Alexandre Lima, agradeço o apoio, a partilha do saber e as valiosas contribuições para o trabalho. Acima de tudo, obrigada por me continuar a acompanhar nesta jornada e por estimular o meu interesse pelo conhecimento e pela vida académica. Obrigado, também, porque realmente sabe e soube transmitir-me o significado da palavra amizade.

Ao Professor Doutor Fernando Noronha, sempre disponível para me ajudar e pela sua exímia capacidade para ensinar. Obrigado por ter feito de mim, aprendiz, não um trabalho, mas sim um contentamento.

Ao meu colega Rui Alverca, pelo carinho e dedicação a mim e em especial à minha Família e, pelo companheirismo ao longo destes últimos 10 anos que temos colaborado juntos.

Por último, aos meus Filhos, pois é por eles que tenho vontade de me levantar todos os dias para trabalhar.

ABSTRACT

The Iberian Pyrite Belt, located in the SW Iberian Peninsula, contains many Paleozoic giant and supergiant massive sulphide deposits, including the largest individual massive sulphide bodies on Earth. Total ore reserves exceed 1500 Mt, distributed in eight supergiant deposits (>100 Mt) and a number of other smaller deposits, commonly with associated stockwork mineralizations and footwall alteration haloes.

Massive sulphide bodies largely consist of pyrite, with subordinated sphalerite, galena and chalcopyrite and many other minor phases, although substantial differences occur between individual deposits, both in mineral abundance and spatial distribution.

A Significant number of (pyrite) mines are now inactive but some orebodies still remain unexploited; this is the case of Lagoa Salgada. It is the most NW orebody known and occurs beneath approximately 130 m of Tertiary sediments which limits interpretation solely to borehole intersection data. The orebody is folded and interpreted to occur on the sub-vertical-overturned and intensely faulted limb of a SW verging anticline.

This work is an assessment of the geological, geochemical and geophysical data available about the Lagoa Salgada deposit, discovered in 1992, including a number of new and amazing achieved results.

RESUMO

A Faixa Piritosa Ibérica (FPI), localizada no sector SW da Península Ibérica, contém inúmeros gigantes e supergigantes depósitos de sulfuretos maciços vulcanogénicos, de idade Paleozóica, incluindo, individualmente, os maiores corpos de sulfuretos maciços da Terra. O total de reservas de minério da FPI, ultrapassa os 1500 milhões de toneladas, distribuídas em oito depósitos supergigantes (> 100 Mt), e uma série de outros depósitos menores, geralmente com mineralizações do tipo “stockwork” e zonas de alteração clorítico-sericítica mineralizadas, localizadas a muro dos sulfuretos maciços.

Os corpos de sulfuretos maciços, são essencialmente constituídos maioritariamente por pirite, com esfalerite, galena e calcopirite, subordinadas, e ainda, com diversas fases menores, apesar de existirem diferenças substanciais entre os depósitos individuais, tanto em abundância mineral, como em distribuição espacial.

Um número significativo de minas de pirite estão actualmente inactivas, mas algumas jazidas ainda permanecem inexploradas, como é o caso de Lagoa Salgada. Esta jazida está localizada no sector mais a NW da FPI, e ocorre acerca de 130m, abaixo dos sedimentos do Terciário, limitando assim, a interpretação unicamente aos dados das sondagens. A jazida encontra-se fortemente tectonizada (dobrada), sendo geologicamente interpretada, como um corpo sub-vertical, intensamente dobrado e falhado, com vergência de dobramentos para SW.

Este trabalho é uma avaliação dos dados geológicos, geoquímicos e geofísicos disponíveis sobre o depósito de Lagoa Salgada, descoberto em 1992, incluindo uma série de novos e surpreendentes resultados, obtidos em trabalhos de prospecção e pesquisa, recentemente.

GENERAL INDEX

I.	INTRODUCTION.....	1
II.	THE IBERIAN PYRITE BELT (IPB).....	2
III.	THE LAGOA SALGADA DEPOSIT.....	4
III.1	PROPERTY DESCRIPTION AND LOCATION.....	5
III.2	GEOLOGICAL SETTING AND MINERALIZATION.....	8
III.2.1	REGIONAL GEOLOGY.....	8
III.2.2	PROPERTY GEOLOGY AND MINERALIZATION.....	9
IV.	WHY THE INTEREST IN THE LAGOA SALGADA PROPERTY.....	16
V.	HISTORY OF PREVIOUS WORKS AT LAGOA SALGADA DEPOSIT.....	17
V.1	DISCOVERY, 1992.....	17
V.2	RIO TINTO ZINC, 1994 TO 2000	19
V.3	REDCORP, 2004 TO 2008.....	20
VI.	NEW EXPLORATION WORKS.....	22
VI.1	DRILLING CAMPAIGN.....	23
VI.2	ACHIEVED RESULTS.....	24
VI.2.1	ASSAYING RESULTS.....	26
VI.2.2	POLISHED SECTIONS PETROGRAPHY.....	29
VI.2.3	DRILL LOGS.....	38
VI.3	SGH – SOIL GAS HYDROCARBON PREDICTEV GEOCHEMISTRY	39
VI.3.1	INTRODUCTION TO SGH.....	39
VI.3.2	SGH – SOIL GAS HIDROCARBON GEOCHEMISTRY SURVEY OVER LAGOA SALGADA.....	43
VI.3.3	CONCLUSIONS.....	49
VI.4	GEOPHYSIC METHOS USED IN LAGOA SALGADA PROPERTY.....	50
VI.4.1	DHTEM (DOWN-HOLE TRANSIENT ELECTROMAGNETIC).....	50
VI.4.1.1	PRESENTATION AND OBJECTIVES.....	50
VI.4.1.2	GENERAL INFORMATION ABOUT THE SURVEYED DRILL HOLES.....	52

**THE EXPLORATION AND RESEARCH OF POLIMETALIC
MASSIVE SULPHIDES IN THE IBERIAN PYRITE BELT.
NEW DATA ABOUT THE LAGOA SALGADA DEPOSIT**

VI.4.1.3	METHODOLOGY OF THE DOWN-HOLE TEM METHOD.....	55
VI.4.1.4	DESCRIPTION OF THE SURVEY.....	56
VI.4.1.5	SUMRAY OF THE FIELD WORK.....	57
VI.4.1.6	INSTRUMENTATION.....	58
VI.4.1.7	RESULTS OF THE SURVEY.....	59
VI.5	UP-DATE OF THE MINERAL RESOURCE ESTIMATES OF THE LAGOA SALGADA DEPOSIT..	65
VII.	CONCLUSIONS.....	68
VIII.	RECOMMENDATIONS FOR FUTURE WORKS.....	73
BIBLIOGRAPHY		
ANNEXES		

FIGURES INDEX

Fig. 1 – Iberian Pyrite Belt Map with location of the known deposits..... 3

Fig. 2 – Geotectonic regions of the Iberian Peninsula, (adapted from QUESADA, 1992)..... 4

Fig. 3 – Location of principal Portuguese IPB deposits..... 6

Fig. 4 – Lagoa Salgada Property Location in Southern Portugal..... 7

Fig. 5 - Map showing outline of the Lagoa Salgada concession and adjacent concessions and deposits..... 8

Fig. 6 – Regional geology map..... 11

Fig. 7 – Simplified geology of the Lagoa Salgada deposit..... 13

Fig. 8 – Cross section over LS22 drill hole..... 14

Fig. 9 - Cross section through the massive sulfide lens type orebody in the northwestern Lagoa Salgada orebody (LS4)..... 18

Fig. 10 – Map showing the Lagoa Salgada Minerals Rights and location of the Lagoa Salgada orebody and the VMS target at Rio de Moinhos..... 21

Fig.11 – Re-logging of Historic Drill Core at the Aparis Mine Core Storage Facility..... 23

Fig. 12 – Pre-collar drill rig to drill over the tertiary sediments and steel casing to protect the drill hole from collapsing..... 24

Fig. 13 - Simplified geology and drill hole location map of Lagoa Salgada – September 2011..... 25

Fig. 14 - Perspective View of the Lagoa Salgada Deposit; Looking Northwest;..... 26

Fig. 15 – Polished section nº 1 from drill hole PX01..... 29

Fig. 16 – Polished section nº 2 from drill hole PX01..... 29

Fig. 17 – Core box where sample from PX03 was collected..... 30

Fig. 18 – Polished section nº 5 from drill hole PX03..... 30

Fig. 19 – Electronic microscope image from iron oxides zone where gold was identified..... 31

Fig. 20 - Gold particles location at iron oxide zone in sample PX1..... 31

Fig. 21 – SEM (secondary electron microscopy) image where gold particle surrounded by iron oxides and Pb,Fe & As sulfates (light grey).....	32
Fig. 22 – BSE (Backscattered secondary electron) image of same gold particle.....	32
Fig. 23 – Polished section nº 6 from drill hole PX03.....	33
Fig. 24 – Mimetite (Pb ₅ (AsO ₄) ₃ Cl) crystals in open spaces	33
Fig. 25 – Polished section nº 8 from drill hole PX03.....	34
Fig. 26 - Core box from where sample of drill hole PX03 was collected.....	34
Fig. 27 - Polished section nº 8 from drill hole PX03.....	35
Fig. 28 – Reflected light microscopy photo showing sample rich in Zn, Pb.....	35
Fig. 29 – Zoom of previous area with pyrite (py), thetraedrite (th), sphalerite (sph) and galena (ga). 35	35
Fig. 30 – Zoom of previous area with pyrite (py), thetraedrite (th), sphalerite (sph) galena (ga) and chalcopyrite (ch).....	36
Fig. 31 – Zoom of previous area with pyrite (py), arsenopirite (ars), sphalerite (sph) galena (ga) and chalcopyrite (ch).....	37
Fig. 32 – Galena (ga) in pyrite (py) that shows remnants of primary colloform textures.....	38
Fig. 33 – Outline of CO ₂ generation.....	40
Fig. 34 Outline of the response to gas detection.....	40
Fig. 35 – The used instantaneous CO ₂ / O ₂ equipment.....	43
Fig. 36 – Designed grid planned for SGH survey over Lagoa Salgada area.....	44
Fig. 37 – Geologist at site collecting CO ₂ O ₂ sample readings.....	45
Fig. 38 – Image of total gas and excess carbon dioxide signatures.....	46
Fig. 39- Interpretation of the soil gas survey in the Lagoa Salgada Area.....	49
Fig. 40 – Location of the surveyed drill holes and Tx loops.....	51
Fig. 41 - Preliminary geological section of the surveyed area.....	54
Fig. 42 - EM coupling between the primary field and a conductor, depending on the location of that conductor in regards to the transmitter loop.....	57
Fig. 43 – Field crew preparing the instrumentation for DHTeM survey.....	59
Fig. 44a – Installation of equipment for DHTeM survey.....	60

Fig. 44b – DHTeM theoretical responses (Z component).....	61
Fig. 45 - Theoretical 3 component TEM data for a hole perpendicular to an off-hole tabular Conductor.....	61
Fig. 46 - Plan view of all conductors interpreted from the TEM down-hole measurements.....	63
Fig. 47 – 3D modeling of the Lagoa Salgada massive sulphide orebody and location of the drilling....	67
Fig. 48 - 3D View of the Lagoa Salgada deposit with main resource blocks (excluding the stockwork zone to simplify visualization).....	69
Fig. 49 – Schematic geological modeling (cross section) of the Lagoa Salgada Orebody.....	70
Fig. 50 – Simplified Lagoa Salgada geology map with connection of the previous 2 lenses of massive sulphides and interpreted orebody orientation.....	72
Fig. 51 - 3D View of the Lagoa Salgada deposit with main resource blocks Conceptual expansion drilling of existing resource.....	74
Fig. 52– Location of the Rio de Moinhos Sector inside Lagoa Salgada Concession.....	75
Fig. 53 – Lagoa Salgada map with location of the copper stockwork Central Sector.....	77
Fig.54 – Cross-section of the planned drill holes PX12 and PX13.....	78

TABLE INDEX

Table 1 –Example of a supergene enrichment zone in the discovery drill hole (LS22).....	15
Table 2 - Historic RTZ drill holes intersections and assaying results from Lagoa Salgada deposit.....	19
Table 3 – Lagoa Salgada Inferred Resource Estimate, August 2007.....	22
Table 4 – Coordinates of drill holes and meters drilled.....	23
Table 5 - Indicated Resource Estimate for the Lagoa Salgada Deposit.....	25
Table 6 - Inferred Resource Estimate for the Lagoa Salgada Deposit.....	25
Table 7 – Assaying results and best intersection obtained from the drilling campaign.....	28
Table 8 – List of drill holes done over Lagoa Salgada deposit.....	38
Table 9 – Types of SGH species and its survey applications.....	41
Table 10 - Summary of field work conducted using a 3D Probe.....	58
Table 11 - Metal Price and Recovery Parameters for ZnEQ% Calculation.....	66
Table 12 - Indicated Resource Estimate for the Lagoa Salgada Deposit.....	66
Table 13 - Inferred Resource Estimate for the Lagoa Salgada Deposit.....	67

GLOSSARY

Portex Minerals Inc.	Portex
Canadian National Stock Exchange	CNSX
Strategic Resource Acquisition Corp.	SRA
Recorp Empreendimentos Mineiros, Unipessoal, Ltda.	REM
volcanogenic massive sulphide	VMS
Wardrop, a Tetra Tech Company	Tetra Tech
Toronto Stock Exchange Venture.....	TSXV
National Instrument 43-101	NI 43-101
Iberian Pyrite Belt	IPB
Drillcon Iberia	Drillcon
zinc equivalent	ZNEQ%
ordinary kriging	OK
lead	Pb
zinc	Zn
copper	Cu
silver	Ag
gold	Au
rock quality designation	RQD
Serviço de Fomento Mineiro	SFM
Instituto Geológico e Mineiro	IGM
Laboratório Nacional de Energia e Geologia	LNEG
Rio Tinto Zinc	RTZ
Redcorp Ventures Ltd.	Recorp
Instituto Geográfico e Cadastral de Portugal	IGCP
Universal Transverse Mercator	UTM
Direcção Geral de Energia e Geologia	DGEG
Empresa de Desenvolvimento Mineiro	EDM
Upper Volcanic Unit	UVU
Lower Volcanic Unit	LVU
acrylonitrile butadiene styrene	ABS
poly vinyl chloride	PVC
quality assurance/quality control	QA/QC
sport utility vehicle	SUV
inductively coupled plasma	ICP
atomic emission spectroscopy	AES
inductively coupled plasma-mass spectroscopy	ICP-MS
specific gravity	SG
Canadian Institute of Mining	CIM
inverse distance	ID2
nearest neighbor	NN

**THE EXPLORATION AND RESEARCH OF POLIMETALIC
MASSIVE SULPHIDES IN THE IBERIAN PYRITE BELT.
NEW DATA ABOUT THE LAGOA SALGADA DEPOSIT**

**“Toda a grande obra supõe um sacrifício; e no próprio sacrifício se encontra a mais
bela e a mais valiosa das recompensas”**

(Agostinho da Silva, Filósofo)

I. INTRODUCTION

Thanks to the scientific progress of the last decades, particularly in the fields of geosciences, it is known that mineral resources or, more broadly, geological resources, even those that occur in non-economic quantities should be understood as products of geological processes cycles. Wherever certain factors are combined, the mineralization phenomenon happens. The intensity of it varies from case to case, and can therefore be formed from the simple mineral occurrence to the mineral deposit or mineral deposit of enormous dimensions. Thus, although there are plenty of gaps in the knowledge the complex metallogenic systems that occur within the Earth's crust, the truth is that the physical, chemical and structural environments where the majority of different types of mineral deposits are found, are relatively well defined and characterized.

I consider this work as one more step to improve the knowledge of the geology of the Iberian Pyrite Belt, and also showing a little more of what the Portuguese sub-soil is hidden so well.

The studied area is relatively large, covering the following sheets of the Geological Map of Portugal at scale 1/50.000: 39-C Alcácer do Sal, 39-D Torrão, 42-A Grândola and 42-B Azinheira dos Barros in an area of approximately 134.00 km².

I hereby intent to present and discuss the history of previous works done by other companies in this area, as well as the work carried out in recent years, since Portex acquired this area of exploration named “Lagoa Salgada”, including the conducted surveys, mainly core drilling, chemical laboratory analysis for Cu, Pb, Zn, Au and Ag to the core from the drilling, geophysical methods used and the update of the reserves from the “Lagoa Salgada” deposit.

II. THE IBERIAN PYRITE BELT (IPB)

The Iberian Pyrite Belt, located in the SW Iberian Peninsula, contains many Paleozoic giant and supergiant massive sulfide deposits, including the largest individual massive sulfide bodies on Earth. Total ore reserves exceed 1500 Mt, distributed in eight supergiant deposits (>100 Mt) and a number of other smaller deposits, commonly with associated stockwork mineralizations and footwall alteration haloes. Massive sulfide bodies largely consist of pyrite, with subordinated sphalerite, galena and chalcopyrite and many other minor phases, although substantial differences occur between individual deposits, both in mineral abundance and spatial distribution. These deposits are considered to be volcanogenic, roughly similar to volcanic-hosted massive sulfides (VHMS).

The Iberian Pyrite Belt (IPB) occupies the SW corner of the Iberian Peninsula, from Seville in Spain to the Atlantic Ocean, south of Lisbon, in Portugal (Fig. 1), making a belt in which very many massive sulfide deposits occur, including several giant and supergiant deposits such as Rio Tinto, Tharsis, La Zarza, Sotiel, and Aznalcóllar in Spain, or Neves Corvo and Aljustrel in Portugal. Even after continuous metal extraction for more than 5000 years, it retains exceptionally large metal reserves. It has been continuously explored and studied and, as a consequence, sulfide reserves in the IPB are being continuously increased with new discoveries, such as Aguas Tenidas (NAVAN 1996), Lagoa Salgada (Oliveira et al. 1993, 1998), Migollas (Santos et al. 1993), Masa Valverde (Ramírez et al. 1988), Vallejín (Bonnemaison et al. 1993) and Las Cruces (RTZ 1996).

THE EXPLORATION AND RESEARCH OF POLIMETALIC MASSIVE SULFIDES IN THE IBERIAN PYRITE BELT. NEW DATA ABOUT THE LAGOA SALGADA DEPOSIT

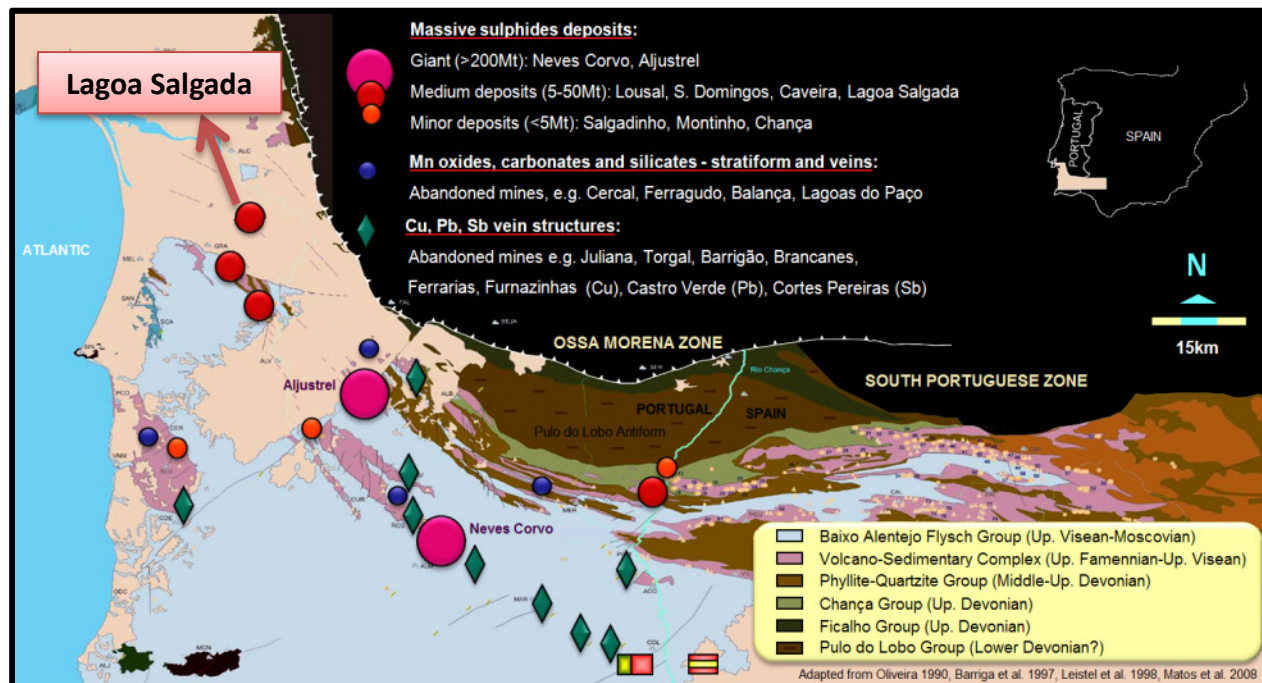


Fig. 1 – Iberian Pyrite Belt Map with location of the known deposits

In terms of its size, the Iberian Pyrite Belt is located near the contact zone between the Ossa-Morena and the South Portuguese zone, in a geographical area of about 300 Km length, from the polymetallic massive sulfide deposit of Lagoa Salgada (only discovered in the 90's) to near Seville and 30-60 Km wide.

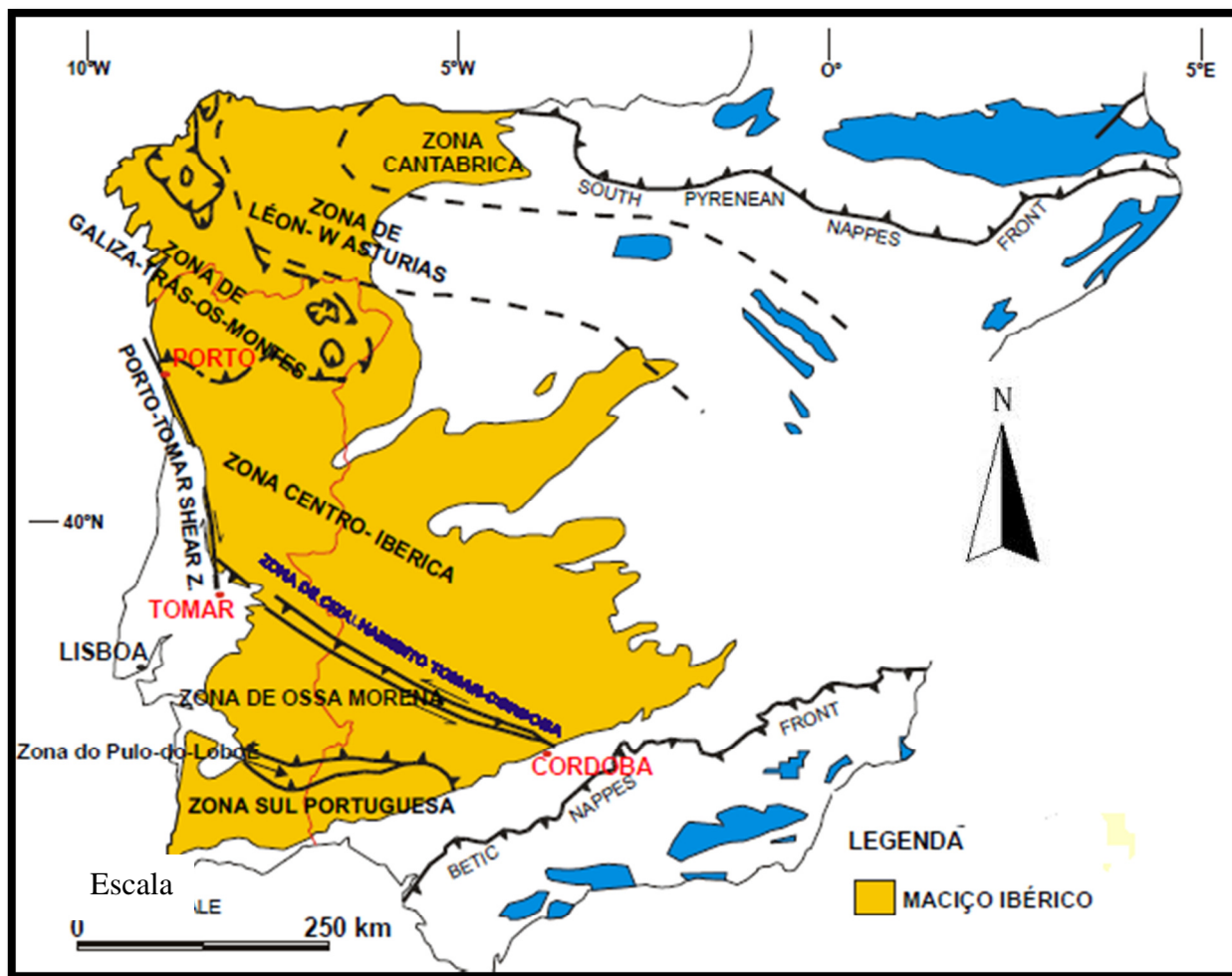


Fig. 2 – Geotectonic regions of the Iberian Peninsula, (adapted from QUESADA, 1992)

III. THE LAGOA SALGADA DEPOSIT

Lagoa Salgada is a small orebody (estimated to have at least 5 Mt) and, as yet, an unexploited orebody found within this ore province. It is located 80 km northwest of Neves Corvo and occurs ~130 m beneath sediments of the Sado Tertiary basin, limiting interpretation to drilling core data. Lagoa Salgada is folded and faulted. It is represented by a central stockwork zone and a massive sulfide lens zone in the northwestern part of the orebody, as will be shown in the following pages.

III.1 PROPERTY DESCRIPTION AND LOCATION

The Property is defined by the mineral rights to single concession, 100% owned by REDCORP Empreendimentos Mineiros, Lda. (REM), a wholly owned subsidiary of Portex. The concession covers a total area of approximately 13,400 ha. Exploration Permits are granted by the *Direcção Geral de Energia e Geologia* (DGEG), meaning in english General Directorate for Energy and Geology, for a period of two years.

The Exploration Permit, Contract MN/PP/009/08, is held by REM. Upon the acquisition of the Property by Portex, Portex made an official request to the DGEG, for the second prorogation to extend the expiry of the Exploration Permit for a further two years beyond the second prorogation to October 10, 2014.

It is located at approximately 130 km southeast of Lisbon, in the District of Setúbal and in the Grândola and Alcácer do Sal Municipalities. The Property is covered by map sheets 39-C, 39-D, 42-A and 42-B (1:50,000 scale maps), with an approximate center coordinates of 548000m E; 4229000m N, Zone 29 (at the Universal Transverse Mercator (UTM) and European Datum 1950).

Relatively to the other operating mines in Pyrite Belt, in Portugal, Lagoa Salgada deposit is located at approximately 50 km northwest of the Aljustrel lead-zinc mine, currently operated by Almina - Minas do Alentejo S.A., and at approximately 85 km northwest of the Neves Corvo copper-zinc mine, currently operated by Lundin Mining Corporation (Fig. 3 and 4).



Fig. 3 – Location of principal Portuguese IPB deposits.

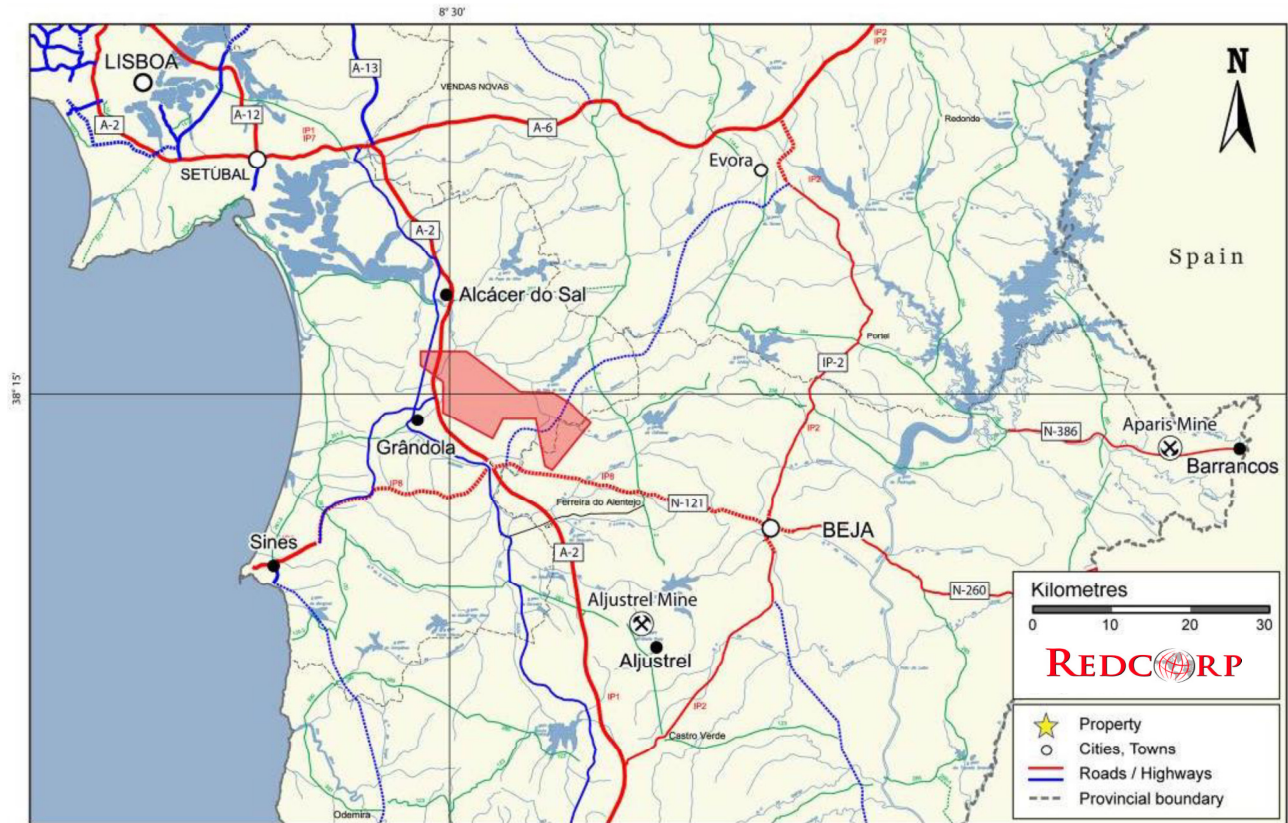


Fig. 4 – Lagoa Salgada Property Location in Southern Portugal

Two of the old known VMS deposits are located in the immediate area of Lagoa Salgada: Lousal and Canal Caveira (Fig. 5). The Lousal mine (approximately 8 km to the south) was active until 1988 and produced a reported historical resource of around 6 million tonnes averaging 0.7% copper, 0.8% lead, 1.4% zinc, 1 g/t gold and 20 g/t silver. Canal Caveira (approximately 2 km to the south of Lousal) is a smaller deposit where surface gossan cap was exploited in Roman times for gold and silver; while its deep-seated massive sulfides were exploited during the 20th century. The Lagoa Salgada deposit was discovered in 1992 by the Portuguese Geological Survey IGM, based on drill testing a gravity anomaly.

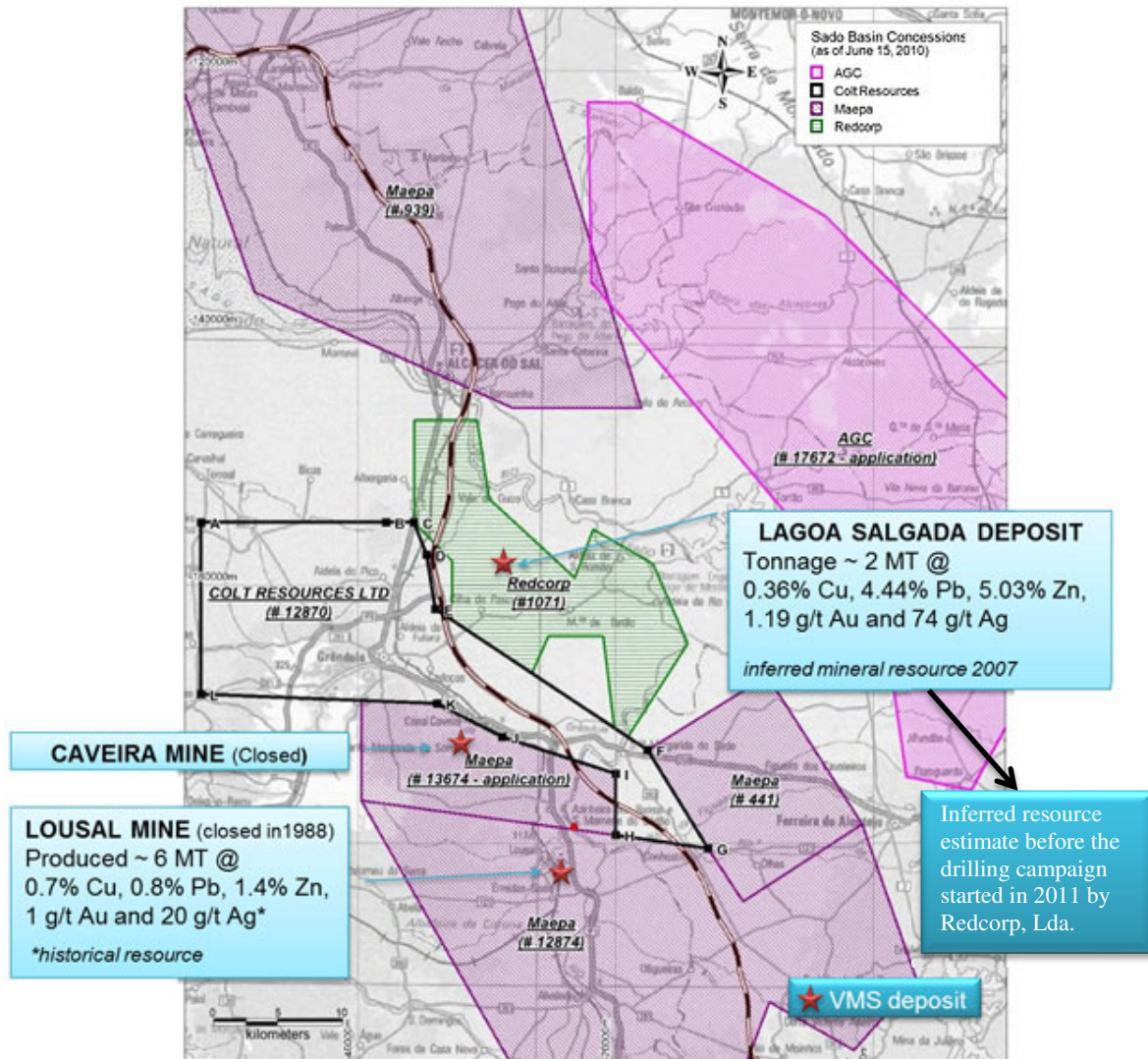


Fig. 5 - Map showing outline of the Lagoa Salgada concession and adjacent concessions and deposits.

III.2 GEOLOGICAL SETTING AND MINERALIZATION

III.2.1 REGIONAL GEOLOGY

Lagoa Salgada is located within the north western sector of the IPB which stretches from southern Spain into Portugal. The belt is a thrust faulted sedimentary sequence with local sub-aqueous volcanic centers that host VMS deposits. VMS deposits are generally interpreted to be syngenetic in origin; however mineralization ranges from sulfide precipitates to re-worked sulfide/silicate sediments and local sulfide replacement mineralization located in close proximity to felsic submarine volcanic centers. Within the

IPB, VMS deposits vary in size from a few hundred thousand tones to greater than 200 Mt. These deposits have been dated at Upper Devonian to Lower Carboniferous in age. The IPB has hosted approximately 60 mines in the last 100 years and some deposits have been exploited since Romans times (Clarke, et al 2004).

III.2.2 GEOLOGY AND MINERALIZATION OF DEPOSIT

The entire Property is covered by a palaeo-fluvial fan that ranges in thickness up to 200 m within the Tertiary Sado Basin (Fig. 6) and averages 135 m over the Lagoa Salgada deposit. The Tertiary sedimentary rocks uncomformably overlie rocks of the Volcano-Sedimentary Complex of the IPB. This sequence of rocks ranges in age from Upper Famennian to Middle Viséan, and is represented on the Property by a northwest-southeast lineament which is approximately 3.5 km long and 1 km wide. The volcanic sequence has been separated into two units: the Upper Volcanic Unit (UVU) and the Lower Volcanic Unit (LVU).

UPPER VOLCANIC UNIT (UVU)

The UVU consists of intermediate to felsic porphyritic tuffs with coarse feldspar phenocrysts, locally including lava facies with porphyritic and auto-breccia textures and fine grained chlorite-sericite tuffs. Lithogeochemical assays carried out in 2005 classified this rock type as andesite. Hydrothermal alteration of the rock, to chlorite quartz with disseminated sulfide, is intensely close to the massive sulfide body where replacement textures are common in the footwall of the sulfide body. Alteration minerals transition gradually to less altered zones composed of chlorite + sericite + carbonates + quartz + sulfides and quartz + carbonates away from the sulfide body.

LOWER VOLCANIC UNIT (LVU)

The LVU is comprised of felsic porphyritic tuffs with abundant quartz phenocrysts (quartz-eye meta volcanic rock) with meter-scaled intercalations of volcano sedimentary breccias. Whole rock geochemical assays carried out in 2005 classified this unit as dacite. The predominant hydrothermal alteration minerals are sericite + quartz + carbonates + sulfides. Near the sulfide body footwall, the intensity of alteration increases and is defined by chlorite ± pyrophyllite (Matos et al. 2000).

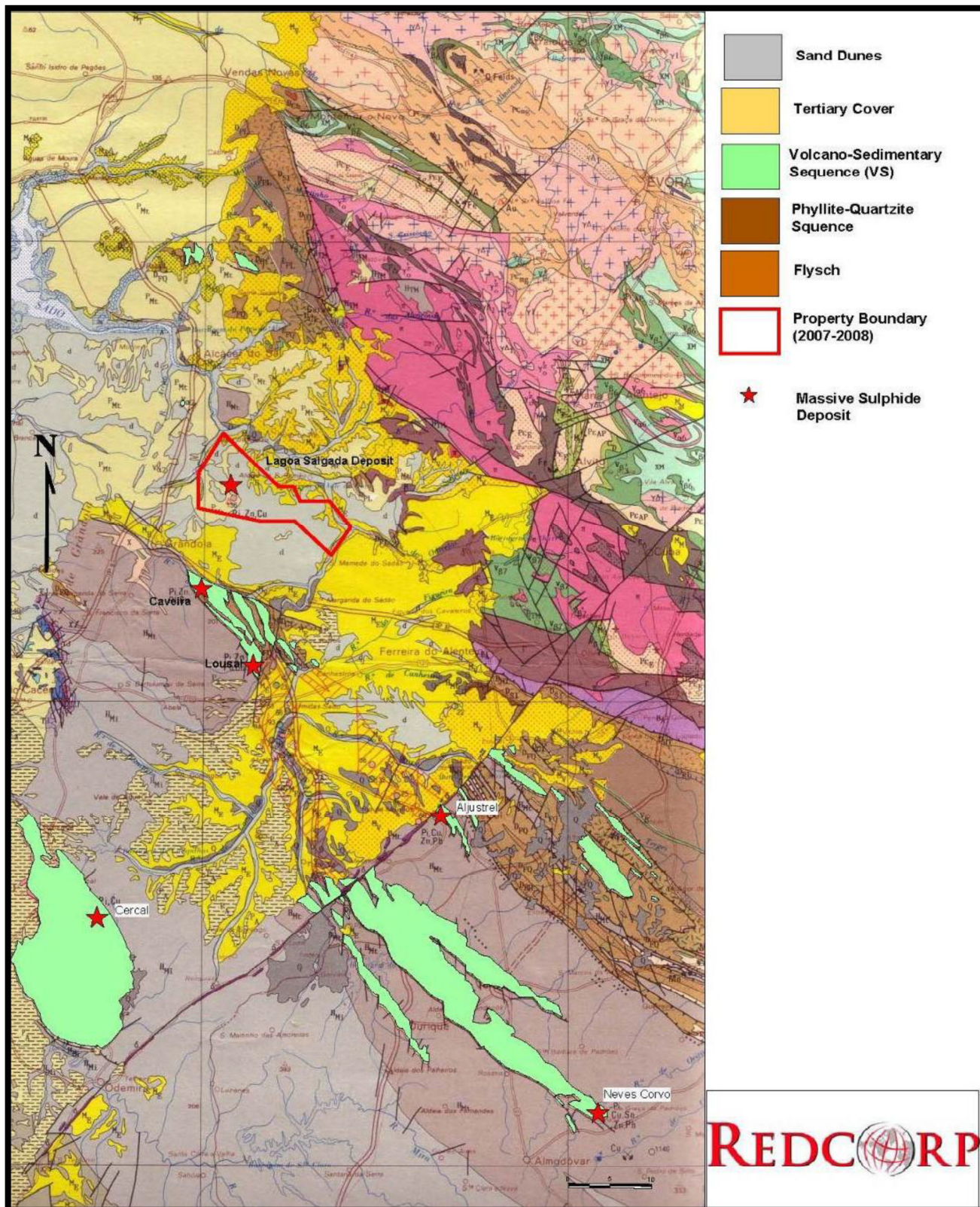


Fig. 6 – Regional geology map

The orebody is folded, faulted, and interpreted to occur mostly on the subvertical-overtuned and intensely faulted limb of a southwest-verging anticline (Matos et al., 2003). Lagoa Salgada is further offset by an east-west-trending Alpine-age fault in the north, with a 50-m downthrow of the northern block (Fig. 7), but whose horizontal amount and sense of displacement is unknown (Matos et al., 2000).

There are four types of mineralization at Lagoa Salgada: primary massive sulfide mineralization, gossan mineralization resulting from weathering of the primary mineralization, copper-rich stockwork mineralization and gold-rich silicified zones which appear to be structurally controlled. To date, the mineralized system has been drill tested over a strike extent of approximately 425 m and appears to be open to the south and east.

The massive sulfide mineralization occurs in steeply dipping to vertical isoclinally folded volcanic rocks. Primary massive sulfide mineralization has been intersected in several diamond drillholes. This mineralization has variable, but significant, base and precious metal values. The best example of this style of mineralization was intersected in hole LS22. The massive sulfide body appears to be cut by post-mineral faults and its relationship to the surrounding stratigraphy is not well understood. The thick overburden cover and the depth of the mineralized body precludes drilling the deposit with a shallow dipping drillhole. For this reason, most of the drilling on the deposit has been either with vertical or steeply dipping drillholes. This has resulted in drillhole intersections that are less than ideal and almost parallel to the primary stratigraphy of the sulfide body. The true thickness of the deposit therefore cannot be determined from single drillhole intersections. The thickness of the deposit is inferred as being somewhere between holes that intersected the massive sulfide and those that have intersected the footwall or hanging wall rocks. Additional drilling is required to determine the size of the known massive sulfide deposit. Gossan mineralization results from the weathering of primary massive sulfide mineralization. It is preserved at Lagoa Salgada as a result of the Tertiary sedimentary rocks covering the palaeosurface, in a situation analogous to the Las Cruces copper deposit in Spain. Gossan mineralization at Lagoa Salgada seems to be comprised of a lead-rich leached cap underlain by a precious metal-rich supergene enrichment zone. This is well displayed in hole LS22 (Fig. 8).

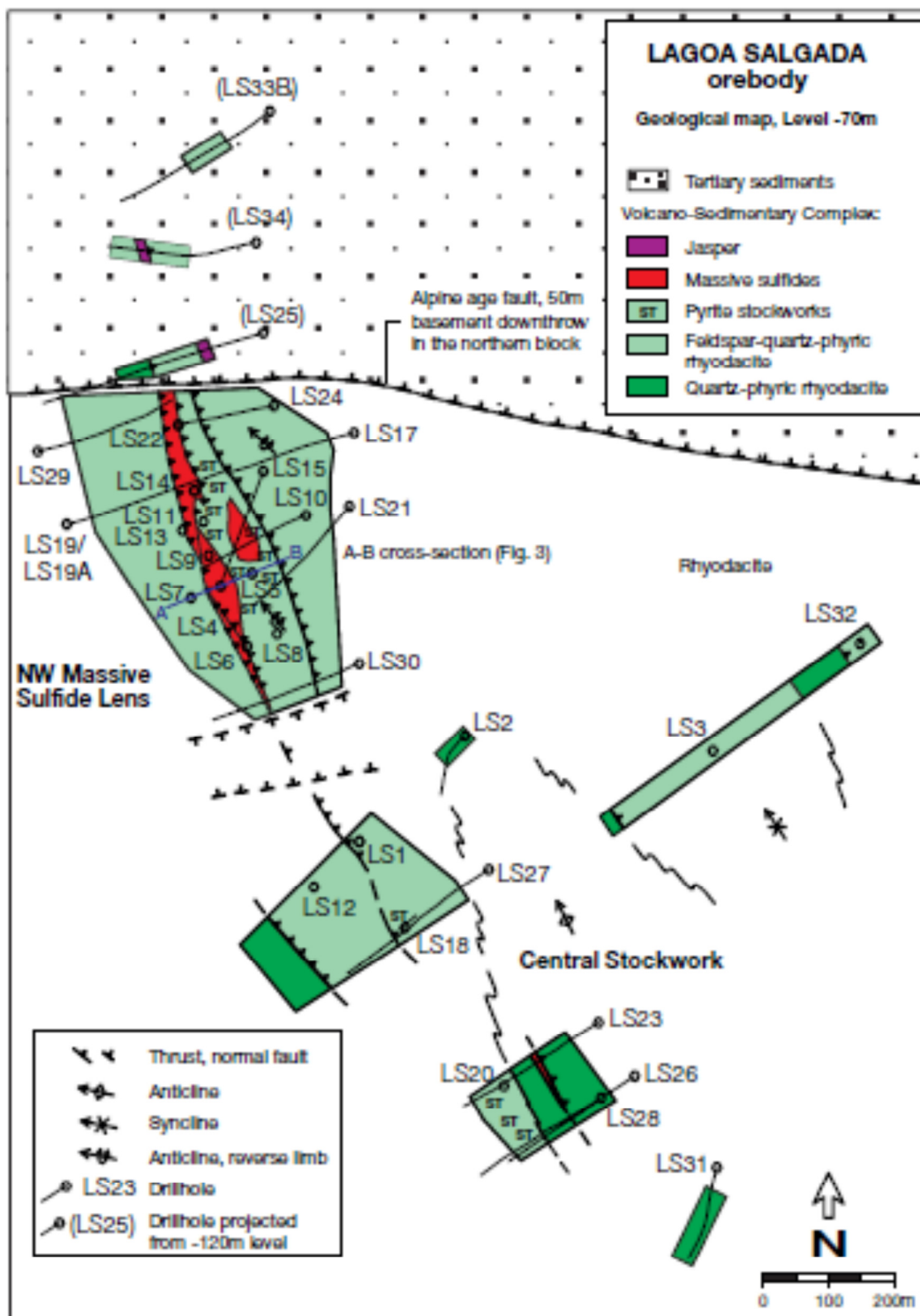


Fig. 7 – Simplified geology of the Lagoa Salgada deposit

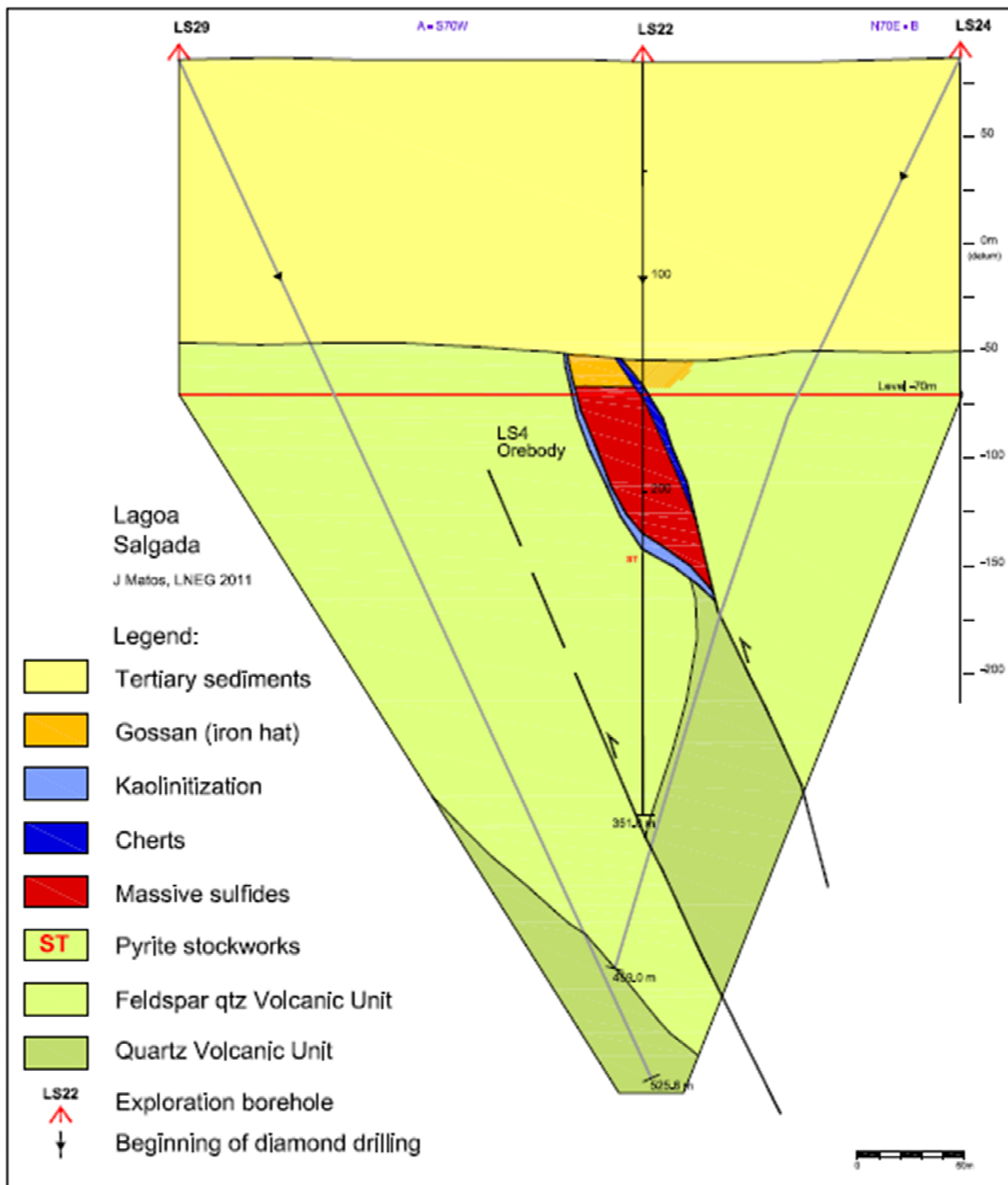


Fig. 8 – Cross section over LS22 drill hole

**THE EXPLORATION AND RESEARCH OF POLIMETALIC
 MASSIVE SULFIDES IN THE IBERIAN PYRITE BELT.
 NEW DATA ABOUT THE LAGOA SALGADA DEPOSIT**

Table 1 –Example of a supergene enrichment zone in the discovery drill hole (LS22)
 from Lagoa Salgada deposit

HOLE-ID	Stratigraphy	FROM (m)	TO (m)	INTERVAL (m)	Au (g/t)	CP (Au)	Ag (g/t)	CP (Ag)	Cu (%)	CP (Cu)	Pb (%)	CP (pb)	Zn (%)	CP (Zn)	Supergene enrichment
LS22	TSD	134,30	136,30	2,00	0,01		2,80		0,030		0,060		0,580		
LS22	TSD	136,30	139,80	3,50	0,01		10,90		0,030		0,130		1,030		
LS22	UVF	139,80	142,45	2,65	0,13		41,60		0,040		0,110		0,140		
LS22	UVF	142,45	144,75	2,30	0,23	Au 0,49 g/t (6,30m)	92,50	Ag 102,69 g/t (6,30m)	0,060	Cu 0,67 % (6,30m)	0,240		0,110		
LS22	UVF	144,75	146,70	1,95	0,64		184,60		1,960		0,270	0,150			
LS22	UVF	146,70	148,75	2,05	0,63		36,20		0,120		0,240	0,180			
LS22	FLT	148,75	151,50	2,75	0,11		4,60		0,030		0,780		0,270		
LS22	JAS	152,05	155,75	3,70	0,09		13,00		0,020		1,040		0,280	↓ Supergene CONTACT zone ↓	
LS22	GOS	155,75	156,55	0,80	12,19		1917,00		5,940		2,150		0,200	Gossan Rich (Cu ; Au ; Ag) Low/Leached (Zn)	
LS22	MS	156,55	157,75	1,20	3,08	Au 4,07 g/t (7,65m)	126,10	Ag 206,08 g/t (7,65m)	1,630	Cu 1,13 % (7,65m)	22,100	Pb 12,17 % (7,65m)	0,080	Zn 4,17 % (7,65m)	
LS22	MS	157,75	159,90	2,15	4,03		115,30		0,410		19,290		3,260		
LS22	MS	159,90	161,75	1,85	2,70		78,00		0,330		7,030		7,580		
LS22	MS	161,75	163,40	1,65	2,43		67,50		0,280		6,270		6,450	↑ Supergene-enriched zone ↑	
LS22	MS	163,40	165,40	2,00	1,41		76,40		0,300		5,650		7,560		
LS22	MS	165,40	167,55	2,15	1,12	Au 2,20 g/t (21,40m)	76,50	Ag 87,55 g/t (21,40m)	0,280	Cu 0,38 % (21,40m)	5,560	Pb 8,12 % (21,40m)	7,780		Zn 9,24 % (21,40m)
LS22	MS	167,55	169,20	1,65	1,45		64,60		0,340		2,410		11,080		
LS22	MS	169,20	171,30	2,10	2,10		87,80		0,330		6,030		11,900		

Despite ongoing exploration, the orebody is still not fully understood and is difficult to evaluate, partially due to an intricate structure hidden under the Tertiary sediment cover that challenges the interpretation of drill hole data.

The mineralization of the central stockwork zone comprises sulfide veins and semimassive sulfide lenses and is mainly hosted by a thick (up to 250 m) and strongly chloritized quartz-phyric rhyodacite unit. This type of mineralization is well-developed in other IPB deposits such as Feitais (Aljustrel) and Neves Corvo, and is best typified.

IV. WHY THE INTEREST IN THE LAGOA SALGADA PROPERTY

Compared with other world-class provinces, especially on an equal-area basis, the IPB stands out clearly as a "monster" in terms of relative metal weight; its sulfide and metal tonnages are far greater, and the Neves-Corvo deposit alone is comparable to the whole of the Canadian and Australian provinces. With more than 80 known deposits, the IPB sulfide resources (ore mined + reserves) are in excess of 1700 Mt, totaling 14.6 Mt Cu, 13.0 Mt Pb, 34.9 Mt Zn, 46.1 Kt Ag and 880 t Au. Moreover, numerous deposits in the IPB were traditionally mined only for pyrite and their polymetallic potential was commonly not recognized; improved knowledge of these deposits will probably increase the known sulfide tonnage significantly and improve the metal potential of the belt, as has been indicated recently by the discovery or confirmation of extensions to the old mines of Águas Tennidas, Concepción, La Zarza and Tharsis. Furthermore, the potential of the IPB is still open for sophisticated exploration at depth, as is shown by the discovery of blind deposits such as Gavião, Lagoa Salgada (Oliveira et al. 1997), Neves-Corvo, Cabezo Migollas, Los Frailes (Almodôvar et al. 1997), Valverde and Las Cruces.

Ore grades of the IPB are generally between 0.5% and 1.5% Cu, although 6% Cu has been reported from the minor old mine of Angelita, some 17 km west- northwest of Rio Tinto (Pinedo Vara 1963). Neves-Corvo is exceptionally rich in Cu and Sn. The Cu grades of its Cu-Sn ore (14.4%) place it among the richest copper deposits of the world.

Despite Lagoa Salgada is still a small orebody (estimated to have at least 5 Mt, between indicated and inferred reserves) and, as yet, an unexploited orebody found within this ore province. It is located 80 km northwest of Neves Corvo and approximately 30 Km from Aljustrel.

V. HISTORY OF PREVIOUS WORKS AT LAGOA SALGADA DEPOSIT

V.1 DISCOVERY, 1992

In 1992, the Lagoa Salgada deposit was discovered by a team from the Portuguese geological survey, then the SFM. In 1993, the SFM became the IGM; which later became incorporated into the LNEG.

The deposit is completely covered by a thick sequence of Tertiary sedimentary rock, averaging 135 m thick; and the discovery was made through diamond drill testing of a gravity geophysical anomaly. The discovery hole, LS-04, intersected massive sulfides from 126.8 m to 203.7 m (Wardrop, 2007) see fig 9.

The IGM completed the 17 drillholes over and around the Lagoa Salgada deposit for a total of 7588 m; LS-01 to LS-17.

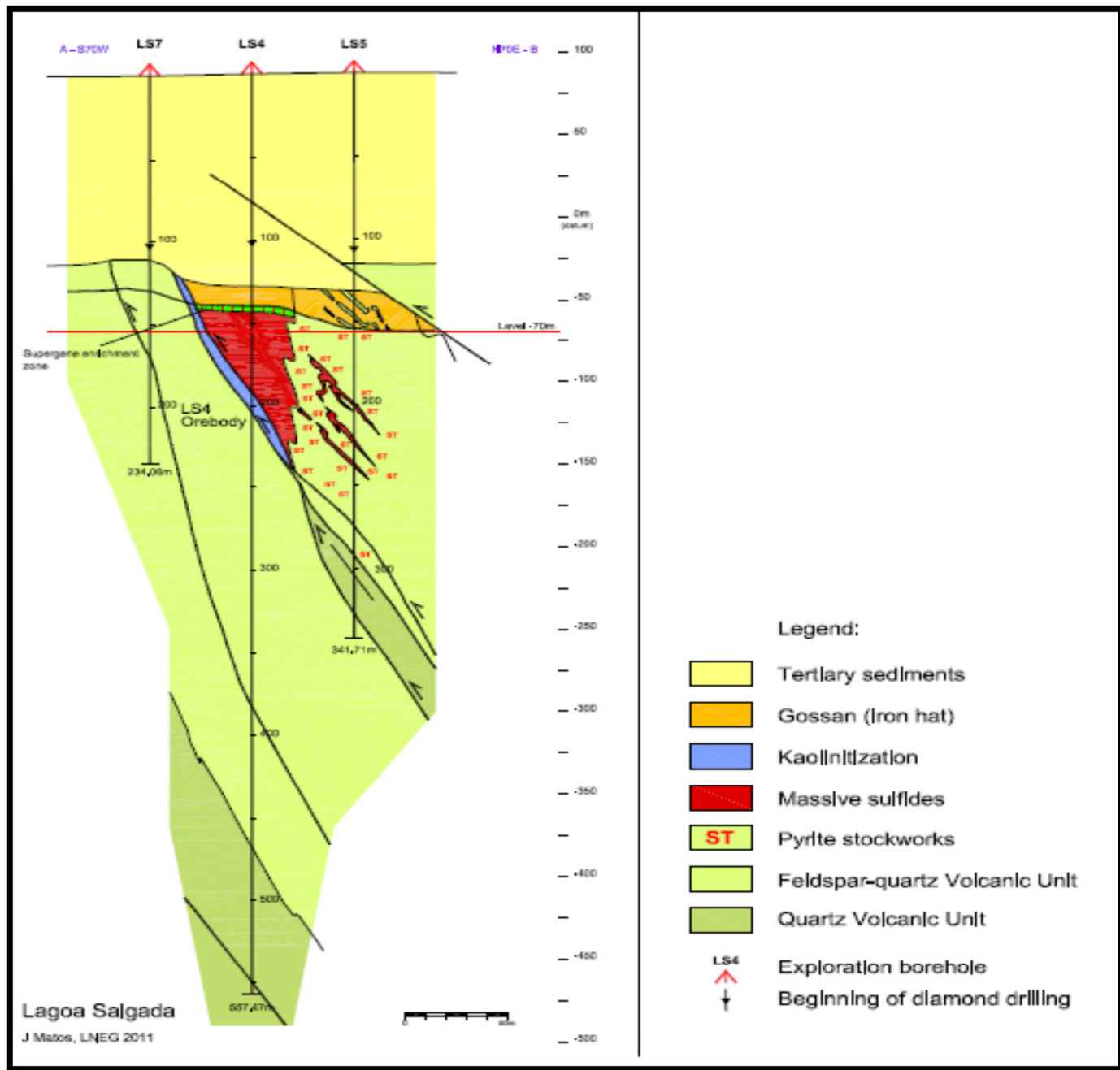


Fig. 9 - Cross section through the massive sulfide lenstype orebody in the northwestern Lagoa Salgada orebody (LS4)

V.2 RIO TINTO ZINC, 1994 TO 2000

In 1994, the area was awarded to a mining consortium comprised of Rio Tinto Zinc (RTZ) and Empresa de Desenvolvimento Mineiro (EDM), a Portuguese government agency, who held the property from 1994 to 2000.

The consortium completed an airborne magnetic survey of the Property and completed several widely spaced diamond drillholes. In addition to the magnetic survey, RTZ performed limited downhole geophysics, electro-magnetic (EM) surveys and limited soil sampling.

Between 1994 and 1999, the consortium drilled 20 additional drillholes (LS-18 to LS-37). Table 2 summarizes the results of the IGM and RTZ drilling.

Table 2 - Historic RTZ drill holes intersections and assaying results

Hole Number		From	To	Width (m)	Cu (%)	Pb (%)	Zn (%)	Sn (%)	Ag (%)	Au (%)
LS04		126.8	203.7	76.9	0.4	2.7	2.5	0.3	72.6	0.9
	incl	139.0	150.7	11.7	1.4	2.2	0.2	0.3	129.6	2.3
	incl	165.7	192.4	26.7	0.3	4.0	5.7	0.2	98.2	1.2
LS09		121.4	185.9	64.5	0.3	3.0	0.4	0.3	54.3	0.8
	incl	121.4	139.9	18.5	0.1	8.0	0.3	0.6	31.1	0.4
	incl	139.9	146.6	6.7	0.7	2.9	0.3	0.5	198.2	3.8
LS14		194.2	278.8	84.6	0.3	1.2	1.4	0.2	33.1	0.0
	incl	154.8	162.2	7.4	1.7	2.3	0.1	0.1	110.2	0.1
	incl	197.7	229.0	31.3	0.3	3.0	3.0	0.3	71.2	0.1
LS15		211.5	248.4	36.9	0.4	0.2	1.9	0.1	21.8	NS
LS18		554.6	564.7	10.1	0.1	0.1	0.2	0.0	13.6	5.1
L20		182.8	196.1	13.3	1.3	2.5	4.5	0.0	39.5	0.1
	plus	219.5	231.6	12.1	4.9	4.2	4.9	0.0	129.0	0.4
LS22		155.8	221.5	65.7	0.3	5.5	8.7	0.1	108.7	1.6
	incl	167.6	194.7	27.1	0.2	4.9	12.2	0.2	71.2	1.3

The historic RTZ-EDM drill core is stored in the old warehouses and buildings of the historic Aparis mine.

V.3 REDCORP, 2004 TO 2008

In October 2004, the Property was acquired by Redcorp Ventures Ltd. (Redcorp) of Vancouver, Canada. Redcorp established its Portuguese subsidiary, REMU (actual REM).

In 2005, Redcorp's drilling program consisted of six holes on the Property for a total of 2,286 m of drilling. Drilling continued in 2006, 2007 and 2008 for a total of 16 holes totalling 8,692 m. Of all the drillholes completed by Redcorp, only one, LS06043, intersected the Lagoa Salgada deposit.

Between November 2006 and April 2007, Redcorp drilled another 11 holes on the property for a total of 5,239 m. Seven holes were targeted at the main Lagoa Salgada sulfide deposit and the other five holes targeted other areas on the Concession.

Drilling in 2006-2007 focused on extending the known sulfide deposit and testing additional geophysical targets on the property.

The remaining four holes drilled on the property in 2006-07 were targeted at a gravity anomaly situated about 11 km west-southwest of the Lagoa Salgada deposit in the Rio de Moinhos area. Drillhole RM07004 cut 2.5 m of semi-massive to massive sulfides from 436.6 to 439.10 meters down the hole but assay values were only slightly anomalous. Previous operators had drilled two holes in the area, RM1 and RM2.

Following up on prospective geology encountered in that historical work, the Company has been drilling targets generated using a geophysical model recently updated with the results from a series of basement soundings collected in the fall of 2006.

The mineralization encountered thus far is dominantly pyrite, with trace amounts of base metal sulfides in the hanging wall of the mineralization. In addition to the massive sulfide mineralization, a large zone

of jasper was cut in the hole from 164.90 to 200.80 metres. This jasper horizon is of particular interest as in the Iberian Pyrite Belt jaspers are often the lateral equivalent of massive sulfide mineralization.

A downhole geophysical survey has been completed on RM07004, which was successful in detecting off-hole conductive responses.

RM07003, which was the first Company hole to be drilled in the Rio de Moinhos area (Fig. 10), cut a series of sericite-altered mafic tuffs, followed by a sequence of graphitic shale. The geology encountered even that in this hole was encouraging, and identified volcanic rocks and associated alteration prospective for the presence of massive sulfide deposits but no significant assays were encountered.

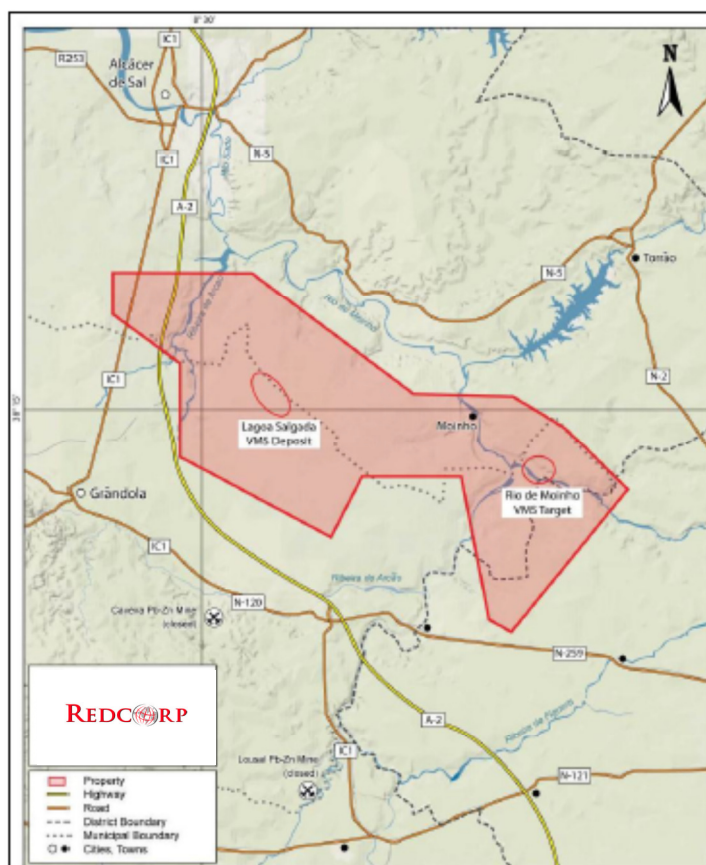


Fig. 10 – Map showing the Lagoa Salgada Minerals Rights and location of the Lagoa Salgada orebody and the VMS target at Rio de Moinhos

Based on the above, in 2007 Redcorp decided to classify the mineral resources at Lagoa Salgada as Inferred Mineral Resources because of the uncertainty about the specific gravity of the massive sulfide deposit and because of the uncertainty about the true thickness and ultimate shape of the deposit.

Lagoa Salgada Resource Estimate:

Table 3 – Lagoa Salgada Inferred Resource Estimate, August 2007

Category	Tonnage	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)
Inferred	2,017,000	0.35	4.83	5.13	1.29	85.35

VI. RECENT EXPLORATION WORKS

Exploration activities conducted by Redcorp, bellow the supervision of its new parent company, Portex, , consisted mainly of five diamond drill holes totaling 1,137.75 m.

With the aim of increasing reserves in order to attract investment for further project development, Redcorp decided to focus his attention to the Lagoa Salgada orebody, and from there, plan the next drilling campaign of 5 holes.

From this moment, I was nominated by Portex, as Director of its subsidiary in Portugal, Redcorp, and I was in charge of the exploration works carried out al Lagoa Salgada and in addition I become the manager of the company, being in charge of all contracts and daily supervision of the exploration costs and results.

It was performed a complete review and re-logging of all previous drill holes done inside our exploration area and mainly near and inside the Lagoa Salgada orebody, in order to plan carefully the next drilling campaign, as can be seen in the next Figure 11.



Fig.11 – Re-logging of Historic Drill Core at the Aparis Mine Core Storage Facility

VI.1 DRILLING CAMPAIGN

From May 2011 to August 2011, Redcorp completed five diamond drillholes on the Lagoa Salgada deposit totaling 1,138 m. The summary of the Portex 2011 drill program is listed in Table 4.

Table 4 – Coordinates of drill holes and meters drilled

Hole Number	Azimuth (°)	Dip (°)	Length Tri-Cone (m)	Length HQ (m)	Length NQ (m)	Total Length (m)
PX01	0	-90	135,00	1.35	87.80	224.15
PX03	0	-90	120,10	8.90	133.00	262.00
PX04	0	-90	121,00	8.20	28.60	157.80
PX04A	0	-90	152,00	13.10	86.90	252.00
PX08	0	-90	122,60	-	119.20	241.80
Total			650,70	31.55	455.50	1137.75

Redcorp contracted Drillcon, a Portuguese drilling company, to conduct the drilling. Drillcon used one drill with a tri-cone bit to pre-collar the drill holes through the Tertiary sedimentary units. The drill holes were cased using a steel casing for the entire length of the drill hole within the Tertiary sedimentary units (Fig.12).



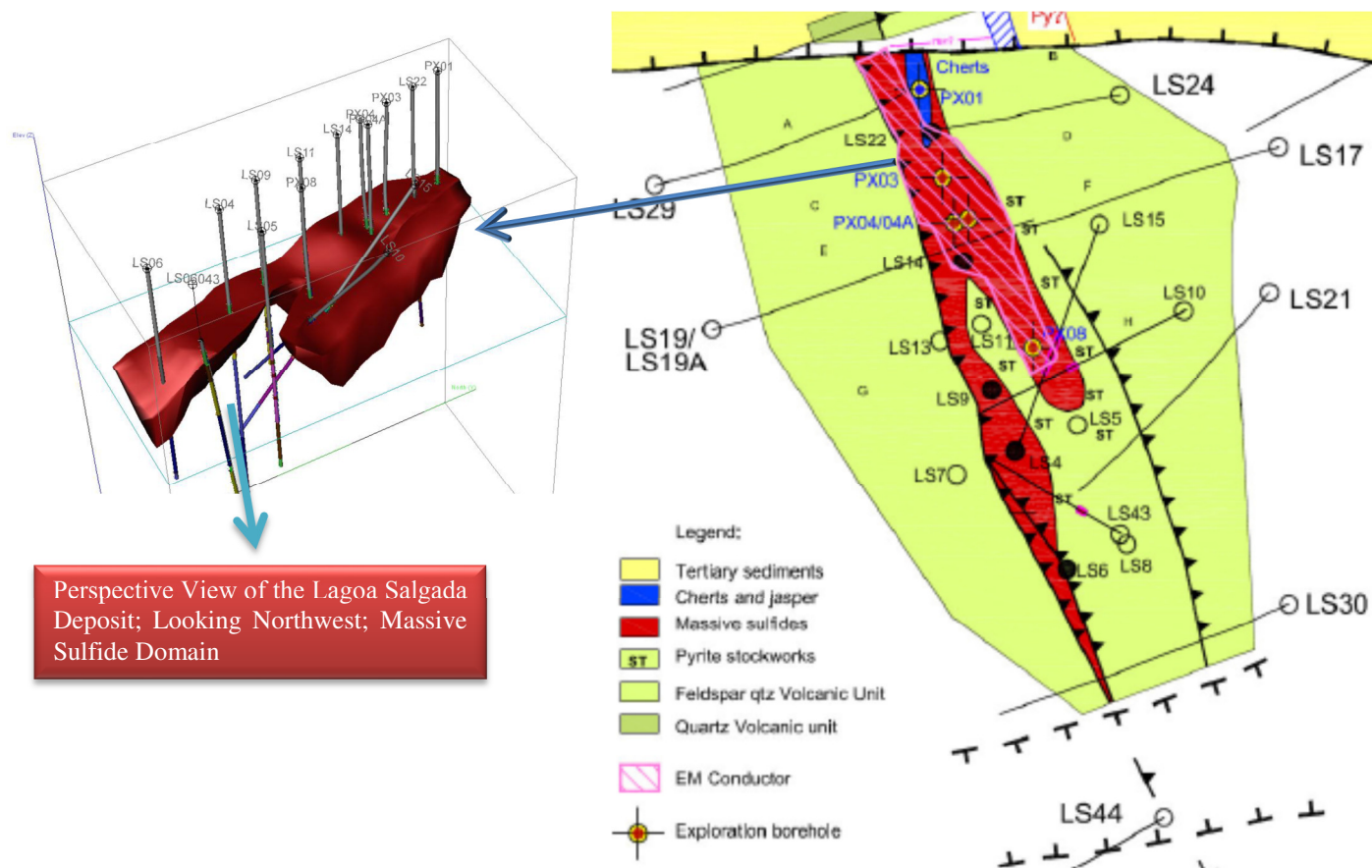
Fig. 12 – Pre-collar drill rig to drill over the tertiary sediments and steel casing to protect the drill hole from collapsing

Once the drill hole was completed PVC pipe (NQ) was inserted down the entire length of the drill holes. This was done in order to prevent the drill hole wall from collapsing in anticipation of carrying out future down hole geophysical surveys.

VI.2 ACHIEVED RESULTS

Based on the drilling intersections, a new approach to the geology of the Lagoa Salgada orebody was done by J. Matos (LNEG) in September 2011.

As can be seen from figure 13, instead of having two different lenses, they are together, forming only one orebody with an increase of reserves (tonnage).



Perspective View of the Lagoa Salgada Deposit; Looking Northwest; Massive Sulfide Domain

Fig. 13 - Simplified geology and drill hole location map of Lagoa Salgada – September 2011

In December 2011, Redcorp retained Tetra Tech to prepare an updated technical report and resource estimate for the Lagoa Salgada Project.

The Resources Estimates are categorized below:

Table 5 - Indicated Resource Estimate for the Lagoa Salgada Deposit

Category	Tonnage	Pb (%)	Zn (%)	Cu (%)	Ag (g/t)	Au (g/t)
Indicated	2,942	0.35	3.40	0.34	54.72	0.82

Table 6 - Inferred Resource Estimate for the Lagoa Salgada Deposit

Category	Tonnage	Pb (%)	Zn (%)	Cu (%)	Ag (g/t)	Au (g/t)
Inferred	2,554	2.50	1.80	0.35	51.00	0.78

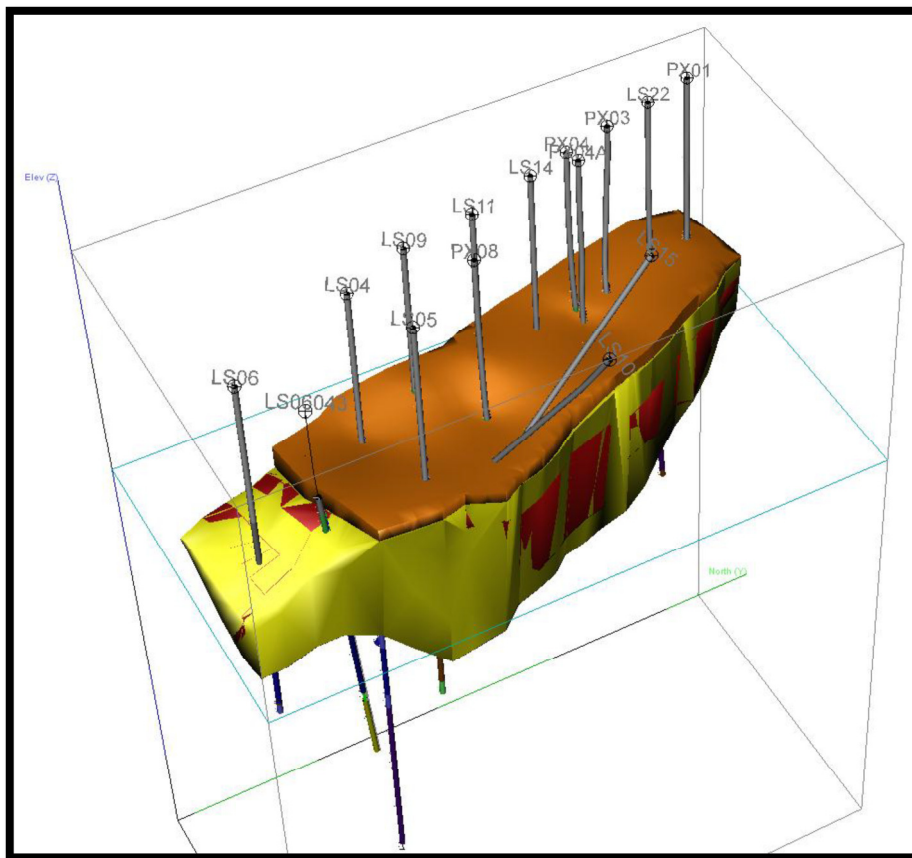


Fig. 14 - Perspective View of the Lagoa Salgada Deposit; Looking Northwest; All Domains (massive sulfides – red color, stockwork – yellow color and gossan – orange color)

VI.2.1 ASSAYING RESULTS

Geochemical assaying results and corresponding sample analysis done by ALS Lab at Seville (Spain) on the core from the previous drilling campaign, are shown in the following Tables, as composite grades.

Table 7 – Assaying results and best intersection obtained from the drilling campaign

PX Drillholes (Ore grades)

	From (m)	To (m)	Length (m)	Ore grades				
				Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
PX01	142,85	153,25	10,40	0,32	19,83	0,08	2,99	0,53
	162,00	168,15	6,15	2,11	5,28	0,01	1,08	0,09

	From (m)	To (m)	Length (m)	Ore grades				
				Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
PX03	138,40	229,07	90,67	1,04	71,94	0,49	4,17	3,97
(including)	144,00	146,80	2,80	4,54	183,79	0,08	10,50	0,35
	152,95	175,00	22,05	1,57	115,15	1,15	7,22	4,50
	152,95	169,10	16,15	1,70	134,24	1,47	7,28	3,24
	152,95	159,25	6,30	1,91	159,36	1,73	7,37	0,21
	161,30	175,00	13,70	1,47	98,51	0,89	7,89	6,94
	210,15	229,07	18,92	1,24	90,93	0,34	3,76	5,66
	216,70	229,07	12,37	1,45	112,45	0,31	5,08	5,97
	216,70	224,15	7,45	1,95	92,50	0,30	5,03	8,58
	225,15	229,07	3,92	0,69	162,73	0,32	5,67	1,72

**THE EXPLORATION AND RESEARCH OF POLIMETALIC
 MASSIVE SULFIDES IN THE IBERIAN PYRITE BELT.
 NEW DATA ABOUT THE LAGOA SALGADA DEPOSIT**

	From (m)	To (m)	Length (m)	Ore grades				
				Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
PX04	136,70	149,40	12,70	1,81	34,04	0,16	9,12	0,85
(including)	139,40	148,30	8,90	2,53	46,74	0,18	9,42	0,84
	139,40	142,40	3,00	3,68	101,00	0,16	6,07	0,98
	145,40	148,30	2,90	3,76	32,52	0,21	19,92	0,73

	From (m)	To (m)	Length (m)	Ore grades				
				Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
PX04A	170,40	203,90	33,50	1,71	62,90	0,30	5,52	5,44
(including)	170,40	185,70	15,30	3,03	84,24	0,36	8,22	5,75
	173,75	188,60	14,85	2,71	78,60	0,21	8,23	7,64
	173,75	178,40	4,65	5,12	104,23	0,29	11,73	4,40

	From (m)	To (m)	Length (m)	Ore grades				
				Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
PX08	150,80	175,00	24,20	1,24	78,72	0,68	7,58	2,47
(including)	150,80	163,90	13,10	1,64	70,87	1,06	8,25	1,10
	150,80	152,80	2,00	1,11	83,00	4,97	3,65	0,05
	162,85	175,00	12,15	0,85	85,05	0,24	7,13	4,05
	163,90	166,70	2,80	1,40	97,18	0,35	9,64	4,38

This values published by Redcorp were capable of proving the existence of a bigger orebody than previously supposed, in length, in width and in thickness, with good grades and intersections, never revealed since 2000.

VI.2.2 POLISHED SECTIONS PETROGRAPHY

In this study was only applied the petrography to understand the high values found on chemical analysis as gold, lead, zinc, copper and others elements.

POLISHED SECTION Nº 1 - PX01-01

Mineralogy: cassiterite; barite; Fe oxides; quartz



Fig. 15 – Polished section n° 1 from drill hole PX01

POLISHED SECTION Nº 2 - PX01-02

Mineralogy: galena; cassiterite; vanadinite; Fe Oxides



Fig. 16 – Polished section n° 2 from drill hole PX01

POLISHED SECTION Nº 3 - PX03-05



Fig. 17 – Core box where sample from PX03 was collected



Fig. 18 – Polished section nº 5 from drill hole PX03

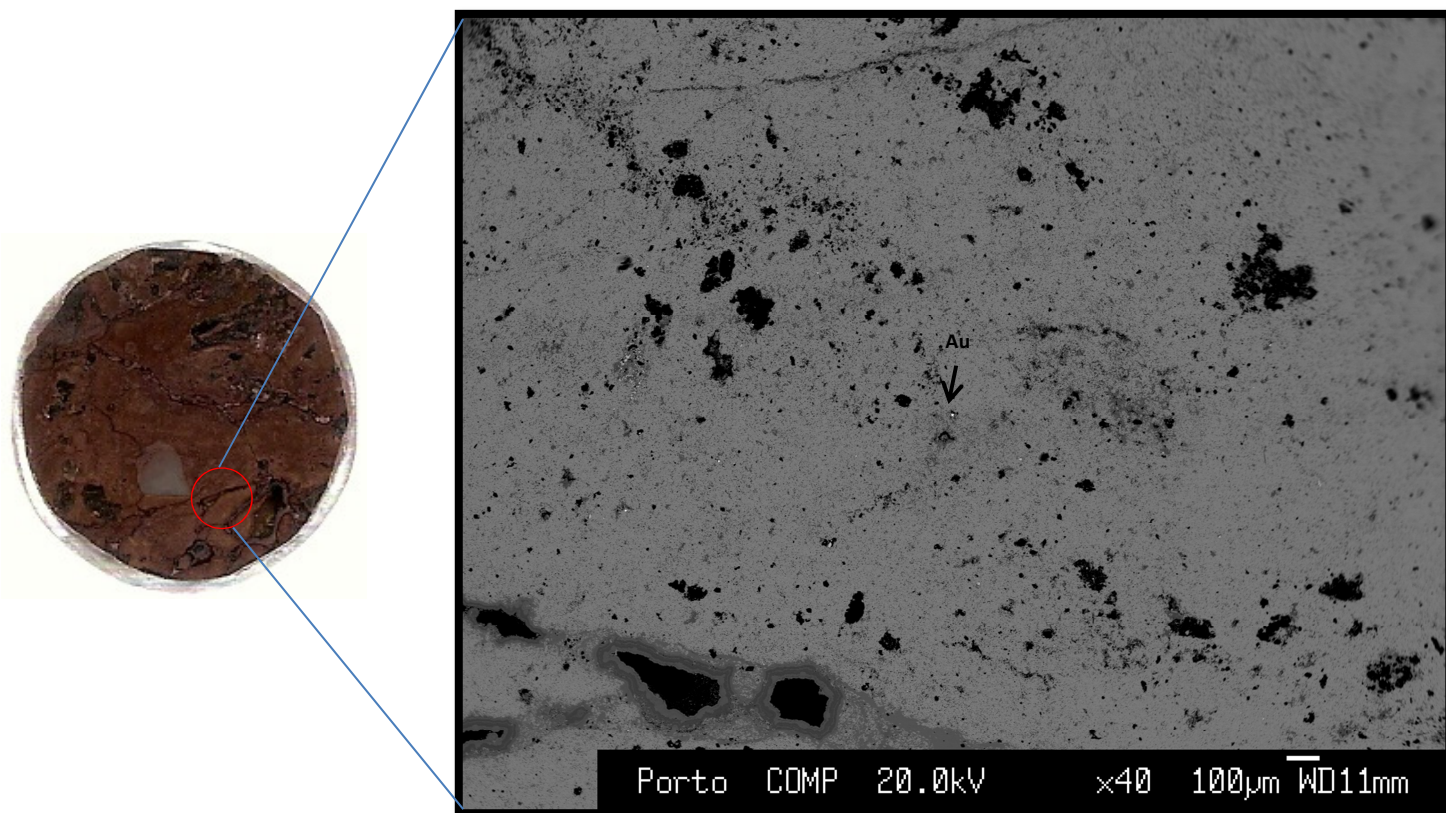


Fig. 19 – Electronic microscope image from iron oxides zone where gold was identified

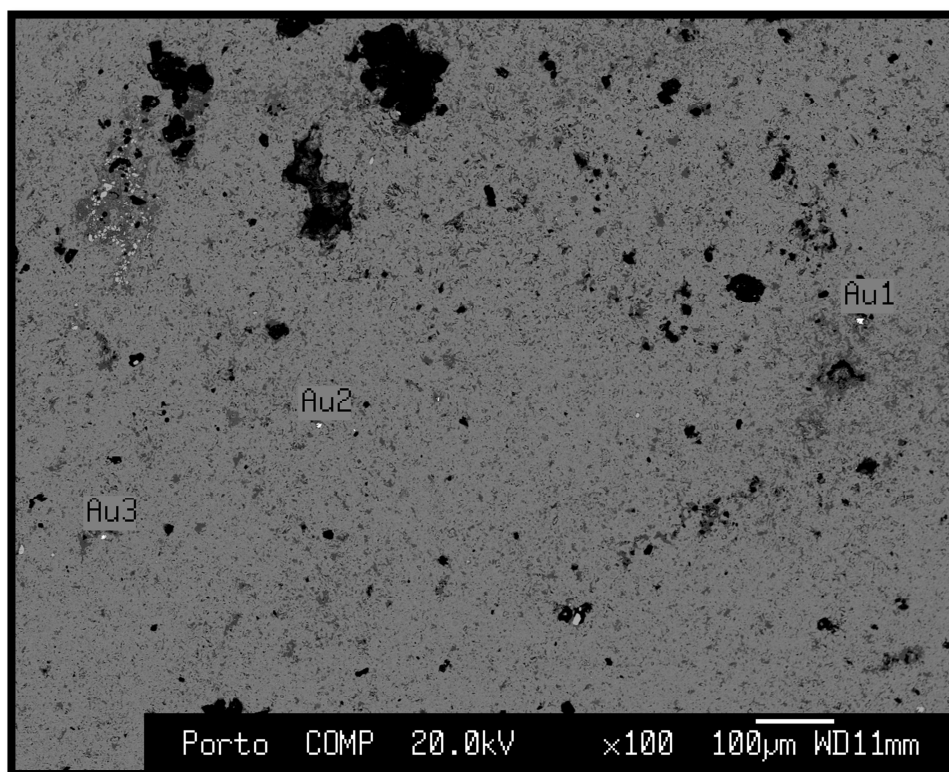


Fig. 20 - Gold particles location at iron oxide zone in sample PX1

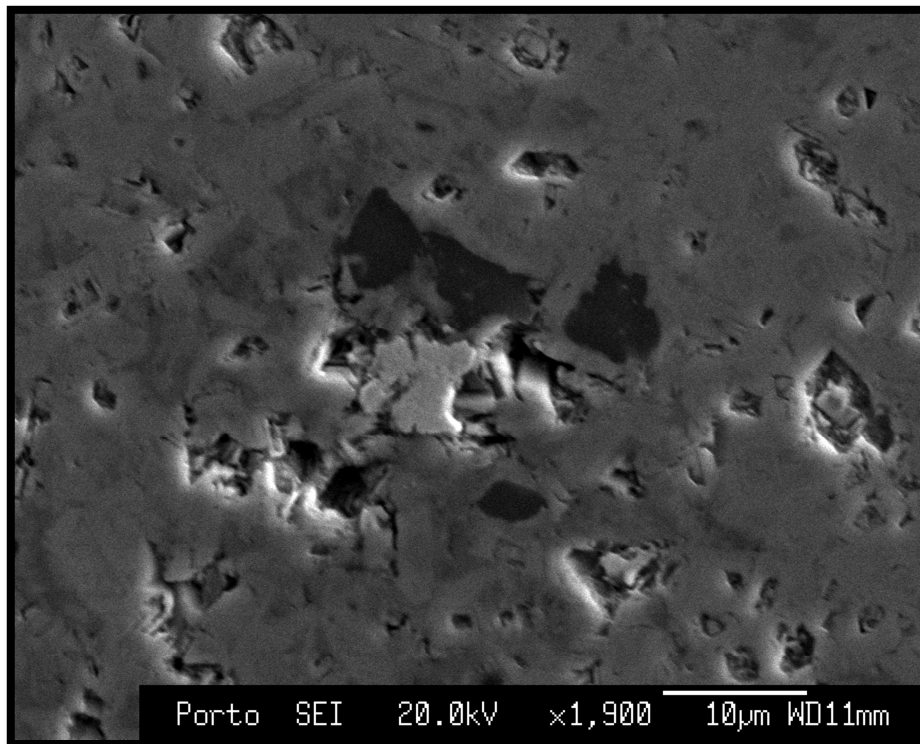


Fig. 21 – SEM (secondary electron microscopy) image where gold particle surrounded by iron oxides and Pb,Fe & As sulfates (light grey)

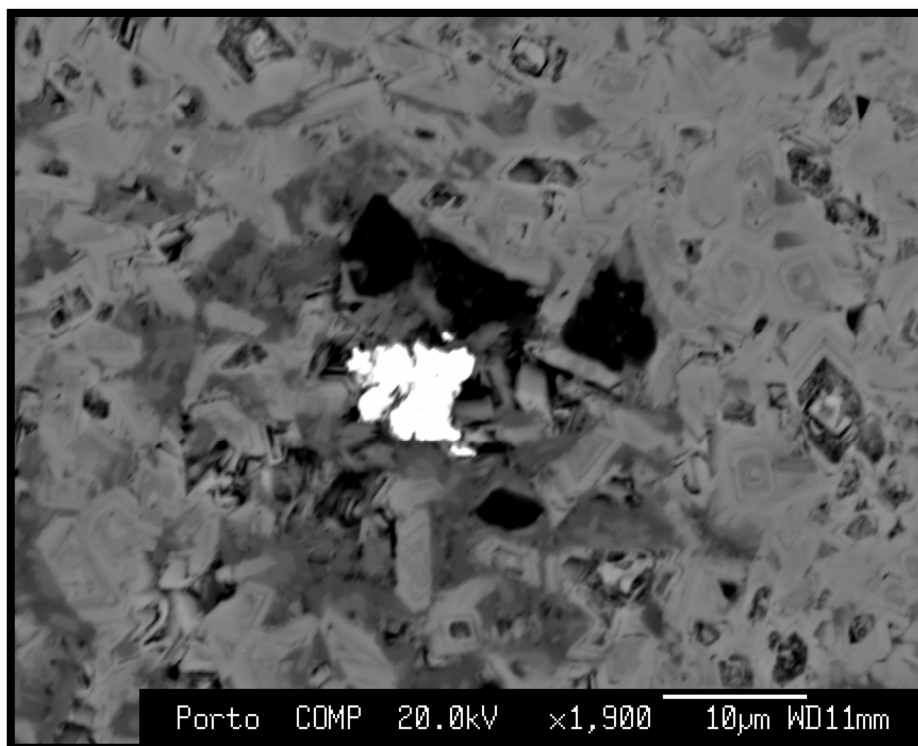


Fig. 22 – BSE (Backscattered secondary electron) image of same gold particle

POLISHED SECTION Nº 3 - PX03-06

The lead was present mainly as fine galena, and mimetite in some of the open spaces as Fig 27.



Fig. 23 – Polished section n° 6 from drill hole PX03

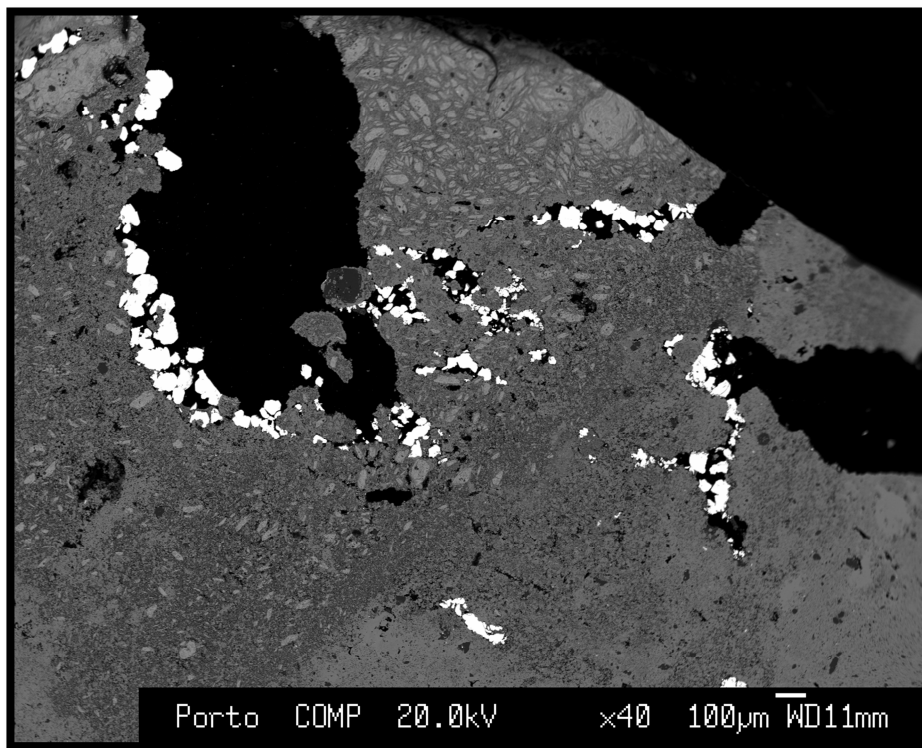


Fig. 24 – Mimetite (Pb₅(AsO₄)₃Cl) crystals in open spaces

POLISHED SECTION Nº 3 - PX03-08



Fig. 25 – Polished section nº 8 from drill hole PX03



Fig. 26 - Core box from where sample of drill hole PX03 was collected

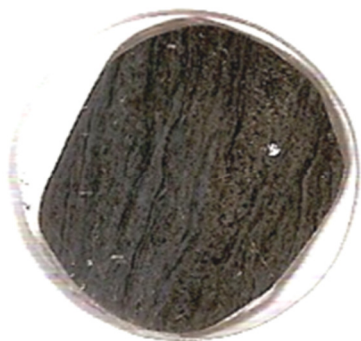


Fig. 27 - Polished section nº 8 from drill hole PX03

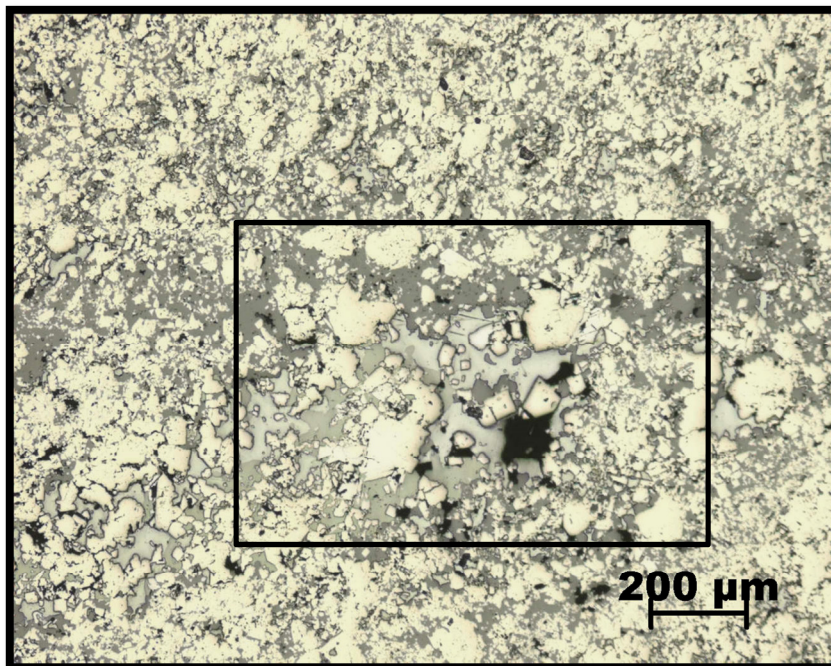


Fig. 28 – Reflected light microscopy photo showing sample rich in Zn, Pb

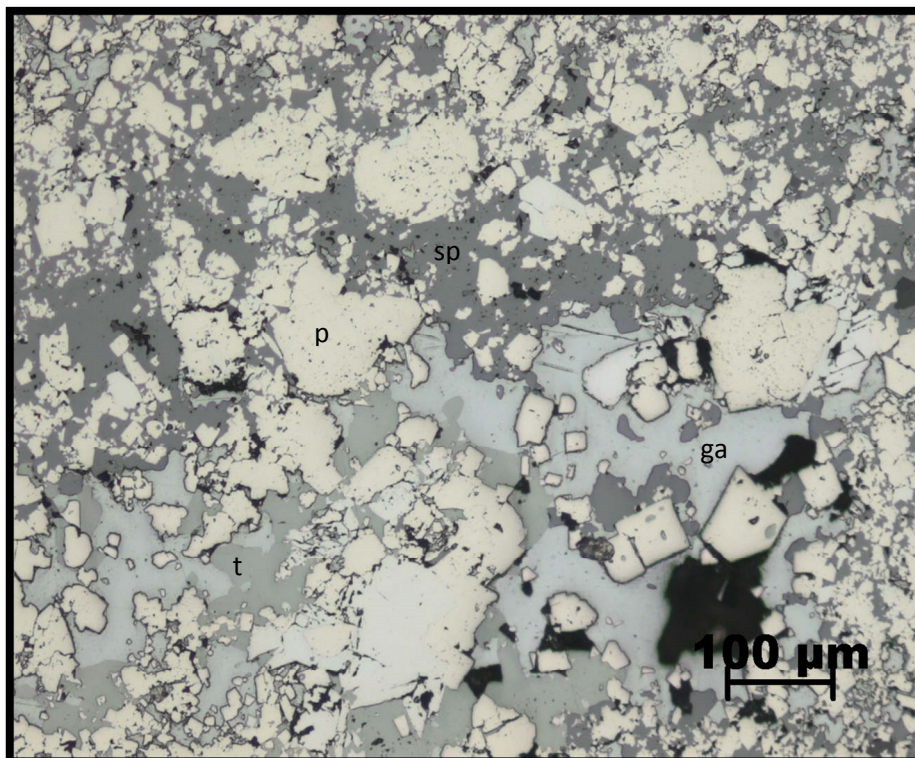


Fig. 29 – Zoom of previous area with pyrite (py), tetraedrite (th), sphalerite (sph) and galena (ga).

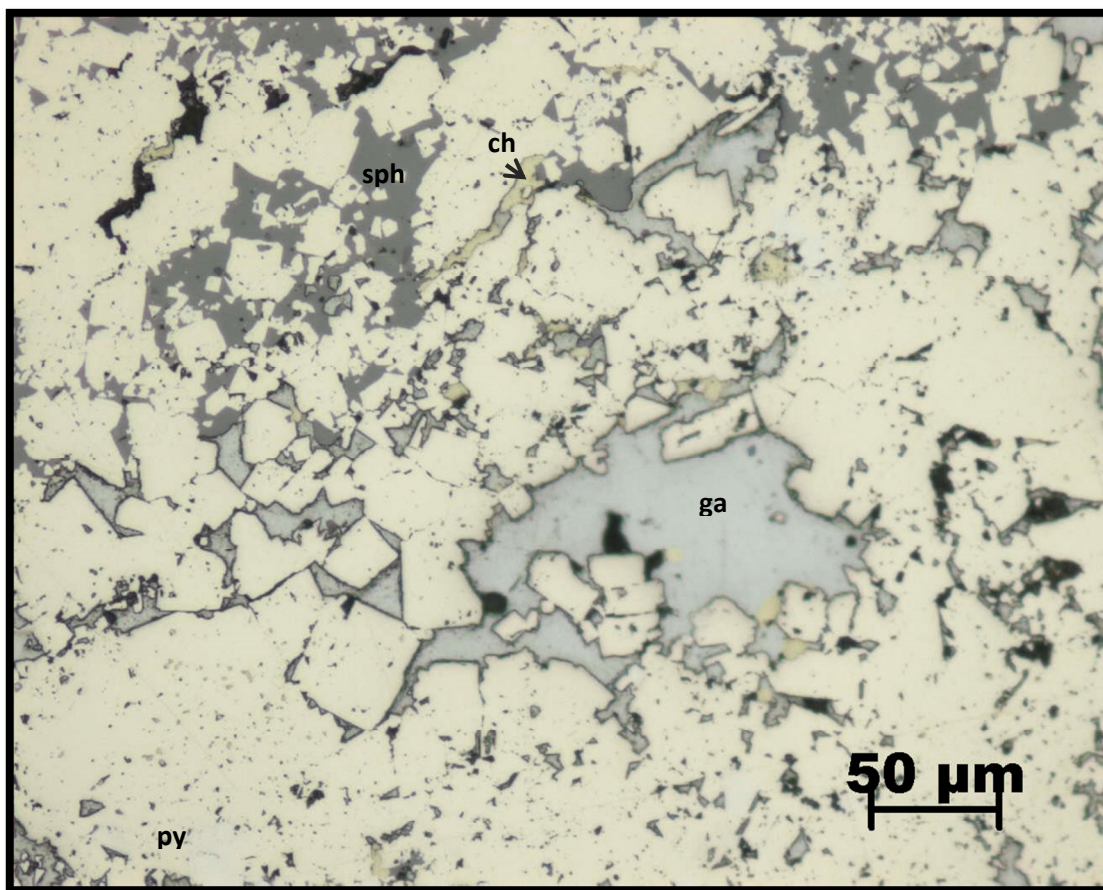


Fig. 30 – Zoom of previous area with pyrite (py), tetraedrite (th), sphalerite (sph) galena (ga) and chalcopyrite (ch).

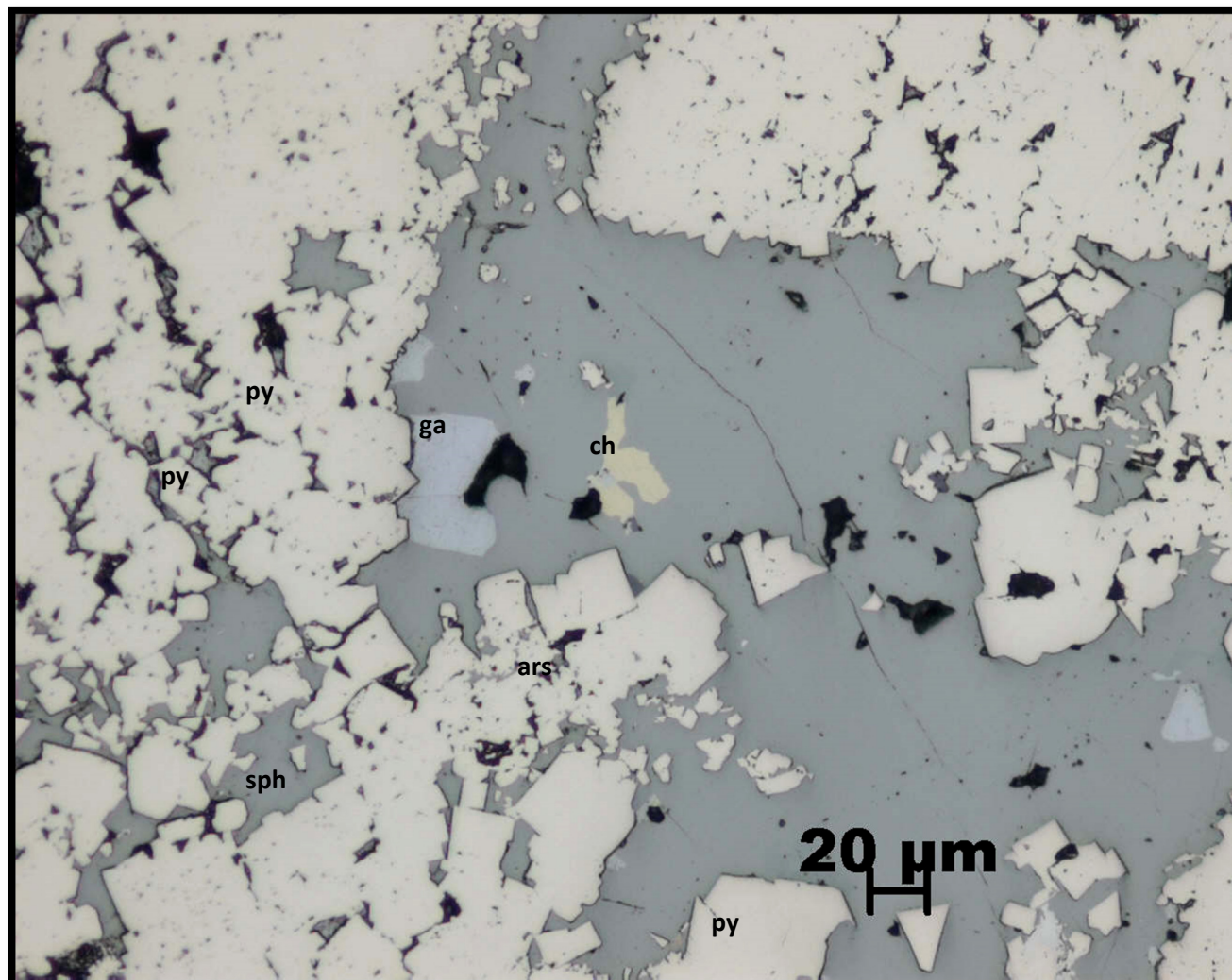


Fig. 31 – Zoom of previous area with pyrite (py), arsenopirite (ars), sphalerite (sph) galena (ga) and chalcopyrite (ch).

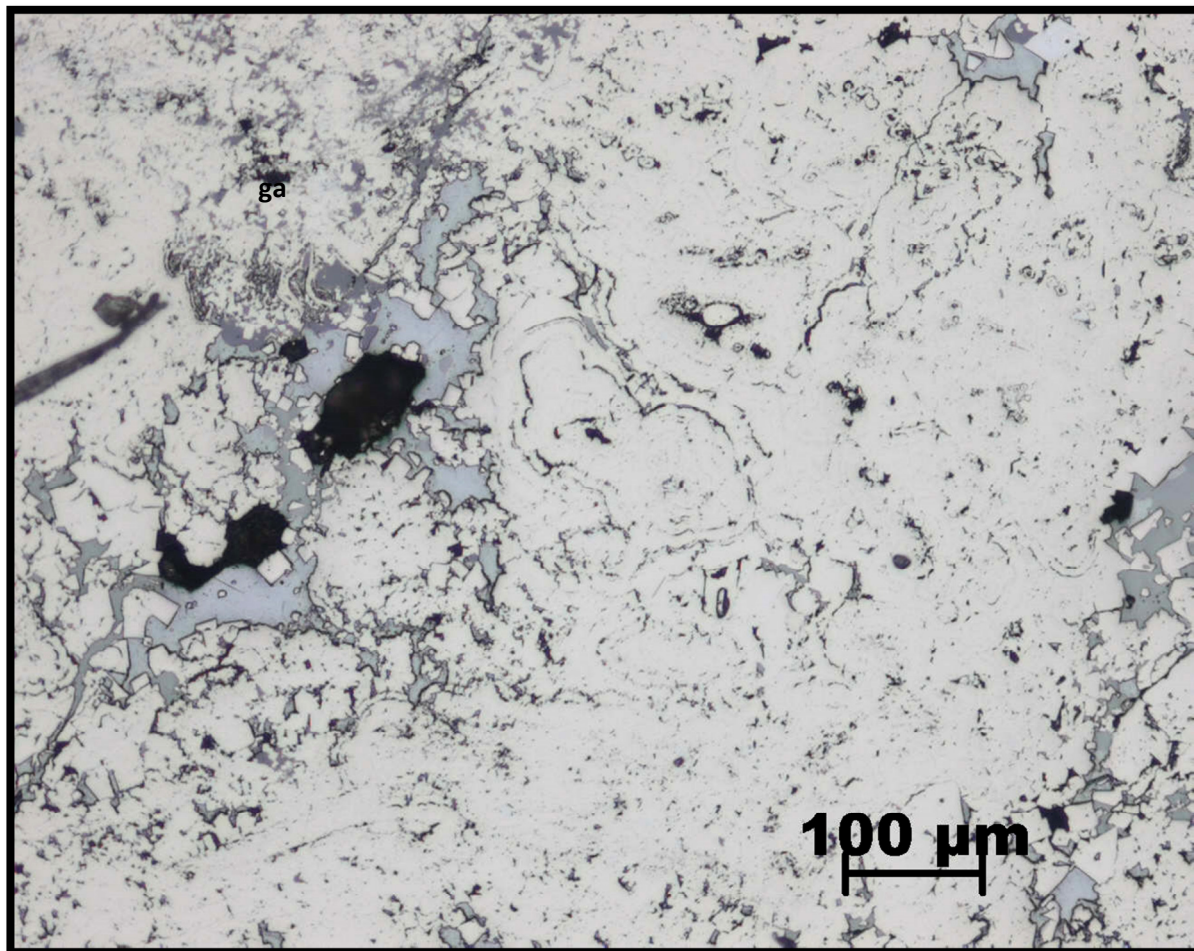


Fig. 32 – Galena (ga) in pyrite (py) that shows remnants of primary colloform textures.

VI.2.3 DRILL LOGS

In the Annex I of this report, will be present the logs of the 5 drill holes done over the Lagoa Salgada deposit and describes in the previous chapters.

Table 8 – List of drill holes done over Lagoa Salgada deopist

Hole Number	Azimuth (°)	Dip (°)	Length Tri-Cone (m)	Length HQ (m)	Length NQ (m)	Total Length (m)
PX01	0	-90	135,00	1.35	87.80	224.15
PX03	0	-90	120,10	8.90	133.00	262.00
PX04	0	-90	121,00	8.20	28.60	157.80
PX04A	0	-90	152,00	13.10	86.90	252.00
PX08	0	-90	122,60	-	119.20	241.80
Total			650,70	31.55	455.50	1137.75

VI.3 SGH – SOIL GAS HIDROCARBON PREDICTIVE GEOCHEMISTRY

VI.3.1 INTRODUCTION TO SGH

To date Soil Gas Hydrocarbon Predictive Geochemistry (SGH) has been found to be successful in the depiction of buried mineralization for Gold, Nickel, VMS, SEDEX, Uranium, and Copper as well as for Kimberlites. SGH data has developed into a dual exploration tool. From the interpretation, a vertical projection of the location of the target can be made as well as a statement on the rating of the comparability of the identification of the anticipated target type to that from known case studies.

We take as a principle that, from known case studies (Fig 37 and 38):

- **Soil-gas can be used to map:**
 - Lithology
 - Fault Orientation
 - Alteration
 - Ore type characterization
 - Oxidized Ore Locations
 - Mineralized from Barren Conductors

- **Ore deposits generate anomalous gas signatures.**
 - Gas anomalies show response over deposits up to depths of 1500'.
 - Gas anomalies are directly over ore.

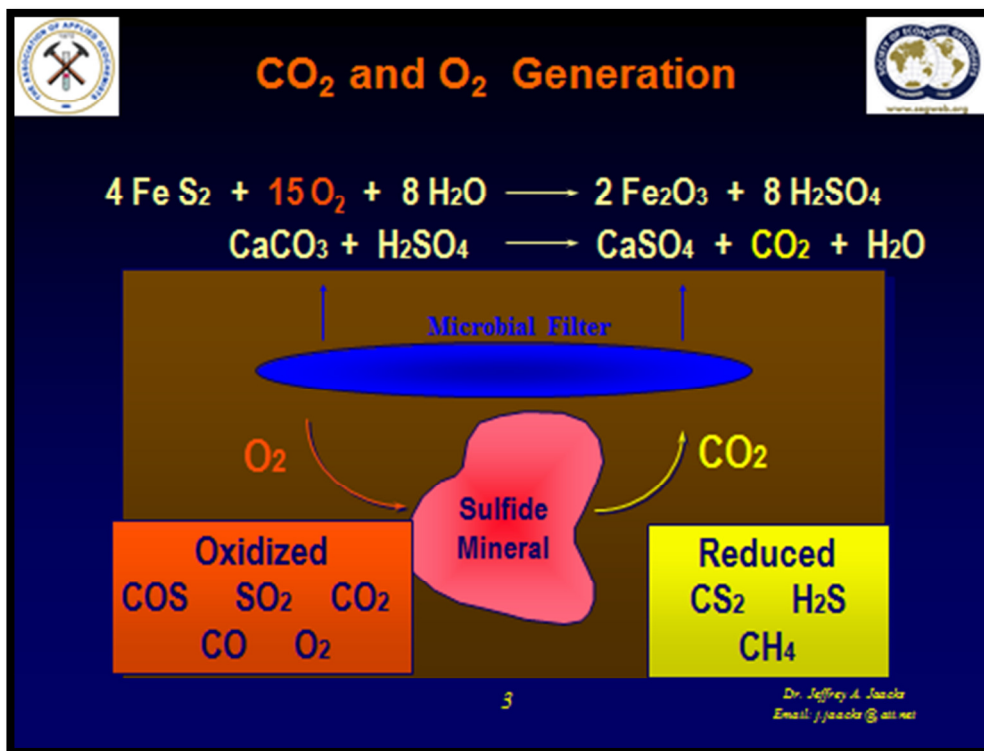


Fig. 33 – Outline of CO₂ generation

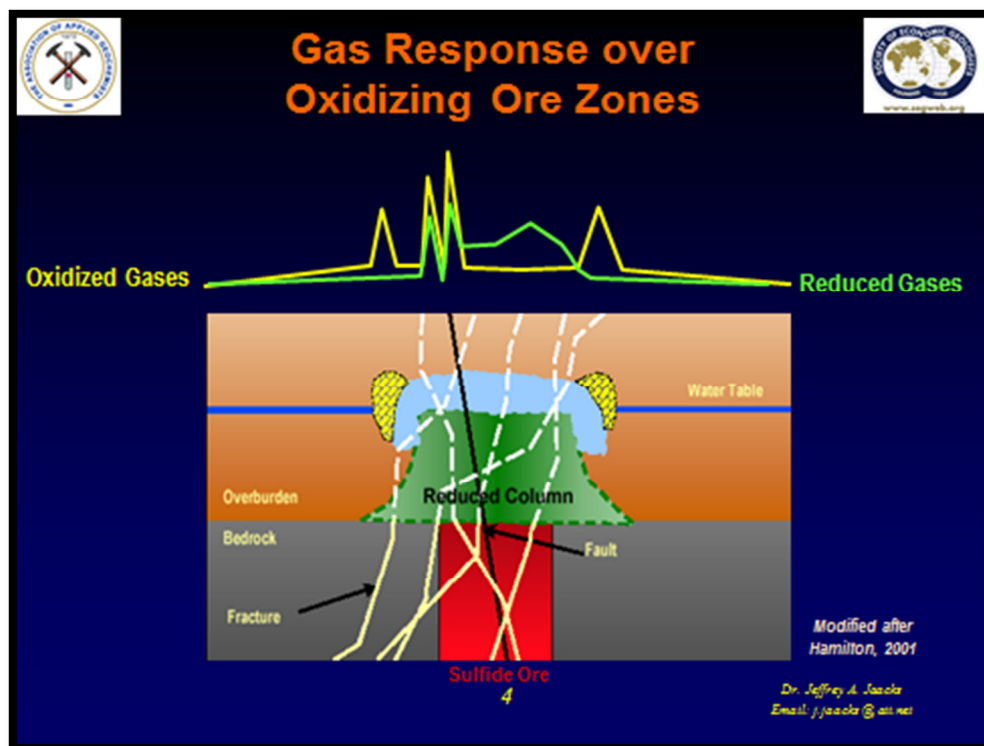


Fig. 34 Outline of the response to gas detection

The company in charge of the research, was informed about the type of mineralization were looking for, in the way they would be capable of letting us know if they have found anomalies that could represent a buried mineralization, so can be defined and prioritized anomalies for post-drilling.

The task was to define what kind of gases would look for. There are 3 different types of gas species, which guides us through our application:

Table 9 – Types of SGH species and its survey applications

Gas Species	Application
CO₂-O₂	Oxidizing sulfide deposits
As, Hg	Au, Porphyry, and SEDEX deposits
He, Rn	Uranium and geothermal deposits

In case of Lagoa Salgada it was the CO₂-O₂ detection.

In this type of survey, carbon dioxide enrichment and oxygen depletion are measured from soil pore space. Carbon dioxide is enriched relative to atmospheric concentration (0.03%) over mineralization while oxygen is depleted relative to atmospheric concentration (21.0%). As sulfide minerals associated with a deposit oxidize, oxygen is consumed, causing oxygen depletion over the ore zone. At the same time, acid is generated, which attacks the carbonaceous materials in the ore and generates a plume of carbon dioxide in the soil column above the ore zone, hence the carbon dioxide enrichment so often observed over deposits (Fig. 34).

Based on known case studies, and knowing that target would be a Polymetallic deposit containing a mixture of Copper and Gold, our goal was to know the rating or comparability that the target is similar to a mix of the SGH signatures from over Gold deposits and over Copper deposits (the known case studies).

SGH analysis involves the testing for 162 hydrocarbon compounds in the C5-C17 carbon series range for a wide variety of matrices (Actlabs – November 2005 – Evaluation for SGH soil sample data)

Sampling design is suggested to use evenly spaced samples from 15 metres to 200 metres and line spacing from 50 metres to 500 metres depending on the size and type of target.

There are 6 types of ratings:

- A rating of 6 - is the highest or best rating, and means that the SGH classes most important to describing a Copper-Gold signature are all present and consistently describe the same location with well-defined anomalies. To obtain this rating there also needs to be other SGH classes that when mapped lend support to the predicted location. Ratings are subjective and made in 0.5 unit increments.
- A rating of 5 - means that the SGH classes most important to describing a Copper-Gold signature are all present and consistently describe the same location with well-defined anomalies. The SGH signatures may not be strong enough to also develop other supporting classes.
- A rating of 4 - means that the SGH classes most important to describing a Copper-Gold signature are mostly present describing the location with well-defined anomalies. Supporting classes may be present.
- A rating of 3 - means that the SGH classes most important to describing a Copper-Gold signature are mostly present and describe the same location with fairly well defined anomalies. Some supporting classes may be present.
- A rating of 2 - means that some of the SGH classes most important to describing a Copper-Gold signature are present but a predicted location is difficult to determine. Some supporting classes may be present.
- A rating of 1 - is the lowest rating, some of the SGH classes most important to describing a Copper-Gold signature are present but a predicted location is difficult to determine. Supporting classes are not helpful.

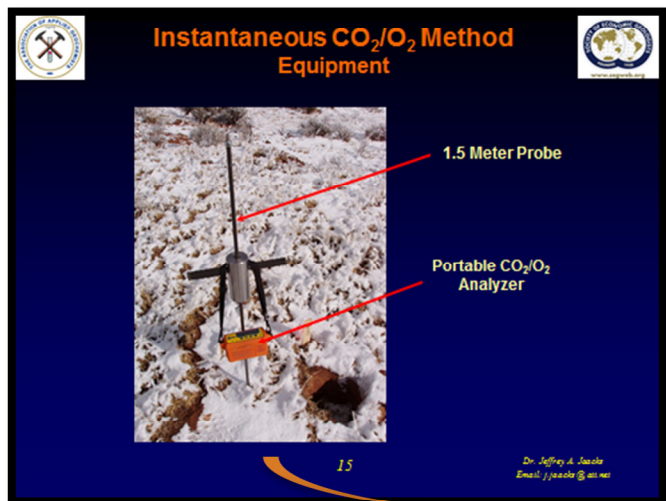


Fig. 35 – The used instantaneous CO₂ / O₂ equipment

VI.3.2 SGH – SOIL GAS HYDROCARBON GEOCHEMISTRY SURVEY OVER LAGOA SALGADA

The east-west lines were established at 200 meter spacing with samples collected each 10 meter.

The north-south lines were established at 400 meter spacing with samples collected each 10 meter.

Many short lines were sampled in the area around Lagoa Sagada itself (Fig. 36).

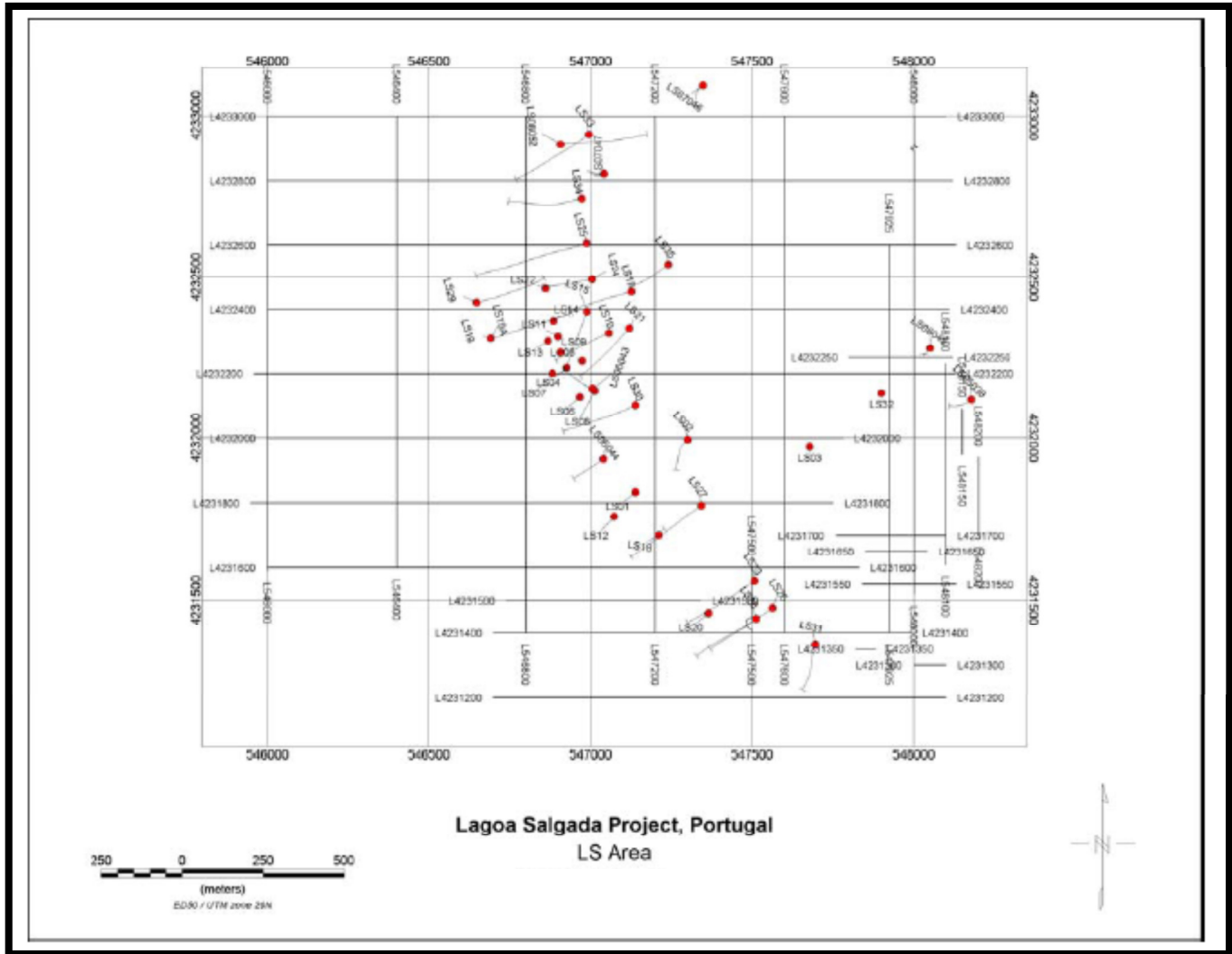


Fig. 36 – Designed grid planned for SGH survey over Lagoa Salgada area

Approximately, five-thousand seven-hundred samples were collected in an area covering 9 square kilometers to delineate potential mineralization in favorable lithologies known to host volcanogenic massive sulfide deposits along known geologic extensions of the Iberian Pyrite Belt.

Coincident total gas and excess carbon dioxide anomalies occur directly over the mineralization. Total gas and excess carbon dioxide signatures are imaged and displayed in Figure 42. Each image is set to 40% transparency so that areas with coincident anomalies show as bright pink to white areas in the image. The total gas image lies beneath the excess CO₂ image and has trends which are muted relative

to the excess CO₂ anomalies. In practical terms, total gas is a measure of oxygen in soil column being consumed by oxidizing sulfides in combination with carbon dioxide being generated by acid attack of sulfides on carbonate gangue associated with mineralization.

In Fig. 38, the total gas shows zones of sulfides. If you split the image NW to SE from UTM coordinates (Datum WGS84) 546,000 E + 4,232,500N to 548,000E + 4,231,500N, you will see a series of N-S trending anomalies extending progressively to the west.



Fig. 37 – Geologist at site collecting CO₂ O₂ sample readings

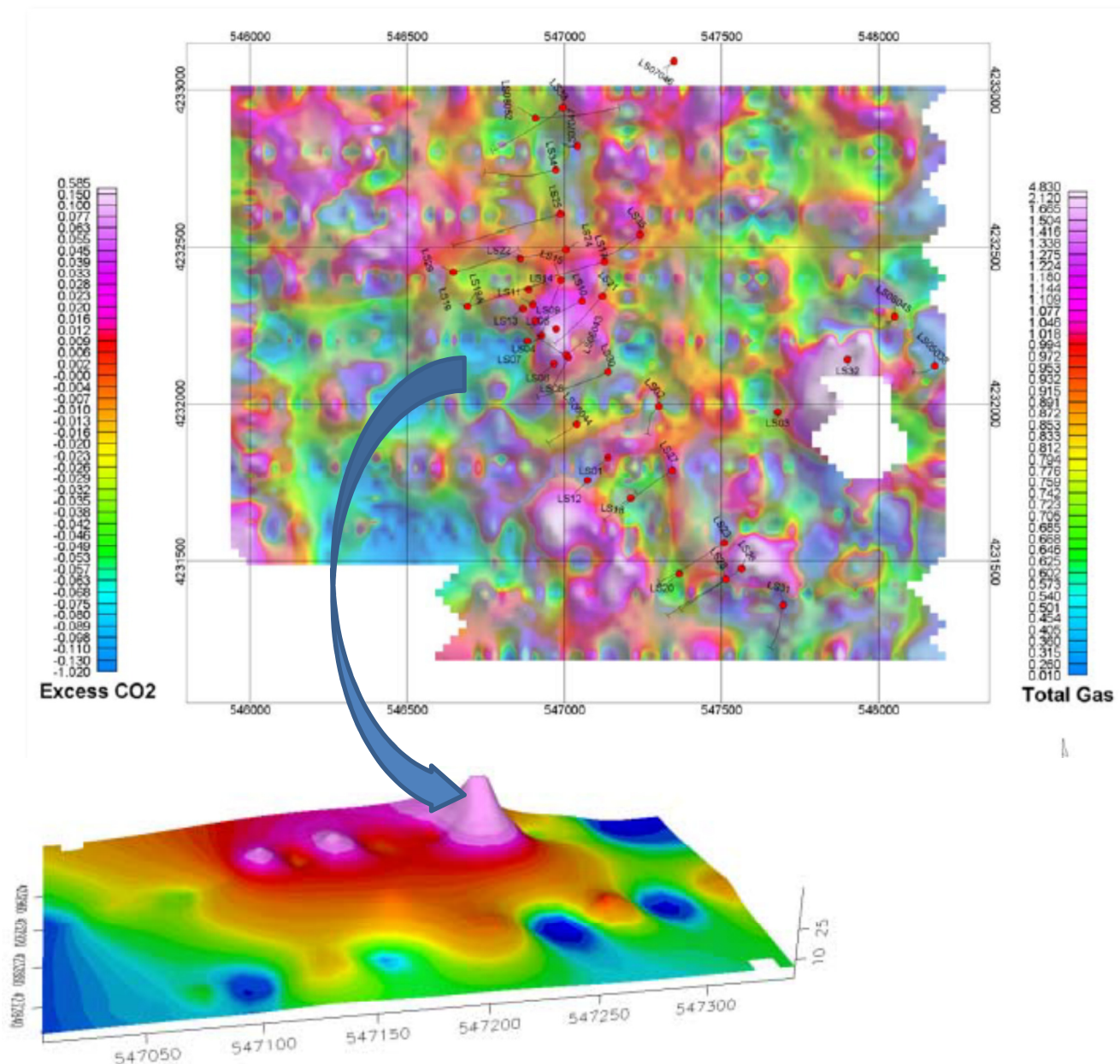


Fig. 38 – Image of total gas and excess carbon dioxide signatures

An interpretive map is presented in Figure 17 and shows these features.

Excess carbon dioxide anomalies represent alteration associated with sulfide mineralization. There are several coincident total gas and excess carbon dioxide anomalies located along these north-south trends and around Lagoa Salgada.

The Lagoa Salgada anomaly, located at drill hole LS32, appears to be an anomaly associated with the actual local lake.

This is an example of gas which flows up and around the water saturated area of the lake and forms an anomaly around the edge of the lake.

Figure 43 summarizes the preliminary interpretation of the soil gas data in the Lagoa Salgada area. The following features are displayed in this figure:

1. Drill hole locations with blue histograms representing down-hole zinc mineralization intercepts,
2. WNW trending faults dividing the area into geologic compartments,
3. A series of N-S trending sulfide rich horizons highlighted by the light green hatch patterns. These are interpreted as pyrite rich horizons. These horizons occur throughout the survey area but are expressed best in the northwest quadrant of the survey.
4. A series of folds in the eastern half of the grid. These folds have fold axes trending northwest and appear to be sulfide rich horizons. There is some weak evidence for a north-northwest trending fault bounding the western edge of the folded units.
5. Combined total gas and excess carbon dioxide anomalies are shown as red cross-hatched polygons. These are strong anomalies for this data set. Four additional anomalies exist. One to the northwest of the discovery hole anomaly, two to the south and one more directly to the north along the same north-south sulfide-rich linear trend (Figure 39).

There are five significant anomalies in this grid.

- **“Discovery Anomaly”**. The first is an anomaly associated with the drill holes in the vicinity of the discovery hole and surrounding drill holes LS04, LS09, LS05, and LS15. It is approximately 100 meters wide (east to west) and 400 meters long (north to south) and oriented north-northeast at the southern extent of one of the north-south total gas trends (Figure 43). The current drill pattern indicates that the vertical discovery drill hole penetrated the anomaly but the remaining drill holes clip the edges, drill above, or drill up to the anomaly as shown in Figures 15 and 17.
- **Target LS1**. This anomaly lies to the west of the “Discovery Anomaly”. No drilling has occurred in this area. Total gas and excess carbon dioxide anomalies are coincident. The excess carbon dioxide anomaly forms a donut shape above a large circular total gas anomaly. Two north-south trending total gas anomalies bound either side of this target (Figure 43). The southeast quadrant of the circular feature is highlighted as the target due to the magnitude of the coincident anomalies. This appears to be an intrusive center located within the volcanic stratigraphy.
- **Target LS2**. This anomaly lies south from the “Discovery Anomaly” along the same north-south sulfide rich horizon. It has a horseshoe shape approximately 400 meters long and 275 meters wide at its widest point. There is a significant coincident total gas and excess carbon dioxide anomaly. Drill holes LS12 and LS18 are located on the northeast periphery of the anomaly (Figure 43). Drill hole LS 20 penetrated footwall copper stinger mineralization but lies just outside the anomaly to the east.
- **Target LS3**. This anomaly is located at the nose of an inferred sulfide-rich fold. Drill hole LS26 and LS28 penetrate the northwest flank of the anomaly in this area but lie just to the west of the most anomalous portion of the anomaly (Figures 41 and 43).
- **Target LS4**. This coincident total gas and excess carbon dioxide anomaly forms a linear shape oriented north-south. It is approximately 500 meters north to south and 100 meters east to west and sits immediately adjacent to the inferred north-south sulfide-rich trend that the Discovery anomaly (Figure 39).

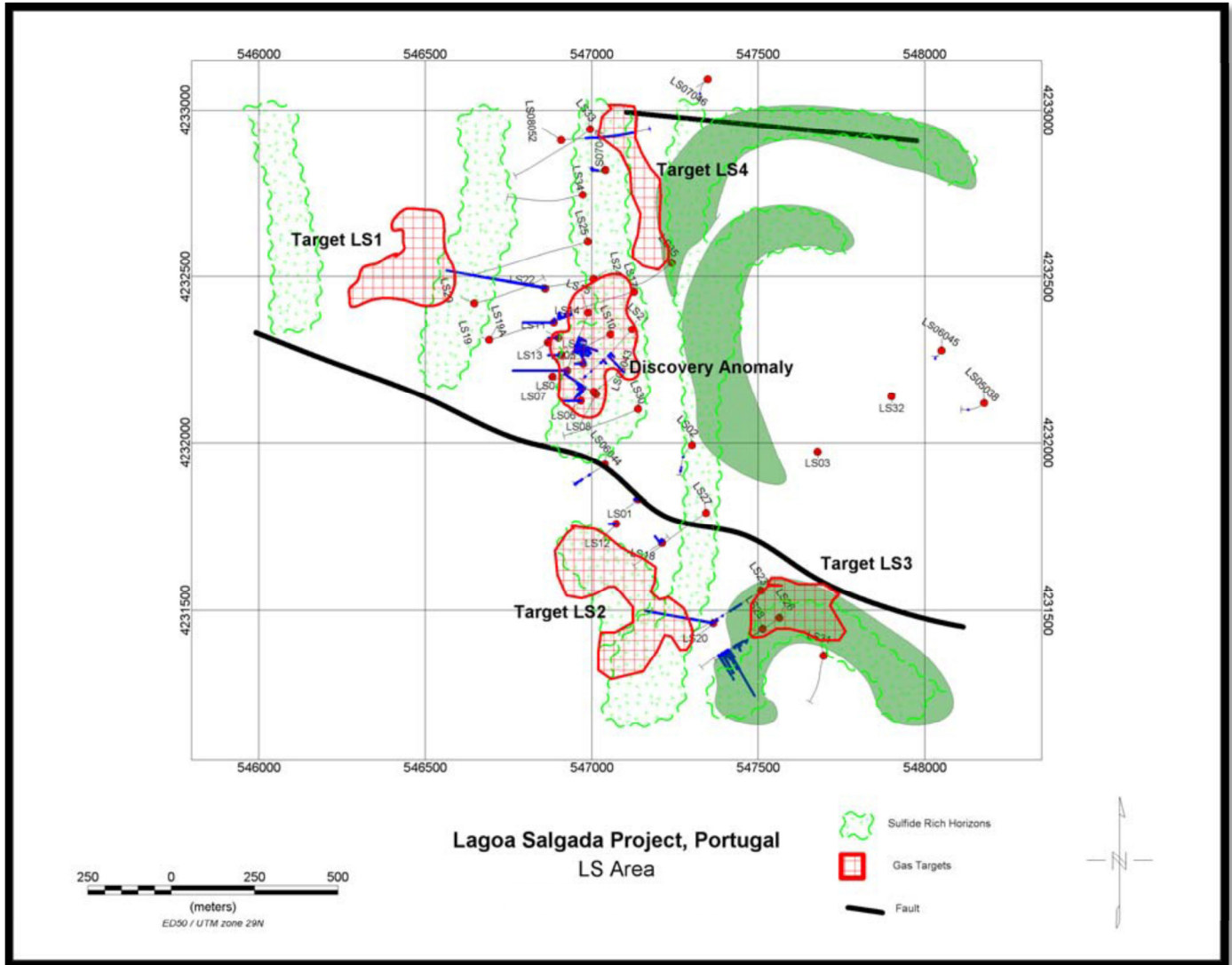


Fig. 39- Interpretation of the soil gas survey in the Lagoa Salgada Area.

VI.3.3 CONCLUSIONS

The carbon dioxide and oxygen soil gas program conducted in summer of 2008 appears to be delineating sulfide mineralization located beneath 100-200 meters of Tertiary cover at the Lagoa Salgada Concession.

The total gas signature indicates sulfide rich horizons. The excess carbon dioxide signature indicates carbon dioxide liberated by acid attack of oxidizing sulfides upon carbonate gangue associated with alteration of the volcanogenic massive sulfide systems.

Coincident total gas and excess carbon dioxide anomalies correlate spatially with mineralization defined by current drilling on the concession. The best mineralized drill holes appear to penetrate the core of the anomalies or are located on the anomaly margins. This may suggest that the anomalies can reveal the pyrite enriched footwall of mineralization and the pyrite to sphalerite transition zones. Five targets were defined in the Lagoa Salgada area and are located along north-south trending sulfide-rich volcanogenic rocks forming linear zones extending to the west of current drilling. A circular total gas anomaly occurs in the northwest quadrant of the gas grid and indicates a possible intrusive center.

VI.4 GEOPHYSIC METHODS USED IN LAGOA SALGADA PROPERTY

VI.4.1 TEM DOWN-HOLE SURVEY IN DRILL HOLES EXECUTED

VI.4.1.1 PRESENTATION AND OBJECTIVES

The work done herein shows the results of the geophysical survey carried out by **IGT - International Geophysical Technology, S.L.** by means of **Down-hole TEM** measurements in boreholes PX01, PX03, PX04A and PX08, drilled in Lagoa Salgada. Location of these boreholes is shown on Figure 40.

The **TEM** measurements in the boreholes are carried out with the objective of determining the continuity of any metallic conductor intersected by the boreholes or detecting and characterizing off hole conductors, which are those not intersected by the boreholes, and located in their proximity. The Down-hole TEM method is capable of resolving this type of objectives to distance exceeding 100 meters from the borehole where the measurements are taken, depending on different factors like the orebody location regarding the borehole, its volume, shape and on the location and size of the transmitting loops

used for the measurements and located on the surface. Therefore, the TEM Down-hole is the geophysical method with the greatest capability to resolve the objectives of this study.

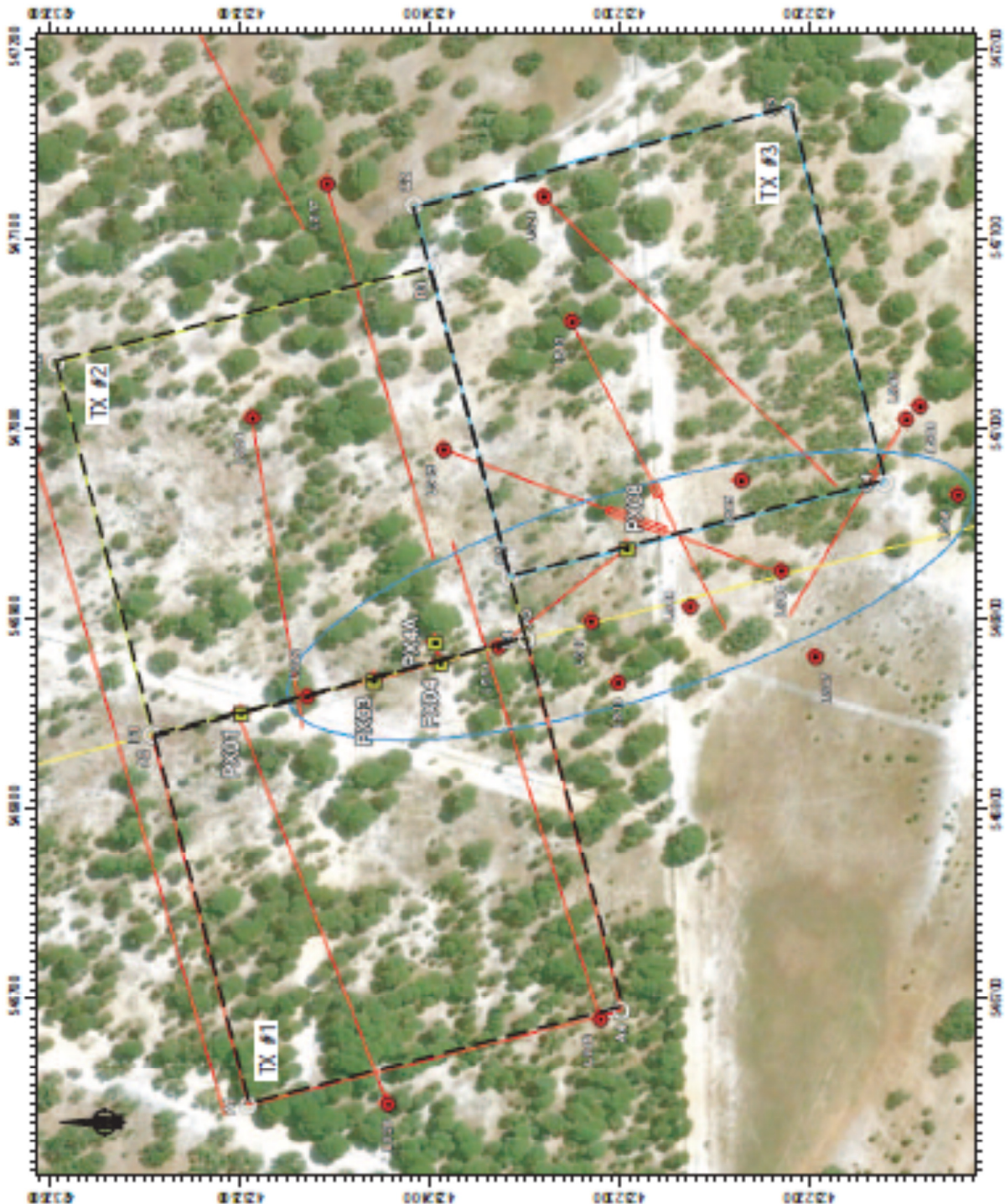


Fig. 40 – Location of the surveyed drill holes and Tx loops

VI.4.1.2 GENERAL INFORMATION ABOUT THE SURVEYED DRILL HOLES

The survey area is covered by Tertiary sediments, approximately 140 meters thick over gossan and chert/jasper facies as indicated in Figure 41. A complex massive sulfide mineralization has been recognized by some boreholes over tens of meters apparent thickness. The sulfide bodies can be described as near vertical (dipping to the NE) tabular or lens shape, or group of lenses on a near NW-SE trend along 250 meters approximately.

Drill hole PX01:

- Location: X = 546.850'8, Y = 4.232.497'3. (ED50).
- Inclination, Direction: Vertical.
- Length: 224'15 m.
- Iron cased: To 135 m and PVC cased to 208 m.
- Massive sulfides: Not intersected.

The borehole went through gossan/chert facies from 141 to 176'10 meters (35'10 m). This unit can be considered as a poor conductor in geophysical terms. The objective of the TEM measurements was to identify any metallic conductor which can be located in the vicinity of the **PX01** drill hole.

Drill hole PX03:

- Location: X = 546.868'3, Y = 4.232.428'5. (ED50).
- Inclination, Direction: Vertical.
- Length: 262 m.
- Iron cased: To 120'10 m and PVC cased to 256 m.
- Massive sulfides: Intersected from 152'95 m to 229'07 m (76'12 m).

The objective of the TEM measurements was to check the lateral continuation of the sulfide lens intersected between 152'95 to 229'07 meters deep and to detect any other conductor which can be interpreted as a massive sulfide orebody located in the proximity of the drill hole.

Drill hole PX04A:

- Location: X = 546.888'1, Y = 4.232.397. (ED50).
- Inclination, Direction: Vertical.
- Length: 252 m.
- Iron cased: To 152 m and PVC cased to 248 m.
- Massive sulfides: Intersected from 173'75 m to 211'20 m (37'45 m).

The objectives of the TEM measurements were the same that in **PX03** drill hole.

Drill hole PX08:

- Location: X = 546.938, Y = 4.232.298. (ED50).
- Inclination, Direction: Vertical.
- Length: 241'8 m.
- Iron cased: To 123 m and PVC cased to 241'8 m.
- Massive sulfides: Two levels were intersected, from 150'80 to 201'90 m (51'1 m) and from 207'75 to 214'40 m (6'65 m).

The objectives of the TEM measurements of this drill hole was the same as in boreholes **PX03** and **PX04A**.

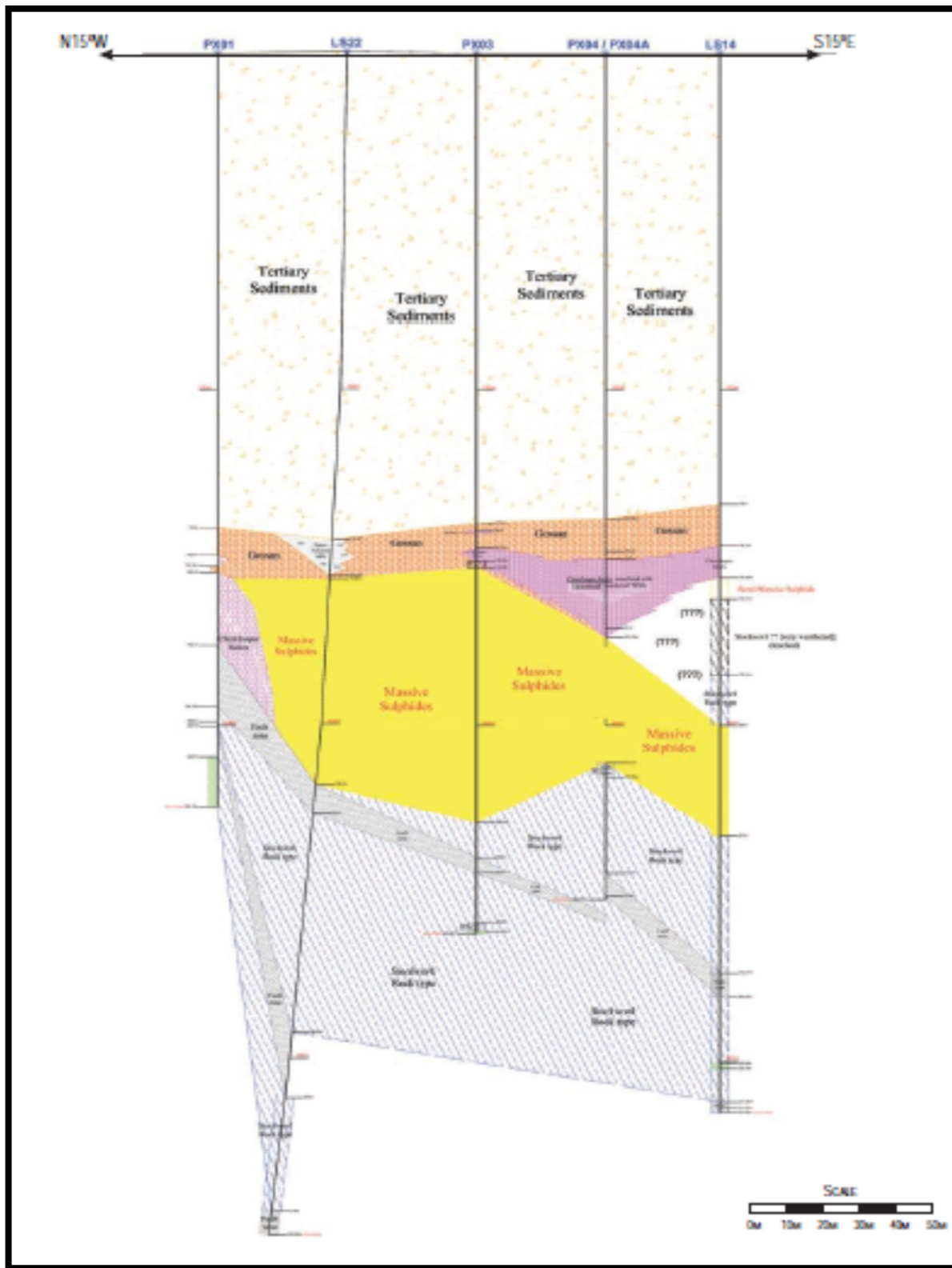


Fig. 41 - Preliminary geological section of the surveyed area

VI.4.1.3 METHODOLOGY OF THE DOWN-HOLE TEM METHOD

The TEM measurement method both in a surface and in boreholes is known for its application in mineral exploration looking for metallic conductors like massive sulfide deposits. There are a lot of case histories reported during the last 20 - 25 years that prove the effectiveness of this method.

Regarding the Down-hole TEM measurements, its more meaningful aspects in relation to measurement planning and data collection are the following:

- In order to energize any conductor of the ground, so its effect can be notice in the TEM measurements carried out in a borehole, it is necessary to create an intense magnetic moment by means of a very fast turn-off of a current pulse, circulating through a cable loop (Tx loop) placed on the ground. The magnetic moment is the product of the intensity of the electric pulse which circulates through the Tx loop multiplied by the area enclosed by the loop times its number of turns. In practical terms, it means that the size of the Tx loop located on the ground's surface must be as big as possible and proportional to the maximum depth where the TEM measurements must be taken on the borehole.
- Geophysical response of a conductor of the ground, like for example a massive sulfide deposit in the TEM measurements carried out on a borehole, greatly depends on the **EM coupling** between the EM primary field; created by the turn-off of the current pulses which circulate through the Tx loop; and the conductor. The EM coupling mainly depends of the relative location between the Tx loop and the conductor of the ground and it reaches its maximum amplitude when the lines of force of the EM primary field intersect perpendicularly the conductor's largest surface, assuming it has a tabular form.
- In practice, the previously exposed ideas mean that in order to detect and accurately determine the location of a metallic conductor in the ground, it is necessary to collect a number of different

series of TEM measurements in the same borehole for different locations of the Tx loop located on the ground surface; or to use Tx loops with a specific configuration.

- The anomaly produced in the TEM measurements by a metallic conductor of the ground, especially when it was not intersected by the borehole, becomes apparent through the stretch much greater than its actual thickness. The “width” of the anomaly becomes greater as the distance between the borehole and the mineralization increases. As a result, the TEM measurements in the boreholes are not continuous readings but are collected at spacings of about 10 meters, which can be reduced to 5 meters in zones of anomaly for a better definition of its characteristics.

VI.4.1.4 DESCRIPTION OF THE SURVEY

For this type of surveys, it is very important to get the **maximum coupling** between the EM primary field produced by the fast turn-off of the electric pulses in the Tx loop and any conductor of the ground. This maximum coupling is achieved when the lines of force of the EM primary field perpendicularly intersect the largest side of the conductor.

Figure 46 explains in detail this concept. The conductor “A” of the aforementioned figure would be perfectly detectable by the measurements in the borehole, whereas the “B” conductor will have a minimum EM coupling with the primary field created by the Tx loop and its effect could be marginal or undetectable in the TEM measurements. Therefore, it is convenient, whenever possible, to survey any borehole collecting different series of independent data sets using different Tx loops located in different positions. This procedure as well as the measurements of X, Y, Z components of the TEM field, will help to constrain the interpretation of the TEM data.

In this particular case of Lagoa Salgada, assuming that the geophysical targets are near vertical tabular bodies, we have considered that the maximum EM coupling could be achieved placing one of the edges

of the Tx loop just over the location of the conductors to be detected. This is why we have set-up the Tx loops for this study as indicated in Figure 41.

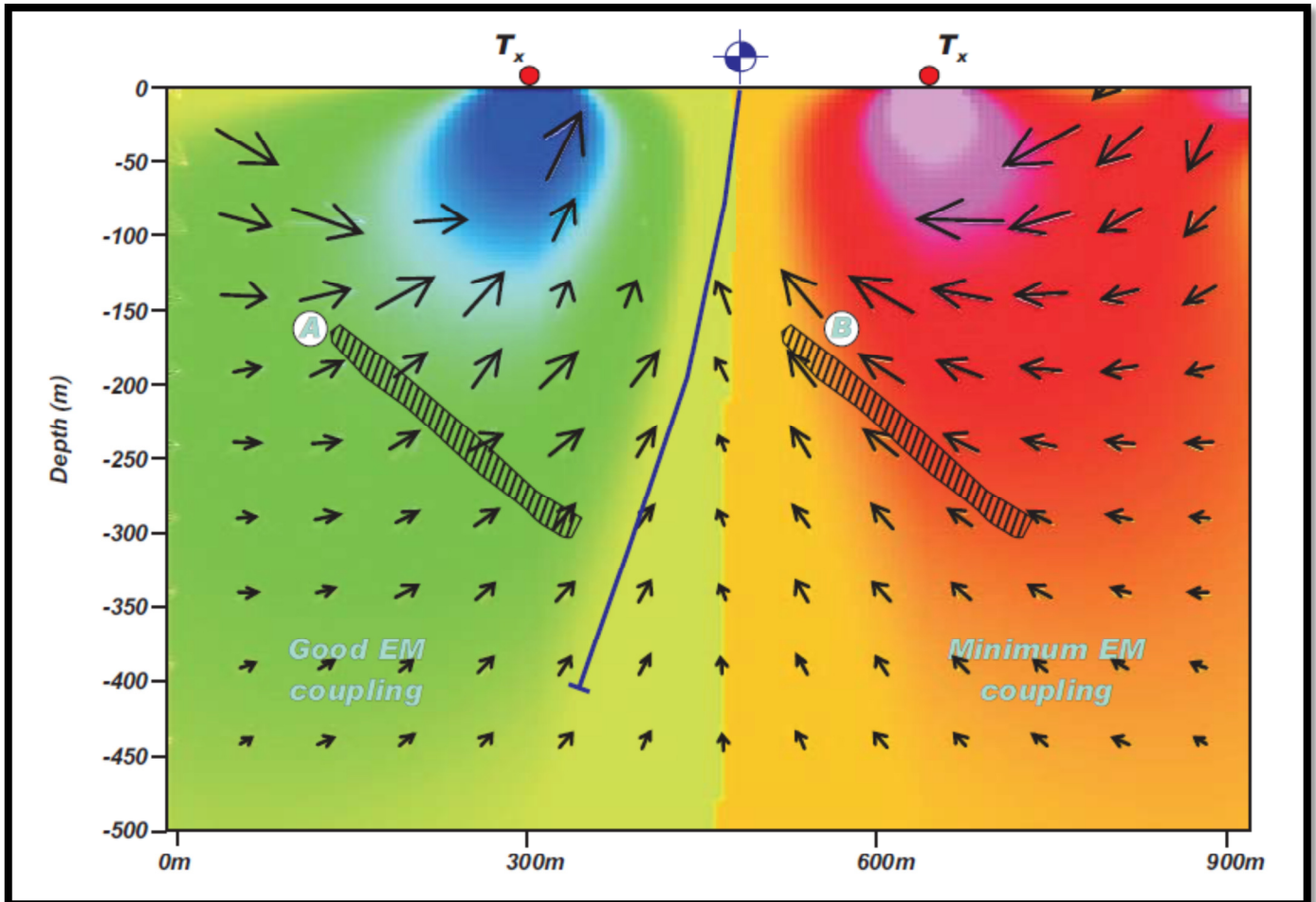


Fig. 42 - EM coupling between the primary field and a conductor, depending on the location of that conductor in regards to the transmitter loop.

VI.4.1.5 SUMRAY OF THE FIELD WORK

To get as much information as possible in order to constrain the interpretation, more than a data set was collected in all of the boreholes using different Tx loops. For the same reason, a 3D probe was used, getting the measurement at five metres intervals from the deeper end of the iron casing to the deepest point that was reached in every borehole.

Table 10 - Summary of field work conducted using a 3D Probe

Borehole	Tx loop	Section surveyed	Spacing	Comments
POX1	#1	135 - 180 m	5 m	Borehole length 224'5 m, blocked at 181 m.
	#2	135 - 180 m	5 m	
POX3	#1	120 - 230 m	5 m	Borehole length 262 m, blocked at 230 m.
	#2	120 - 230 m	5 m	
POX4A	#1	140 - 210 m	5 m	Borehole length 252 m, blocked at 200 m.
	#2	140 - 210 m	5 m	
POX8	#2	120 - 240 m	5 m	
	#3	120 - 240 m	5 m	
Total 3 Tx loops / 8 data sets on 4 boreholes.				

VI.4.1.6 INSTRUMENTATION

To conduct this survey, IGT has used a **PROTEM** system manufactured by *Geonics Ltd.* This system is composed by the following units:

- TEM-37 transmitter
- PROTEM receiver
- BH43-3D Probe, with an effective area of 5.000 m² for axial component and 1.250 m² for radial components.
- BH43-1D Probe



Fig. 43 – Field crew preparing the instrumentation for DHTeM survey

VI.4.1.7 RESULTS OF THE SURVEY

The first step on the interpretation of the Down-hole TEM data is only qualitative in order to identify the anomalies produced by the conductors of the ground which have the shape and features of interest for each case. For this purpose, simple response models have been taken into account, such as those shown on Figure 48 (a and b), which only make reference to the Z component of the TEM field. There are some similar response models for the X and Y components like the example of Figure 45. The objective is to identify in this early stage similar anomalies in the records of each borehole.

In the event there are some anomalies of possible interest due to its similarity with the theoretical models, the second step of the interpretative process consists in determining the position and the approximate characteristics of the conductor or conductors originating the TEM anomalies through a

modeling and inversion process conducted over on a number of approaches. These characteristics of the conductors of the ground refer to: size and shape, location and Conductance. The Conductance is a very representative physical parameter of a conductor as it is the product of the conductor's thickness times its Conductivity. It allows differentiate weak, moderate and strong conductors.

In order to obtain detailed and accurate results in this phase of the study, it is convenient to have several independent measurements from each borehole obtained with different locations for the Tx loop. Also it is important to use X, Y and Z components of the TEM field and finally the inversion process requires to operate with full developed anomalies, which means that the measurements must be enough extended upward and downward from any conductor's influence.

In our case, enough data has been collected in terms of Tx loops used on the proper locations, and regarding the measured components (X, Y, Z), but there is some lack of information from the deepest section of drill holes PX01, PX03 and PX04A because only Z component could be measured on the lower section of these drill holes.

Boreholes PX03 and PX04A were partially blocked just at the lower edge of the intersected massive sulfide body and borehole PX01 was also blocked at a similar depth. This means that some of the TEM anomalies are not totally developed and it does not allow to constrain the interpretation.

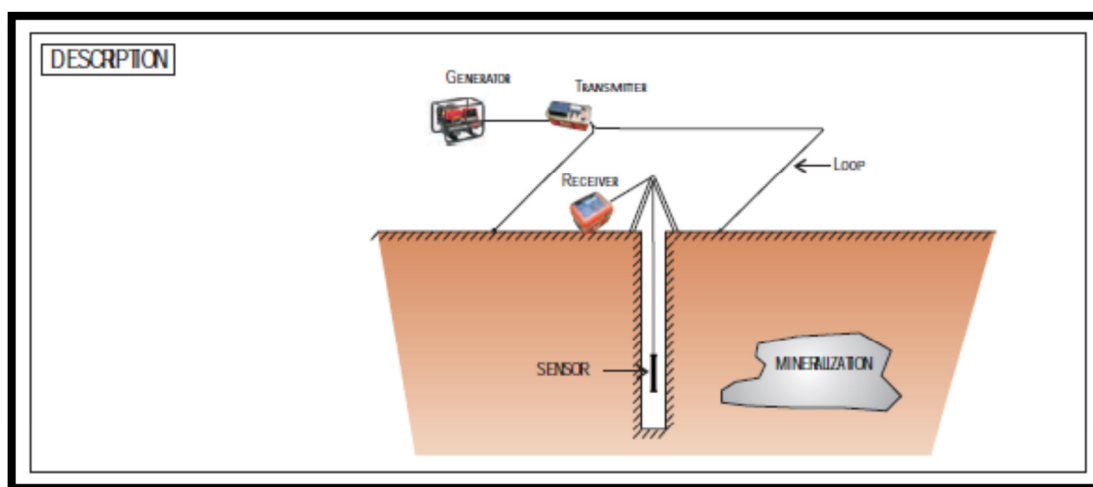


Fig. 44a – Instalation of equipment for DHEM survey

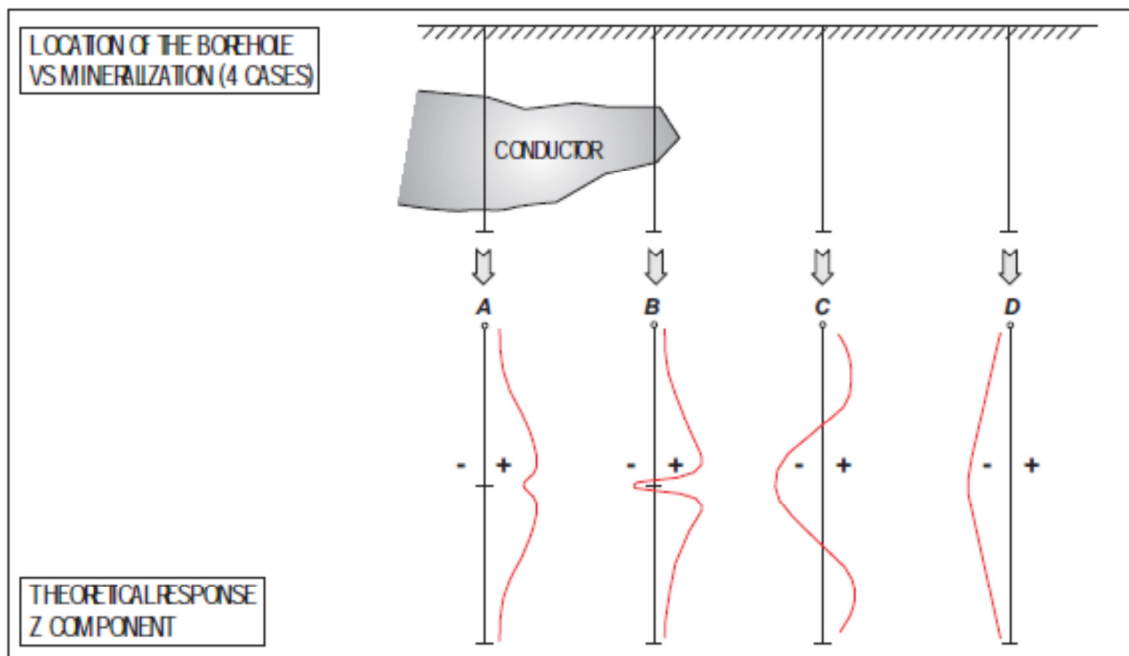


Fig. 44b – DTEM theoretical responses (Z component)

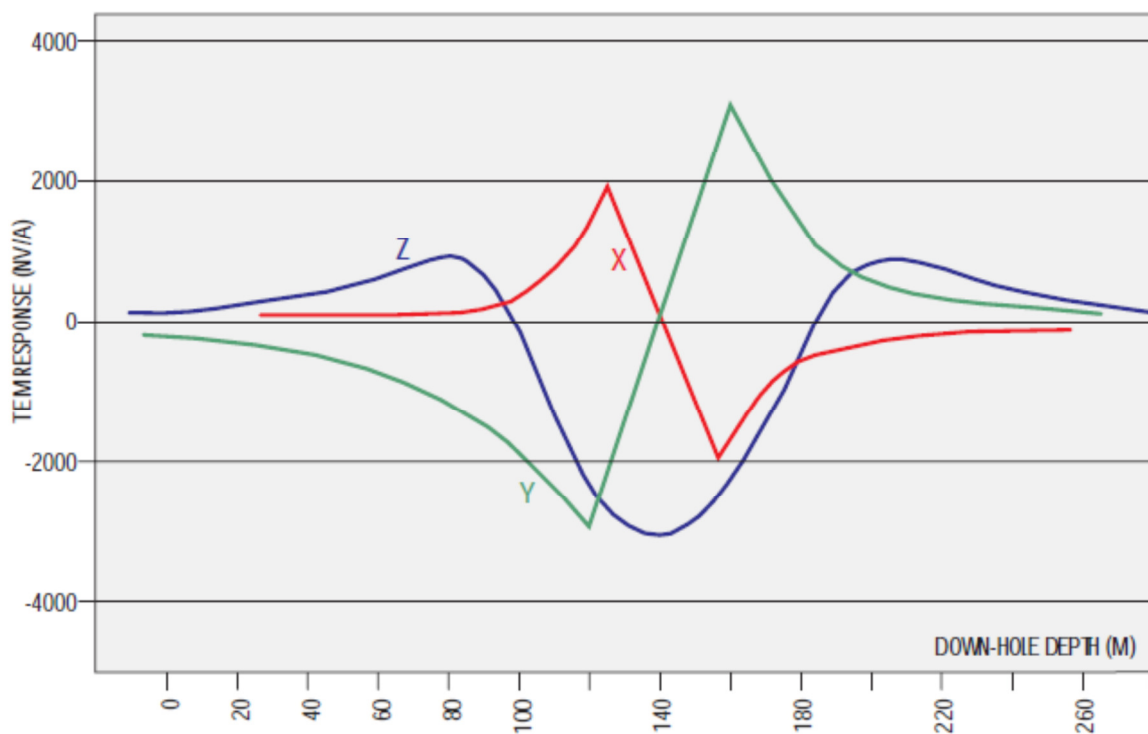


Fig. 45 - Theoretical 3 component TEM data for a hole perpendicular to an off-hole tabular Conductor

The main conclusions of the survey as per our interpretation of the collected data set can be summarized in some principal points as follows:

- a)** The Lagoa Salgada deposit seems to include a number of massive sulfide lenses type bodies in a near vertical (slightly dipping to the NE) position with moderate/small individual size (some tens of metres) and relatively high Conductance. In other words, most of them can be described as strong conductors which means high metallic content.

- b)** Some of these "lenses" (plates in geophysical terms) are parallel and relatively close to those intersected by the boreholes. Because those boreholes were drilled vertical it is easy to understand why they missed some of the plates located relatively close.

- c)** All of the aforementioned conductors are forming a group, aligned NW-SE and with a limited and relatively well defined extension to the NW and to the SE as indicated in Figure 50 which summarize our interpretation.

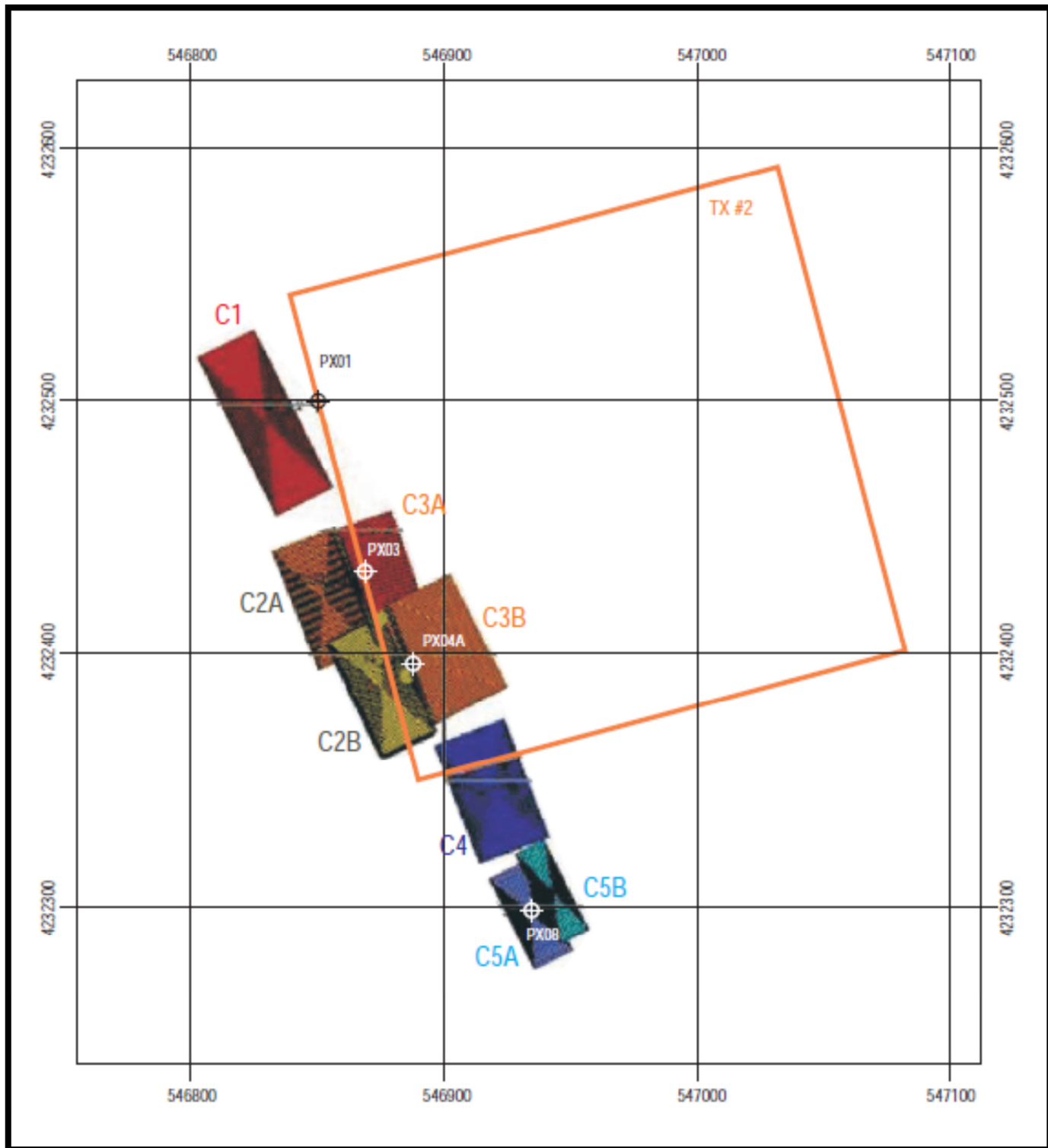


Fig. 46 - Plan view of all conductors interpreted from the TEM down-hole measurements. Different colors were used to identify each one of the identified conductors

In brief the interpretation of every drill hole is summarized as follows:

- **Drill hole PX01:**
 - There is a strong conductor (Conductance = 400 S) at 15 m to the SW from the drill hole PX01 at 175 m depth. The along-strike alignment suggests that they could be lengthened to create two sub parallel surfaces.

- **Drill hole PX03 and PX04A:**
 - Data set from both drill holes has been inverted jointly.
 - There is a weak subvertical conductor (C2B in Figure 46) adjacent to the holes at 160 m depth.
 - There is a strong conductor (400 S) at aprox. 10 m from the holes and at aprox. 170 m depth. It is indicated as conductor C2A in Figure 42.
 - There is a strong (400 S) conductor intersecting the holes centered around 200 m depth. It is the known orebody shown on preliminary section of Figure 41.

- **Drill hole PX08:**
 - There are two conductors, a moderate one (C5B) intersecting the hole at 165 m depth and a strong one (C5A in Figure 46) with more than 400 S Conductance, at 25 - 30 m to the NE from the hole, at aprox. 170 m depth.

VI.5 UP-DATE OF THE MINERAL RESOURCE ESTIMATES OF THE LAGOA SALGADA DEPOSIT

Based on all the work previously done, Redcorp have achieved very good intersections and positive results, that allowed us to request for a resource estimate on the property, with the aim of attract financing for further development of the project and to start preparing the next drilling and geophysics campaigns in order to increase the resources.

As the Portex is a public trade company, minerals resources are forced to be reported by a third-party recognized by the TSX-Venture Exchange (Canadian National Stock Venture Exchange).

Portex (Redcorp), contracted Tetra-Tech Wardrop to perform those interpretations and calculations, based on the information supplied by Redcorp and by site inspections from Tetra-Tech personnel.

In terms of commodities markets, generally is used the term Zinc Equivalent (ZnEQ%), to define a resource estimate of an orebody.

The mineral resource estimates were tabulated based on a zinc equivalent (ZnEQ%). The ZnEQ% was calculated using the capped grades from the ordinary kriging (OK) interpolation and used as a cut-off for the resource estimates.

The ZnEQ% was calculated using a simple manipulation in the Gemcom GEMS™ block model. The equation used to derive the ZnEQ% is as follows: $ZnEQ\% = ((Zn\ Price * Zn\ Grade * 22.04622 * Zn\ Recovery) + (Pb\ Price * Pb\ Grade * 22.04622 * Pb\ Recovery) + (Cu\ Price * Cu\ Grade * 22.04622 * Cu\ Recovery) + (Ag\ Price * Ag\ Grade / 31.10348 * Ag\ Recovery) + (Au\ Price * Au\ Grade / 31.10348 * Au\ Recovery) / Zn\ Price) / 22.04622$.

The parameters used in the above formula are listed in Table 11.

Table 11 - Metal Price and Recovery Parameters for ZnEQ% Calculation

Metal	Updated Price (US\$)	Updated Recovery (%)
Lead (Pb)	0.99/lb	72
Zinc (Zn)	1.04/lb	80
Copper (Cu)	2.96/lb	80
Silver (Ag)	19.12/oz	38
Gold (Au)	1200.00/oz	80

The metal prices listed above were taken from a long-term metal price forecasts database, as maintained by Tetra Tech, as of October 2011.

Tetra Tech has assumed metal recoveries based on published recoveries from the operating Aljustrel (silver, gold), Neves Corvo (zinc, copper) base metal mines, which display similar mineralization, and are situated in a similar geological environment.

Lead metal recoveries were estimated based on recent results from the Tulsequah Chief lead-zinc project operated by Chieftain Metals Inc. Lead recoveries from the Tulsequah Chief project vary between 73 to 79%. It was decided that in light of the more recent data that a 72% recovery be established.

The block model and mineral resource for the Lagoa Salgada deposit are classified as having Indicated and Inferred Resources based on drill hole spacing, drill hole location and sample data population. The mineral resource estimate for the deposit, at 3.5 ZnEQ% cut-off, is present at the following tables:

Table 12 - Indicated Resource Estimate for the Lagoa Salgada Deposit

Category	Tonnage	Pb (%)	Zn (%)	Cu (%)	Ag (g/t)	Au (g/t)
Indicated	2,942	0.35	3.40	0.34	54.72	0.82

Table 13 - Inferred Resource Estimate for the Lagoa Salgada Deposit

Category	Tonnage	Pb (%)	Zn (%)	Cu (%)	Ag (g/t)	Au (g/t)
Inferred	2,554	2.50	1.80	0.35	51.00	0.78

The mineral resource was estimated by the OK interpolation method on capped grades for all five metals. The ZnEQ% is a function of the estimated grade elements, metal price and approximated recoveries.

Gemcom software was used to do the 3d modeling of the orebody, as well as to perform the volume calculation of that orebody.

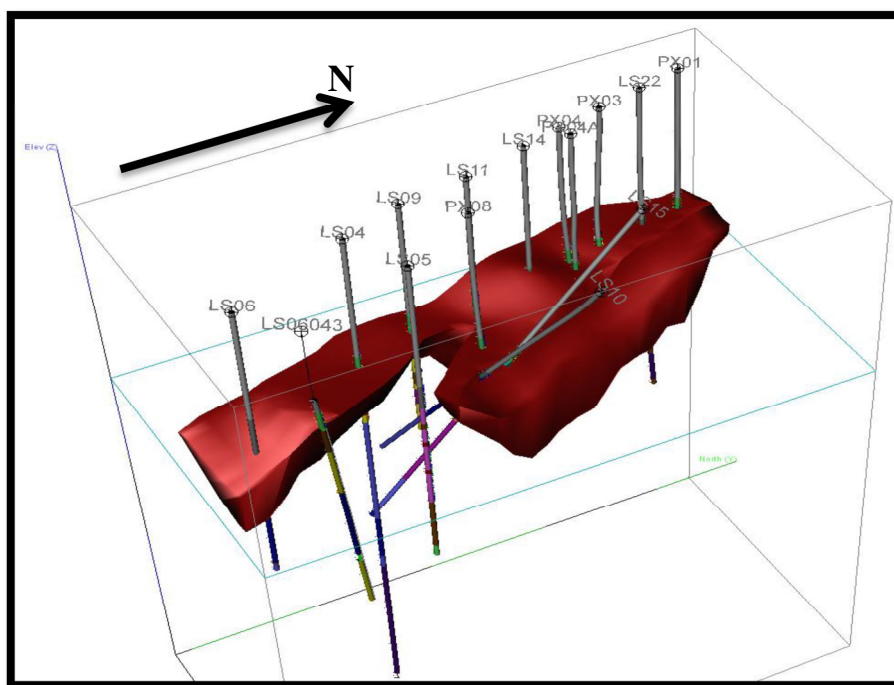


Fig. 47 – 3D modeling of the Lagoa Salgada massive sulfide orebody and location of the drilling

This software allowed us also to study with more effectiveness, in a 3D view, where drill holes are placed and where we have obtained the intersections of massive sulfides, copper stockwork and supergene enrichment zone, with good grades of gold and copper, also.

VII. CONCLUSIONS

As previously stated, the Lagoa Salgada massive sulfide deposit is located under >100m thick sediments of the Tertiary Sado Basin. The Lagoa Salgada deposit was discovered by the Portuguese Geological Survey - Serviço de Fomento Mineiro/Instituto Geológico e Mineiro in 1992 (Oliveira et al. 1998). Lagoa Salgada is a Zn+Pb VMS deposit, and it is similar to others massive sulfide orebodies of the Iberian Pyrite Belt. The deposit is affected by paleo erosion. The erosion process that affected the Lagoa Salgada sub vertical mineralized structure is responsible for the existence of a gossan and for the presence of a supergene enrichment zone. All the PX Redcorp boreholes intersected the Lagoa Salgada gossan (iron hat) that shows up to 23 m thickness.

The drill program performed by REDCORP at the Lagoa Salgada massive sulfide ore deposit confirms and improves the knowledge of this Iberian Pyrite Belt Volcanic Hosted Massive Sulfide deposit defined by IGM and Sociedade Mineira Rio Artezia/EDM in previous exploration projects (e.g. boreholes LS22, LS14, LS9 and LS4).

Five vertical holes were considered (total length of 1137,75 m): PX01, PX03, PX04; PX04A and PX08, see geological map. Borehole PX01 improved the gossan reserves 35m northward. Three holes intersected a considerable thickness of massive sulfides.

Presently the Lagoa Salgada deposit shows an extension of 540 m according the NNW-SSE direction and a thickness between 42 m and 68 m.

The Lagoa Salgada structure presents a N15° W direction, opposite to what Redcorp had knowledge, N18°W, and an inclination of 70° to northeastward.

The massive sulfide lenses is recognized along ~540 m length in the NW sector of the gravity anomaly defined by the Serviço de Fomento Mineiro. The central nucleus of the Bouguer anomaly is represented

by stockwork ore type, hosted in volcanic rocks included in the Volcano-Sedimentary Complex of the Iberian Pyrite Belt.

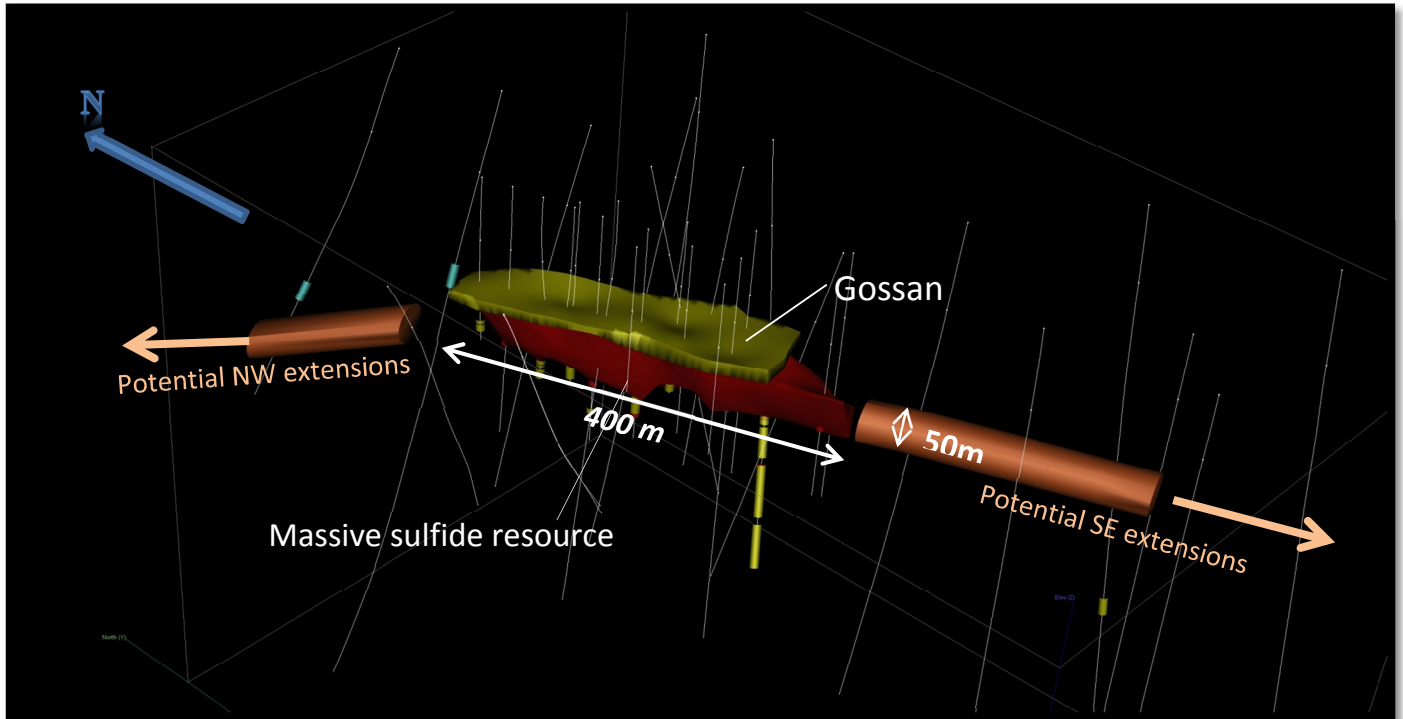


Fig. 48 - 3D View of the Lagoa Salgada deposit with main resource blocks (excluding the stockwork zone to simplify visualization)

The Lagoa Salgada massive sulfide lense was investigated by drill holes and by down hole surveys like DHTEM. Conductors indicated the NNW - SSE direction of the mineralized structure, see EM conductor in the geological map.

The five Redcorp holes intersected different type of ores, considering the follow schematic geological cross section (Matos et al. 2000):

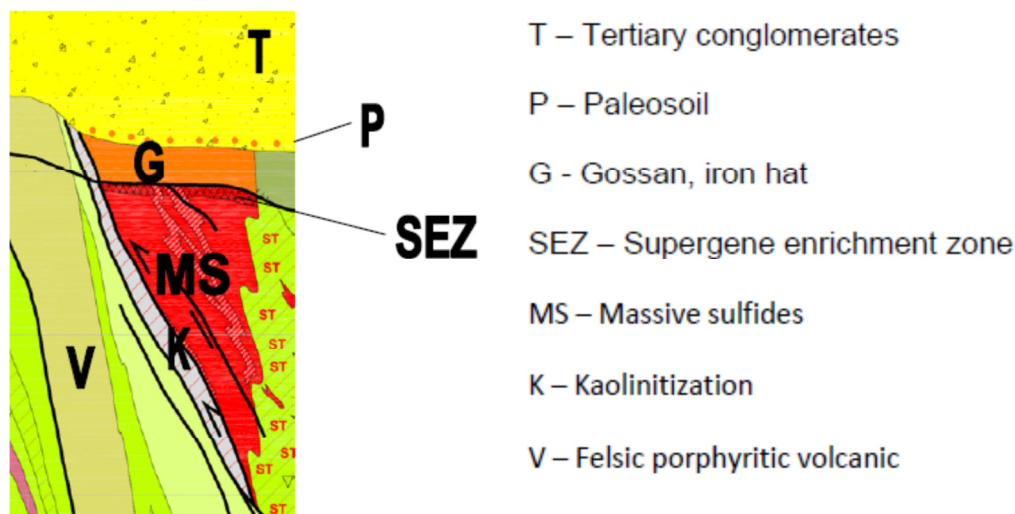


Fig. 49 – Schematic geological modeling (cross section) of the Lagoa Salgada Orebody

Considering this geological model, the orebody is limited in the upper part by the Tertiary cover and in the footwall by a fault zone. The available data show the follow ore types:

1. Gossan (iron hat) and paleosoil – hematite rich oxides, with high Pb, Au, Ag, Cu content.
2. Supergene enrichment zone – covellite, chalcocite and sulfides, with high Cu, Au, Ag, Pb content.
3. Massive sulfides – zinc and lead rich ore, with local Au and Ag high content.
4. Chert and hematitic+silica breccias – local with high Au and Ag content.
5. Stockwork veins in felsic volcanic affected by chlorite, silica and sericite hydrothermal alteration.

The drill program performed by REDCORP in 2011 corresponds to the objectives defined to the exploration project. The Lagoa Salgada massive sulfide deposit intersection by the PX boreholes permit the identification of Pb, Zn, Au, Ag rich ore at the boreholes PX03, PX04A and PX08. The hole PX01 intersected an important chert horizon, which probably represents the hanging wall of the mineralized structure.

The optical petrography and Electronic microprobe analysis shows that the Au is present in small particles. Also was proved that at least part of the high values in Cu, Pb and Zn at fresh massive sulfides are due respectively to chalcopyrite, galena and sphalerite.

The EM survey shows the presence of conductors with an NNW direction and inclination to northeast. This geophysical model is consistent with the geological model proposed by LNEG, see maps. One of the EM conductors must be investigated in the SW sector of the PX01 borehole.

The NW extension of the mineralization intersected by the PX08 borehole must be also investigated.

The results of this hole show a parallel lens to the LS04-LS09-LS14-LS22 massive sulfide orebody.

Considering the deformation present at the Lagoa Salgada volcanic rocks, the two lenses could originally be the same, and a fold model can be considered with an nucleus occupied by stockwork zones identified in the hole LS 5 and LS11, see map.

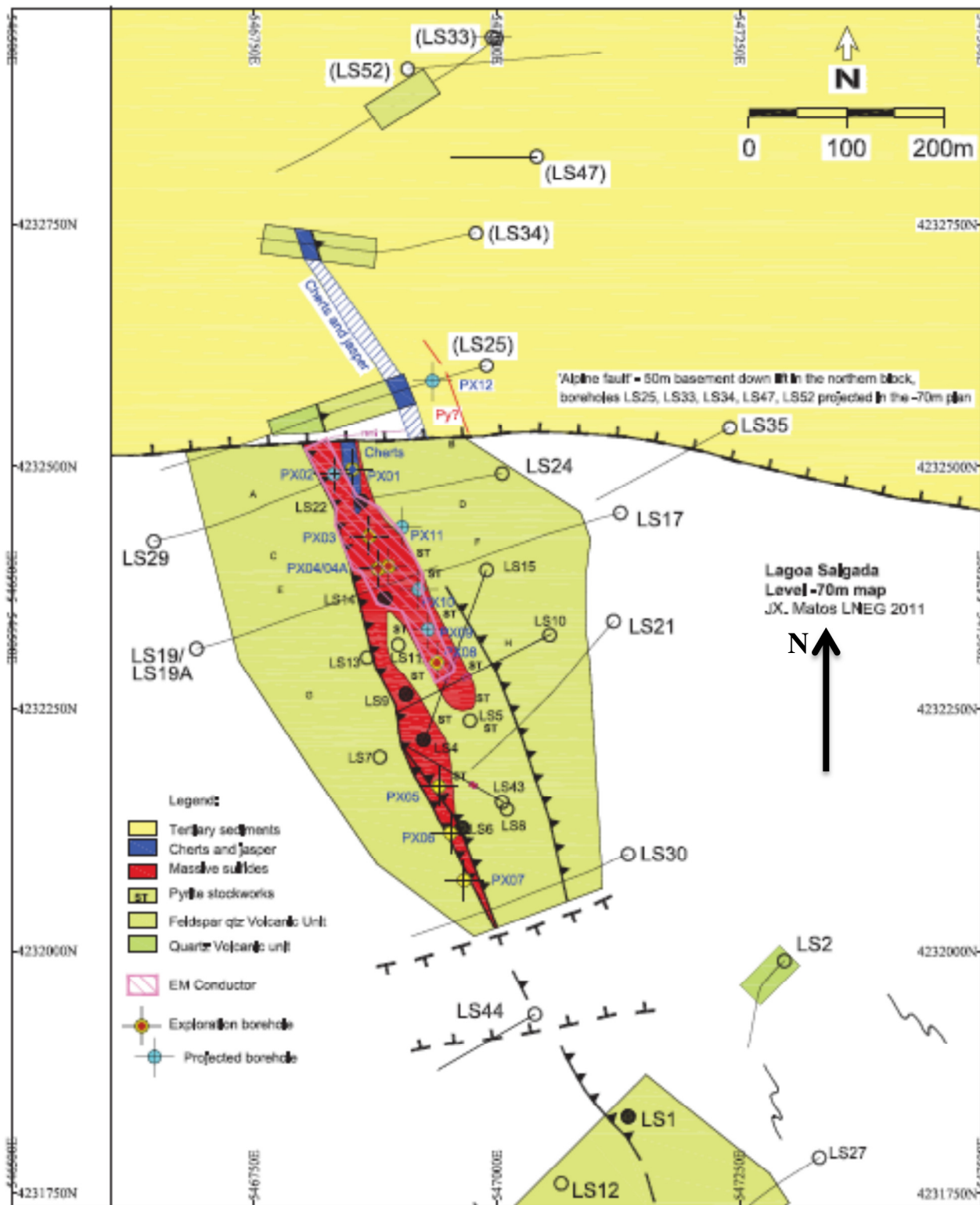


Fig. 50 – Simplified Lagoa Salgada geology map with connection of the previous 2 lenses of massive sulfides and interpreted orebody orientation.

VIII. RECOMMENDATIONS TO FUTURE WORKS

Based on all obtained information mentioned, the following suggestions are proposed:

The Lagoa Salgada project is a drill-stage polymetallic base metal project situated within the Iberian Pyrite Belt near Grândola, Portugal. The concession covers a known deposit (the Lagoa Salgada deposit) plus a number of additional exploration targets.

VMS-style, polymetallic base metal mineralization on the concession is hosted within the Paleozoic Volcano-Sedimentary Sequence of the Iberian Pyrite Belt. The mineralization is blind, covered by up to 200m of Tertiary rock and overburden. Although the absence of outcrop and depth of overburden present exploration challenges, they are also a source of opportunity, since they are the reason the concession area is so under-explored relative to other parts of the Pyrite Belt. Where better exposed, the Iberian Pyrite Belt contains 85 known VMS deposits including the world class Neves Corvo mine located 75km to the southeast of Lagoa Salgada.

The drilling completed to date indicates that the mineralization at the southern and eastern portion of the deposit is open. It is recommended that these areas be targeted for further investigation to determine the continuity of the massive sulfides (Fig. 51), mineralized stockwork volcanics and gossan cap that make up the deposit.

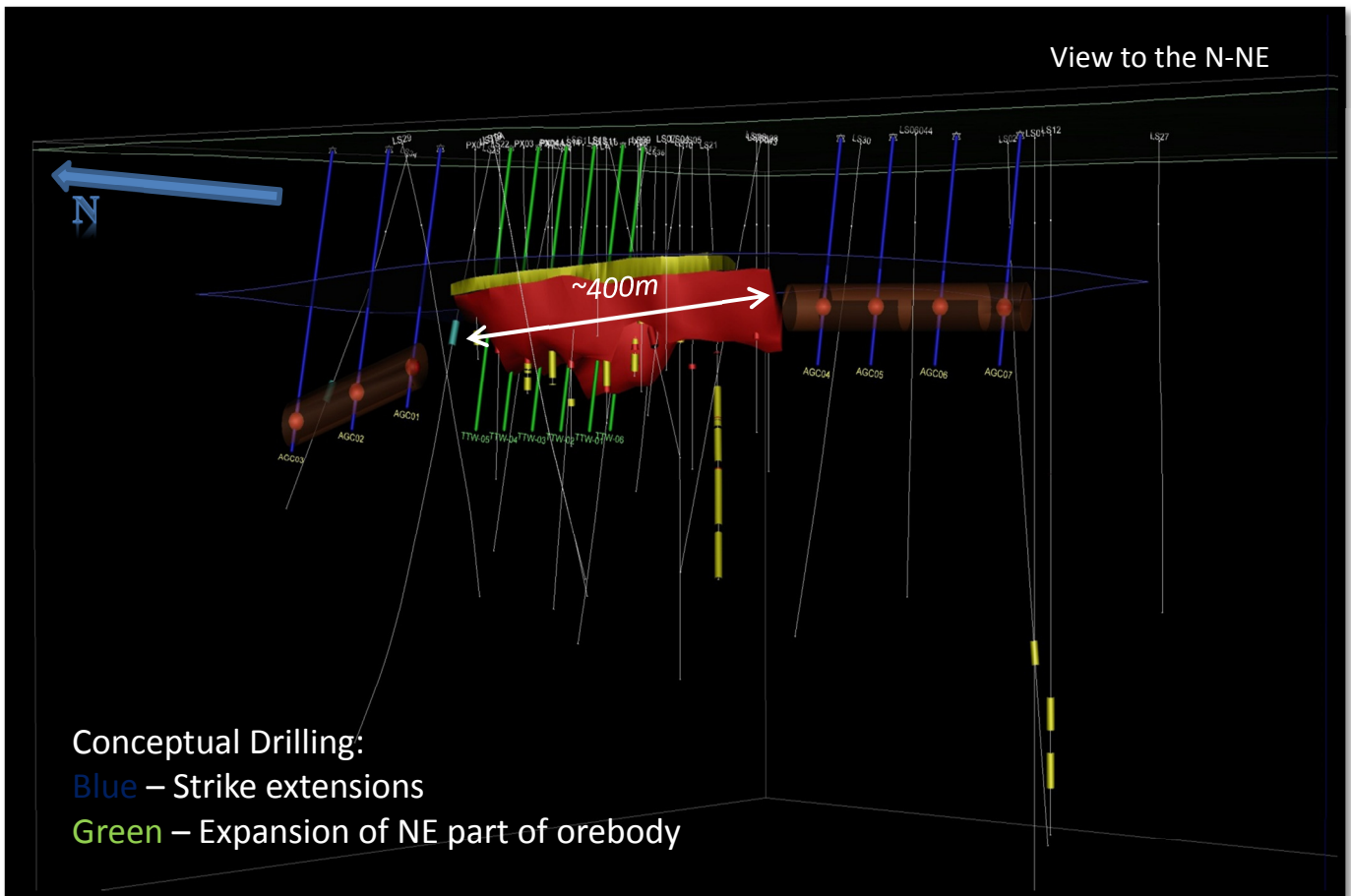


Fig. 51 - 3D View of the Lagoa Salgada deposit with main resource blocks Conceptual expansion drilling of existing resource

The inclined drill holes should give a better representation of the true width of the deposit and determine if the massive sulfides are increasing or decreasing at depth to the east.

Additionally, the increase of sample data, and spatial location, of this recommended drilling will give a greater confidence to the continuity of geology and grade which would, therefore, lead to a more robust resource estimate.

One of the most exciting targets on the concession outside of the Lagoa Salgada deposit area is the Rio de Moinhos target 11km SE of the Lagoa Salgada deposit. Drilling during the first half of 2008 drilling confirmed that elevated lead-zinc base metal values are associated with a semi-massive to massive

pyrite horizon interpreted to be a lateral expression of a volcanogenic massive sulfide system with potential to contain base metal mineralization.

Although the mineralization discovered thus far is narrow and not of economic grade in itself, it is an important indicator of base metal exploration potential in this area, and remains a priority for future exploration.

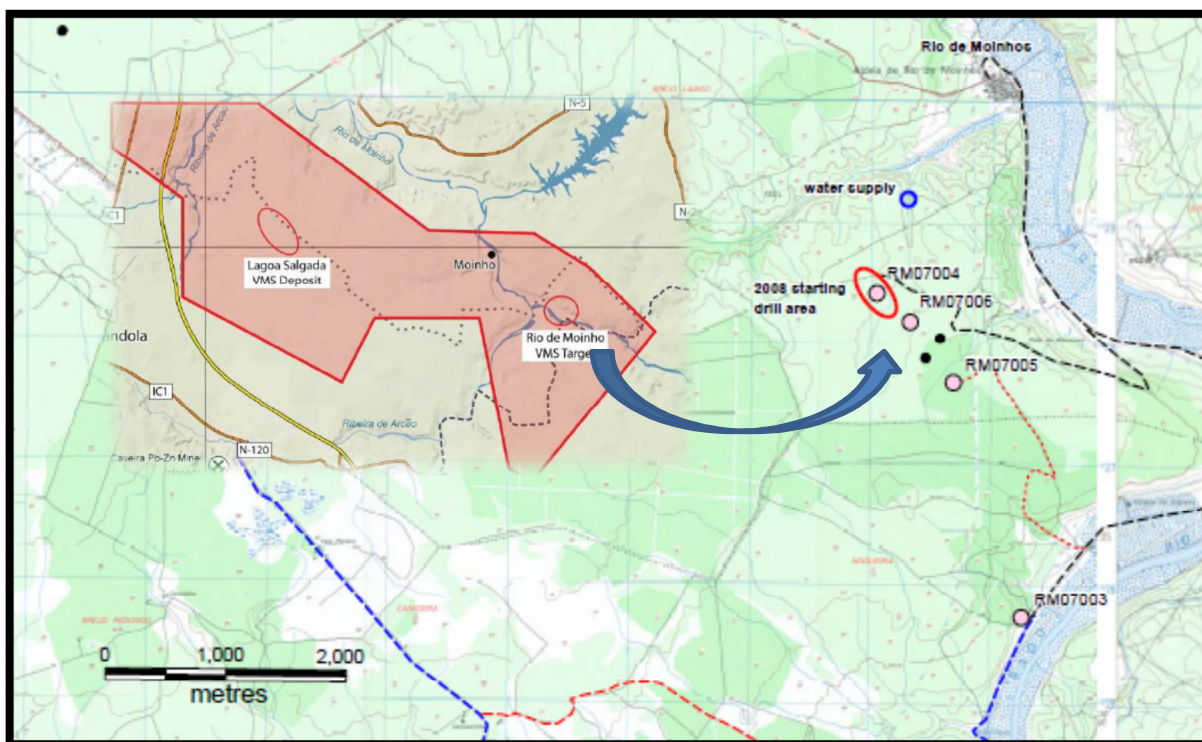


Fig. 52– Location of the Rio de Moinhos Sector inside Lagoa Salgada Concession

Finally, but not the less important, is what I consider that what should be the next step at this project: as the commodities markets are not “hungry” for Zn and Pb ores, but at the present, markets are looking for Cu, I consider that we should now focus our attention to the so called Lagoa Salgada Central Sector.

Lagoa Salgada Central Sector was until today not yet recognized and/or not yet properly studied.

Only, 2 drill holes were performed over that area, and they have intersected a copper-rich stockwork and a small intersection of massive sulfides.

The central sector of the Lagoa Salgada Bouguer anomaly is characterized by felsic volcanic rocks affected by chlorite, quartz-sericite and sericite alteration zones. Minor sediments occur. The ore type dominant is semi-massive sulfides, stockworks and sulfide veins parallel to the cleavage (e.g. LS1, LS2 and LS 28). At LS18 shear zones with silica+sulfides present 12,05 m with 4,37 Au ppm (from 552,60 to 564,65 m). The borehole LS20 intersected an important chloritic cupriferous stockwork showing the follow grades:

- 175,70 – 192,25 m (16,55 m): 1,00 Cu %, 3,63 Zn %, 1,85 Pb %, 26,68 Ag ppm, 0,09 Au ppm.
- 215,15 – 230,70 m (15,55 m): 3,81 Cu %, 3,85 Zn %, 3,82 Pb %, 100,36 Ag ppm, 0,29 Au ppm.

The LS20 stockwork ore type must be explored, especially in the SE area.

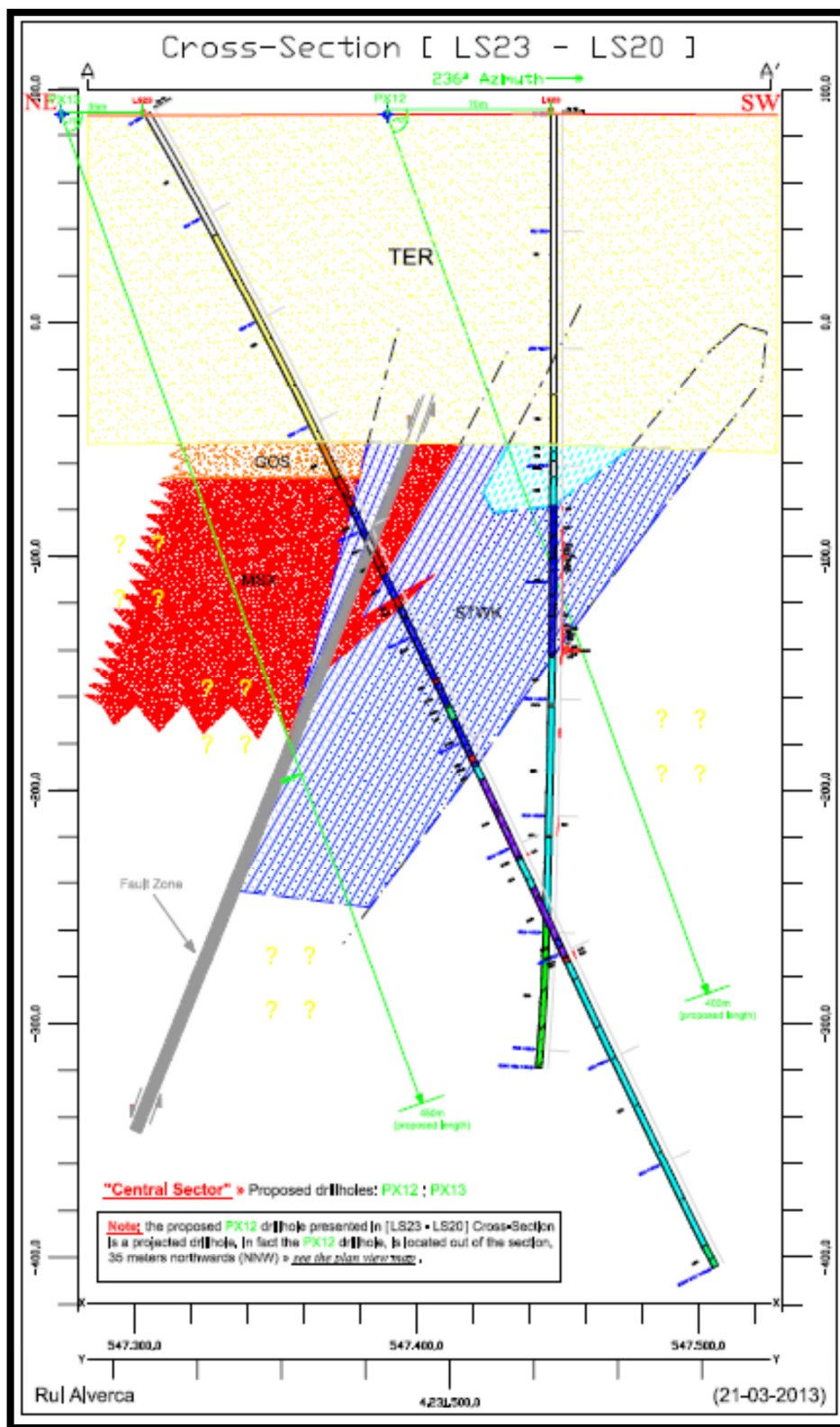


Fig.54 – Cross-section of the planned drill holes PX12 and PX13

For the evaluation and further expansion of this sector, we have projected, two inclined drill holes: the **PX12** drill hole (with approx. 400m length and located at 78m NE of LS20) to test the extension of the stockwork copper-rich zone, intersected by the historical LS20 drill hole, and the **PX13** drill hole (with approx. 450m length and located at 35m NE of LS23) to test the extension (laterally and in depth) of the small massive sulfides zone, intersected by the historical LS23 drill hole, and as well, to test the possible mineralized stockwork, in depth, as shown in Figure 58, above.

REFERENCES

Allen, M. G., 2006: Technical Report Lagoa Salgada Property Setúbal District, Portugal. 28 March, 2006. 21 pages;

Anamet Services (RTZ Group), 1995. Mineralogy and Metallurgical estwork on a Complex Sulphide Ore Sample from the Lagoa Salgada Deposit, Portugal. R2389/IMR,NPS/imr,nps/15.03.95/LAB.7207.4/95-074. 15 March 1995. 101 pages;

Barriga, F.J.A.S., de Carvalho, D., and Ribeiro, A., 1997, Introduction to the Iberian Pyrite Belt: Society of Economic Geologists Neves Corvo Field Conference, Guidebook Series Volume 27, p. 1–20;

Barriga FJAS, Carvalho D (1983) Carboniferous volcanogenic sulphide mineralizations in South Portugal (Iberian Pyrite Belt). Mem Serv Geol Port 29: 99±113;

Clarke, N.R., Newall, P., King, P., Coppin, N., Watson, N., and Oates, R., 2004: Technical Report on the Neves Corvo Mine, Portugal;

Carmichael, R.G., 2005: Technical Report Lagoa Salgada Property Setúbal District, Portugal. 21 March, 2005. 19 pages;

Carvalho P, Pacheco N, Beliz A, Ferreira A (1996): Últimos desenvolvimentos em prospecção realizados pela SOMINCOR. Simp. Sulfuros Polimetálicos de la Faja Pirítica Ibérica, Huelva, Febrero 1996. pp 1±21;

Castelo-Branco, J.M., 1996, O Projecto de Lagoa Salgada. Estado actual do conhecimento da jazida: Boletim Geológico y Minero, Instituto Tecnológico GeoMinero, v. 107, is. 5 and 6, p. 685–695;

de Oliveira, D.P.S., Rosa, D.R.N., Matos, J.X., Guimarães, F., Figueiredo, M.O., and Silva, T.P., 2009, Indium in the Lagoa Salgada orebody, Iberian Pyrite Belt, Portugal: Biennial SGA Meeting of the Society for Geology Applied to Mineral Deposits Meeting, 10th, Townsville, Queensland, Australia, Proceedings, v. 1, p. 424– 426;

De Oliveira D. P. S., J. X. Matos, C. J. P. Rosa, D. R. N. Rosa, I. M. O. Figueiredo, T. P. Silva, F. Guimarães, J. R. S. Carvalho, Á. M. M. Pinto, J. R. M. S. Relvas, AND F. K. M. Reiser: The Lagoa Salgada Orebody, Iberian Pyrite Belt, Portugal – Society of Economic Geologists, Inc., *Economic Geology*, v. 106, pp 1111-1128;

EuroZinc Mining Corp., 2006. Technical Report on the Aljustrel Project, Portugal. 31 March, 2006. 94 pages;

Galley AG (1993) Characteristics of semi-conformable alteration zones associated with volcanogenic massive sulphide districts. *J Geochem Explor* 48: 175±200;

Jaacks, Jeffrey A., Preliminary Lagoa Salgada Soil Gas Survey Interpretation, January 2009, 10 pages;

J.M. Leistel, E. Marcoux, D. Thiéblemont, C. Quesada, A. Sanchez, G.R. Almodóvar, E. Pascual, R. Sáez – The volcanic-hosted massive sulphide deposits of the Iberian Pyrite Belt – *Mineralium Deposita* (1998) 33: 2-30;

Lima A.M.C., Rodrigues B.C, Oliveira A., and Guimarães F., Indium from the Lagoa Salgada Orebody, Portugal. – Goldschmidt 2013 Conference Abstracts;

Lundin Mining Corp., 2008. Resource and Reserve Update, Neves-Corvo, Portugal. May 2008. 114 pages;

Matos, J.X., Barriga F.J.A.S., Oliveira, V.M.J, Relvas J.M.R.S., and Conceicao, P.I.S.T., 2000: The geological structure and hydrothermal alteration of the Lagoa Salgada deposit (Iberian Pyrite Belt-Sado Tertiary Basin, Portugal);

Matos, J.X., 2011: Lagoa Salgada Massive Sulfides Deposit – Redcorp Drill Program. 23 Sept 2011. 16 pages;

Oliveira V, Matos J, Bengala J, Silva M, Sousa P, Torres L (1998). Geology and Geophysics as successful tools in the discovery of the Lagoa Salgada orebody (Sado Tertiary Basin-Iberian Pyrite Belt), Grândola, Portugal. *Mineralium Deposita* 33: 170±187;

Relvas, J.M.R.S., 2000, Geology and metallogenesis at the Neves-Corvo deposit, Portugal: Unpublished Ph.D. thesis, Portugal, University of Lisbon, 319 p.;

Relvas, J., Barriga, F., Bernardino, F., Oliveira, V., and Matos, J., 1994, Ore zone hydrothermal alteration in drill hole I. G.M.-LS1 at Lagoa Salgada, Grândola, Portugal: A first report on pyrophyllite in a central stockwork;

Reunion Soc. Esp. Mineralogia, 14th, Huelva, Proceedings, p. 157–158;

Ribeiro, L. Jaques, F. Noronha – Utilização de um geotermómetro da clorite, numa sondagem (LS1) da jazida de Lagoa Salgada, Faixa Piritosa Ibérica, Portugal. – Cadernos do Laboratório Xeolóxico de Laxe: revista de xeología galega e do hercínico peninsular, ISSN 0213-4497, Nº 25, 2000;

Rosa, C., McPhie, J., and Relvas, J., 2010, Type of volcanoes hosting the massive sulfide deposits of the Iberian Pyrite Belt: Journal of Volcanology and Geothermal Research, v. 194, p. 107–126;

Schermerhorn, L.J.G., 1971, An outline of the stratigraphy of the Iberian Pyrite Belt: Boletín Geológico y Minero, v. 82, p. 239–268;

SMRA-EDM (Sociedade Mineira Rio Artézia-Empresa Desenvolvimento Mineiro), 1994, Lagoa Salgada exploration report, 1994: Unpublished report, LNEG Archives 2 Sem 94, 28 p., 25 n;

Wardrop, 2007. Report to: Redcorp Ventures Ltd. Resource Estimate for the Lagoa Salgada Project. Wardrop Engineering Inc. Document No. 0752760100-REP-R0001-01. 27 September 2007. 46 pages;

Wardell Armstrong International Ltd., 2007. Technical Report on the Neves Corvo Mine, Southern Portugal. Client: Silverstone Resources Corp. 19 October, 2007. 127 pages;

ANNEXES

Geological Logs of the Drill Holes

PX03, PX04, PX04A and PX08

Sondagem: PX01

Identificação (ID)

Portex Minerals Inc.		DrillHole PX01	REDCORP EMPREENDIMENTOS MINEIROS, Lda.
Elevation:	85m	Project:	Lagoa Salgada
Depth:		Location:	Grândola – Portugal
Azimuth/Inclination:	---- / -90°	Contract:	MN/PP/009/08
Coordinates (UTM - ED50):	East (X): 546850.8m	North (Y): 4232497.3m	Year per Contract: 1st Prorogation – Ending 1st Oct. 2011
Type of Drilling: Destructive drilling (0.00 - 135.00m) + Core Drilling (135.00 - 224.15m > end of hole)			

Identification (Hole)	PX01
Project	Lagoa Salgada
Local (Site)	Lagoa Salgada Deposit
Logged by	Rui Alverca
Drilling Method	Destructive + Core Drilling
Drilling Company	Drillcon Iberia

Azimuth (°)	-----
Dip (°)	-90° (vertical)
Destructive Drilling (Start)	17/05/2011
Destructive Drilling (End)	19/05/2011
Core Drilling (Start)	14/06/2011
Core Drilling (End)	04/07/2011

Core Size		
	From (m)	To (m)
Destructive	0.00	135.00
HQ (63.5mm)	135.00	136.35
NQ (47.6mm)	136.35	224.15
BQ (36.5mm)		

Total length (m) 224.15

	From (m)	To (m)
Casing (steel):	0.00	135.00
Reaming:		
Cementation:	135.00	167.55
PVC tubing:	0.00	208.00

Collar Coordinates (Hole position)	
East (X m):	546850.80
North (Y m):	4232497.30
Elevation (m):	85.00

Hole Surveying (Multishot system)			
Identification (Hole)	Depth (m)	Azimuth (°)	Dip (°)
PX01	14.40	302.1	-89.6
PX01	32.00	330.9	-89.0
PX01	49.60	143.1	-89.4
PX01	67.20	348.3	-89.2
PX01	84.80	232.5	-89.6
PX01	102.40	72.4	-89.5
PX01	120.00	358.5	-88.8
PX01	137.60	143.5	-88.2
PX01	155.20	147.8	-87.6
PX01	172.80	140.1	-87.3
PX01	190.40	162.7	-88.3
PX01	208.00	152.0	-87.4
PX01	(end of hole) > 224.15m		

Azimuth ??
[inside steel casing]

Identification (Drillhole)	From (m)	To (m)	ROCK TYPE	MOD1	MOD2	MOD3	>> DESCRIPTION (Comments)	Stratigraphy	
PX01	0.00	135.00	TSED	Destructive Drilling			Tertiary Sediments: sands with red clays intercalated. To the bottom, solid sedimentary rocks: sandstones ("grés") and conglomerates.	Tertiary Cover	
PX01	135.00	139.10	TSED	SST	CONG	CAL	Tertiary Sediments: cream coloured sandstones ("grés") and conglomerates with calcite/carbonate clay cement. Recovery: 73,2%; RQD: 46,3%.		
PX01	139.10	141.00	TSED	SSD	CLY	HEM	Tertiary Sediments ["Transition Zone"]: red to brown coloured clay-sandy material; hematitic alteration in clay-sandy material. Recovery: 65,8%; RQD: 0%.		
PX01	141.00	149.40	GOSS	HEM	LIM		Gossan (Iron Cap): Gossanized "massive sulphides"; rubblely and broken, hematitic/limonitic. Recovery: 36,9%; RQD: 9,5%.	Gossan	
PX01	149.40	152.35	CHF	VTF	SIL	HEM	Siliceous Volcanic Tuffs: silica altered volcanic tuffs with hematitic alteration along foliation (Certification > Chert/Jasper facies); Fractured and broken core; Broken contacts: ??? C.A. Recovery: 30,5%; RQD: 20,3%.	Chert/Jasper facies	
PX01	152.35	154.30	GOSS	HEM	LIM		Gossan (Iron Cap): Gossanized "massive sulphides"; rubblely and broken, hematitic/limonitic. Recovery: 57,4%; RQD: 10,3%.	Gossan	
PX01	154.30	167.55	CHF	GOSS	SIL	HEM	Siliceous Volcanic Tuffs: silica altered volcanic tuffs with hematitic alteration along foliation (Certification > Chert/Jasper facies); Fractured and broken core; From: [154,30 - 162,05m] and [165,95 - 166,50m], very fragmented (broken and brecciated), "weathered" and oxidized (hematitic + limonitic oxidation) rock material with low recovery and RQD; Broken upper contact: ??? C.A. Recovery: 56,2%; RQD: 31,7%.	Chert/Jasper facies	Gossan
PX01	167.55	172.85	CHF	GOSS	SIL	HEM	Siliceous Volcanic Tuffs: silica altered volcanic tuffs with hematitic alteration along foliation (Certification > Chert/Jasper facies); From: [167,55 - 168,10m] > Gossanized "massive sulphides", fractured to fragmented (broken and brecciated), "weathered" and oxidized (hematitic + limonitic oxidation) of previous sulphide mineralization; From: [169,55 - 170,10m] > Partially gossanized and brecciated, oxidized (hematitic oxidation) of previous sulphide mineralization. Recovery: 100%; RQD: 94,3%.	Chert/Jasper facies	Gossan
PX01	172.85	176.10	CHF	GOSS	SIL	HEM	Siliceous Volcanic Tuffs: silica altered volcanic tuffs with hematitic alteration along foliation (Certification > Chert/Jasper facies); From: [174,20 - 175,20m] > Partially gossanized interval, fractured to fragmented (broken and brecciated), "weathered" and oxidized (hematitic + limonitic oxidation) of previous sulphide mineralization; From: [171,70 - 176,10m] > massive breccia aspect (centimetric, angular to rounded silica/quartz fragments, enclosed in chert/jasper matrix. Contact down: 30° C.A. . Recovery: 100%; RQD: 94,3%.	Chert/Jasper facies	Gossan

PX01	176.10	179.20	FLT	CLY	VTC	HEM	Fault zone: reddish-brown to pink coloured, fault "gouge" material (weathered and <u>shattered volcanic tuffs and clay material</u>); hematitic and sericitic-argillic alteration. Evidences of sulphide mineralization (pyrite) inclosed/mixed in "gouge" material. Very low recovery : 16%; RQD : 0%.	FLT (Fault zone) [sericitic-argillitic, volcanic clay, tuffs]
PX01	179.20	194.45	FLT	CLY	VTC	DPY	Fault zone: cream to greyish coloured, fault "gouge" material (weathered and <u>shattered volcanic tuffs and clay material</u>); strong sericitic-argillic alteration > <u>main %</u> . <u>clay material</u> (kaolinite). Evidences of sulphide mineralization (pyrite) inclosed/mixed in clay "gouge" material (assemblages containing: main amount of kaolinite, sericite and sulphide/pyrite mineralization). Pyrite mineralization, parallel/along foliation, increasing to the bottom, from: [190,55 - 194,20m]; <u>In all interval</u> : ~15-20% of sulphide/pyrite mineralization. <u>Foliation</u> : 179,50m (25-30° C.A.), 181,40m (5-10° C.A.). <u>Contact down</u> : 30° C.A. . Low recovery : 37%; RQD : 0%.	
PX01	194.45	198.80	STWK	fRXT	SER	DPY	"Stockwork" rock type: sericite-pyrite altered, feldspar phyric rhyolite-dacite tuffs (cream coloured to light grey color); in general, intense sericite alteration and weathered; rounded feldspar crystals, disseminated on the matrix (crystals size: 2-3mm); strong foliated rock material; Disseminated pyrite mineralization, in millimetric layers, parallel/along foliaton (in all interval: ~10% of pyrite mineralization). Foliation: 195,70m (25° C.A.), 197,55m (10° C.A.). Recovery: 98,8%; RQD: 43,7%.	Stockwork Rock type (sericite-pyrite altered volcanic tuffs » "Stockwork")
PX01	198.80	200.10	FLT	STWK	SER	DPY	Fault zone: cream-grey, greenish coloured, fault material; (weathered and shattered volcanic tuffs > " <u>stockwork</u> " rock <u>type</u>); very fractured, broken and shattered rock material with some "gouge" material, mixed; strong sericite alteration and some chlorite alteration along foliation; Sulphide mineralization (pyrite) inclosed/mixed in "gouge" and in shattered fault material (assemblages containing: sericite, some chlorite and sulphide/pyrite mineralization); pyrite mineralization, parallel/along foliation. In all interval: ~10-15%, of sulphide/pyrite mineralization. <u>Foliation</u> : 5-10° C.A.. <u>Upper contact</u> , ?? (broken); <u>Contact down</u> : 10° C.A. . Recovery : 61,5%; RQD : 0%.	FLT (Fault zone) (sericite-pyrite altered volcanic tuffs » "Stockwork")
PX01	200.10	209.40	STWK	fRXT	SER	DPY	"Stockwork" rock type: sericite-pyrite altered, feldspar phyric rhyolite-dacite tuffs (cream coloured to light grey color; some greenish colouration); strong foliated rock material; medium to intense sericite alteration and some chlorite alteration, parallel/along foliation; rounded feldspar crystals, disseminated on the matrix (crystals size: 2-3mm); From: [204,10 - 209,40m] > strong oxidation (hematite alteration) in open fractures (centimetric to decimetric, open fractures) > it indicates, water circularion in fractures. Disseminated pyrite mineralization, in millimetric layers, parallel/along foliaton (in all interval: ~5-10% of pyrite mineralization). Foliation: 201,30m (10-15° C.A.), 204,50m (15° C.A.).	Stockwork Rock type (sericite-pyrite altered volcanic tuffs » "Stockwork")
PX01	209.40	224.15	fDXT	CHL	SER	(SIL)	Dacite Crystal Tuffs: <u>feldspar phyric dacite-rhyolite tuffs</u> (grey-greenish coloured); chlorite alteration on the matrix and some sericite alteration associated (<u>from</u> : [215,20 - 218,75m], some silica alteration on the matrix); sub-angular to sub-rounded feldspar crystals, disseminated on the matrix (crystals size: 2-5mm); in general, massive rock appearance (weakly foliated); From: [214,75 - 220,10m] and [221,05 - 224,15m], very fractured and broken core (irregular fracturation > open fractures) with strong oxidation (hematite alteration) in fractures (centimetric to decimetric, open fractures) > <i>it indicates, water circularion in fractures</i> . Incipient sulphide/pyrite mineralization, parallel/along foliation, in some decimetric intervals (<u>pyrite traces</u> : 1-2%, in all interval). Foliation: 211,90m (10° C.A.); 220,60m (3-5° C.A.); 222,95m (2-3° C.A.).	fDXT (Dacite crystal tuffs)
	224.15	E.O.H.					End of Hole.	

Sondagem: PX03

Identificação (ID)

Portex Minerals Inc.		DrillHole PX03	REDCORP EMPREENDIMENTOS MINEIROS, Lda.
Elevation:	85m	Project:	Lagoa Salgada
Depth:		Location:	Grândola – Portugal
Azimuth/Inclination:	---- / -90°	Contract:	MN/PP/009/08
Coordinates (UTM - ED50):	East (X): 546868.3m	North (Y): 4232428.5m	Year per Contract: 1st Prorogation – Ending 1st Oct. 2011
Type of Drilling: Destructive drilling (0.00 - 120.10m) + Core Drilling (120.10 - 262.00m > end of hole)			

Identification (Hole)	PX03
Project	Lagoa Salgada
Local (Site)	Lagoa Salgada Deposit
Logged by	Rui Alverca
Drilling Method	Destructive + Core Drilling
Drilling Company	Drillcon Iberia

Azimuth (°)	-----
Dip (°)	-90° (vertical)
Destructive Drilling (Start)	19/05/2011
Destructive Drilling (End)	21/05/2011
Core Drilling (Start)	05/07/2011
Core Drilling (End)	25/07/2011

Core Size		
	From (m)	To (m)
Destructive	0.00	120.10
HQ (63.5mm)	120.10	129.00
NQ2" (50.6mm)	129.00	262.00
BQ (36.5mm)		

Collar Coordinates (Hole position)	
East (X m):	546868.30
North (Y m):	4232428.50
Elevation (m):	85.00

Total length (depth) **262.00**

	From (m)	To (m)
Casing (steel):	0.00	120.10
Reaming:		
Cementation:	120.00	152.40
	167.00	181.20
PVC tubing:	0.00	256.00

Hole Surveying (Multishot system)			
Identification (Hole)	Depth (m)	Azimuth (°)	Dip (°)
PX03	7.00	340.5	-88.5
PX03	37.00	226.0	-87.0
PX03	67.00	141.1	-86.4
PX03	97.00	159.4	-86.1
PX03	127.00	106.8	-83.4
PX03	157.00	36.5	-83.6
PX03	187.00	35.7	-84.3
PX03	217.00	34.6	-84.3
PX03	247.00	34.4	-83.9
PX03	(end of hole) > 262.00m		

Azimuth ??
[inside steel casing and in HQ drill rods ("casing" for hole protection)]

Identification (Drillhole)	From (m)	To (m)	ROCK TYPE	MOD1	MOD2	MOD3	>> DESCRIPTION (Comments)	Stratigraphy	
PX03	0.00	120.10	TSED	Destructive Drilling			Tertiary Sediments: sands with red clays intercalated. To the bottom, solid sedimentary rocks: sandstones ("grés") and conglomerates.	Tertiary Cover	
PX03	120.10	138.40	TSED	SST	CONG	CAL	Tertiary Sediments: cream coloured sandstones ("grés") and conglomerates with calcite/carbonate clay cement. From: [135,40 - 138,40m], very low recovery (18%) and RQD (11,7%).	Tertiary Cover	
PX03	138.40	139.60	TSED	GOSS	HEM		Tertiary Sediments/Gossan ["Transition Zone"]: red to brown coloured clay-sandy material and gossanized rock material to the bottom; hematitic alteration in clay-sandy material. Very low recovery: 8,3%; RQD: 0%.	Tertiary Cover	Gossan
PX03	139.60	142.00	GOSS	HEM	LIM		Gossan (Iron Cap): Gossanized "massive sulphides"; rubblely, broken and "weathered", hematitic/limonitic rock material. Chert/Jasper rock material, intercalation, from: [140,30 - 140,60m]. Recovery: 98%; RQD: 27%.	Gossan	
PX03	142.00	142.55	CHF	GOSS	SIL	HEM	Siliceous Volcanic Tuffs: silica altered volcanic tuffs with hematitic alteration (Chertification > Chert/Jasper facies), intercalated with gossanized rock material (gossanized, decimetric intercalations); very fractured to fragmented (broken and brecciated), "weathered" and oxidized (hematitic + limonitic oxidation) of previous sulphide mineralization. Recovery: 100%; RQD: 36,4%.	Chert/Jasper facies	Gossan
PX03	142.55	147.30	GOSS	HEM	LIM	SIL	Gossan (Iron Cap): Gossanized "massive sulphides"; rubblely and broken, hematitic / limonitic; fractured to fragmented (broken and brecciated); "weathered" gossan material, in some intervals (hematitic + limonitic oxidation) of previous sulphide mineralization. Recovery: 100%; RQD: 53,7%.	Gossan	
PX03	147.30	148.75	CHF	SIL	HEM	LIM	Siliceous Volcanic Tuffs: silica altered volcanic tuffs (Chertification > Chert/Jasper facies) with some hematitic / limonitic alteration, along foliation; fractured to fragmented (broken) core with strong oxidation (hematite) in fractures. Recovery: 89,7%; RQD: 63,4%.	Chert / Jasper facies	
PX03	148.75	150.95	CHF	GOSS	SIL	HEM	Siliceous Volcanic Tuffs: silica altered volcanic tuffs with strong hematitic alteration (Chertification > Chert/Jasper facies), intercalated with gossanized rock material (gossanized, millimetric to centimetric intercalations, along structure - banded?!); porous and leached gossanized rock material with some "boxwork" texture (brecciated); strong oxidation (hematite) in fractures. Recovery: 85,5%; RQD: 39%; Contact down: broken.	Chert/Jasper facies	Gossan
PX03	150.95	152.95	FLT	NC			No core (no recovery)! > possible Fault Zone??	FLT (Fault) ??	
PX03	152.95	159.25	MSX	PY	(CHP)	(GAL)	Massive Sulphides (MSX > Copper facies): fine to medium-fine grained, massive sulphides with disseminated copper mineralization (secondary copper mineralization) and galena (lead) on the top, from: [152,95 - 153,70m] > (copper: aprox. 3-5% ; lead: 10-15% , in all sub-interval); visible, banded galena (lead) associated with copper mineralization, from: [153,70 - 158,70m] > (copper: approx. 1,5-2% ; lead: 5-10% , in all sub-interval); banded structure: 25-30° C.A. Recovery: 98,8%; RQD: 72,2%; Upper contact: broken.	Massive Sulphides (MSX)	Copper Facies

PX03	159.25	160.35	FLT	MSX	PY	(GAL)	Massive Sulphide Fault zone: very fragmented, brittle and "sheared" massive sulphides; fine to very-fine grained. Recovery: 81,8%; RQD: 0%; Sub-vertical fault zone: broken contacts.	FLT (Fault zone in Massive Sulphides)
PX03	160.35	168.00	MSX	PY	(GAL)		Massive Sulphides (MSX): fine grained, massive sulphides with disseminated and banded galena (<u>lead</u>) > (aprox. 2-6%, in all interval); visible, banded sphalerite (<u>zinc</u>) with galena (lead) associated.	Massive Sulphides (MSX)
PX03	168.00	169.90	FLT	MSX	PY	(GAL)	Massive Sulphide Fault zone: very fragmented, brittle and "sheared" massive sulphides; fine to very-fine grained; visible galena (lead) > (aprox. 3-5%, in all interval). Recovery: 34,2%; RQD: 0%; Sub-vertical fault zone: broken contacts.	FLT (Fault zone in Massive Sulphides)
PX03	169.90	175.55	MSX	PY	(SPH)	(GAL)	Massive Sulphides (MSX > Zinc facies): fine to medium-fine grained, massive sulphides; visible, banded sphalerite (<u>zinc</u>) with galena (lead) associated > (<u>zinc:</u> approx. 5-8% ; <u>lead:</u> 3-5% , in all interval).	Massive Sulphides (MSX) Zinc Facies
PX03	175.55	179.60	FLT	MSX	PY	(GAL)	Massive Sulphide Fault zone: fragmented, brittle and "sheared" massive sulphides; fine to very-fine grained; visible galena (lead) > (aprox. 3-5%, in all interval). Recovery: 81,5%; RQD: 29,9%; Sub-vertical fault zone (5-7º C.A.): broken contacts.	FLT (Fault zone in Massive Sulphides)
PX03	179.60	181.20	MSX	PY	(GAL)		Massive Sulphides (MSX): fine to very-fine grained, massive sulphides with disseminated and banded galena (<u>lead</u>) > (aprox. 2-4%, in all interval).	Massive Sulphides (MSX)
PX03	181.20	183.30	MSX	PY	(GAL)		Massive Sulphides (MSX): fine to fine-medium grained, massive sulphides with disseminated galena (<u>lead</u>) and <u>galena in fractures</u> > (aprox. 3-5%, in all interval).	Massive Sulphides (MSX)
PX03	183.30	186.80	FLT	MSX	PY	(GAL)	Massive Sulphide Fault zone: very fractured, fragmented and brittle massive sulphides; fine to fine-medium grained; visible galena (lead) in fractures > (aprox. 3-5%, in all interval). Recovery: 67,1%; RQD: 10%; Contacts: (??) broken.	FLT (Fault zone in Massive Sulphides)
PX03	186.80	196.30	MSX	PY	(SPH)	(GAL)	Massive Sulphides (MSX > Zinc facies): fine to fine-medium grained, massive sulphides; in general, very fractured to fragmented MSX, with some banded fissuration; visible, banded sphalerite (<u>zinc</u>) with galena (lead) associated > (<u>zinc:</u> approx. 4-8% ; <u>lead:</u> 2-5% , in all interval); <u>banded structure:</u> 30º C.A. > [187,85m], 20-25º C.A. > [193,80m].	Zinc Facies
PX03	196.30	201.75	MSX	PY	(GAL)		Massive Sulphides (MSX): very-fine to fine grained, massive sulphides; in general, fractured and very fragmented ("broken"), in some sectors; disseminated galena (<u>lead</u>) and <u>galena in fractures</u> > (aprox. 2-3%, in all interval).	Zinc Facies
PX03	201.75	210.15	MSX	PY			Massive Sulphides (MSX): fine to very-fine grained, massive sulphides (essentially, pyritic MSX); in general, very fractured to fragmented ("broken") on the top, from: [202,00 - 205,50m] and to the bottom, from: [208,40 - 210,15m]. From: [202,15 - 205,50m], possible "shear" fault zone, in MSX (shattered and fragmented massive sulphides, with some fissuration, in some sectors).	Massive Sulphides (MSX)

PX03	210.15	212.80	MSX	PY	(SPH)	(GAL)	Massive Sulphides (MSX > Zinc facies): very-fine to fine grained, massive sulphides; visible, banded sphalerite (<u>zinc</u>) with galena (lead) associated > (<u>zinc</u> : approx. 4-6% ; <u>lead</u> : 2-3% , in all interval).		Zinc Facies
PX03	212.80	215.70	MSX	PY			Massive Sulphides (MSX): very-fine to fine grained, massive sulphides.		
PX03	215.70	216.70	STWK	SMX	PY		Stockwork with Semi-Massive Sulphides: very "weathered", argillized (intense sericite alteration and <u>alonite</u> clay) and broken stockwork rock type, with laminations of <u>semi-massive sulphides, along foliation</u> (~30-40% of SMX, in all interval). <u>Foliation</u> : 216,50m (30° C.A.). Contacts: <u>upper contact</u> , broken (??); <u>contact down</u> , 45° C.A.	Stockwork Rock type ("weathered")	SMX
PX03	216.70	220.30	MSX	PY	(SPH)	(GAL)	Massive Sulphides (MSX > Zinc facies): very-fine to fine grained, massive sulphides; some fissuration, in some sectors; visible, banded sphalerite (<u>zinc</u>) with galena (lead) associated > (<u>zinc</u> : approx. 4-6% ; <u>lead</u> : 3-5% , in all interval).	Massive Sulphides (MSX)	Zinc Facies
PX03	220.30	224.50	MSX	PY			Massive Sulphides (MSX): fine to very-fine grained, massive sulphides (essentially, pyritic MSX); in general, very fractured to fragmented ("broken"). From: [222,90 - 224,50m], possible "shear" fault zone, in MSX (shattered and brittle massive sulphides).		
PX03	224.50	229.07	MSX	PY	(CHP)		Massive Sulphides: very-fine to fine grained, massive sulphides (essentially, pyritic MSX); visible, disseminated <u>chalcopryrite (copper)</u> traces, on MSX matrix and in some fractures > (<u>copper</u> : approx. 0,5-1%, in all interval, apparently); very fractured to fragmented, sometimes fissured, and with some "weathered" sectors > <u>MSX "shear" zone?! Contact down</u> : 40° C.A.		
PX03	229.07	230.25	STWK	CLAY	(PY)		"Stockwork" rock type: argillized (<u>clay</u>) stockwork rock type (grey to dark grey color), mixed with some sulphide mineralization (essentially, pyritic material).	Stockwork Rock type (argillized/clay, pyritic volcanic tuffs » "Stockwork")	
PX03	230.25	232.50	STWK	SER	DPY		"Stockwork" rock type: sericite-pyrite altered, volcanic tuffs (medium-grey color to cream coloured); intense sericite alteration and "weathered" (exhibit strong sericitization); disseminated sulphide mineralization (essentially, pyritic mineralization), in millimetric layers, parallel/along foliation (in all interval: ~20-25% of mineralization). <u>Foliation</u> : 230,90m (40-45° C.A.); 232,10m (~30° C.A.).	Stockwork Rock type (sericite-pyrite altered volcanic tuffs » "Stockwork")	
PX03	232.50	235.10	STWK	SER	CHL	DPY	"Stockwork" rock type: <u>sericite-chlorite-pyrite altered, volcanic tuffs</u> (medium-grey color to greenish coloured); intense sericite alteration and "weathered" (exhibit intense sericitization); <u>disseminated sulphide mineralization</u> (essentially, pyritic mineralization), in millimetric layers, parallel/along foliation and <u>chalcopryrite (copper)</u> trace evidences.	Stockwork Rock type (sericite-chlorite-pyrite altered volcanic tuffs » "Stockwork")	
PX03	235.10	236.45	FLT	STWK	CLY	SER	Stockwork Fault Zone: "weathered" and argillized (some clay "gouge") stockwork rock type (intense sericite alteration); disseminated sulphide mineralization (essentially, pyritic mineralization) and <u>chalcopryrite (copper)</u> trace evidences.	FLT (Fault zone in Stockwork)	

PX03	236.45	239.30	STWK	CHL	QVN	(CHP)	"Stockwork" rock type: chlorite-pyrite altered, volcanic tuffs (dark green color); intense chlorite alteration and some irregular quartz vein material; disseminated sulphide mineralization (essentially, pyritic mineralization), in millimetric layers, parallel/along foliation and chalcopyrite (copper) mineralization (stringer chalcopyrite > approx. 0,5-1%, in all interval, apparently), associated with quartz vein material.	Stockwork Rock type (chlorite-pyrite altered volcanic tuffs » "Stockwork")
PX03	239.30	243.80	FLT	STWK	CHL	QVN	Stockwork "Shear" Fault Zone: very fractured and broken, chlorite-sericite altered stockwork rock type, with some broken quartz vein material associated; clay "gouge" to the bottom (near contact down); some chalcopyrite (<u>copper</u>) mineralization (stringer chalcopyrite evidences > approx. 0,2-0,5%, in all interval, apparently),	FLT (Fault zone in <i>Stockwork</i>)
PX03	243.80	255.30	STWK	SER	DPY		"Stockwork" rock type: sericite-pyrite altered, volcanic tuffs (dark-grey color); medium to intense sericite alteration, parallel/along foliation; disseminated sulphide mineralization (essentially, pyritic mineralization), in millimetric layers, parallel/along foliation.	Stockwork Rock type (sericite-pyrite altered volcanic tuffs » "Stockwork")
PX03	255.30	258.60	STWK	QVN	SER	DPY	"Stockwork" rock type: <u>sericite-chlorite-pyrite altered volcanic tuffs</u> (dark-grey color), cutted by regular to irregular, brecciated (fissured) quartz veins; <u>disseminated sulphide mineralization</u> (essentially, pyritic mineralization), in millimetric layers, parallel/along foliation.	Stockwork Rock type (sericite-chlorite-pyrite altered volcanic tuffs » "Stockwork")
PX03	258.60	261.55	FLT	STWK	QVN	SER	Stockwork "Shear" Fault Zone: fractured and broken, sericite-chlorite altered stockwork rock type, with some broken quartz vein material associated; "gouge" in some sectors.	FLT (Fault zone in <i>Stockwork</i>)
PX03	261.55	262.00	fDXT	SER	CHL		Dacite/Rhyolite Crystal Tufts: <u>feldspar phyrlic dacite-rhyolite tufts</u> (grey-greenish coloured); sericite-chlorite alteration on the matrix.	fDXT (Dacite crystal tufts)
	262.00	E.O.H.					End of Hole.	

Sondagem: PX04

Identificação (ID)

Portex Minerals Inc.		DrillHole PX04	REDCORP EMPREENDIMENTOS MINEIROS, Lda.
Elevation:	85m	Project:	Lagoa Salgada
Depth:		Location:	Grândola – Portugal
Azimuth/Inclination:	---- / -90°	Contract:	MN/PP/009/08
Coordinates (UTM - ED50):	East (X): 546877.5m	North (Y): 4232394.2m	Year per Contract: 1st Prorogation – Ending 1st Oct. 2011
Type of Drilling: Destructive drilling (0.00 - 121.00m) + Core Drilling (121.00 - 157.80m > end of hole)			

Identification (Hole)	PX04
Project	Lagoa Salgada
Local (Site)	Lagoa Salgada Deposit
Logged by	Rui Alverca
Drilling Method	Destructive + Core Drilling
Drilling Company	Drillcon Iberia

Azimuth (°)	-----
Dip (°)	-90° (vertical)
Destructive Drilling (Start)	23/05/2011
Destructive Drilling (End)	25/05/2011
Core Drilling (Start)	06/07/2011
Core Drilling (End)	16/07/2011

Core Size		
	From (m)	To (m)
Destructive	0.00	121.00
HQ (63,5mm)	121.00	129.20
NQ2" (50,6mm)	129.20	157.80
BQ (36,5mm)		

Collar Coordinates (Hole position)	
East (X m):	546877.50
North (Y m):	4232394.20
Elevation (m):	85.00

Total length (depth) **157.80**

	From (m)	To (m)
Casing (steel)	0.00	121.00
Reaming (HQ)	129.20	148.00
Cementation:	124.00	148.00
PVC tubing:		

Hole Surveying (Multishot system)			
Identification (Hole)	Depth (m)	Azimuth (°)	Dip (°)
PX04	20.00	---	-89.9
PX04	40.00	---	-89.7
PX04	60.00	---	-89.3
PX04	80.00	---	-88.2
PX04	100.00	---	-87.9
PX04	120.00	---	-86.4
PX04	(end of hole) > 157.80m		

Azimuth ??
[inside steel casing]

Aborted Drillhole:

> Lost HQ rod material + Drilling material ("caroutier") in the hole, from: [130.70 - 145.20m].

Identification (Drillhole)	From (m)	To (m)	ROCK TYPE	MOD1	MOD2	MOD3	>> DESCRIPTION (Comments)	Stratigraphy	
PX04	0.00	121.00	TSED	Destructive Drilling			Tertiary Sediments: sands with red clays intercalated. To the bottom, solid sedimentary rocks: sandstones ("grés") and conglomerates.	Tertiary Cover	
PX04	121.00	135.00	TSED	SST	CONG	CAL	Tertiary Sediments: cream coloured sandstones ("grés") and conglomerates with calcite/carbonate clay cement. From: [131,15 - 135,00], "weathered" on matrix with some oxidation (some hematitic alteration on the matrix), without calcite/carbonate cement (sub-interval with lost core, recovery: 60,5%; RQD: 49,4%).		
PX04	135.00	138.35	TSED	GOSS	HEM		Tertiary Sediments/Gossan ["Transition Zone"]: red to brown coloured clay-sandy material and gossanized rock material to the bottom; hematitic alteration in clay-sandy material. Very low recovery: 13,4%; RQD: 0%.	Tertiary Cover	Gossan
PX04	138.35	148.30	GOSS	HEM	LIM	Zn	Gossan (Iron Cap): Gossanized "massive sulphides"; hematitic / limonitic rock material; fractured to fragmented (broken and brecciated); "weathered" gossan material, in some intervals (hematitic + limonitic oxidation) of previous sulphide mineralization; from: [138,35 - 138,80m], "weathered" to very "weathered" and fissured, hematitic / limonitic gossan material (recovery: 100%; RQD: 0%); from: [138,80 - 145,40m], hematitic (hematitic / limonitic to the bottom, from: 142,00 - 145,40m), massive gossan material (recovery: 65,5%; RQD: 47%); from: [145,40 - 148,30m], very "wathered" and disaggregated ("dust"), hematitic / limonitic gossan material with rich zinc content (zinc secondary enrichment > "sphalerite"?) (recovery: 72,4%; RQD: 0%).	Gossan	
PX04	148.30	151.40	GOSS	CHT	HEM	LIM	Gossan (Iron Cap): Gossanized "massive sulphides"; hematitic / limonitic rock material; fractured to fragmented (broken and brecciated); very "weathered" gossan material, in some sub-intervals (hematitic + limonitic oxidation) of previous sulphide mineralization. From: [148,30 - 149,40m], intercalated siliceous rock material - chert - (approx. 70%, in all sub-interval). Recovery: 47,1%; RQD: 0%.	Gossan	Chert facies
PX04	151.40	157.80	CHF	GOSS	SIL	HEM	Siliceous Volcanic Tufts: silica altered volcanic tufts with hematitic alteration (Chertification > Chert/Jasper facies), intercalated, on the top, from: [151,40 - 153,90m] with some gossanized rock material (centimetric to decimetric, gossanized intercalations); fractured to fragmented core (broken and sometimes brecciated) and oxidized (hematitic / limonitic oxidation) of previous sulphide mineralization. Recovery: 58,4%; RQD: 25,8%.	Chert/Jasper facies	Gossan
	157.80	E.O.H.					End of Hole.		

Sondagem: PX04A

Identificação (ID)

Portex Minerals Inc.		DrillHole PX04A	REDCORP EMPREENDIMENTOS MINEIROS, Lda.
Elevation:	85m	Project:	Lagoa Salgada
Depth:		Location:	Grândola – Portugal
Azimuth/Inclination:	---- / -90°	Contract:	MN/PP/009/08
Coordinates (UTM - ED50):	East (X): 546888.13m	North (Y): 4232397.05m	Year per Contract: 1st Prorogation – Ending 1st Oct. 2011
Type of Drilling: Destructive drilling (0.00 - 152.00m) + Core Drilling (152.00 - 252.00m > end of hole)			

Identification (Hole)	PX04A
Project	Lagoa Salgada
Local (Site)	Lagoa Salgada Deposit
Logged by	Rui Alverca
Drilling Method	Destructive + Core Drilling
Drilling Company	Drillcon Iberia

Azimuth (°)	-----
Dip (°)	-90° (vertical)
Destructive Drilling (Start)	19/07/2011
Destructive Drilling (End)	21/07/2011
Core Drilling (Start)	22/07/2011
Core Drilling (End)	02/08/2011

Core Size		
	From (m)	To (m)
Destructive	0.00	152.00
HQ (63,5mm)	152.00	165.10
NQ2" (50,6mm)	165.10	252.00
BQ (36,5mm)		

Collar Coordinates (Hole position)	
East (X m):	546888.13
North (Y m):	4232397.05
Elevation (m):	85.00

Total length (depth) 252.00

	From (m)	To (m)
Casing (steel):	0.00	152.00
Reaming:		
Cementation:	195.00	214.40
PVC tubing:	0.00	248.00

Hole Surveying (Multishot system)			
Identification (Hole)	Depth (m)	Azimuth (°)	Dip (°)
PX04A	12.00	271.8	-89.4
PX04A	42.00	316.7	-89.0
PX04A	72.00	357.9	-88.3
PX04A	102.00	190.4	-87.8
PX04A	132.00	343.8	-87.9
PX04A	168.00	93.9	-88.8
PX04A	192.00	84.3	-89.2
PX04A	222.00	55.4	-89.1
PX04A	(end of hole) > 252.00m	83.9	-87.7

Azimuth ??
[inside steel casing and in HQ drill rods ("casing" for hole protection)]

Identification (Drillhole)	From (m)	To (m)	ROCK TYPE	MOD1	MOD2	MOD3	>> DESCRIPTION (Comments)	Stratigraphy		
PX04A	0.00	152.00	Destructive Drilling				Tertiary Sediments and to the bottom, from: [141,00 - 152,00m] > Gossan + Hematitic Siliceous Volcanic Tufts (Chertification > Chert/Jasper facies), intercalated.	Tertiary Cover	Gossan	Chert facies
PX04A	152.00	171.00	CHF	GOSS	SIL	HEM	Siliceous Volcanic Tufts: silica altered volcanic tufts with hematitic alteration (Chertification > Chert/Jasper facies), intercalated with gossanized rock material (gossanized, decimetric intercalations); very fractured to fragmented (broken and brecciated), "weathered" and oxidized (hematitic + limonitic oxidation) of previous sulphide mineralization.	Chert/Jasper facies		Gossan
PX04A	171.00	173.75	CHF	GOSS	SIL	HEM	Siliceous Volcanic Tufts: silica altered volcanic tufts with hematitic alteration (Chertification > Chert facies), intercalated with gossanized rock material (gossanized, decimetric intercalations); fractured to fragmented (broken) and oxidized (hematitic oxidation) of sulphide mineralization.	Chert/Jasper facies		Gossan
PX04A	173.75	176.50	MSX	PY	(SPH)	(GAL)	Massive Sulphides (MSX > Zinc facies): fine to medium-fine grained, massive sulphides with some fissuration and semi-oxidized (partially "weathered" MSX); disseminated zinc mineralization (secondary zinc mineralization) on the top, and disseminated to banded galena (lead) enrichment, in all interval > (zinc: approx. 2-5% ; lead: 10-15% , in all interval).	Massive Sulphides (MSX)		Zinc Facies
PX04A	176.50	186.60	MSX	PY	(SPH)	(GAL)	Massive Sulphides (MSX > Zinc facies): fine to very-fine grained, massive sulphides; in general, very fractured to fragmented; visible, banded sphalerite (zinc) with galena (lead) associated > (zinc: approx. 6-10% ; lead: 4-8% , in all interval).			Zinc Facies
PX04A	186.60	191.40	FLT	MSX	PY	(GAL)	Massive Sulphide Fault zone: very fragmented to brittle massive sulphides; fine to very-fine grained; visible galena (lead) > (aprox. 1-2%, in all interval, apparently). Low recovery: 45,8%; RQD: 0%.	FLT (Fault zone in Massive Sulphides)		
PX04A	191.40	201.50	MSX	PY	(SPH)	(GAL)	Massive Sulphides: very-fine to fine grained, massive sulphides (essentially, pyritic MSX); very fractured to fragmented; visible, sphalerite (zinc) and galena (lead), in some sectors.	Massive Sulphides (MSX)		
PX04A	201.50	206.90	FLT	MSX	(SPH)	(GAL)	Massive Sulphide Fault zone (MSX > Zinc facies): very fragmented to brittle massive sulphides; fine to very-fine grained; visible sphalerite (zinc) and galena (lead) > (zinc: approx. 3-6% ; lead: 4-8% , in all interval, apparently). Very low recovery: 27,8%; RQD: 0%.	FLT (Fault zone in Massive Sulphides)		Zinc Facies
PX04A	206.90	211.20	MSX	PY			Massive Sulphides: fine to fine-medium grained, fissured massive sulphides (essentially, pyritic MSX); fractured to fragmented MSX.	Massive Sulphides (MSX)		
PX04A	211.20	215.45	FLT	STWK	SMX	PY	Stockwork Fault Zone with Semi-Massive Sulphides: very "weathered"/argillized (clay "gouge") stockwork rock material (intense sericite alteration and "kaolinization") with sulphide mineralization (semi-massive sulphides? > essentially, pyritic MSX > approx. 15-20%, in all interval). Recovery: 89,4%; RQD: 0%.	FLT (Fault zone in Stockwork)		FLT SMX

Sondagem: PX04A

LOG (Geologia)

PX04A	215.45	223.70	STWK	CHL	SER	(CHP)	" Stockwork " rock type: <u>chlorite-sericite altered, volcanic tuffs</u> ; sericite alteration, decrease from top to bottom; some stringer and disseminated <u>chalcopyrite (copper)</u> mineralization, in some sectors (<u>chalcopyrite</u> : approx. 0,5-1%, in all interval, apparently).	Stockwork Rock type (chlorite-sericite altered volcanic tuffs » "Stockwork")
PX04A	223.70	234.40	STWK	CHL	SIL	(CHP)	" Stockwork " rock type: <u>chlorite-silica altered, volcanic tuffs</u> ; some stringer and disseminated <u>chalcopyrite (copper)</u> traces, in some sectors (<u>chalcopyrite</u> : approx. 0,3-0,5%, in all interval, apparently).	Stockwork Rock type (chlorite-silica altered volcanic tuffs » "Stockwork")
PX04A	234.40	243.90	STWK	CHL	SER	DPY	" Stockwork " rock type: <u>chlorite-sericite altered, volcanic tuffs</u> , cut by some irregular and centimetric <u>feldspar-quartz veins</u> (approx. 3-5%, in all interval); disseminated/stringer pyrite mineralization, in general, parallel/along foliation (<u>pyrite mineralization</u> : approx. 3-5%, in all interval).	Stockwork Rock type (chlorite-sericite altered volcanic tuffs » "Stockwork")
PX04A	243.90	251.00	FLT	STWK	CLY	fQVN	Stockwork Fault Zone : "weathered" and argillized (<u>clay "gouge"</u> , from: [245,60 - 250,00m]) stockwork rock type, cut by irregular and brecciated, broken <u>feldspar-quartz veins</u> (centimetric to decimetric veins); disseminated to banded pyritic mineralization, in general, parallel/along foliation (<u>pyritic mineralization</u> : approx. 5-7%, in all fault interval). Recovery : 43,7%; RQD : 0%.	FLT (Fault zone in <u>Stockwork</u>)
PX04A	251.00	252.00	STWK	CHL	SER		" Stockwork " rock type: <u>chlorite-sericite altered, volcanic tuffs</u> .	Stockwork Rock type (chlorite-sericite altered volcanic tuffs » "Stockwork")
	252.00	E.O.H.					End of Hole.	

Portex Minerals Inc.		DrillHole PX08	REDCORP EMPREENDIMENTOS MINEIROS, Lda.
Elevation:	85m	Project:	Lagoa Salgada
Depth:		Location:	Grândola – Portugal
Azimuth/Inclination:	---- / -90°	Contract:	MN/PP/009/08
Coordinates (UTM - ED50):	East (X): 546938m	North (Y): 4232298m	Year per Contract: 1st Prorogation – Ending 1st Oct. 2011
Type of Drilling: Destructive drilling (0.00 - 122.60m) + Core Drilling (122.60 - 241.80m > end of hole)			

Identification (Hole)	PX08
Project	Lagoa Salgada
Local (Site)	Lagoa Salgada Deposit
Logged by	Rui Alverca
Drilling Method	Destructive + Core Drilling
Drilling Company	Drillcon Iberia
Azimuth (°)	-----
Dip (°)	-90° (vertical)
Destructive Drilling (Start)	25/05/2011
Destructive Drilling (End)	27/05/2011
Core Drilling (Start)	12/07/2011
Core Drilling (End)	30/07/2011

Core Size		
	From (m)	To (m)
Destructive	0.00	122.60
HQ (63,5mm)	0.00	122.60
NQ (47,6mm):	122.60	241.80
BQ (36,5mm):		

Collar Coordinates (Hole position)	
East (X m):	546938.00
North (Y m):	4232298.00
Elevation (m):	85.00

Total length (depth) **241.80**

	From (m)	To (m)
Casing (steel):	0.00	122.60
Reaming:		
Cementation:	122.00	197.25
PVC tubing:	0.00	241.80

Hole Surveying (Multishot system)			
Identification (Hole)	Depth (m)	Azimuth (°)	Dip (°)
PX08	10.00	31.8	-89.6
PX08	31.00	192.1	-89.6
PX08	61.00	330.1	-88.2
PX08	91.00	34.8	-89.1
PX08	121.00	339.7	-87.6
PX08	139.00	23.2	-87.6
PX08	151.00	20.0	-87.4
PX08	181.00	17.6	-87.5
PX08	211.00	18.4	-87.0
PX08	241.00	19.5	-86.4
PX08	(end of hole) > 241.80m		

Azimuth ??
[inside steel casing and in HQ drill rods ("casing" for hole protection)]

Identification (Drillhole)	From (m)	To (m)	ROCK TYPE	MOD1	MOD2	MOD3	>> DESCRIPTION (Comments)	Stratigraphy
PX08	0.00	122.60	TSED	Destructive Drilling			Tertiary Sediments: sands with red clays intercalated. To the bottom, solid sedimentary rocks: sandstones ("grés") and conglomerates.	Tertiary Cover
PX08	122.60	138.30	TSED	CONG	SST	CAL	Tertiary Sediments: cream coloured conglomerates and sandstones ("grés") with calcite/carbonate clay cement on the matrix. To the bottom, from: [132,40 - 138,30m], "weathered" on matrix with some oxidation (some hematitic alteration) on the matrix, and low (without) carbonate clay cement (sub-interval with lost core, recovery: 33,9%; RQD: 24,6%). <u>Contact down: broken.</u>	
PX08	138.30	150.80	GOSS	HEM	LIM		Gossan (Iron Cap): <u>Gossanized "massive sulphides"</u> ; rubblely and broken (in general very "weathered") with strong hematitic / (limonitic) alteration; fractured to fragmented (broken and fissured); "weathered" gossan material, in large some intervals (hematitic + limonitic oxidation) of previous sulphide mineralization. <u>Very low recovery:</u> 33,1%; <u>RQD:</u> 10,8%. <u>Contact down: gradual to abrupt: 25° C.A.</u> (contact, parallel to the structure: banded contact, very well marked).	Gossan
PX08	150.80	155.20	MSX	PY	(CHP)	(GAL)	Massive Sulphides (MSX > Copper facies): fine to medium-fine grained, massive sulphides; banded to disseminated copper mineralization (secondary copper mineralization) on the top, with disseminated and banded galena (lead) associated > (copper: approx. 1,5-4% ; lead: 3-6%, in all interval, apparently); <u>banded structure:</u> 20-27° C.A. > [153,00m].	Massive Sulphides (MSX) Copper Facies
PX08	155.20	157.75	FLT	MSX	(SPH)	(GAL)	Massive Sulphide Fault zone (MSX > Zinc facies): very fragmented and brittle massive sulphides; fine to very-fine grained; visible sphalerite (zinc) and galena (lead) > (zinc: aprox. 2-4% ; lead: 6-8%, in all interval, apparently). <u>Recovery:</u> 44,7%; <u>RQD:</u> 7,8%. Apparently, sub-vertical fault zone (~10° C.A.); <u>Contacts: (??) broken.</u>	FLT (Fault zone in Massive Sulphides) Zinc Facies
PX08	157.75	161.00	MSX	PY	(SPH)	(GAL)	Massive Sulphides (MSX > Zinc facies): fine to fine-medium grained, massive sulphides; banded sphalerite (zinc) with banded galena (lead) associated > (zinc: approx. 2-4% ; lead: 4-8%, in all interval, apparently).	Massive Sulphides (MSX) Zinc Facies
PX08	161.00	166.35	FLT	MSX	(SPH)	(GAL)	Massive Sulphide Fault zone (MSX > Zinc facies): very fragmented (broken), sometimes, in small sectors, brittle and "shattered" massive sulphides; visible sphalerite (zinc) and galena (lead) > (zinc: aprox. 4-8% ; lead: 6-12%, in all interval, apparently). <u>Recovery:</u> 72%; <u>RQD:</u> 26,2%; <u>Contacts: (??) broken.</u>	FLT (Fault zone in Massive Sulphides) Zinc Facies
PX08	166.35	169.00	MSX	PY	(SPH)	(GAL)	Massive Sulphides (MSX > Zinc facies): fine to fine-medium grained, massive sulphides; in general, very fractured and fragmented; banded sphalerite (zinc) with banded galena (lead) associated > (zinc: approx. 5-10% ; lead: 6-12%, in all interval, apparently).	Massive Sulphides (MSX) Zinc Facies
PX08	169.00	173.00	FLT	MSX	(SPH)	(GAL)	Massive Sulphide Fault zone (MSX > Zinc facies): very fractured, fragmented (broken) and brittle massive sulphides; visible sphalerite (zinc) and galena (lead) > (zinc: aprox. 4-8% ; lead: 6-12%, in all interval, apparently). <u>Recovery:</u> 20%; <u>RQD:</u> 0%; <u>Upper contact: broken.</u>	FLT (Fault zone in Massive Sulphides) Zinc Facies

PX08	173.00	175.00	FLT	STWK	SMX	PY	Stockwork Fault Zone with Semi-Massive Sulphides: shattered, brittle and "argillized" stockwork rock type (intense sericite alteration) with <u>semi-massive sulphides associated (40-45%, in all interval)</u> . Recovery: 50%; RQD: 0%; Contacts: (??) broken.	FLT (Fault zone in Stockwork)	FLT SMX
PX08	175.00	186.00	FLT	MSX	PY		Massive Sulphide Shear Fault zone: very "wheated" and argillized ("gouge") massive sulphides, with intense sericite alteration, along banded structure (foliation? > banded shear zone); <u>banded structure:</u> 20° C.A. > [180,50m], 15-20° C.A. > [181,90m], 25-30° C.A. > [185,50m]. Recovery: 75,4%; RQD: 0%; Contacts: (??) broken.	FLT (Fault zone in Massive Sulphides)	
PX08	186.00	192.80	FLT	STWK	SMX	PY	Stockwork Fault Zone with Semi-Massive Sulphides: very "weathered" and argillized (some "gouge") stockwork rock type (intense sericite alteration) with <u>semi-massive sulphides, along foliation (~30%, in all interval)</u> . Foliation: 25° C.A. > [186,50m]; 25° C.A. > [188,35m]; 40° C.A. > [191,70m]. Recovery: 59,6%; RQD: 0%; Contacts: (??) broken.	FLT (Fault zone in Stockwork)	FLT SMX
PX08	192.80	197.25	FLT	MSX	PY		Massive Sulphide Shear Fault zone: "wheated" to very "weathered" (some "gouge"), brittle and sheared massive sulphides; fissured MSX material, in some sectors. Recovery: 43,1%; RQD: 6,7%; Upper contact: (??) broken.	FLT (Fault zone in Massive Sulphides)	
PX08	197.25	201.90	MSX	PY			Massive Sulphides: fine to fine-medium grained, massive sulphides; very fractured and fragmented MSX. <u>Possible fault zone,</u> from: [197,25 - 200,40m].	Massive Sulphides (MSX)	
PX08	201.90	206.30	FLT	STWK	CLY	DPY	Stockwork Fault Zone: "weathered" and argillized (with <u>clay "gouge"</u>) stockwork rock type (intense sericite alteration); disseminated to stringer sulphide mineralization.	FLT (Fault zone in Stockwork)	
PX08	206.30	207.75	STWK	CHL	SER	SPY	"Stockwork" rock type: <u>chlorite-sericite-pyrite altered, volcanic tuffs;</u> stringer to disseminated sulphide mineralization (essentially, pyritic mineralization), in general, millimetric layers parallel/along foliation.	Stockwork Rock type (chlorite-sericite-pyrite altered volcanic tuffs » "Stockwork")	
PX08	207.75	214.40	MSX	PY			Massive Sulphides (MSX): fine to very-fine grained, massive sulphides (essentially, pyritic MSX).	Massive Sulphides (MSX)	
PX08	214.40	218.50	FLT	STWK	CHL	BPY	Stockwork Fault Zone: "weathered" (argillized and <u>clay "gouge"</u> , on the top and to the bottom) stockwork rock type; banded to disseminated sulphide mineralization (essentially, pyritic mineralization).	FLT (Fault zone in Stockwork)	
PX08	218.50	220.65	STWK	CHL	SER	DPY	"Stockwork" rock type: <u>chlorite-sericite-pyrite altered, volcanic tuffs;</u> disseminated to banded sulphide mineralization (essentially, pyritic mineralization), in general, millimetric layers parallel/along foliation.	Stockwork Rock type (chlorite-sericite-pyrite altered volcanic tuffs » "Stockwork")	
PX08	220.65	223.20	FLT	STWK	CHL	DPY	Stockwork "Shear" Fault Zone: chlorite-sericite-pyrite altered stockwork rock type; disseminated to banded sulphide mineralization (essentially, pyritic mineralization), in general, millimetric layers, parallel/along foliation.	FLT (Fault zone in Stockwork)	

PX08	223.20	236.80	STWK	CHL	(SIL)	DPY	" Stockwork " rock type: <u>chlorite-pyrite altered volcanic tuffs</u> ; some silica alteration on the matrix, in some sectors; disseminated to banded sulphide mineralization (essentially, pyritic mineralization), parallel/along foliation.	Stockwork Rock type (chlorite-pyrite altered volcanic tuffs » "Stockwork")
PX08	236.80	241.80	qDXT	CHL	SIL	(DPY)	Dacite/Rhyolite Crystal Tuffs: <u>quartz phyric dacite-rhyolite tuffs</u> (grey-greenish coloured); chlorite-silica alteration on the matrix; some irregular, centimetric quartz veins, in some sectors (approx. 3-5%, in all interval); in some sectors, some disseminated sulphide mineralization (pyritic mineralization).	fDXT (Dacite crystal tuffs)
	241.80	E.O.H.					End of Hole.	

**THE EXPLORATION AND RESEARCH OF POLIMETALIC
MASSIVE SULPHIDES IN THE IBERIAN PYRITE BELT.
NEW DATA ABOUT THE LAGOA SALGADA DEPOSIT**
