1.0 TITLE PAGE

Client: **Lundin Mining**

Technical Report on the Aljustrel Mine, Southern Portugal

Prepared by:

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3.0 SUMMARY

3.1 Introduction

Wardell Armstrong International Ltd (WAI) was commissioned by Lundin Mining (Lundin) in July 2007, to prepare a Technical Report on the Aljustrel Zinc-Lead-Silver-Copper Mine, Portugal, using December 31st 2006 reserves and resources. The Aljustrel Mine is owned and operated by Pirites Alentejanas (PA), which is a wholly-owned subsidiary of Lundin Mining Corporation (Lundin).

In June 2007 Lundin Mining (Mining) agreed to acquire 100% of the life of mine payable silver production from Lundin's Portuguese operations which comprise the Aljustrel and Neves Corvo mines. This Technical Report has been prepared for Lundin for use in connection with the silver purchase transaction between Silverstone and Lundin.

Wardell Armstrong International Limited ("WAI") is an internationally recognised, independent minerals industry consultancy. Most consultants used in the preparation of this report have over 20 years of relevant professional experience. WAI staff that authored this report have visited the Aljustrel Mine site within the last 6 months.

The basic strategy for this Technical Study has been to examine and report on the existing mine resources/reserves, infrastructure, equipment, costs, mining methods, mill, tailings facility and environmental issues of the Aljustrel Mine. In addition WAI has provided comment on PA's ability to achieve their Life of Mine Plan for the next 10 years.

3.2 Location and History

The Aljustrel Mining Lease is centred on the town of Aljustrel and covers the St. João, Moinho, Algares and Feitais massive sulphide deposits. The lease has an area of 4.7km^2

The Malhadinha Exploration Concession surrounds PA's Aljustrel Mining Lease and was granted by the Portuguese government (Direcção Geral de Geologia e Energia – DGGE) to PA in October 2005. The concession covers the prospective massive sulphide stratigraphy that extends from Aljustrel northwest to, and including, the Lousal deposit, a distance of over 30km.

The Aljustrel Project is accessible by rail and major highways from Lisbon and Faro, both of which have daily international flights to other locations in Europe and abroad. Aljustrel is located 175km southeast of Lisbon by road and 125km north of Faro. There are some 12,000 inhabitants living in the Aljustrel Municipality, which is part of the District of Beja.

The area has a Mediterranean climate that is characterized by long, dry summers and short, moderate winters. The population density of the area is low with most people employed in farming (cattle, sheep, cereal crops, cork, olive and wine), mining and associated service industries.

A modern infrastructure is available in the town of Aljustrel for most general services and includes medical care, telecommunications, banking, housing, vehicle purchase and repair and schooling (see Figure 7.2 below). The town has a long established history as a mining community Rail transport connects the processing plant with dedicated concentrate storage and loading facilities at the deep sea port at Setubál, located approximately 160km to the northwest of Aljustrel and 50km to the south of Lisbon. Electrical power for the mine is available from the national power grid that services southern Portugal.

The Aljustrel area has undergone sporadic mining and exploration dating back to Phoenician times, and includes a period of extensive work by the Romans. Modern mining at Aljustrel began in the mid 1800's, when the Algares and Sao João deposits were exploited for pyrite, which was used as a source of iron and sulphur.

Gravity surveys across the Aljustrel area in the 1960's led to the discovery of the Feitais deposit in 1964 and the Estação deposit in 1969. In the 1960's, the Santa Barbara rail tunnel (200m level below the surface measured as 0m) was driven to connect Moinho and Algares, and then extended from Algares to the Feitais deposit.

In the late 1980's the market for pyrite collapsed and pyrite mining became uneconomic. Encouraged, however, by the success of the recently discovered copper and tin rich Neves-Corvo mine located 50 km to the south, PA decided to change focus and start extracting base metals from the Moinho deposit The mill was commissioned in September of 1991 and operated until March of 1993 at which time it was shut down because of operating difficulties and low metal prices

In 1998, EuroZinc signed an option agreement with EDM and PA to acquire up to 75% of PA by completing a bankable feasibility study aimed at resolving the previous metallurgical problems and optimizing production. EuroZinc completed a bankable feasibility study whereby annual production would be increased from 1.2Mt to 1.8Mt. Zinc and lead ore would be mined separately from copper ore with mine production focused on the higher grade Feitais deposit. In December 2001, EuroZinc completed the acquisition of EDM's 75.17% interest in PA.

In November 2002, following a financial restructuring of PA, EuroZinc increased its ownership to 99.9% of PA. EuroZinc merged with Lundin in October of 2006.

In June of 2007 Lundin Mining (Lundin) agreed to acquire 100% of the life of mine payable silver production from Lundin's Portuguese operations, including Aljustrel.

3.3 Geology

The geology of the Iberian Pyrite Belt (IPB) is described by numerous authors and was recently summarized by Carvelho *et al.* 1997. The IPB consists of a Devonian-Carboniferous volcano-sedimentary sequence that forms an arcuate belt (250km by 60km) that extends westward from Seville in Spain to northwest in southern Portugal. The belt is host to some of the world's largest volcanogenic massive sulphide (VHMS) deposits.

The Aljustrel Mine area is host to a number of Late Devonian to Early Carboniferous stratiform, exhalative polymetallic VHMS deposits totaling in excess of 300Mt of massive sulphide. The area is interpreted to represent a Late Devonian rifted basin which appears to have controlled the distribution of both massive sulphide and stockwork mineralization as well as associated volcanic units. The deposits likely formed in shallow restricted basins adjacent to growth faults that acted as conduits for metal rich hydrothermal fluids. The thickest part of the massive sulphide deposits overlay stockwork mineralization that appears to be associated with growth faults along the basin edge. The deposits are comprised primarily of pyrite (>70%) with lesser sphalerite, galena, chalcopyrite and tetrahedrite. Base metals within these deposits are commonly zoned from zinc-rich zones near the top to copper-rich zones at the base of the massive sulphide. This zoning is interpreted to be largely a result of primary metal re-zoning caused by temperature, pressure and chemical gradients soon after deposition.

The Aljustrel Mine area hosts 6 massive sulphide deposits that contain economic concentrations of zinc, lead, copper and silver. The Feitais deposit occurs in the southeastern part of the Aljustrel mine area on the normal limb of the Feitais anticline The Moinho deposit occurs in the north central part of the Aljustrel Mine area on the normal limb of the Southwest anticline. The deposit is a polymetallic massive sulphide deposit that has many similarities to the previously described Feitais deposit but has undergone a higher degree of deformation.

3.4 Data Verification

As part of exploration and feasibility study programs completed from 1998 to 2000 and more recently in 2005, a rigorous data handling and data checking protocol was followed for the treatment of geological, analytical and quality assurance – quality control (QA-QC) data. During this same period, a comprehensive program was undertaken to validate historic assay data from earlier drill programs. As part of this process, 82% of the historic samples from the Feitais deposit were re-analyzed at Assayers Canada, the same laboratory used in the programs. In addition, the historic drill holes were re-logged to standardize lithology and alteration types, and collar and down hole surveys were checked with the original surveys and entered into the GEMCOM database. More recently in 2005, all the historic samples from the Moinho deposit used in the resource estimate were re-analyzed at Assayers Canada so that all samples were prepared and analyzed using similar procedures.

3.5 Mineral Processing

The Aljustrel plant was originally designed to process 1.15Mtpa of Moinho ore using a primary grind of 80% passing 30 microns. The circuit consisted of autogenous milling and sequential flotation to produce selective copper, lead and zinc concentrates.

The problems experienced by the Aljustrel mill during its period of operation in 1992-1993 are well documented and can be summarised as:

- Segregation of coarse material on the stockpile resulting in unsteady performance of the Autogenous Grinding (FAG) circuit, which in turn resulted in variations in the feed rate to the flotation plant;
- Over-reliance on column cell technology to clean the rougher flotation concentrates;
- Treatment of mixed copper-rich and zinc-rich ores which caused wide fluctuations in the plant heads grades; and
- Under design of the zinc regrind mill.

The plant operated for 18 months then shut down due to the above operating problems, inability to achieve design performance, and low metal prices.

The Aljustrel plant has now been designed to process 1.8Mtpa of massive sulphide zinc-lead ore from the Feitais deposit although Moinho ore will be treated during the first 18 months of operation. There have been a number of significant changes to the flowsheet since 2006. These are summarised as follows:

Ore from Feitais will now arrive at the mill at a crush size of 80mm, after having undergone two stages of crushing underground. The original plant design used fully Autogenous grinding to achieve a product size of 80% passing 30 microns. In the EuroZinc 2001 Feasibility Study the circuit was changed to a Semi-Autogenous circuit and the primary grind size was increased to 80% passing 60 microns, with more intensive regrinding of the rougher concentrates.

In 2006 a decision was made to install a conventional crushing circuit, using two stages of cone crushing, followed by two stages of ball milling. This change was prompted by the decision to utilise a secondary stage of crushing underground in order that a deep trough conveyor could be installed to transport ore to the mill. This additional crushing stage resulted in a lower ROM particle size than would be required for SAG Milling.

It was originally planned to install IsaMills on lead and zinc rougher concentrate regrind duty. These have now been replaced with Metso Stirred Media Detritors (SMDs).

The existing On-Stream Analyser (OSA) is obsolete and it is planned to install a new Courier OSA which will be capable of measuring 16 streams for Cu, Pb, Zn, Fe, Ag and solids content. A Siemens process control system is also being installed.

3.6 Water Treatment

The tailings dam is divided into two areas with one part containing tailings and acid water originating from the original period of production. The other part of the dam contains “clear water” which is derived from surface run-off.

A Water Treatment Plant (WTP) was under construction during the WAI site visit. The WTP will treat acid water originating from the dewatering of the underground mines and from the acid water which is currently in the tailings dam. The treatment rate will be $420m^3$ per hour.
It is planned to produce only a zinc concentrate from the Moinho ores during the first 18 months of production.

3.7 Assay Laboratory

The Aljustrel Plant samples will be filtered, dried and prepared on-site and transported to the Somincor assay laboratory at Neves Corvo. The laboratory operates under the control of the Somincor Commercial Department and is responsible for operational, environmental and quality control aspects of the operation. The laboratory is accredited to ISO/IEC 17025 for 47 analytical methods and approximately 100 determinations.

There will be a small metallurgical laboratory at Aljustrel for undertaking routine tests.

3.8 Tailings Dam

The existing tailings dam has sufficient capacity for two years. In 2009 a 6m lift is planned followed by a further 6m lift in 2014. The majority of the pipe-work is in place but new return water lines were being installed during the WAI visit.

There will be a small metallurgical laboratory at Aljustrel for undertaking routine tests.

3.9 Mineral Resource Estimates

The resource estimate for the Feitais and Moinho deposit was completed in June 2000 as part of the SRK Feasibility Study (Steffan, Robertson and Kirsten (Canada) Ltd., (2000):

Aljustrel Feasibility Study. Unpublished report commissioned by EuroZinc Mining Corporation).

In 2005, EuroZinc completed additional underground drilling (6,703m in 65 holes) at the Moinho deposit to upgrade the SRK *Indicated* resource to the *Measured* category. Amec Americas Limited was commissioned in 2006 to complete a new mineral resource estimate based on this drilling (this report remains unpublished).

A new resource estimate for the Estação deposit was completed by Lundin in April of 2007 (Burns, N., (March 2007): Technical Report Estação Deposit, Aljustrel, Portugal. Lundin Mining Corporation).

Mineral Resources were classified as *Measured, Indicated and Inferred* Resources (Table 19.1 and Table 19.2) using Canadian Institute of Mining, (November 14, 2004): CIM Definition Standards on Mineral Resources and Mineral Reserves necessary to be compliant with NI 43-101.

The *Indicated* resources at Aljustrel are located within that portion of the deposit having a drill density of approximately 35-40m or less.

Inferred Resources are primarily located along the perimeter of the deposit, where drill density is typically greater than 40m.

The Mineral Resources provided in the tables below present the global resource from three deposits, Feitais, Moinho and Estação.

Zinc Resource Summary					
FEITAIS (4.5% Zn cutoff)	**Tonnes**	**Zinc %**	**Copper %**	**Lead %**	**Silver (g/t)**
Measured	740,000	5.32	0.18	1.62	52.20
Indicated	14,480,000	6.03	0.21	1.86	68.20
M+I	15,220,000	6.00	0.21	1.85	67.42
Inferred	3,160,000	6.14	0.16	1.66	60.00
MOINHO (4% Zn cutoff)					
Measured	1,842,000	5.10	0.39	1.86	52.20
Indicated	1,133,000	5.05	0.40	1.92	50.80
M+I	2,975,000	5.08	0.39	1.88	51.70
Inferred	1,364,000	5.16	0.55	1.93	54.20
ESTAÇÃO (4% Zn cutoff)					
Measured		0.00	0.00	0.00	0
Indicated	5,384,000	5.05	0.22	1.57	47.10
M+I	5,384,000	5.05	0.22	1.57	47.10
Inferred	4,797,000	4.79	0.24	1.47	44.50
GRAND TOTAL					
Measured	2,582,000	5.16	0.33	1.79	52.20
Indicated	20,997,000	5.73	0.22	1.79	61.85
M+I	23,579,000	5.66	0.23	1.79	60.79
Inferred	9,321,000	5.30	0.26	1.60	51.17

Copper Resource Summary					
FEITAIS (1.5% Cu cutoff)	**Tonnes**	**Zinc %**	**Copper %**	**Lead %**	**Silver (g/t)**
Measured		0	0	0	0.00
Indicated	4,870,000	0.88	2.12	0.24	13.52
M+I	4,870,000	0.88	2.12	0.24	13.52
Inferred	1,870,000	0.70	2.13	0.18	10.43
MOINHO (1.5% Cu cutoff)					
Measured	260,000	1.26	1.82	0.40	20.33
Indicated	1,790,000	1.61	1.96	0.65	26.74
M+I	2,050,000	1.57	1.94	0.62	25.93
Inferred	120,000	1.55	1.72	0.83	30.71
GRAND TOTAL					
Measured	260,000	1.26	1.82	0.40	20.30
Indicated	6,660,000	1.08	2.08	0.35	17.07
M+I	6,920,000	1.08	2.07	0.35	17.19
Inferred	1,990,000	0.75	2.11	0.22	11.65

WAI has reviewed in detail the methodology, parameters and procedures used to estimate the resource base for the Aljustrel project. This review included discussions with Lundin employees and consultants involved in the work, as well as site visits and report reviews. Based on this detailed review, WAI believes that these resource estimates reflect the tonnage and grade of the deposits to an accuracy level consistent with that implied by CMM resource classifications. Further, WAI confirms that these figures represent the most current estimates of Aljustrel deposit resources, although WAI understands that Lundin plans to update at least the Feitais and Estação estimates at the end of 2007 to incorporate new data from the 2007 drill program.

3.10 Mineral Reserve Estimates

The mineral reserve estimate for the Feitais and Moinho deposits was completed in June 2000 as part of the SRK Feasibility Study. This reserve has not yet been updated based on the AMEC resource estimate for Moinho. No reserve has been estimated for Estação.

The mineral reserves were classified according to Canadian Institute of Mining, (November 14, 2004): CIM Definition Standards on Mineral Resources and Mineral Reserves necessary to be compliant with NI 43-101.

The mineral reserves for Feitais include the following dilution factors of 0.5% for primary stopes and 2.6% for secondary stopes. This is in addition to the uneconomic material included in the stope outlines. The projected higher dilution in the secondary stopes is from adjacent backfill in the primary stopes.

Dilution has not been included for the Moinho deposit, as only partial extraction of stopes has been scheduled. The stopes are located within the massive sulphide, which has excellent ground conditions, well away from the hanging wall contact with the altered volcanic rocks.

Mineral reserves from the Feitais and Moinho deposit are tabulated in the tables below.

Mineral Reserve (Probable) for Feitais Zinc Mineralization				
Tonnage (x1,000)	**Zinc (%)**	**Copper (%)**	**Lead (%)**	**Silver (g/t)**
12,200	5.67	0.22	1.77	64.15

Mineral Reserve (Probable) for Feitais Copper Mineralization				
Tonnage (x1,000)	**Zinc (%)**	**Copper (%)**	**Lead (%)**	**Silver (g/t)**
1,612	0.97	2.16	0.26	14.26

Mineral Reserve (Probable) for Moinho Zinc Mineralization				
Tonnage (x1,000)	**Zinc (%)**	**Copper (%)**	**Lead (%)**	**Silver (g/t)**
2,152	4.49	0.54	1.82	53.95

It should be noted that the resources, and hence the reserves at Aljustrel will be reviewed and updated at the end of 2007 in order to incorporate the results of additional drilling at Moinho and any modifications to stoping outlines at both Moinho and Feitais.

WAI has reviewed in detail the methodology, parameters and procedures used to derive the reserve base for the Aljustrel project. This review included discussions with Lundin employees and consultants involved in the work, as well as site visits and report reviews. Based on this detailed review, WAI believes that these reserve estimates provide a reliable estimate the portion of the resource that could be profitably exploited. Further, WAI confirms that these figures represent the most current estimates of Aljustrel deposit reserves, although WAI understands that Lundin plans to update the Feitais estimate based on a revised resource estimate that is projected to be completed by year-end.

3.11 Mining Operations

An initial Feasibility study towards reopening the mine was conducted by SRK in 2000, and updated in 2001 and 2004. Further studies have been conducted by Eurozinc in 2005 and by Lundin Mining (PA) in 2006 resulting in some alterations to the design of the mine infrastructure, and in particular to the underground crushing and ore handling systems.

In late 2006, the Board approved a capital programme for the reopening of the mine, with a projected date for the commencement of production in the last quarter of 2007.

The current mine plan adopts the same basic stoping methods as proposed by SRK, but with a reduction in stope height and some detailed improvements to the backfill system. The other main alteration has been to replace the planned inclined conveyor to surface at the Feitais mine with a horizontal conveyor which utilises the existing underground connection to Moinho and the existing inclined underground conveyor from Moinho to the process plant.

Production of ore will commence from Moinho, using the existing crushing and hoisting system, and continue until the higher grade stopes in Feitais are ready for production. Ore from the Feitais mine will be crushed to 80mm in a combined primary and secondary underground crushing station to be situated on the 190m level. This fine ore will be conveyed to Moinho along the existing Santa Barbara tunnel on the 200m level, which will have been significantly enlarged to accommodate a deep trough conveyor and also to allow the passage of all sizes of trackless vehicles.

Stopes at Moinho will be mined by open stoping with pillars and be post-filled with waste rock. Mine production at Feitais will be by alternative primary and secondary stopes, post-filled with cemented rock fill (CRF).

In both mines, the opportunity will be taken to dispose of development waste in mined out stopes. The additional waste required for CRF at Feitais will be quarried from tested rock dumps on surface, and be mixed with cement in a dedicated plant on surface, prior to delivery underground via boreholes.

There are three main economic ore bodies, which are planned to be mined consecutively:

- Zinc-rich mineralization at Moinho;
- Zinc-rich mineralization at Feitais, followed by; and
- Copper-rich mineralization at Feitais.

The mine plan includes detailed stope outlines, development drawings, and up to date capital and operating costs estimates.

The entire basic infrastructure for reopening the Moinho mine is already in place, so pre-production activities will consist largely of stope preparation and drilling, together with the final rehabilitation of all parts of the existing service and hoisting systems. It is also planned to enlarge the inclined tunnel containing the conveyor which brings the ore to surface so that all mobile equipment has a second means of access at Moinho and so that access to any point in the conveyor system for purposes of repair and clean up is facilitated (see below). Some additional development is required below the 355m level to access the lower line of stopes.

In the past year, PA engineers have made significant changes to the layout and design of the project, particularly with respect to the ore and backfill handling systems and the mining level intervals at Feitais. The main change to the SRK design is the elimination of the 1.9km ore handling conveyor from the 430ml crusher at Feitais to surface. It will be replaced with a deep-trough conveyor along the existing Santa Barbara tunnel to Moinho, whence ore will be conveyed to surface using the existing conveyor.

The total number of mining personnel at full production, including maintenance, is estimated to be 218. This equates to a productivity of 8256 tonnes per annum per employee, which compares reasonably well with other similar operations in the world. The workforce is, however, planned to be supplemented with a varying number of additional personnel/companies on short and medium term contracts for carrying out certain duties, such as raise boring, diamond drilling and some maintenance.

The mine will operate two 10-hour shifts per day, seven days per week, adopting a four crew system.

As at the start of 2007, the mine was employing approximately 50 permanent personnel. It is planned to recruit and train in order to build this number up to about 200 by the start of production.

A period of two years (from January 2006) has been scheduled for the work required to prepare the Feitais mine for sustainable production. Associated surface works at the Feitais site have also been costed and scheduled, and include new mine changehouse and offices, workshops, a new sub station, and storage facilities.

The current mine schedule shows a mine life of 10 years, based on an average annual full production rate of 1.8Mtpa (achieved in years 3 to 7).

It should be noted that this schedule is currently under review, and that this is likely to result in modifications to the timing and quantities of various outputs. For example, current indications are that ore production from Moinho will not commence until November 2007, and that there will be no production of lead concentrates from Moinho, and hence no lead or silver metal.

3.12 Environmental Considerations

WAI is satisfied that the requirements for PCIP licence and other environmental permits have been met and that the project and company are, or will shortly be, in compliance with all relevant State legislation. The nature of the orebodies, with high pyrite and thus a high acid generation potential along with heavy metal contents, is such that the pollution potential is significant. Mine wastes (particularly tailings) and waste waters require careful management and a high level of vigilance to maintain environmental standards.

The area has already been heavily impacted by previous mining, resulting in an extensive environmental liability. Much of this liability remains with the State (EDM). However it is important that the extent of historic mining impacts on the water environment in particular are understood, as these may be indistinguishable from future effects of continued mining and related activities.

WAI is concerned that the proposed closure options for the mine reviewed during the 2006 visit are unproven and may not be effective or feasible in a field situation. Similarly, WAI has concerns regarding long term closure options and ensuring adequate site security and public protection. WAI hopes that these concerns will be addressed in the updated closure plan by CONFRATTER. WAI considers it important that closure costs and environmental expenditure are readdressed in the light of recent environmental quality data and that financial provision for closure will take into account not only physical and environmental costs, but also the need for long-term monitoring and aftercare.

Whilst some baseline environmental data has been collected it is recommended that further environmental information and regular monitoring data on air, groundwater and soils are required to assess how severely the environment has already been affected by previous operations and whether impacts are continuing.

3.13 Financial Analysis

The financial model used is the one created by PA and last up-dated in March 2006, with the exception that metal price and exchange rate forecasts have been revised to correspond with those adopted for the recent technical report on Neves Corvo, there are no lead or silver production shown from Moinho, and the estimates of capital expenditure have been updated.

The total capex for the whole project is currently estimated to be €92.09M or US$110M.

This is split as follows:-

ITEM	€ M
Mine `	43.9
Mill	38.8
Admin	3.4
Commercial	6.0
Total Capital Estimate	92.1

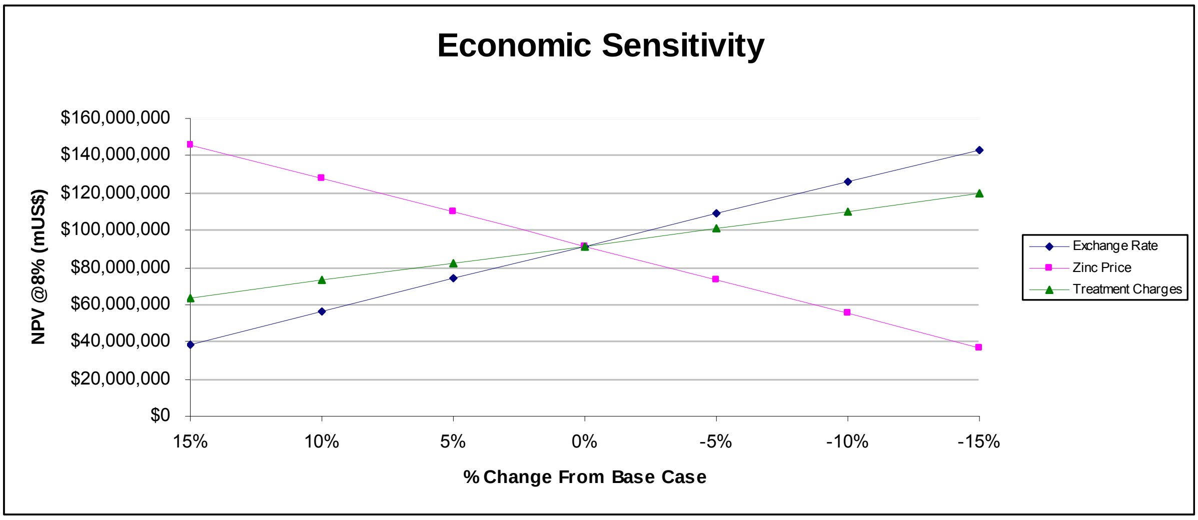
Total operating costs, averaged over the life of the mine, have been estimated as approximately €25 per tonne of ore treated, unescalated. Operating costs are currently the subject of further revision and updating, and indications are that they may rise. For example, it is probable that treatment costs may increase by some 12 to 15 percent.

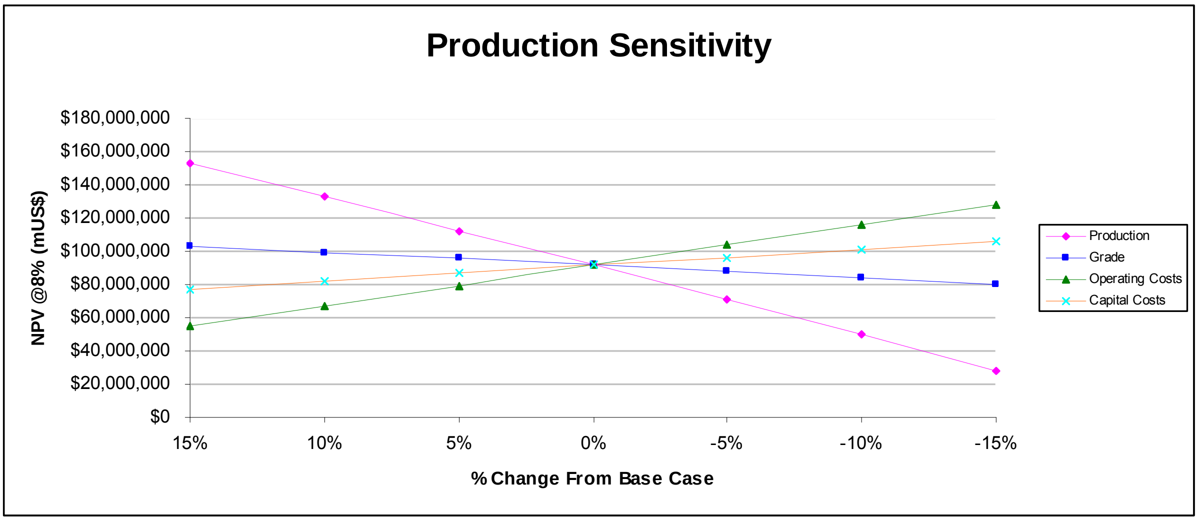
Details of all estimates are shown in financial model which is available for inspection at the mine.

The following table summarises the key financial conclusions from the revised financial model, and compares them to the results from the March 2006 model which used previous metal price estimates.

	This model	**March 2006 model**
NPV at 8%	US$92M	US$35M
Payback period	3.8yrs	4.2yrs
IRR	29.6%	21.8%

Sensitivity analysis was undertaken on the financial model, the results of which are illustrated in the charts below.





The overall conclusions are:-

- The model is most sensitive to the price of Zinc and to the exchange rate;
- The model is less sensitive to operating and capital costs;
- Despite the escalation of estimated capital costs compared to 2006, the revised forecast for the metal prices have had a significant effect on the financial performance of the project, improving the NPV from $35M to $92M, and increasing the IRR from 22% to 30%;
- An increase of, say, 10% in operating costs would reduce the NPV to approximately $65M; and
- Even with the more conservative metal prices used in the 2006 technical report, the project is both viable and robust. Adopting the revised parameters, which WAI consider to be more realistic, the project becomes even more robust.

4.0 INTRODUCTION

4.1 Background

Wardell Armstrong International Ltd (WAI) was commissioned by Lundin Mining (Lundin) in July 2007, to prepare a Technical Report on the Aljustrel Zinc-Lead-Silver-Copper Mine, Portugal, using December 31st 2006 reserves and resources. The Aljustrel Mine is owned and operated by Pirites Alentejanas (PA), which is a wholly-owned subsidiary of Lundin Mining Corporation (Lundin).

In June 2007 Silverstone Resources Corporation (Silverstone) agreed to acquire 100% of the life of mine payable silver production from Lundin's Portuguese operations which comprise the Aljustrel and Neves Corvo mines.

This Technical Report has been prepared for Silverstone for use in connection with the silver purchase transaction between Silverstone and Lundin.

Wardell Armstrong International Limited ("WAI") is an internationally recognised, independent minerals industry consultancy. Most consultants used in the preparation of this report have over 20 years of relevant professional experience. WAI staff that authored this report have visited the Aljustrel Mine site within the last 6 months.

Details of the principal consultants involved in the preparation of this document are as follows:

M Owen, BSc MSc (MCSM) FGS CGeol EurGeol, is an Associate Director with WAI and has over 25 years experience as a Mining Geologist in areas of gold and base metals evaluation in a number of deposits and countries around the world.

D Chilcott (ACSM) FIMMM CEng, is an Associate Consultant Mining Engineer with WAI and has some 47 years experience predominantly in the underground operations of Zambia Consolidated Copper Mines (ZCCM) becoming General Manager of the Mufulira Division and eventually becoming Consulting Mining Engineer for the whole of ZCCM.

P King, BSc (Hons), is a Technical Director and Senior Minerals Engineer with WAI and has over twenty years experience within the minerals industry in both process testwork and design for metallic and industrial minerals worldwide.

Kim-Marie Clothier BSc, MRes, AIEEM, Grad IMMM is a Senior Environmental Scientist with WAI, mainly dealing with Environmental and Social Impact Assessments on mining projects overseas.

Two of the consultants, Messrs Owen and Chilcott are considered as Qualified Persons under NI 43-101, being Members or Fellows of the Institute of Materials, Minerals and Mining, UK and/or Fellows of the Geological Society and Chartered Geologists/Chartered Engineers (see Certificate of Author).

Neither WAI, its directors, employees or company associates hold any securities in Lundin, its subsidiaries or affiliates, nor have:

- Any rights to subscribe for any Lundin securities either now or in the future;
- Any vested interest or any rights to subscribe to any interest in any properties or, concessions, or in any adjacent properties and concessions held by Lundin; and
- The only commercial interest WAI has in relation to Lundin is the right to charge professional fees to Lundin at normal commercial rates, plus normal overhead costs, for work carried out in connection with the investigations reported herein.

4.2 Terms of Reference

The Moinho and Feitais deposits were the focus of a feasibility study commissioned by EuroZinc Mining Corporation, which was merged with Lundin in October of 2006. The study contemplated annual production of 1.8Mtpa of ore and was completed in February 2001 by a team of consultants led by Steffen Robertson and Kirsten (Canada) Inc. (SRK) which included Rescan Engineering Ltd, Knight Piesold Ltd., Rescan Environmental Services Ltd., International Metallurgical and Environmental Inc., and Merit Consultants International Inc (collectively referred to as the Project Consultants). This study was based on new drilling and metallurgical test work, and proposed mining zinc and lead ore separately from copper ore with mine production focused on the higher grade Feitais deposit.

In March 2004, EuroZinc completed an update of the SRK feasibility study based on, at the time, current capital costs, operating costs, and industry forecasted metal prices, treatment charges and exchange rates.

Strategic studies completed on the Project after the 2004 update include:

- Moinho underground drill program (6,703m in 65 holes);
- Modified mine design and ore delivery system for the Feitais deposit;
- Metallurgical test work by G&T Metallurgical Services Ltd. (G&T);
- Process plant engineering by Outokumpu Technology Minerals, Oy. (OTM); and
- Updated capital costs, operating costs, and forecast long term metal prices, treatment charges and exchange rates.

These studies were all documented in a revised Technical Report by EuroZinc on the Aljustrel Project in a NI 43-101 update in March 2006.

The basic strategy for this Technical Study has been to examine and report on the existing mine resources/reserves, infrastructure, equipment, costs, mining methods, mill, tailings facility and environmental issues of the Aljustrel Mine. In addition WAI has provided comment on PA’s ability to achieve their Life of Mine Plan for the next 10 years.

5.0 RELIANCE ON OTHER EXPERTS

Wardell Armstrong International (WAI) has reviewed and evaluated data provided by Lundin and their consultants (see Section 23.0 References) of the Aljustrel mine property, and has drawn its own conclusions therefrom, augmented by its direct field examination. WAI has not carried out any independent exploration work, drilled any holes nor carried out any sampling and assaying.

WAI has audited the estimation of resources and reserves at Aljustrel, and has reviewed the estimates performed by mine personnel, examined the procedures used and reviewed in-house procedures in arriving at statements. While exercising all reasonable diligence in checking and confirming it, WAI has relied upon the data presented by Lundin in formulating its opinion.

The metallurgical, geological, mineralisation, exploration technique and certain procedural descriptions, figures and tables used in this report are taken from reports prepared by and provided by Lundin and their consultants. .

Mineral Resources were classified as *Measured, Indicated* and *Inferred* Resources using Canadian Institute of Mining, (November 14, 2004): CIM Definition Standards on Mineral Resources and Mineral Reserves, necessary to be compliant with NI 43-101.

6.0 PROPERTY DESCRIPTION AND LOCATION

The Aljustrel Project consists of the Aljustrel Mining Lease and the surrounding Malhadinha Exploration Concession (see Figure 6.1).

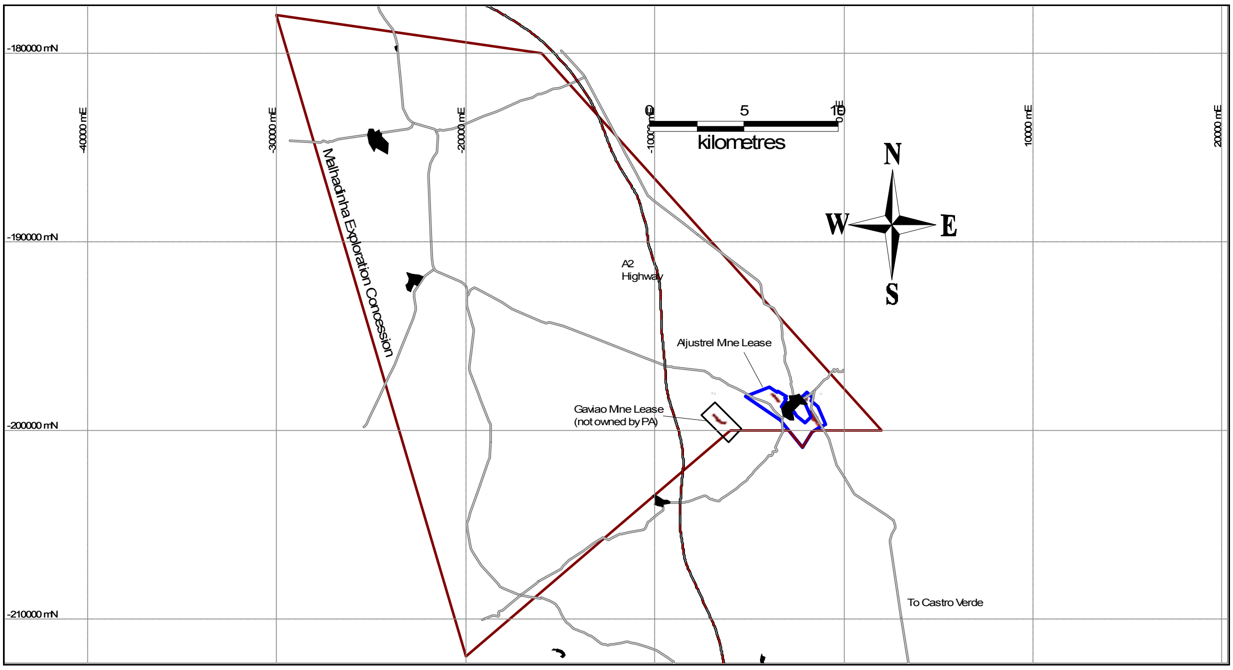


Figure 6.1: Aljustrel Mining Lease and Malhadinha Exploration Concession

The Aljustrel Mining Lease is centered on the town of Aljustrel and covers the St. João, Moinho, Algares and Feitais massive sulphide deposits. The lease has an area of 4.7km^2 and its coordinates are shown in Figure 3.1 and given in Table 6.1 . The lease was signed between the Secretary of State of Industry for the Government of Portugal and PA on May 12, 2006 and replaces the previous contract signed on January 10, 1992. The permit is valid for 50 years from the date of signing, with right of renewal, and includes the exploitation of sulphur, copper, zinc, lead, silver and gold. The lease has no royalty to the state.

Table 6.1: Aljustrel Mining Lease Coordinates		
Portuguese Coordinate System D73		
A	-5,201.60	-198,185.80
B	-3,914.90	-197,702.00
C	-3,541.30	-197,974.80
D	-3,492.90	-197,917.30
E	-3,047.20	-198,207.70
F	-3,114.00	-198,287.00
G	-3,034.70	-198,345.00
H	-3,315.29	-198,753.77
I	-2,855.67	-199,213.39
J	-2,638.30	-198,996.02
K	-2,474.70	-199,264.70
L	-2,052.20	-199,605.00
M	-1,750.00	-199,273.40
N	-2,113.21	-198,470.93
O	-2,289.99	-198,294.15
P	-1,971.79	-197,975.95
Q	-1,629.45	-198,308.29
R	-1,745.51	-198,414.36
S	-1,378.40	-198,761.60
T	-948.70	-199,711.98
U	-1,313.20	-199,876.78
V	-1,674.10	-200,114.40
W	-2,179.20	-200,931.50
X	-3,348.90	-199,466.80

The Malhadinha Exploration Concession surrounds PA's Aljustrel Mining Lease and was granted by the Portuguese government (Direcção Geral de Geologia e Energia – DGGE) to PA in October 2005. The concession has an area of 502km^2 and its coordinates are shown in Table 6.2. The Concession agreement gives PA the exclusive right to undertake exploration in the area for a period of two years. Following the initial two years, PA has the option to extend the agreement for three, one year periods with a 50% reduction in the area after each year extension or apply to have the exploration converted to an exploitation concession.

The concession covers the prospective massive sulphide stratigraphy that extends from Aljustrel northwest to, and including, the Lousal deposit, a distance of over 30km.

Table 6.2: Malhadinha Exploration Concession Coordinates (Hayfor Gauss referenced to Central Point).

Vertex	Meridian	Perpendicular
A	-30,000	-178,000
B	-16,000	-180,000
C	2,000	-200,000
D	-6,000	-200,000
E	-20,000	-212,000

7.0 ACESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Aljustrel Project is accessible by rail and major highways from Lisbon and Faro, both of which have daily international flights to other locations in Europe and abroad. Aljustrel is located 175km southeast of Lisbon by road and 125km north of Faro (see Figure 7.1). There are some 12,000 inhabitants living in the Aljustrel Municipality, which is part of the District of Beja.

Figure 7.1: Aljustrel Location Map

The area has a Mediterranean climate that is characterized by long, dry summers and short, moderate winters.

The population density of the area is low with most people employed in farming (cattle, sheep, cereal crops, cork, olive and wine), mining and associated service industries.

A modern infrastructure is available in the town of Aljustrel for most general services and includes medical care, telecommunications, banking, housing, vehicle purchase and repair and schooling (see Figure 7.2 below). The town has a long established history as a mining community with a number of local inhabitants employed by PA, supporting the mine and plant during the recent care and maintenance and current construction programs.

Rail transport connects the processing plant with dedicated concentrate storage and loading facilities at the deep sea port at Setubál, located approximately 160km to the northwest of Aljustrel and 50km to the south of Lisbon.

Electrical power for the mine is available from the national power grid that services southern Portugal.

Figure 7.2: Project Infrastructure

8.0 HISTORY

The Aljustrel area has undergone sporadic mining and exploration dating back to Phoenician times, and includes a period of extensive work by the Romans. During Roman times, precious metal and copper were exploited from surface gossans and underlying sulphides at the Algares and Sao João deposits. Records of this activity include underground workings at Sao João and surface pits with adjacent slag fields at Algares. Two bronze tablets with the inscribed Roman Mining Laws of the day were discovered in slag fields and are now on display at the Instituto Geológico e Mineiro (IGM) and at the National Archeological Museum in Lisbon.

Modern mining at Aljustrel began in the mid 1800's, when the Algares and Sao João deposits were exploited for pyrite, which was used as a source of iron and sulphur. Due to the extensive size of the deposits and the small rate of production during this time, reserve depletion was not an issue and no systematic exploration was done until the mid 1900's. By the end of World War II, the known reserves at Algares were nearly exhausted and poor ground conditions at Sao João made mining difficult. An extensive exploration effort was initiated southeast of Sao João, leading to the discovery of the Moinho deposit.

Serviço de Fomento Mineiro (State Agency precursor to Instituto Geológico e Mineiro - IGM) discovered the upper edge (‘Carrasco vein’) of the Moinho deposit 14m below surface during a Turam EM survey in 1956. This survey failed to detect the deeper and thicker part of the deposit that was identified by gravity in subsequent years. The deposit was developed and exploited from the 0 level to the 200 level using cut and fill mining by Minas de Aljustrel S.A.R.L., a Belgium owned company, from 1955 to 1974.

Gravity surveys across the Aljustrel area in the 1960’s led to the discovery of the Feitais deposit in 1964 and the Estação deposit in 1969. In 1970, a combination of gravity and geology led to the discovery of the Gavião deposit 2.5km southwest of the St. João deposit.

In the 1960’s, the Santa Barbara rail tunnel (200m level below the surface measured as 0m) was driven to connect Moinho and Algares, and then extended from Algares to the Feitais deposit. In the early to mid 1970’s, approximately 3,500m of development drifts were completed on the 140, 190 and 200 levels of the Feitais deposit. This development was connected to surface by an Alimak raise.

In the early 1970’s the government acquired control of the operating company PA. PA remains the owner of the Aljustrel mine to this day. PA carried on mining activity at Moinho, and initiated limited cut and fill pyrite mining from Feitais. Feitais ore was transported by rail along the Santa Barbara tunnel to the Algares Mine and hoisted to surface. Backfill was transported by rail along an underground tunnel from a local quarry. In 1981 and 1982, PA collared a ramp on surface and began driving a ramp from the 112 level that was eventually to join the ramp being driven from surface. This ramp was never completed.

In the late 1980's the market for pyrite collapsed and pyrite mining became uneconomic. Encouraged by the success of the recently discovered copper and tin rich Neves-Corvo mine located 50 km to the south, PA decided to change focus and start extracting base metals from the Moinho deposit. This involved constructing a 1.2Mtpa processing plant, sinking a shaft, installing an underground crusher and conveyor system and driving a 3 km access ramp from surface to provide trackless access to the mine. The extraction method was changed from small-scale cut and fill mining to large-scale long hole open stoping, and development workings were completed on the 275, 305 and 335-m levels. The Moinho workings were much larger (4.5m x 5m) than previous workings because of the change to trackless mining and larger scale mining equipment.

In the early 1990's, three blast hole stopes were developed at the Moinho mine between the 272 and 335 levels from which 1.1Mt of ore was extracted to supply the new mill. The stopes were up to 60m long by 30m wide by 30 to 60m high, and remain open to this day.

The mill was commissioned in September of 1991 and operated until March of 1993 at which time it was shut down because of operating difficulties and low metal prices. While operating, the plant produced copper and zinc concentrates, which were shipped by rail in sealed pots to a dedicated concentrate storage and handling facility located at the deep-water port of Setubál. According to the records, only a small amount of lead concentrate was produced in February 1993. The mine has been on thorough care and maintenance since closure.

In 1993, Robertson Research Minerals Ltd. were retained by P.A. to assist in the preparation of a report to provide a technical and economic opinion of the future economic viability of the base metal mining and processing operations at Aljustrel. The main conclusion drawn from this report was that the base metal and processing facilities at Aljustrel could be operated at sufficient profit to repay future capital and development costs, and yield a Net Cash Flow of US$101M over a 15 year operational period.

In 1998, EuroZinc, through its predecessor companies Auspex Minerals Ltd. and International Vestor Resources Ltd., completed a Pre-Feasibility study that examined the economic viability of selectively mining the higher grade zinc zones within the Feitais and Moinho massive sulphide deposits. The study, completed in October 1998, investigated mining at a rate of 1.5Mt per year for a project life of 12 years. A financial analysis based on metal prices of US$0.55 per pound of zinc, US$0.28 per pound of lead and US$5.50 per ounce of silver, and assuming 100% equity financing, indicated that the project should move forward to full feasibility.

In 1998, EuroZinc signed an option agreement with EDM and PA to acquire up to 75% of PA by completing a bankable feasibility study aimed at resolving the previous metallurgical problems and optimizing production. EuroZinc completed a bankable feasibility study whereby annual production would be increased from 1.2Mt to 1.8Mt. Zinc and lead ore would be mined separately from copper ore with mine production focused on the higher grade Feitais deposit.

EuroZinc completed a four-phase exploration and definition program starting in June 1998 and continuing through to May of 2000 as part of the feasibility study. The exploration and definition program consisted of diamond drilling, re-logging and re-assaying of historic drill core, underground channel sampling and mapping. In total, 81 surface diamond drill holes (26,000m) were completed at Feitais and 10 underground diamond drill holes (997m) were completed at Moinho.

In December 2001, EuroZinc completed the acquisition of EDM's 75.17% interest in PA.

In November 2002, following a financial restructuring of PA, EuroZinc increased its ownership to 99.9% of PA.

In March 2004, EuroZinc completed an update of the SRK feasibility study using, at the time, current capital and operating costs.

In 2005, EuroZinc completed an underground drill program at the Moinho mine, metallurgical test work and process plant design in anticipation of improved commodity prices and the project moving forward into development and production.

EuroZinc merged with Lundin in October of 2006.

In June of 2007 Silverstone Resources Corporation (Silverstone) agreed to acquire 100% of the life of mine payable silver production from Lundin's Portuguese operations, including Aljustrel.

9.0 GEOLOGICAL SETTING

9.1 Regional Geology

The geology of the Iberian Pyrite Belt (IPB) is described by numerous authors and was recently summarized by Carvelho *et al.* 1997. The belt forms the main part of the South Portuguese Zone (SPZ) of the Iberian segment of the Variscan Fold Belt (see Figure 9.1 below).

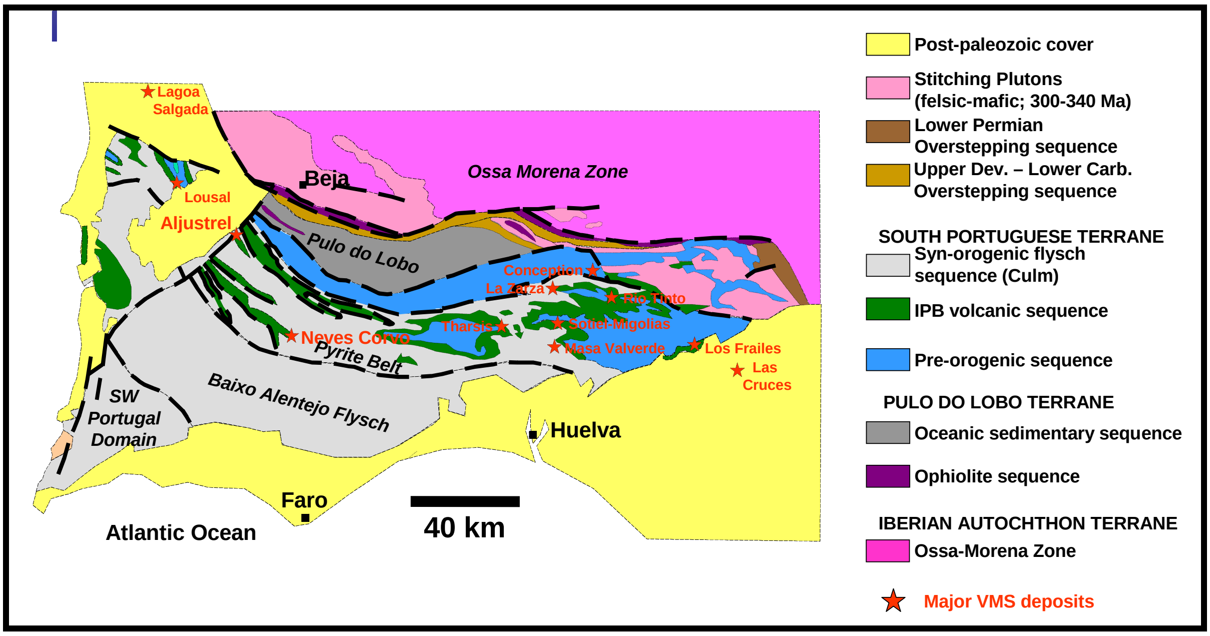


Figure 9.1: Geology of the Iberian Pyrite Belt

The IPB consists of a Devonian-Carboniferous volcano-sedimentary sequence that forms an arcuate belt (250km by 60km) that extends westward from Seville in Spain to northwest in southern Portugal. The belt is host to some of the world's largest volcanogenic massive sulphide (VHMS) deposits.

The IPB is subdivided into several tectono-stratigraphic units including, from oldest to youngest: (i) Phyllite-Quartzite group (PQ-Upper Devonian), (ii) Volcanic-Siliceous complex (VS-Upper Devonian to Carboniferous) and (iii) Flysch group (FG-Carboniferous; Culm group of Schermerhorn and Stanton, 1969).

The PQ is a predominantly sedimentary sequence that consists of slates, quartzites, minor conglomerate and limestone and outcrops mainly in the cores of anticlines. Micro and macrofossils from limestone units near the top of this unit are Upper Devonian.

The VS conformably overlies the PQ and consists of a volcano-sedimentary sequence of felsic to mafic volcanics with lesser tuffaceous and chemical sediments. The felsic volcanics are volumetrically (70%) more common than the mafic or intermediate volcanic rocks. They consist primarily of coherent facies volcanic rocks with lesser tuffs (hyaloclastic and pyroclastic) and re-sedimented epiclastic rocks. The bi-modal volcanic suite is economically important because these units host the polymetallic massive sulphide deposits as well as the numerous manganese occurrences in the belt.

Each productive volcanic centre is comprised of one to three cycles of felsic volcanism. The upper more sedimentary component of the VS consists of shale, greywacke, quartzite, chert, jasper and minor limestone lenses that are gradational with the volcanic centers.

The Flysch group conformably overlays the VS and is a widespread unit that is <500m thick in the eastern part of the IPB and reaches several km thickness in Portugal. It is a turbidite sequence consisting primarily of shale, greywacke and conglomerate.

The above strata of the SPZ are interpreted to represent terrigenous sediments (PQ) deposited on a continental margin followed by submarine mafic to felsic volcanism (VS). The Flysch group records the change from volcanism to sedimentation and associated basin collapse. Correlations of volcanic and sedimentary facies suggest volcanism migrated from southwest to northeast while basin subsidence developed from northeast to southwest.

The SPZ, part of the Variscan Fold Belt, is dominated by southwest verging folds and associated imbricate thrust faults. In the core of anticlinal structures, the oldest rocks exposed are always Upper Devonian or younger suggesting a decollment at the base of the thrust complex consistent with thin skinned tectonic style of deformation. Rocks of the SPZ have undergone regional metamorphism that was syn to post-deformation. It grades from zeolite facies in the south to greenschist facies in the north.

The Iberian Pyrite Belt is the largest VHMS district in the world, hosting over 90 individual occurrences that include some of the largest deposits in the world. Some of the larger deposits are considered to be giant deposits (>50Mt), and include Rio Tinto (>290Mt), Neves Corvo (>270Mt), Aljustrel (>230Mt), Los Frailes-Aznalcollar (>110Mt), Tharsis (>100Mt), La Zarza (>100Mt) and Sotiel-Migollas (>100Mt). Most of the deposits occur in clusters that may represent multiple deposits related to the same volcanic center or bodies dismembered and displaced by syn-depositional slumping or post-depositional faulting. The deposits are commonly zoned with higher-grade zinc-rich zones near the hanging wall and copper-rich zones near the footwall, separated by barren to lower grade pyrite.

The deposits are conformable lens to sheet like bodies that are up to 5km long by 1.5km wide by 80 to >100m thick and are commonly underlain by stockwork zones. They consist essentially of pyrite with lesser amounts of sphalerite, chalcopyrite and galena and minor amounts of tetrahedrite, arsenopyrite, bornite, pyrrhotite and cassiterite. Gangue minerals include silica, carbonate and barite. Stockwork zones consists of pervasive chlorite alteration cut by stringers and veins of pyrite + chalcopyrite + silica which grade laterally into pervasive silica + sericite alteration with disseminations of pyrite ± sphalerite.

9.2 Local Geology

The Aljustrel Mine area is host to a number of Late Devonian to Early Carboniferous stratiform, exhalative polymetallic VHMS deposits. These deposits form two northwest trending belts that are hosted within the upper part of the Volcanic-Siliceous Complex (VS) near the contact of the overlying Flysch Group. The VS Complex and Flysch Group are form a southwest verging fold and thrust belt which forms resistive ridges within a 1.5km wide belt that extends for 4.5km in a northwest direction centered on the town of Aljustrel. The northern end of the belt is offset by the northeast trending Messejana fault. North of the fault, these rocks are down dropped and exposed only in erosional windows through Tertiary sediments of the Sado Basin Formation. The southern end of the belt appears to plunge gently to the southeast below the overlying sediments of the Flysch Group.

The geology of the Aljustrel area has been described by Schermerhorn and Stanton (1969), Andrade and Schermerhorn (1971), Barriga (1983, 1990), Barriga and Fyfe (1988 and 1998), Relvas (1990), Dawson *et al.* (2000, 2001), Carvalho and Barriga (2000).

9.2.1 Stratigraphy

The VS in the Aljustrel area was divided into the Aljustrel Volcanics and the Paraiso Siliceous formation by Schermerhorn and Stanton (1969) and Andrade and Schermerhorn (1971). They further subdivided the volcanic rocks into two central facies consisting of a lower coarse grained crystal-rich tuff unit (Megacrystic Tuff formation) and an upper ash tuff unit (Green Tuff formation) which grade laterally outwards into a more distal facies of tuffaceous sediment (Felsitic Tuff formation) and an upper unit of massive sulphide bearing tuff (Mine Tuff formation). These units form linear belts that trend northwest - southeast similar to the trend of the known massive sulphide deposits. The Megacrystic Tuff - Green Tuff formation of the central facies was distinguished from tuffs of the distal facies by the presence of quartz grains. The thickness of the Aljustrel Volcanics remains uncertain because the Phyllite Quartzite Group (PQ), known to underlay the VS in other parts of the IPB, does not outcrop nor has it been intersected in drill core.

Mapping, core logging and lithogeochemical studies by Somincor have informally subdivided the Aljustrel Mine area stratigraphy (see Figure 9.2 and Figure 9.3 below) into: (i) Lower Rhyolite unit, (ii) Massive Sulphide horizon(s), (iii) Upper Rhyolite unit, (iv) Lower Sedimentary unit, (v) Quartz Feldspar Porphyritic Rhyolite unit, and (vi) Upper Sedimentary unit.

The *Lower Rhyolite unit* (in part equivalent to the Felsitic Tuff formation and Mine Tuff formation of previous authors), which makes up the basement of the Aljustrel area, consists predominantly of coherent facies (flows and/or intrusions) and associated hyaloclastic units, and rare tuffs and mudstone units. The flows and/or intrusive bodies are commonly massive to weakly flow banded aphyric to fine feldspar (<2mm) phyric siliceous rocks and are commonly cut by numerous extensional quartz veins. Hyaloclastic units are commonly more intensely altered than adjacent coherent facies rocks. Thinly laminated black mudstones occur as thin beds (<5m thick) within the footwall unit in some areas at Aljustrel.

The *Massive Sulphide horizon(s)* occur at or near the top of the Lower Rhyolite unit in two linear belts that trend northwest - southeast similar to the overall structural and stratigraphic trend. The northern belt is intersected in 180 drill holes and consists of the Estação and Feitais deposits which, when restored across the Represa fault, form one sulphide body that is 1.7km along strike, 500m wide and from less than 1m to 100m in thickness. The northern belt remains open along strike and down dip. The southern belt, which includes the Gavião, St. João, Moinho and Algares deposits, is exposed in surface outcrops, underground workings and drill holes that form a discontinuous body that can be traced for over four km. The southern deposits have similar widths and thickness as the northern ones, but appear to have higher average copper grades and lower average zinc grades.

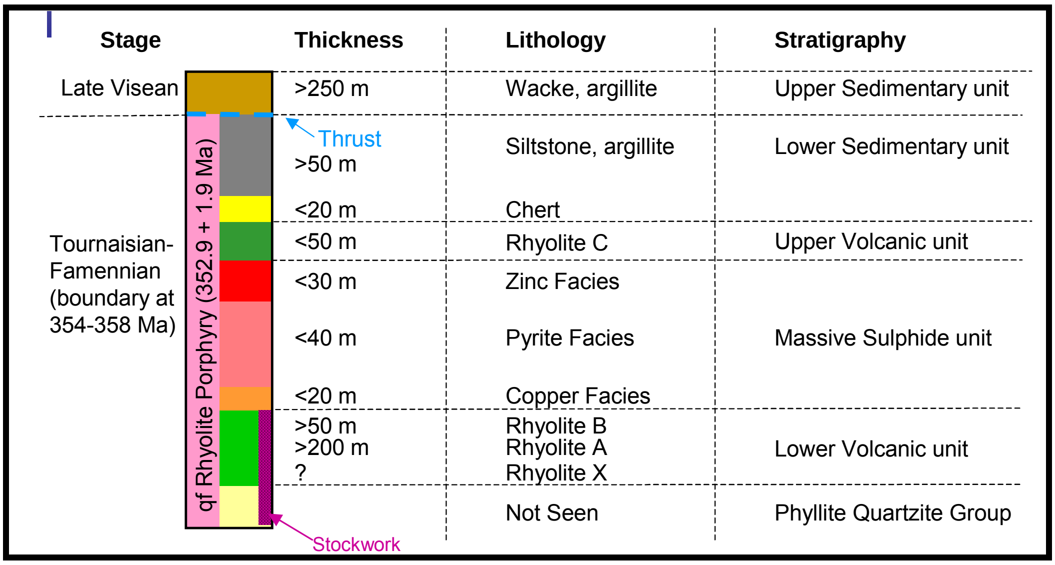


Figure 9.2 : Aljustrel Stratigraphic Section

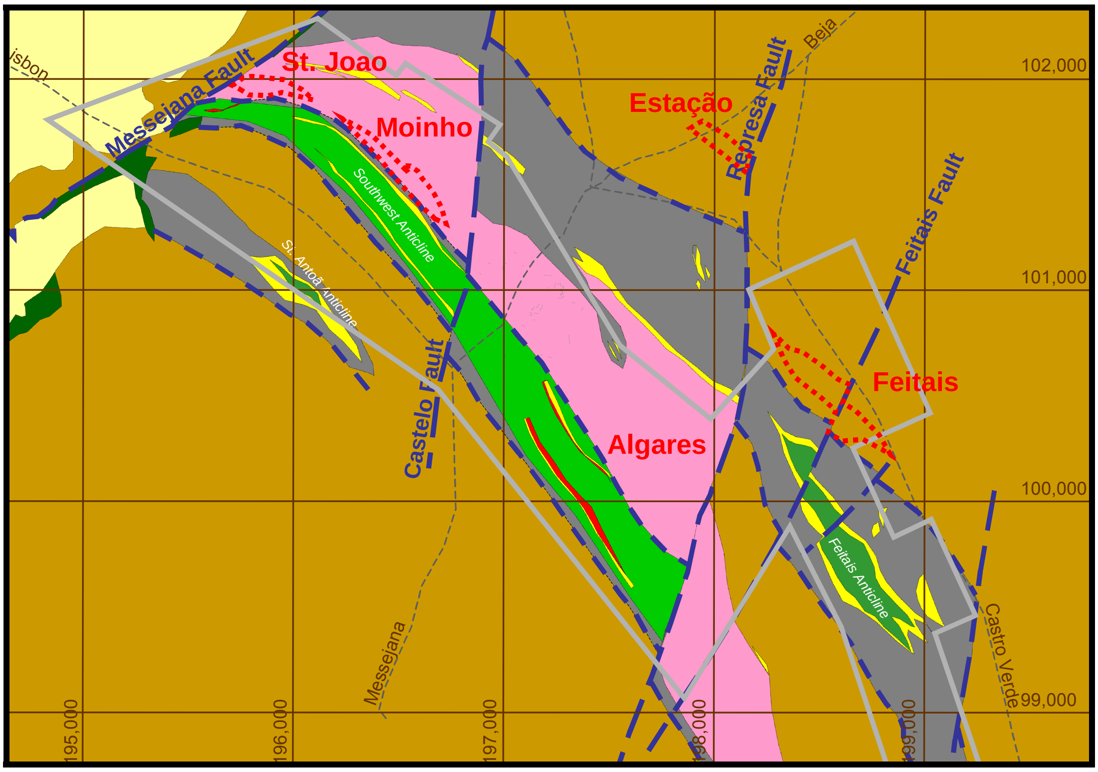


Figure 9.3: Geology of the Aljustrel Mine Area (*See* Figure 9.2 for legend); surface projection of the massive sulphides shown as red dotted line

The massive sulphide deposits commonly show an overall metal zoning from a zinc-rich zone near the hanging wall and a copper-rich zone near the footwall, separated by low grade to barren massive pyrite. Stockwork mineralization forms planar zones below the thicker parts of the massive sulphide at the Feitais deposit. These zones have a similar strike as the stratiform deposits, but are commonly at a high angle or perpendicular to them. Stockwork zones consist of a core of pervasive silica alteration cut by pyrite ± chalcopyrite veins that grade laterally outwards into pervasive black chlorite alteration cut by silica ± pyrite ± chalcopyrite stringers. The chlorite alteration gradually grades laterally outwards to sericite ± silica alteration with disseminations and veins of pyrite and sphalerite.

The deposits consist mainly of pyrite (>70%) with lesser amounts of sphalerite, galena and chalcopyrite and minor to trace amounts of tetrahedrite and arsenopyrite. Minor gangue minerals include quartz, carbonate and barite. Sulphide banding is likely a combination of initial metasomatic processes soon after deposition and subsequent remobilization and recrystallization related to deformation during the Hercynian Orogeny. A detailed stratigraphic and structural interpretation, based on major hanging wall and footwall stratigraphic units, suggests the units are not tightly folded as in previous interpretations.

The *Upper Rhyolite unit* (in part equivalent to the Green Tuff formation of previous authors) forms a thin unit (<50m) that conformably overlays either the Lower Rhyolite unit or the Massive Sulphide deposit(s). In some areas, possibly topographic highs, the unit is absent. It consists of light to medium green, fine-grained feldspar (5mm) phyric felsic coherent facies rocks. Some areas contain fragments or lenses of green to purple hematitic volcanic mudstone, chert and in rare examples sulphide clasts.

The *Lower Sedimentary unit* (Paraiso Siliceous Formation) conformably overlies the Upper Rhyolite unit or in some areas lies directly on the massive sulphide horizon. It consists of fine-grained grey to black, green and purple mudstone with discontinuous jasper horizons at the base of the unit. The thickness of the unit is uncertain, however on the normal limb of the Feitais anticline, the unit is <50m thick where it is in thrust contact with the overlying Upper Sedimentary unit. The jasper varies from <1m to 20m in thickness and consists of red to grey, brecciated chert with disseminations and veins of hematite, magnetite, pyrite, manganese and rare arsenopyrite.

The *Quartz Feldspar Porphyritic Rhyolite unit* (Megacrystic tuff formation and Quartz Eye tuff formation of previous authors) consists of light to medium green, coarse-grained potassium feldspar +/- quartz crystal rich rhyolite. Feldspars crystals are commonly broken, 1 to 4cm long, exhibit ‘hopper’ textures and chemical zoning, and contain inclusions of quartz. Quartz crystals are equent and <5mm in diameter. This unit appears to be intrusive in nature as it appears at a number of stratigraphic levels. Barriga (1983) interprets the large feldspar crystals to be formed by potassium metasomatism related to the hydrothermal fluids that formed the overlying massive sulphide deposits. An alternative interpretation, based on textural and field evidence, suggests the feldspars may be primary igneous phenocrysts that were crystallizing slowly within a deep magma chamber that later intruded/extruded to a higher crustal level resulting in large broken, quenched crystals in a finer grained igneous matrix.

U-Pb dating of zircon extracted from a sample collected in the Algares backfill quarry returned an age of 352.9 ± 1.9Ma (Barrie et al. 2002).

The *Upper Sedimentary unit* (Flysch group) is commonly in thrust contact with the Lower Sedimentary unit in the Aljustrel area. The true thickness of this unit is unknown; however it is thought to be several 100’s of metres. Typically, it consists of thick beds of wacke separated by thinly laminated mudstone and siltstone. Wacke beds commonly have small fragments (<1cm average) of black mudstone. Younging indicators such as graded beds, cross beds, flame textures, worm burrows and load casts are abundant throughout the unit.

9.2.2 Structure

The dominant structural features in the Aljustrel area include northwest-southeast trending folds and north-northeast trending faults that are related to the Late Paleozoic Hercynian Orogeny. The major folds identified from west to east are the St. Antão, Southwest and Feitais anticlines. The moderately inclined, closed to open folds (F1), have a wavelength of ~100m and verge to the southwest; fold axes plunge shallowly to the northwest and southeast (<30 degrees). Axial planar cleavage (S1) associated with this folding strike northwest and dips moderately to the northeast. It appears that most anticlines are separated by low to moderate angle reverse faults; however these structures are currently poorly documented. A minor second phase of folding (F2) at right angles to the first phase of folding results in upright, gentle folds that have a wavelength of 100's of m. Crenulation cleavage (S2) related to this fold event strikes east – northeast and dips steeply.

North-northeasterly striking, steeply dipping faults have a dextral sense of displacement and offset the folded stratigraphy by <1 to 100's of m. The major faults identified are the Moinho, Castelo, Represa and Feitais faults.

The Messejana fault is an east to northeast trending regional scale fault that extends across southern Portugal and into the Atlantic Ocean. It has a sinistral sense of displacement and offsets the Gavião from the St. João deposit by an apparent displacement of 2.5km. South of the fault, the stratigraphy is dragged westward into the plane of the fault. North of the fault, the Paleozoic stratigraphy is down dropped and overlain by sediments of the Tertiary Sado Basin formation. Jurassic mafic intrusions intrude along this structure.

9.2.3 Overview

The Aljustrel Mine area is interpreted to represent a Late Devonian rifted basin which appears to have controlled the distribution of both massive sulphide and stockwork mineralization as well as associated volcanic units. The deposits likely formed in shallow restricted basins adjacent to growth faults that acted as conduits for metal rich hydrothermal fluids. The thickest part of the massive sulphide deposits overlay stockwork mineralization that appears to be associated with growth faults along the basin edge. The deposits are comprised primarily of pyrite (>70%) with lesser sphalerite, galena, chalcopyrite and tetrahedrite. Base metals within these deposits are commonly zoned from zinc-rich zones near the top to copper-rich zones at the base of the massive sulphide. This zoning is interpreted to be largely a result of primary metal re-zoning caused by temperature, pressure and chemical gradients soon after deposition.

The waning stages of volcanism and hydrothermal activity are marked by the deposition of jasper and tuffaceous sediments of the Lower Sedimentary unit (Paraiso formation). This unit, deposited during a period of quiescence, forms a regionally extensive marker horizon in the Aljustrel Mine area and in other parts of the Iberian Pyrite Belt. The Quartz Feldspar Porphyritic Rhyolite unit appears to be a high-level intrusive unit that has intruded the stratigraphic sequence up to and including the Lower Sedimentary unit.

The change from volcanism to sedimentation is marked by the deposition of the Upper Sedimentary unit (Flysch Group). It is characterized by a thick (>100m) turbidite sequence of argillite, siltstone and wacke.

The Late Paleozoic Hercynian Orogeny has folded and faulted the above units and is responsible for the present distribution of the Paleozoic stratigraphy. Anticlinal folds trend northwest and verge to the southwest. Thrust faults appear to have removed the intervening synclines, however these structures are poorly documented. North to northeast trending faults have offset the folded and thrusted stratigraphy by 10’s to 100’s of m.

10.0 DEPOSIT TYPES

The Aljustrel Mine area hosts 6 massive sulphide deposits that contain economic concentrations of zinc, lead, copper and silver. These deposits are classified as VHMS deposits and are thought to be exhalative deposits formed at or near the sea floor in fault controlled restricted basins. The deposits are spatially and temporally associated with felsic volcanism, which was likely the heat source that drove the hydrothermal system.

10.1 Feitais Deposit

The Feitais deposit occurs in the southeastern part of the Aljustrel mine area on the normal limb of the Feitais anticline. It is spatially and temporally related to voluminous felsic volcanism that outcrops in the Aljustrel area. The deposit is underlain by extensive copper rich stockwork zones that mark the hydrothermal conduits along which heated metal rich fluids vented from depth to surface to form the overlying massive sulphide deposits.

In 1998 and 1999, EuroZinc Mining Company, completed 81 surface diamond drill holes totaling over 25,000m and more than 1,000m of underground channel sampling to define the limits of higher grade zinc and copper mineralization within the Feitais deposit. Previous operators completed 24 surface holes (10,570m) and 57 underground holes (6,900m). This work outlined a massive sulphide body 900m long by 700m wide by up to >100m thick. The body strikes 305°, dips -50° to the northeast and plunges 30° to the northwest. Holes were drilled in the direction of 225° and intersected the massive sulphide body from 50m to 500m below surface. A typical section through the deposit is shown in Figure 10.1. The deposit is open down dip and down plunge to the northwest towards the Represa fault. Northwest of this fault, the deposit is displaced to the northeast with a relative horizontal displacement of 800m where it is called the Estação deposit.

The stratigraphy of the Feitais deposit is subdivided, from oldest to youngest, into the (i) Lower Rhyolite unit, (ii) massive sulphide, (iii) Upper Rhyolite unit, (iv) Lower Sedimentary unit (Paraiso Siliceous formation) and (v) Upper Sedimentary unit (Flysch group, Culm formation, Mertola formation).

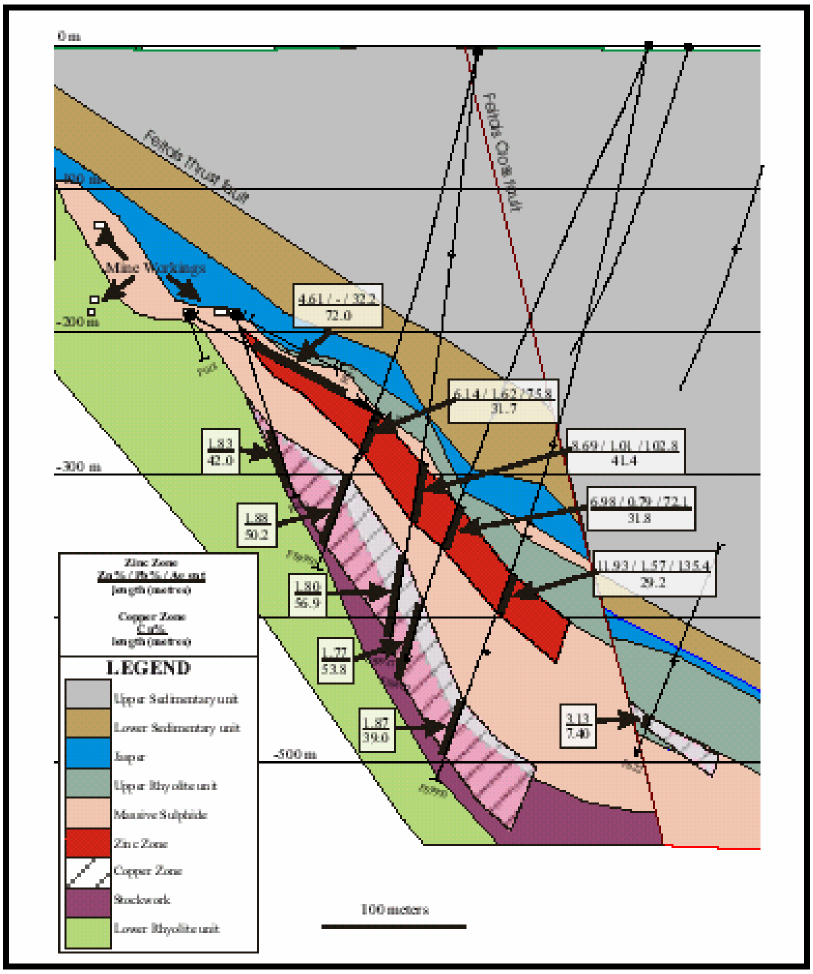


Figure 10.1: Typical Cross-section through the Feitais Deposit

The *Lower Rhyolite unit* is exposed in drill holes and underground workings and forms the core of the Feitais anticline. The thickness of this unit is uncertain, however it has a minimum thickness of 150m based on two drill holes that were collared from underground workings in the normal limb of the Feitais anticline and drilled to the southeast through the core of the fold and into younger stratigraphy on the overturned limb of the fold.

This unit is comprised of aphyric to feldspar phyric coherent facies rocks and associated hyaloclastic sandstone and breccia units. The hyaloclastic units are commonly strongly foliated, greyish green, monolithic. Breccias are angular, commonly <2cm long with cuspate outlines suggesting that the fragments were derived by quench brecciation. Massive to flow-banded, light grey, aphyric to feldspar phyric (<2mm) units occur throughout the section as thick flows (>10m core width) to small bodies (<1m core width) that may represent flow fragments, sills or feeder dykes. Some flows contain sections with quartz vesicles. The aphyric to feldspar phyric units comprise approximately 30% of the Lower Rhyolite unit and are easily distinguished by abundant extensional quartz veins.

The *massive sulphide deposit* does not outcrop in the Feitais mine area, but extends from 50m to over 500m below surface over a strike length of 900m along the normal limb of the

Feitais anticline. The deposit is less than 1m at its upper edge, but rapidly increases in thickness and is >100m thick near its lower edge; the average thickness is in the order of 60 m. The upper contact of the deposit is sharp and conformable with the overlying rhyolite unit (rhyolite C), however the lower contact is often gradational over a few m with the underlying Lower Rhyolite unit suggesting the overlying sulphides in part replace the volcanics. Volcanic units occasionally form thin (<30m) beds that interfinger with the massive sulphide, especially near the lower edge of the deposit. On the overturned limb of the Feitais anticline, a thin (<1m) massive sulphide horizon was intersected in drill hole FI-2 at 450m below surface in a similar stratigraphic position as the Feitais deposit.

The deposit is comprised of fine-grained sulphides consisting predominantly of pyrite with lesser sphalerite, galena, chalcopyrite, tetrahedrite and arsenopyrite. Minor lead antimony sulphides (Wilson, 1998) include bournonite ($CuPbSbS_3$), boulangerite ($PbSbS_3$) and meneghinite ($Pb_{13}Sb_7S_{23}$). Gangue minerals include quartz, carbonate, sheet silicates (sericite, chlorite) and sulphates (barite, gypsum). Barite occurs interstitial to the sulphides and occasionally forms discrete discontinuous lenses at the top of the massive sulphides. The deposit is commonly zoned with a zinc-rich zone near the hanging wall, which is separated from a copper-rich zone near the footwall by barren to low-grade pyrite. The deposit was separated into Zinc facies, Pyrite facies and Copper facies based on the estimated abundance of sphalerite, pyrite and chalcopyrite, respectively.

Pyrite makes up the majority of the deposit and displays variable habit and grain size. wilson (1998) identified three generations of pyrite in laminated and massive ores using a reflected light microscope in combination with proton and electron microscopes. In the absence of the arsenopyrite and tetrahedrite, microprobe analysis indicates that most arsenic (0.1 to 2.6 wt%) and antimony (0.2wt.%) occurs within pyrite.

Sphalerite occurs as very fine-grained disseminations and irregular thin (<1 cm) bands. It varies widely in cadmium, mercury (0.06 to 0.21%) and iron (0.7 to 6.5 wt%) content; iron content correlates with the pale yellow to dark reddish brown sphalerites observed in drill core.

Galena is commonly associated with sphalerite. Galena contains <0.15 wt% silver with the remaining silver residing in tetrahedrite.

Chalcopyrite occurs as fine-grained disseminations, bands and veinlets (fractures). It is relatively pure, however it can host tin, indium and selenium in the 100's of ppm range.

The *Upper Rhyolite unit* conformably overlies either the massive sulphide deposit or the Lower Rhyolite unit. It forms a narrow unit (<50m) that outcrops along both flanks of a northwest-southeast trending ridge where it forms the limbs of the double plunging Feitais anticline. On the normal limb of the Feitais anticline, the unit thickens with depth and has an overall plunge of 30-40º to the northwest, a similar plunge as the underlying massive sulphides. It consists of medium green, chlorite altered feldspar (<5mm) phyric coherent facies with rare xenoliths (<3cm average). The lower few m of this unit is commonly sericitically altered where it overlays massive sulphides. Locally, small massive sulphide lenses a few m to <20m thick occur within this unit.

The *Lower Sedimentary unit* conformably overlies the Upper Rhyolite unit. The unit is <10 to 100m thick, however its true thickness is uncertain because it is in fault contact with the overlying Upper Sedimentary unit. It consists predominantly of thinly laminated to bedded pale green, sericitic, tuffaceous argillite and siltstone and black argillite. A chert horizon at the base of this unit separates the rhyolite tuffs from the overlying volcanic sediments. This chert horizon varies in thickness from <1m to 20m. It consists of massive to brecciated, grey to red, chert with a matrix and/or irregular veins of hematite, magnetite, pyrite, pyrolusite, chlorite and quartz. Minor disseminated arsenopyrite occurs rarely within this unit. The sediments are commonly enriched in iron and manganese marking the waning stages of hydrothermal activity.

The *Upper Sedimentary unit* forms a thick unit (>300m) that is separated from the underlying Lower Sedimentary unit by the Feitais thrust fault. The unit is comprised of thick-bedded (30 to 100 m average) greywacke and thinly laminated black argillite and siltstone beds. Way-up structures such as graded beds and load casts occur throughout the unit and indicate the unit is right way up. Rare cross-bedded units suggest locally shallow to moderate water depths. Argillite intervals are commonly fractured and broken likely as a result of the competency contrast between the argillite and surrounding wacke during phase one folding.

Hydrothermal alteration in the Feitais Mine area has a systematic spatial and temporal relationship to the growth faults that controlled basin geometry and the associated overlying massive sulphide deposit. Alteration is characterized by a number of mineralogical zones that underlie the massive sulphide deposit and taper from <1m near the upper edge to >40 m near the lower edge of the deposit. Mineralogical zoning within the stockwork consists of a silica + sulphide zone that grades laterally outwards into a chlorite + sulphide zone that eventually grades into a sericite + sulphide zone. This zoning can be observed from a centimeter scale around individual fractures to a 10's of m scale where a high fracture frequency produces complex overprinting resulting in large, mineralogicaly distinct zones. Copper grades are best developed in the silica and chlorite zones that, combined with the copper rich bottom of the massive sulphide, comprise the copper resource. The extent and intensity of alteration associated with the basin controlling structure is uncertain and remains open at depth.

The silica + sulphide zone is comprised of chalcopyrite + pyrite + silica veins (<1cm to 20m) enveloped by pervasive silica alteration. In areas with a high fracture density, the country rock is sometimes completely replaced by sulphides. Chalcopyrite reaches up to 10% and pyrite up to 40% in some sections. The contact between the silica zone and the chlorite zone is characterized by sulphide veinlets with envelopes of silica that grade outward to chlorite resulting in 'islands' of black chlorite surrounded by grey silica alteration.

The chlorite + sulphide zone is comprised of pyrite + chalcopyrite + silica veins (<1cm to 20m) enveloped by pervasive black chlorite alteration. Locally, along the deeper, lower edge of the deposit (Section 840), the veins consist of magnetite. The chlorite zones grade laterally into sericitic + sulphide zones.

The sericite + sulphide zone consists of pervasive sericite alteration with disseminations and veins of sulphides. Sulphides consist predominantly of pyrite with minor sphalerite and galena.

In general, the above alteration zoning is observed in the footwall of the massive sulphide deposit, however both protolith and fracture density play important roles in determining the distribution and shapes of mineralogical zones. Subsequent deformation has transposed sulphide veins sub-parallel to S_1 axial planar cleavage.

The dominant structural features in the Feitais Mine area are: (i) the Feitais anticline, (ii) Footwall fault, (iii) Feitais thrust fault, (iv) Feitais cross fault and (v) Represa fault.

The Feitais anticline is a moderately inclined, recumbent fold with a wavelength of >300 m. The axial plane strikes 315° and dips moderately to the northeast. Axial planar cleavage associated with this deformation strikes northwest and dips moderately to steeply east. A second phase of folding has overprinted the first phase of folding resulting in first phase fold axes plunging gently to the northwest and southeast. These upright, gentle, open folds have axial planes that are perpendicular to the first phase of folding. Crenulation cleavage associated with this fold event strikes east-northeast and dips steeply.

The Footwall fault is intersected in a number of surface drill holes and in crosscuts on the 140, 190 and 200 Levels. It has a strike of 310° and a dip of 64° to the east, sub-parallel to stratigraphy. Southeast of the Feitais Cross fault it cuts the deposit into the B and C zones. Displacement and relative movement across the fault is uncertain but appears to be normal and less than 50m. The fault is commonly a few m thick and consists of quartz veined, strongly foliated rock with broken and clay gouge zones.

The Feitais thrust fault is intersected in surface drill holes. It has a strike of 305° and a dip of 35° and occurs at the contact between the Lower Sedimentary unit and Upper Sedimentary unit. It is commonly a few m to 10's of m wide and consists of strongly foliated quartz veined and healed argillite and volcanic sediments. Quartz veins (<1cm average) are folded, boudinaged and sometimes brecciated. The amount of displacement across this fault is unknown.

The Feitais cross fault is observed on the 140, 190 and 200 level workings and is intersected in a number of drill holes. It is a brittle fault that strikes north-northeast, dips 80° to the east and has an apparent right lateral offset of about 40m. It displaces both the Footwall and Feitais Thrust faults. The fault is characterized by 1-2m of clay gouge containing angular wall rock fragments (<2cm). Stratigraphy on both sides of the fault is dragged into the plane of the fault. Slickensides on associated fracture surfaces are horizontal.

The Represa fault zone is mapped on surface and forms a prominent feature on gravity maps. The fault zone is comprised of a number of sub-parallel splays. The faults strike north-northeast and dip steeply similar to the Feitais cross fault. The Estação and Feitais deposits are thought to have originally been one contiguous deposit, which was later offset, with a right lateral relative displacement of 800m across this fault.

Similar trending faults to the Feitais cross and represa faults are observed on air photos covering the Feitais area. The faults have a frequency of approximately 200m and show small offsets with a right lateral sense of displacement.

10.2 Moinho Deposit

The Moinho deposit occurs in the north central part of the Aljustrel Mine area on the normal limb of the Southwest anticline. The deposit is a polymetallic massive sulphide deposit that has many similarities to the previously described Feitais deposit but has undergone a higher degree of deformation.

Underground mapping and drilling indicates the Moinho deposit is about 700m long by 700m wide by <1 to 100m thick and strikes 315° and dips 60 to 70° to the northeast. A typical section through the deposit is shown in. The deposit is open up-plunge to the south and truncated down-dip by the northwest-southeast striking Moinho hanging wall fault. A similarly oriented fault occurs in the footwall of the deposit and appears to be coincident with the axial plane of the Southwest anticline. The deposit can be traced northwards by a thin sulphide interval (Carrasco vein) that extends from the Moinho to the St. João deposit a distance of 200 to 300m. This thin sulphide interval may represent a thin accumulation of sulphides on a topographic high that separates the Moinho and the St. João deposits.

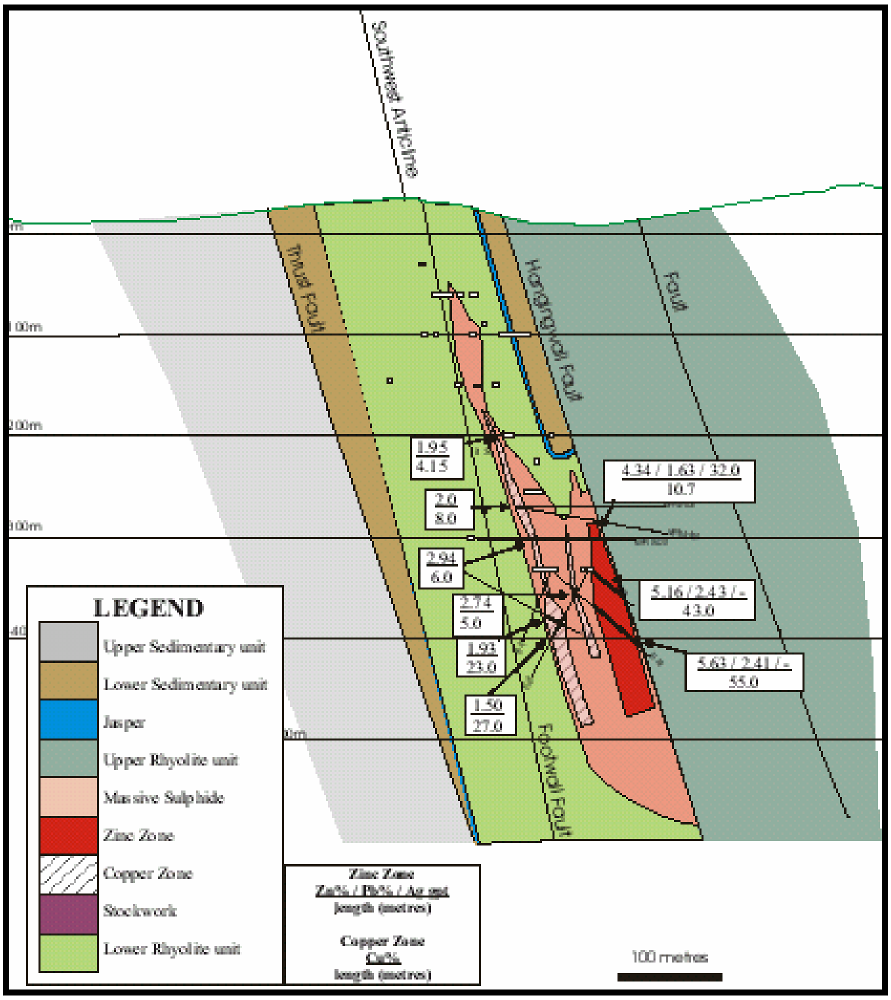


Figure 10.2: Typical Cross-section through the Moinho deposit

In 1999, EuroZinc completed 10 underground drill holes (980m) and 1,200m of channel sampling to better define higher-grade zinc mineralization on the 275, 305 and 335 levels. In particular, this work focused on delineating an area between sections 330 and 420 where previous drill holes intersected mineable widths (>10m) of mineralization grading >5.5% zinc.

In 2005, the company completed an underground infill drill program (6,703m in 65 holes) to upgrade the indicated resources identified in the SRK feasibility study to the *Measured* category. In addition to this drill program, the company re-sampled the entire historic PA drill core that was archived on site and submitted these samples to the same sample preparation and laboratory as that used during the EuroZinc drill programs.

The stratigraphy of the Moinho area is more complicated than the previously described Feitais area because of the more intense deformation. A number of faults sub-parallel to the axial plane of the folds bound the massive sulphide and enclosing volcanic units. The displacement across these faults appears to be small however they complicate stratigraphic relationships.

The stratigraphic section consists of (i) a Lower Rhyolite unit, (ii) massive sulphide, (iii) Upper Rhyolite unit, (iv) Lower Sedimentary unit (Paraiso formation) and (v) Upper Sedimentary unit (Culm formation).

The *Lower Rhyolite unit* outcrops in road and railway cuts and in the backfill pits around the Moinho deposit where it forms the core of the Southwest anticline and the footwall to the Moinho deposit. The thickness of the unit is uncertain because of faulting; however it has a minimum thickness of 40m.

The unit is comprised of feldspar phyric and aphyric coherent facies felsic volcanics (20-30%) and derived hyaloclastic breccias (60%), felsic lapilli tuff (10%) and minor black argillite. The hyaloclastic units are comprised mainly of grayish green, sparsely feldspar (<2 mm) phyric sandstone to breccia.

The *massive sulphide* extends from near surface to 700m below surface and can be traced along strike for over 700m. The deposit consists of several sulphide bodies that strike 315° and dip 60 to 70° to the northeast and plunge gently to the northwest. The upper edge of the deposit consists of 2 to 3 thin (<1 to 30m) sulphide layers that eventually coalesce to form one thick (60 to 100m) sulphide deposit at depth.

Base metals are zoned both laterally and vertically within the massive sulphide deposit. The shallow, thin, zinc rich layers merge downwards below the 200 level to form a thicker zinc-rich zone near the hanging wall of the main massive sulphide deposit. This zinc zone is separated from a copper rich zone in the footwall of the massive sulphide by a lower grade to barren pyrite zone. The down-dip edge of the sulphide deposit appears to be truncated by the Hanging wall fault. In this area, it appears that the lower edge of the deposit is dragged into the fault suggesting a reverse sense of movement. If this is correct, the displaced thicker part of the deposit and associated alteration zones should be uplifted east of the fault, representing a significant, untested exploration target.

The Moinho deposit is predominantly fine-grained massive sulphides (>70%) consisting of pyrite with lesser sphalerite, galena, chalcopyrite and minor tetrahedrite, arsenopyrite and other sulfosalts. gangue minerals include silica, carbonate, barite and tuffaceous detritus (sericite + chlorite altered ash). Sphalerite occurs as fine-grained disseminations and thin (<1cm) bands and is commonly associated with fine-grained galena. chalcopyrite occurs as fine-grained disseminations and irregular veinlets or fracture fillings throughout the massive sulphide horizon.

The *Upper Rhyolite unit* is exposed in the backfill pit overlying the massive sulphide deposit and in underground workings as well as numerous surface and underground drill holes. The unit conformably overlies either the massive sulphide or the Lower Rhyolite unit. On the overturned limb of the Southwest anticline, the unit is <5m thick where it structurally overlies the cherts of the Upper sedimentary unit. The unit is medium green, chlorite altered feldspar (<3mm) phyric coherent facies volcanic rock.

The *Lower Sedimentary unit* is exposed in the backfill pit, the railway cut and the underground drifts in the upper part of the deposit above the 200 level. The unit is <5m thick on the normal limb and >30 m thick on the overturned limb of the Southwest anticline where it appears to be in fault contact with the Upper Sedimentary unit. It consists predominantly of thinly laminated to bedded, pale green to black, sericitic argillite. A discontinuous, grey to purple chert horizon (<1 to 10m) occurs at the base of this unit where it overlays the upper rhyolite unit. The massive to brecciated chert consists predominantly of silica (>90% SiO_2) with minor hematite, magnetite, pyrite, pyrolusite and chlorite altered tuffaceous sediments.

The *Upper sedimentary unit* is exposed in rail cuts west of the Moinho deposit and in some footwall drifts above the 200 level where it is in fault contact with the Lower Sedimentary unit. The turbidite unit consists of argillite, siltstone and wacke is similar to that described at Feitais.

The dominant alteration, observed in drill holes and underground workings at Moinho, consists of sericite + sulphide alteration of the footwall volcanics underlying the massive sulphide deposit and weak chloritization of the overlying hanging wall rocks. The footwall alteration is comprised of pervasive sericite +/- silica alteration with disseminations and veins of pyrite (<10%). The hanging wall alteration is comprised of pervasive chlorite +/- sericite alteration. The other stockwork alteration types (silica + sulphide and chlorite + sulphide) observed at Feitais are not observed in the underground workings or in the short underground drill holes at Moinho. The reason for this may be because the Hanging wall fault has truncated the lower edge of the deposit and associated footwall stockwork alteration zones.

The rocks hosting the Moinho deposit have undergone a higher degree of deformation than the previously described Feitais deposit. Both the hanging wall and footwall stratigraphy is strongly foliated and most contacts record some degree of movement, albeit probably small. The dominant structural features in the Moinho area are: (i) Southwest anticline, (ii) Footwall fault, (iii) Hanging wall fault and (iv) Moinho cross fault.

The Southwest anticline is a moderately to steeply inclined fold with a wavelength of ~150m. The axial plane strikes 320° and dips moderately to steeply to the northeast. Axial planar cleavage associated with this deformation strikes northwest and dips moderately to steeply east. A second phase of folding has overprinted the first phase of folding resulting in first phase fold axes plunging gently to the northwest and southeast. These upright, gentle, open folds have axial planes that are perpendicular to the first phase of folding. Crenulation cleavage associated with this fold event strikes east-northeast and dips steeply.

The Footwall fault is intersected in a number of surface drill holes and in crosscuts on the 200, 275, 305 and 335 levels. It has a strike of 320° and a dip of 70 to 80° to the east and is sub-parallel to stratigraphic units. Displacement and relative movement across the fault is uncertain, but thought to be 10's of m in a reverse sense. The fault is commonly a few m thick and consists of quartz veined, strongly foliated rock with broken and clay gouge zones.

The Hanging wall fault is intersected in some underground drill holes and observed on the 275 level and in the Moinho backfill pit. It has a strike of 320° and a dip of 80° to the northeast, sub parallel to the Footwall fault. It is commonly a few m wide and consists of quartz veined, strongly foliated rock with clay gouge zones (1 to 2m). On section, the lower edge of the Moinho deposit appears to be dragged into the fault suggesting a reverse sense of movement. The amount of displacement across this fault is unknown.

The Moinho Cross fault is observed on the 275, 305 and 335 levels and in the Moinho backfill pit. The fault strikes north and dips steeply east and has an apparent right lateral offset of 10m. The fault is characterized by 1 to 3m of clay gouge enveloped by strongly foliated rock. Slickensides on associated fracture surfaces are horizontal.

11.0 MINERALISATION

The Aljustrel massive sulphide deposits have a simple mineralogy and are composed primarily of pyrite (>70%) with lesser amounts of sphalerite, galena, chalcopyrite and minor tetrahedrite and arsenopyrite. The deposits total in excess of 300 Mt of massive sulphide. The deposits commonly exhibit a metal zonation from a copper-rich footwall, through lower grade pyrite to a zinc-rich hanging wall. The deposits are underlain by copper-rich stockwork zones consisting of sulphide veined pervasively chlorite altered felsic volcanics.

The zinc-rich hanging wall massive sulphides consist of fine-grained pyrite with lesser amounts of disseminated to banded fine-grained sphalerite, galena, chalcopyrite and tetrahedrite. Economic zinc-rich sulphides form a coherent zone (4 or 4.5% zinc cut-off) and have a moderate to steep dip making them amenable to low cost underground mining.

The copper-rich footwall massive sulphide consists of pyrite with lesser amounts of chalcopyrite, tetrahedrite, sphalerite and galena. Economic zones of copper-rich mineralization (>1.5% copper cut-off) straddle both the massive sulphide and underlying stockwork, however the majority of the copper resource is within the massive sulphide mineralization. Their size and geometry make them amenable to low cost underground mining.

12.0 EXPLORATION

The Aljustrel Project includes a number of deposits that have varying degrees of exploration drilling and underground sampling completed on them. The Algares, St. João and upper parts of the Moinho deposit were mined by cut and fill for pyrite (sulphur) from the 1850's through to the 1970's. The lower parts of the Moinho deposit was mined for its base metal content from 1991-1993, however it is largely unexploited. The Feitais deposit has some test stopes on the 190 Level where approximately 1 Mt were mined in the 1980's, however the deposit is largely unexploited.

EuroZinc completed an extensive exploration program on the Feitais and Moinho deposit from 1998 to 2000 whereby the deposit was drilled and underground sampled to the level that a classified resource and reserve model was constructed. The SRK Feasibility Study that incorporated this work and metallurgical test work examined the economic viability of selectively mining and milling zinc rich mineralization and copper rich mineralization from these deposits was completed in June 2000 and update in February 2001. In 2005, an underground drill program (6,703m in 65 holes) was completed at the Moinho deposit.

The Estação deposit has been intersected by 24 diamond drill holes (11,822m) on approximately 50 to 100m centres.

13.0 DRILLING

The Aljustrel Project contains data from surface and underground diamond drilling, underground channel sampling and underground muck sampling.

The Feitais mine data set includes:

- Diamond drill holes (8,732m in 74 holes) completed by PA. Drill core is mostly NQ or BQ in size. It is stored in a warehouse on site in racks in an organized fashion and is available for inspection and re-sampling. Pulps from this drilling were stored on site in airtight containers and approximately 80% of these samples were re-analyzed at Assayers Canada Ltd., the same laboratory as the EuroZinc samples;
- Historic muck samples (1,945 samples) completed by PA. Samples were collected after each advance (3 m) in mineralized drifts and cross-cuts. This data has not been used in the resource calculation except in rare cases where channel samples could not be collected where a drift intersected a cross-cut;
- Diamond drill holes (26,245m in 81 holes) completed by EuroZinc. Drill core is mostly NQ in size with minor HQ. It is stored in warehouse on site in racks in an organized fashion and is available for inspection and re-sampling. Sample rejects are stored on site and pulps are archived with the analytical laboratory in Vancouver Canada; and
- Channel samples (514 two metre samples) completed by EuroZinc on the 140 and 190 Levels. The channel samples were collected using a hydraulic saw. Sample rejects are stored on site and pulps are archived with the analytical laboratory in Vancouver Canada.

The Moinho mine data set includes:

- Diamond drill holes (15,086m in 111 holes) completed by PA. Drill core is mostly NQ or BQ in size. It is stored in a warehouse on site in racks in an organized fashion and is available for inspection and re-sampling. Surface drill holes completed at the discovery stage with uncertain down hole surveys were not used in the resource calculation;
- Historic muck samples (3,657 samples) completed by PA. Samples were collected after each advance (3m) in mineralized drifts and cross-cuts. This data has not been used in the resource calculation except in rare cases where channel samples could not be collected where a drift intersected a cross-cut;
- Diamond drill holes (980m in 10 holes) completed by EuroZinc in 1999. Drill core is NQ in size. It is stored in warehouse on site in racks in an organized fashion and is available for inspection and re-sampling. Sample rejects are stored on site and pulps are archived with the analytical laboratory in Vancouver Canada;

- Channel samples (849 two metre samples) completed by EuroZinc on the 272, 304 and 335 Levels. The channel samples were collected using a hydraulic saw. Sample rejects are stored on site and pulps are archived with the analytical laboratory in Vancouver Canada; and
- Diamond drill holes (6,703m in 65 holes) completed as part of an underground infill drill program. Representative drill holes from this drilling are stored on site in racks in an organized fashion and is available for inspection and re-sampling. Sample rejects are stored on site and pulps are archive with the analytical laboratory in Vancouver Canada.

The drill hole and underground data has been entered into GEMCOM modelling software and a three-dimensional model for the deposit has been constructed.

14.0 SAMPLING METHOD AND APPROACH

Assay data used for resource modelling is from drill core and underground channel samples. In rare cases where a drift intersects a cross-cut, muck samples were used to fill the sampling sequence along the cross-cut. The Feitais deposit is drilled off at approximately 40m centres, however the deposit is open both down dip and down plunge to the northwest.

The Moinho deposit is drilled off locally at about 15m centers in the area between the 265 and 335 levels, but beyond this portion of the deposit, the spacing becomes quite variable, probably averaging around 30m. The deposit is largely open down dip and down plunge to the northwest.

The drilling procedure is briefly described below:

- Core is placed in labeled wooden core boxes from left to right with the start and finish of each drill run labeled with a metreage marker;
- Core boxes are transported to core logging facility at the end of each shift by drill foreman or EuroZinc drill technician and laid out in order of increasing hole depth;
- Core box labels and metreage is checked for accuracy and photographed by company geologist;
- Exploration drill holes are geotechnical logged using Laubscher classification scheme by company geologists;
- Geological logs are written in logging forms, which include information on location, date drilled, *etc;*
- Geological data recorded includes lithology, textures, alteration, mineralization, structural measurements and other pertinent information;
- Assay samples are marked on drill core and recorded in drill logs and sample booklets;
- Assay samples are 2m in length or smaller to honor gross geological units or major structures;
- Density measurements on mineralized intervals are completed using standard water immersion methods;
- Assay samples are sawn in half with one half remaining in the box, which is stored in racks in warehouses on site. The other half is tagged, bagged, sealed and sent to a sample preparation lab on site;
- Company geologists insert duplicates, standards and blanks at the sample preparation stage;
- Information from the drill logs is entered into the GEMCOM database;
- The underground channel sampling procedure is briefly described below;
- The underground cross-cuts and footwall drifts were mapped by company geologist.

- Channel samples were marked on the right and left walls of the cross-cuts at about waist height by company geologist at 2m intervals, except at geological contacts where the sample may be less than 2m;
- Company technicians, using a hydraulic saw, would cut two lines on the face spaced about 4 cm apart and about 4 cm in depth. Technicians would then use a pneumatic chisel to break out the sample between the two cut lines and the sample marks. Samples were tagged, bagged, sealed and transported to the sample preparation lab on site after each shift.
- Company geologists insert duplicates, standards and blanks at the sample preparation stage; and
- Information from mapping and sampling is entered into the GEMCOM database.

15.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

Sample preparation from 1998 onwards was completed on site by company technicians and is outlined in Figure 15.1 below.

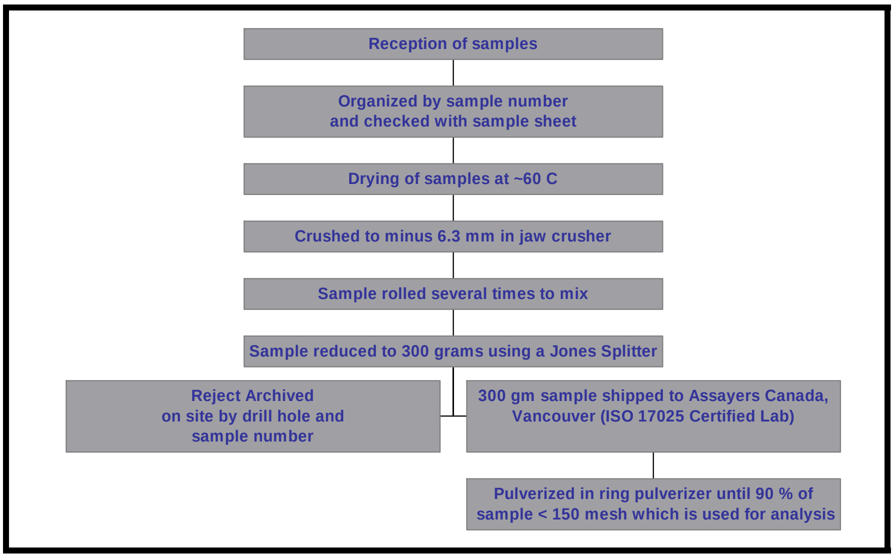


Figure 15.1: Sample Preparation Flowsheet

Final sample preparation (pulverization) and analyses from 1998 onwards were performed by Assayers Canada, Vancouver. Their analytical procedure is shown in Figure 15.2 below.

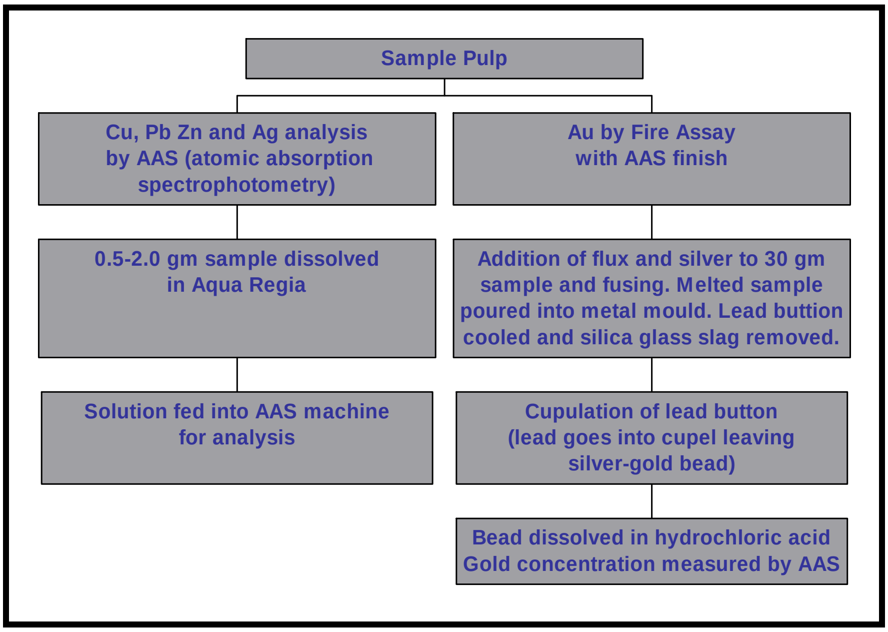


Figure 15.2: Analytical Procedure

Sample security procedures are described below:

- Core delivered from site to secured core logging facility by drill supervisor or company technician;
- Core is photographed, logged and sample locations marked by company geologist;
- Core is sawn is half, tagged, bagged and sealed by company technician;
- Samples submitted to company sample preparation lab; and
- Sub samples (300g) shipped by courier to Assayers Canada in Vancouver for analysis.

Drill core drilled prior to 1998 was prepared and analyzed by PA at their on-site sample preparation and analytical laboratory. A total of 1,491 historic samples were re-assayed for copper, lead, zinc, silver and gold by Assayers Canada in Vancouver as part of the SRK feasibility study and confirmed the analytical quality of the historic data. Most samples were from archived pulps (Feitais deposit), however when these were not available, samples were re-cut from archived drill holes.

More recently in 2005, as part of the underground infill drill program at Moinho, all historic PA drill holes used in the resource estimate were re-cut and re-assayed for copper, lead, zinc, silver and gold by Assayers Canada in Vancouver.

It is the geological section author’s opinion that industry accepted procedures were utilized for sampling, sample preparation, security and analytical procedures.

16.0 DATA VERIFICATION

16.1 Introduction

As part of exploration and feasibility study programs completed from 1998 to 2000 and more recently in 2005, a rigorous data handling and data checking protocol was followed for the treatment of geological, analytical and quality assurance – quality control (QA-QC) data. During this same period, a comprehensive program was undertaken to validate historic assay data from earlier drill programs. As part of this process, 82% of the historic samples from the Feitais deposit were re-analyzed at Assayers Canada, the same laboratory used in the programs. In addition, the historic drill holes were re-logged to standardize lithology and alteration types, and collar and down hole surveys were checked with the original surveys and entered into the GEMCOM database. More recently in 2005, all the historic samples from the Moinho deposit used in the resource estimate were re-analyzed at Assayers Canada so that all samples were prepared and analyzed using similar procedures.

The procedures followed during drill programs were:

- Collars were located using standard surveying equipment (theodolite and distomat) by mine surveyor. Coordinates are in Hayfor Gauss Central Point system;
- Geologist checks location, azimuth and dip of drill hole collar;
- Continuous down hole survey using the MAXIBOR laser survey instrument was completed by company geologists for most surface drill holes. A Kodak Eastman 'single-shot' survey (50m intervals) was used on underground drill holes and in rare cases on surface holes when the MAXIBOR survey instrument was not available. A number of drill holes were surveyed twice with this instrument and compared with the Kodak Eastman surveys confirming the precision and accuracy of the MAXIBOR instrument. In 2005 underground program, drill holes were surveyed using the "Flexit" system at 50 m intervals and at the bottom of the hole;
- Company geologists entered survey data, core logging and analytical data into the GEMCOM database;
- GEMCOM has built in checks for consistency of the database in order to prevent over-lapping intervals or hole name validation errors; and
- Drill holes were paper plotted on section and plan, and visually checked for unusual collar location, drill orientation, assay pattern or values.

An extensive QA-QC program was completed to monitor precision, accuracy and contamination. The program is briefly described below:

- Standard, blank and duplicate samples inserted into sample stream on a psuedo-random basis and accounted for 6 to 10% of the total samples submitted to Assayers Canada;
- Standards were prepared on site from mineralized material obtained underground. A standard high and standard low sample was prepared numerous times as the standards were consumed. The standards were analysed at numerous laboratories when the standard was first prepared to determine the value of the standard and the homogeneity of the sample. Standards were inserted after the sample preparation stage and used to measure the accuracy of the laboratory;
- Blanks consisted of un-mineralized interbedded greywackes and mudstone core from historic drill core. The blanks were inserted before the sample preparation stage to monitor contamination through the entire sample preparation and analytical procedure;
- Duplicates consist of an additional 300g split taken from the sample rejects during the sample preparation stage or rarely ¼ split core. The duplicates were used to monitor the precision of the laboratory;
- Standard, blank or duplicate samples containing one metal greater than 2 standard deviations from the mean in a batch would result in three or more samples from that batch being re-analyzed at a different laboratory; and
- Re-analyzed samples that pass QA-QC measures are inserted into the database replacing data with QA-QC failures.

QA-QC results from the 1998 to 2000 program are organized, plotted and available for inspection at the project site and are also included as Appendix 2a and 2b in the SRK feasibility study.

Details of the comprehensive QA – QC program for the 2005 drill program at Moinho are presented in Lundin's Technical Report on the Aljustrel Project dated March 31, 2006.

***WAI comment**:*

WAI has reviewed and audited the Data Verification Methods employed at Aljustrel and have satisfied themselves that the procedures are acceptable.

17.0 ADJACENT PROPERTIES

No information on adjacent properties is relevant to this report.

18.0 MINERAL PROCESSING AND METALLURGICAL TESTING

18.1 Introduction

The Aljustrel plant was originally designed to process 1.15Mtpa of Moinho ore using a primary grind of 80% passing 30 microns. The circuit consisted of autogenous milling and sequential flotation to produce selective copper, lead and zinc concentrates.

The problems experienced by the Aljustrel mill during its period of operation in 1992-1993 are well documented and can be summarised as:

- Segregation of coarse material on the stockpile resulting in unsteady performance of the Autogenous Grinding (FAG) circuit, which in turn resulted in variations in the feed rate to the flotation plant;
- Over-reliance on column cell technology to clean the rougher flotation concentrates;
- Treatment of mixed copper-rich and zinc-rich ores which caused wide fluctuations in the plant heads grades; and
- Under design of the zinc regrind mill.

The plant operated for 18 months then shut down due to the above operating problems, inability to achieve design performance, and low metal prices. The Aljustrel plant has now been designed to process 1.8Mtpa of massive sulphide zinc-lead ore from the Feitais deposit although Moinho ore will be treated during the first 18 months of operation.

18.2 EuroZinc Testwork

The metallurgical study undertaken as part of the SRK 2001 Feasibility Study centred on developing a flowsheet for the treatment of separate lead and zinc concentrates from the Feitais ore. Extensive programmes of laboratory and pilot plant testwork were undertaken to redesign both the grinding, flotation circuits and concentrate dewatering circuits.

The SRK Study concluded that improved metallurgical performance would be achieved by a finer grind size of 80% passing 25 microns in conjunction with longer flotation residence times.

Following a review of the SRK Study in June 2004, EuroZinc initiated further programmes of mineralogical modal studies and flotation testwork at G&T Laboratories (G&T) in Kamloops, Canada (Shouldice 2004 & 2005). The results of the studies were used to predict the optimum primary and regrind sizes. After examining several samples from the Feitais deposit, including material used in the Feasibility Study pilot plant trials, G&T concluded that, in terms of mineral fragmentation, a primary grind size of 55 microns would produce exactly the same rougher flotation response (for both lead and zinc) as treating the ore at a grind size of 25 microns.

The feasibility of treating the Feitais ore at the coarser grind size was then confirmed by G&T through programmes of flotation testwork culminating in locked cycle tests.

The regrind sizes utilised in the G&T tests were similar to those used in the SRK Study (10 microns for lead and 15 microns for zinc). Therefore the rougher concentrate regrind capacities increased significantly and Isamill/stirred mill technologies were selected as the most appropriate technology for rougher concentrate regrind.

Outokumpu were commissioned to undertake various engineering studies between 2001 and 2004 (Veirtanen 2004) which continued to progress the development of the flowsheet.

In 2006, WAI were commissioned to evaluate the feasibility of treating the Moinho ore using the coarser 60 microns primary grind and replacing cyanide depressant with sodium metabisulphite (SMS). The test programme demonstrated that the Moinho ore could be treated at a primary grind size of 60 microns using SMS to produce a saleable grade of zinc concentrate at moderate recovery rates, ranging from 72-75%. The concentrates of copper or lead that were produced were not of marketable quality.

18.3 Flowsheet Description

18.3.1 General

There have been a number of significant changes to the flowsheet since 2006. These are summarised as follows:

Ore from Feitais will now arrive at the mill at a crush size of 80mm, after having undergone two stages of crushing underground. The original plant design used fully Autogenous grinding to achieve a product size of 80% passing 30 microns. In the EuroZinc 2001 Feasibility Study the circuit was changed to a Semi-Autogenous circuit and the primary grind size was increased to 80% passing 60 microns, with more intensive regrinding of the rougher concentrates.

In 2006 a decision was made to install a conventional crushing circuit, using two stages of cone crushing, followed by two stages of ball milling. This change was prompted by the decision to utilise a secondary stage of crushing underground in order that a deep trough conveyor could be installed to transport ore to the mill. This additional crushing stage resulted in a lower ROM particle size than would be required for SAG Milling.

It was originally planned to install IsaMills on lead and zinc rougher concentrate regrind duty. These have now been replaced with Metso Stirred Media Detritors (SMDs).

18.4 Surface Crushing Flowsheet

The surface crushing and screening plant was being constructed as a Turnkey contract by Metso Minerals during the WAI Site Visit in August 2007. Certain areas of the process were still being finalised and the following is a general description of the flowsheet.

Production will commence with ore from the Moinho orebody at a treatment rate of 1.4Mtpa. Ore from the Feitais will be treated approximately 18 months after start-up at a rate of 1.8Mtpa. After primary crushing underground to pass 150mm (Moinho) or 80mm (Feitais), ore is conveyed to the stockpile area where a splitting mechanism directs the feed either to the crushing plant or to an emergency storage area. The Design feed rate for the crushing plant is 460tph.

Ore directed to the crushing plant is then conveyed to a triple deck screen fitted with 60, 25 and 12mm screen decks. The -12mm product is conveyed to a covered stockpile area. The two top screen oversize products pass to a Metso HP4 extra coarse cone crusher. The crusher discharge is conveyed to a double deck screen fitted with 20 and 12mm decks. The screen oversize products are conveyed to a Metso HP4 fine cone crusher. The crusher product is returned to the double deck screen.

The feed to the first screening stage can also be diverted to one of two stockpile areas via a movable stacking conveyor. This allows waste to by-pass the crushing plant and also enables copper ores to be stored separately before being transported to Neves Corvo for processing. The crushed ore storage area has a capacity of some 9,900t. A photograph of the covered crushed ore stockpile area under construction is given in Figure 18.1.

Figure 18.1: Covered Crushed Ore Stockpile under Construction

18.5 Grinding

Ore is to be conveyed via four sub-level feeders at a rate of 226tph into a primary ball mill. The balls will be high chrome steel and 80mm diameter. The mill will be rubber-lined and have a grate discharge. The discharge for the Primary mill passes via a trommel to a sump from where it will be pumped to a bank of Primary Cyclones. The cyclone underflows gravitate back to the Primary mill and the overflow is pumped to a bank of secondary cyclones. The secondary cyclone underflows gravitate to the Secondary ball mill and the cyclone overflow, at 80% passing 60 microns, passes to the flotation section.

The Secondary ball mill will be supplied with 40mm high-chrome steel balls and is also rubber lined.

The ball loadings will be 20-24% and are limited by the design of the mills which were originally designed as Autogenous and Pebble mills.

A photograph of the plant being refurbished is given as Figure 18.2.

Figure 18.2: General View of Aljustrel Concentrator being Refurbished.

The photograph shows the new lead conditioners and the expansion of the building for an MCC room, a transformer room and additional offices,

18.6 Flotation

18.6.1 General

It is envisaged that the copper-rich Moinho ore will be treated during the first 18 months of operation. The Aljustrel concentrator was originally designed to produce three separate concentrates from the Moinho ore. The plant has been redesigned to treat the Feitais lead zinc ore and therefore the design allows for only two types of concentrate to be produced.

Copper and lead minerals will be floated and then cleaned after regrinding of the copper-lead rougher concentrates. The silver bearing copper-lead concentrate so produced will have no commercial value and will be sent to tailings. Consequently only a zinc concentrate will be produced from the Moinho ore.

The Feitais ore will be processed to produce both lead and zinc concentrates.

18.6.2 Lead Flotation

The secondary cyclone overflow passes to two stages of conditioning, each of $100m^3$ capacity. The first stage is an aeration stage and in the second sodium metabisulphite is added to depress pyrite and sphalerite. The selective collector A3418 is added and the rougher flotation takes place in two parallel banks of 3+2+4 OK16 cells. The rougher concentrate is reground using two Metso SMDs each rated at 355kW. The reground lead rougher concentrate, at 80% passing 10 microns, is cleaned in three stages with a cleaner scavenger on the first cleaner tailings. The second and third cleaner tailings each report to the previous flotation stage.

The medium used in the SMDs will be a 2mm ceramic product supplied by CarboCeramics. Media consumption is estimated at 25g per kWhr.

With the exception of new conditioning tanks, the lead flotation section consists essentially of the original copper, lead and zinc rougher flotation equipment of the original concentrator.

18.6.3 Zinc Flotation

The use of the original zinc rougher cells for lead flotation and the removal of the old zinc cleaning columns has resulted in the need for the construction of a new zinc flotation section. The mill building is being extended and new Outokumpu cells are being installed.

The lead tailings are conditioned with lime and copper sulphate and then floated using potassium amyl xanthate as the collector. The zinc rougher concentrate is reground to 80% passing 15 microns using four Metso 355kW SMDs and then cleaned in three stages. The first cleaning stage is split into two sections with a cleaner scavenger stage. The cleaner scavenger tailings pass to final tailings.

18.7 Concentrate Dewatering

The final lead and zinc concentrates will be dewatered using the conventional thickening and filtration technologies.

18.7.1 Thickening

The lead concentrates will be pumped to an existing lamella thickener, which was used as a zinc thickener in the original plant design. A new, conventional, zinc thickener was being constructed during the WAI visit.

18.7.2 Filtration

The lead and zinc concentrates will be dewatered using Sala pressure filters. A new filter has been purchased (VPA 15/30-40) and will be used in conjunction with one of the two existing filters.

18.7.3 Process Control

The existing On-Stream Analyser (OSA) is obsolete and it is planned to install a new Courier OSA which will be capable of measuring 16 streams for Cu, Pb, Zn, Fe, Ag and solids content. A Siemens process control system is also being installed.

18.8 Water Treatment

The tailings dam is divided into two areas with one part containing tailings and acid water originating from the original period of production. The other part of the dam contains “clear water” which is derived from surface run-off.

A Water Treatment Plant (WTP) was under construction during the WAI site visit. The WTP will treat acid water originating from the dewatering of the underground mines and from the acid water which is currently in the tailings dam. The treatment rate will be $420m^3$ per hour.

The water will be treated using lime neutralization and sludge recirculation. Lime will be used to increase the pH to approximately 9.5 which will result in the precipitation of heavy metals. The neutralisation process will take place in three tanks in series, each of $200m^3$ capacity. After neutralisation the water is pumped to a lamella thickener where flocculant is added to assist settling of the precipitated solids. A significant proportion of the thickener underflow is recycled back to the first tank in order to increase the particle size of the precipitated solids. The overflow from the thickener is the final clean water product and this is either pumped to the grinding process water tanks, to the clear water dam or can be discharged to the environment after treatment with CO_2.

It is envisaged that during start-up, 350m^3 of tailings dam water and 70m^3 of mine water per day will be treated. This will change to daily rates of 320m^3 of tailings dam water and 100m^3 of mine water during normal operations.

18.9 Concentrate Production

Predicted concentrate grades and metal recoveries are presented in Table 18.1.

Table 18.1: Predicted Concentrate Grades and Metal Recoveries

Ore	Lead Concentrate			Zinc Concentrate	
	% Pb	% Pb Rec.	% Ag Rec.	% Zn	% Zn Rec.
Moinho				50	78.9
Feitais	50	58.5	37.1	50	80.8

Source: Drake, Lauzier & Dawson (2006)

18.9.1 Moinho

It is planned to produce only a zinc concentrate from the Moinho ores during the first 18 months of production. Copper, lead and silver minerals will be recovered but then rejected to tailings as there is no means of recovering them to a saleable product with the current plant design.

Silver production will commence with the treatment of the Feitais orebody.

The WAI test programme demonstrated that the Moinho ore could be treated at a primary grind size of 60 microns to produce a saleable grade of zinc concentrate at moderate recovery rates, ranging from 72-75%. These recovery figures are lower than the 80% figure used in the financial model.

18.9.2 Feitais

A detailed analysis of all of the G&T test results has not been undertaken; but WAI believes that the overall results are slightly below the target grades of 50% Pb concentrate grade at 50% recovery.

The lead concentrate grade used in the financial model assumes a lead concentrate grade of 54-55% Pb, which is higher than that achieved by G&T in their testing at the coarser primary grind size.

Zinc metallurgical performance, as predicted by the G&T tests at the coarser grind, matches the EuroZinc 2000 Feasibility Study of 50% zinc concentrate at 80% recovery. However, subsequent mineralogical studies demonstrated that the samples tested by G&T came from the area of the Feitais orebody, that had the worst liberation characteristics and the target metallurgy may well be exceeded.

18.10 Consumables

Plant consumables are given in Table 18.2 below.

Table 18.2: Aljustrel Plant Consumables

Item	Consumption kg/t
Balls – 80mm	0.75
Balls – 40mm	0.70
Lime	6.0
Aerophine	0.054
Xanthate	0.258
Copper Sulphate	1.26
Sodium metabisulphite	1.30
Flocculant	0.005
Ceramic regrind media	0.10
MIBC	0.045

These levels of consumables are broadly consistent with those achieved with treating similar polymetallic ores.

18.11 Plant Labour

The plant management structure and shift patterns were still being finalised during the WAI Site Visit and recruitment was continuing.

The Aljustrel Concentrator will be under the control of a Plant Manager who will be responsible for the three departments of Operations, Maintenance and Process.

A total of 46 will be employed in Operations, headed by a Senior Foreman. There will be four shift crews operating a 10 hour split-shift system. Operators will be employed in crushing (2), grinding, flotation, control room, filtration (2) and reagent mixing.

A total of 36 will be employed in the Plant Maintenance department which will be split into Mechanical, Electrical/Instrumentation under the control of the Plant Maintenance Manager (PPM). A mechanical and planning engineer will report to the PPM.

Nine personnel will be employed in the Process Department including three metallurgists, metallurgical technicians and Water control.

18.12 Assay Laboratory

The Aljustrel Plant samples will be filtered, dried and prepared on-site and transported to the Somincor assay laboratory at Neves Corvo. The laboratory operates under the control of the Somincor Commercial Department and is responsible for operational, environmental and quality control aspects of the operation. The laboratory is accredited to ISO/IEC 17025 for 47 analytical methods and approximately 100 determinations. For production samples the laboratory uses X-Ray fluorescence (XRF), and atomic adsorption spectrophotometry (AAS) for sample analysis as well as an electro-gravimetric method for analysis of the final copper concentrates and a LECO analyser for sulphur determinations.

There will be a small metallurgical laboratory at Aljustrel for undertaking routine tests.

18.13 Tailings Dam

The existing tailings dam has sufficient capacity for two years. In 2009 a 6m lift is planned followed by a further 6m lift in 2014. The majority of the pipework is in place but new return water lines were being installed during the WAI visit.

18.14 Operating Costs

Lundin has not updated the EuroZinc process operating cost estimate of March 2006 which was based on their experience at Somincor's Neves Corvo operation. This operation treats a massive pyrite ore at a similar rate to that proposed at Aljustrel, utilising a similar primary grind size as well as similar processes of flotation and concentrate dewatering.

The average operating cost in 2006 was estimated at €7.64 per tonne of ore treated. WAI has reviewed these costs and found them to be realistic with the exception of:

- Costs of grinding media in the SMDs needs to be reviewed;
- Electrical power costs of the SMDs needs to be reviewed;
- The costs of operating the new crushing plant need to be assessed; and
- The use of chrome steel media will result in higher grinding costs.

WAI has not undertaken a detailed study of the Aljustrel process operating cost but believes that the above consideration, in conjunction with recent high inflation costs for plant consumables, could result in an increase in operating cost to €8.5 or €9.0 per tonne.

18.15 Capital Cost Estimate

The capital cost for the concentrator refurbishments is €38.8 million which includes some €5 million for the new crushing plant. Approximately 90% of the capital budget had been spent or committed by August 2007.

Commissioning of the plant is scheduled for the last quarter 2007.

18.16 Concentrate Marketing

An internal marketing group will be responsible for marketing of all Aljustrel concentrate products. Letters of Intent have been signed with a number of international smelters for the majority of the concentrate. It is not felt that placement of the remaining volumes will be an issue given the current and projected shortage of zinc concentrates on the world market. The specific payment terms of individual contracts will be negotiated on a periodic basis.

Silver recovered to the lead concentrate from Feitais ore has been estimated at 37.1% and the financial model in this report assumes an average net payment of 95% for silver contained in lead concentrates based on typical. The model assumes no payable silver will be produced from Moinho ore, or from copper ore, and that silver contained in zinc concentrates will not be payable due to the typical silver deductable applied to zinc concentrates.

19.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

19.1 Resource Estimate

The resource estimate for the Feitais and Moinho deposit was completed in June 2000 as part of the SRK Feasibility Study. The geological and resource model was constructed using GEMCOM Desktop Edition Version 4.0.

In 2005, EuroZinc completed additional underground drilling (6,703m in 65 holes) at the Moinho deposit to upgrade the SRK *Indicated* resource to the *Measured* category. Amec Americas Limited was commissioned to complete a new mineral resource estimate based on this drilling. Steve Blower, Principle Geologist of AMEC undertook this work in late 2005, which resulted in a revised resource estimate for the Moinho deposit only (Blower 2006).

A new resource estimate for the Estação deposit was completed by Lundin in April of 2007. This estimate is detailed in a technical report by Neil Burns, Corporate Resource Geologist for Lundin, who acted as QP for the estimate (Burns 2007).

The hanging wall and footwall boundaries of the massive sulphide were used to constrain the block model interpolation, which is well defined by the information available from the drilling and underground workings. These data were used to construct a three-dimensional model of the sulphide bodies, which served as the basis for the block model. Copper mineralization was constrained by the massive sulphide as well as a three-dimensional model of the stockwork mineralization. Grades were interpolated into the block model using ordinary kriging. Ordinary kriging was chosen as the interpolation method because it considers the spatial correlation of the data, sample support and provides an appropriated amount of grade averaging based on grade continuity.

Zinc resources were calculated using a 4% zinc cut-off and copper resources were calculated using a 1.5% copper cut-off. These cut-offs were chosen based on the capital costs, operating costs and metallurgical test work completed during the feasibility study. The zinc cut-off was raised to 4.5% for the Feitais deposit when the preliminary mining method was changed from “Open Stoping” to ”Sub-Level Open Stoping with Post Fill” because the resource utilization was too low. The higher cut-off grade at Feitais reflects the higher costs associated with cemented rock fill. The lower cut-off grade at Moinho reflects the lower cost associated with this deposit as it is essentially completely developed and only partial extraction of the resource that will be used in the first year or so of operation.

Mineral Resources were classified as *Measured, Indicated and Inferred* Resources (Table 19.1 and Table 19.2) using Canadian Institute of Mining, (November 14, 2004): CIM Definition Standards on Mineral Resources and Mineral Reserves necessary to be compliant with NI 43-101.

Measured Resources have been defined where the grade and geometry of the deposit is known with a high degree of confidence, allowing detailed mine design and mine planning to proceed. The *Measured* Resources at Aljustrel are located adjacent to underground working or where the drill density is typically less than 15m.

Indicated Resources are those where the grade and geometry are known with sufficient confidence to complete mine design, scheduling and development costs. Although the actual location of planned stopes may vary somewhat with additional infill drilling and underground sampling, this is not expected to significantly change the economic viability of the project.

The *Indicated* resources at Aljustrel are located within that portion of the deposit having a drill density of approximately 35-40m or less.

Inferred Resources are primarily located along the perimeter of the deposit, where drill density is typically greater than 40m.

The Mineral Resources provided in Table 19.1 and Table 19.2 below present the global resource from three deposits, Feitais, Moinho and Estação. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. These Mineral Resources are inclusive of the reserves are presented in Table 19.28 and Table 19.29.

Table 19.1: Zinc Resource Summary[1]					
FEITAIS (4.5%Zn cutoff)	**Tonnes**	**Zinc %**	**Copper %**	**Lead %**	**Silver (g/t)**
Measured	740,000	5.32	0.18	1.62	52.20
Indicated	14,480,000	6.03	0.21	1.86	68.20
M+I	15,220,000	6.00	0.21	1.85	67.42
Inferred	3,160,000	6.14	0.16	1.66	60.00
MOINHO (4% Zn cutoff)					
Measured	1,842,000	5.10	0.39	1.86	52.20
Indicated	1,133,000	5.05	0.40	1.92	50.80
M+I	2,975,000	5.08	0.39	1.88	51.70
Inferred	1,364,000	5.16	0.55	1.93	54.20
ESTAÇÃO (4% Zn cutoff)					
Measured		0.00	0.00	0.00	0
Indicated	5,384,000	5.05	0.22	1.57	47.10
M+I	5,384,000	5.05	0.22	1.57	47.10
Inferred	4,797,000	4.79	0.24	1.47	44.50
GRAND TOTAL					
Measured	2,582,000	5.16	0.33	1.79	52.20
Indicated	20,997,000	5.73	0.22	1.79	61.85
M+I	23,579,000	5.66	0.23	1.79	60.79
Inferred	9,321,000	5.30	0.26	1.60	51.17

Table 19.2: Copper Resource Summary[1]					
FEITAIS (1.5% Cu cutoff)	**Tonnes**	**Zinc %**	**Copper %**	**Lead %**	**Silver (g/t)**
Measured		0	0	0	0.00
Indicated	4,870,000	0.88	2.12	0.24	13.52
M+I	4,870,000	0.88	2.12	0.24	13.52
Inferred	1,870,000	0.70	2.13	0.18	10.43
MOINHO (1.5% Cu cutoff)					
Measured	260,000	1.26	1.82	0.40	20.33
Indicated	1,790,000	1.61	1.96	0.65	26.74
M+I	2,050,000	1.57	1.94	0.62	25.93
Inferred	120,000	1.55	1.72	0.83	30.71
GRAND TOTAL					
Measured	260,000	1.26	1.82	0.40	20.30
Indicated	6,660,000	1.08	2.08	0.35	17.07
M+I	6,920,000	1.08	2.07	0.35	17.19
Inferred	1,990,000	0.75	2.11	0.22	11.65

1. These resources are inclusive of Aljustrel mineral reserves.

WAI has reviewed the SRK resource estimate and discussed it with former EuroZinc geologists who are now Lundin employees and were intimately involved with the work at the time and concluded that it was done using methodology that is consistent with the requirements of NI 43-101. This resource estimate was classified based on CIMM (1996) definitions, and classifications are consistent with those in Canadian Institute of Mining, (November 14, 2004): CIM Definition Standards on Mineral Resources and Mineral Reserves.

In the opinion of WAI, the SRK resource estimate is reliable and accurately reflects the tonnage and grade of the Aljustrel deposits.

There are no known or anticipated issues with respect to environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other matters which could affect the mineral resources and reserves.

The Aljustrel Mine has a long history of mining operation with extensive existing underground development. Infrastructure is substantial, modern and largely operational at the time of this report. Metallurgical performance is based on comprehensive testwork at both bench and pilot plant scale, using samples collected from drill core and underground development headings. It is not anticipated that any of these factors will materially affect the mineral resources and reserves.

19.2 Moinho Deposit Resource Estimate

Subsequent to the SRK feasibility study, EuroZinc completed additional underground drilling (6,703 m in 65 holes) at the Moinho deposit to upgrade the SRK indicated resource to the *Measured* category. Amec Americas Limited was commissioned to complete a new mineral resource estimate based on this drilling. Steve Blower, Principle Geologist of AMEC completed the work. The following information is summarised from the 2005 AMEC report by S Blower.

The following work flow was completed for the modeling of the Moinho zinc, lead, copper and silver resource:

- Site visit
  - Geological review including inspection of underground workings and diamond drill core
  - Data transfer
  - Data validation
  - Wire frame – geological interpretation review
  - Preliminary exploratory data analysis (EDA) on assays (univariate statistics, histogram, probability plots, box plots, scatter plots, contact plots and grade variography)
- Creation of a high zinc grade shell
  - 3% Zn grade shell snapped to composites establishing low and high zinc grade domains
  - 5 m assay compositing
- Preliminary EDA on composites (univariate statistics, histogram, probability plots, box plots, scatter plots, contact plots and grade variography)
- Modelling
  - three-pass unrestricted kriging on high-grade domain
  - three-pass unrestricted kriging on low-grade domain
  - three-pass restricted kriging on low-grade domain

  - o one-pass unrestricted nearest-neighbour estimation on high-grade domain
  - o one-pass unrestricted nearest-neighbour estimation on low-grade domain
- Model Validation
  - o swath plots, contact plots and herco validation
- Classification

19.2.1 Data

The assay database used for grade interpolation is comprised of three data types:

- Drill core from a 2004 and 2005 drilling campaign
- ½ split core from 1999 drill program
- Quarter core re-cuts from pre-1999 drill holes
- Channel samples from mine headings

Table 19.3 summarizes the number of drill holes and channel samples in the database by campaign. It also includes the number of assays in each campaign.

Table 19.3: Drill Hole and Channel Sample Records used for the 2005 Moinho Model

Type	Campaign	No. of Holes/Channels	No. of Assays
Diamond Drill Holes	2005	39	-
	2004	23	-
	1999	10	-
	pre-1999	64	-
Sub-total		136	4389

19.2.2 Estimation Domains

A wireframe solid model of the massive sulphide was created by geologists in Aljustrel. The model was created by linking polygons digitized on sections spaced 15 m apart. The polygons were not snapped to drill holes.

AMEC created a 3% Zn grade shell to separate a higher zinc grade zone from the remainder of the massive sulphide (Figure 19.1 and Figure 19.2). The higher zinc grade zone was evident from a statistical analysis of the assays and a review of underground and drill core geology.

Figure 19.1: Sectional view of the two solid models – High Zinc Zone and Low Zinc Zone

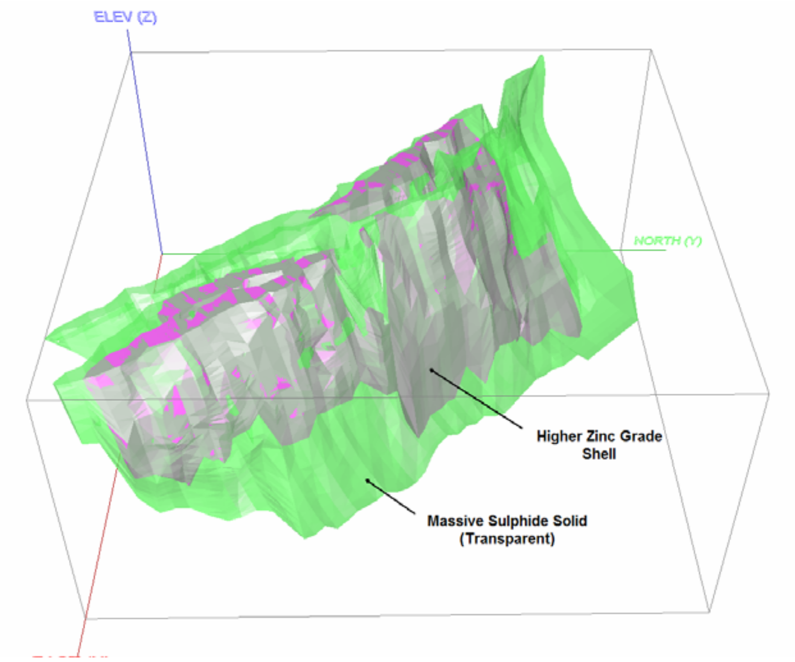


Figure 19.2 : Isometric View of the Domain Wire frames Looking Down toward the West

Five-metre length composites were created from the assays, honouring the domain boundaries. That is, composites begin from the point where a drill hole intersects a domain solid and end whenever another domain boundary is crossed. The composites were back tagged with the wireframe domain codes in Table 19.4.

Table 19.4: Estimation Domain Codes

Domain	Code
Low Zn Grade Zone	1
Higher Zn Grade Zone	2

Short residual composites at the toe end of drill hole/solid intersections occur in some drill holes. Table 19.5 summarizes the statistical properties of the composites grouped by length.

Table 19.5 demonstrates that the mean and CV of the composites greater than 2.5 m is almost identical to the mean and CV for all composites. Given these results, and to ensure a relatively consistent support for block estimates, only composites greater than 2.5 m in length were used for EDA and estimation. This results in a total of 2,074 drill hole composites of which 1,755 (85%) are from drill holes and 319 (15%) are from channel samples.

Table 19.5: Grade Statistics by Length Class

	Composite Length											
	<1.0 m			1.0 – 2.5 m			>=2.5			All		
Domain	**No.**	**Mean**	**CV**	**No.**	**Mean**	**CV**	**No.**	**Mean**	**CV**	**No.**	**Mean**	**CV**
Zn												
Low-grade	74	1.63	1.07	169	1.72	1.07	1314	1.57	0.79	1557	1.59	0.85
High-grade	36	4.38	0.58	97	4.73	0.49	760	4.64	0.36	893	4.64	0.38
Both	110	2.53	0.95	266	2.81	0.89	2074	2.69	0.76	2450	2.70	0.78
Cu												
Low-grade	74	0.59	1.53	169	0.72	0.36	1314	0.85	0.95	1557	0.82	1.00
High-grade	36	0.66	1.58	97	0.50	0.15	760	0.45	0.76	893	0.47	0.92
Both	110	0.61	1.55	266	0.64	0.24	2074	0.70	1.00	2450	0.69	1.05
Ag												
Low-grade	74	20.28	1.15	169	21.47	0.86	1314	21.36	0.62	1557	21.32	0.68
High-grade	36	43.43	0.90	97	47.20	0.62	760	46.98	0.51	893	46.86	0.54
Both	110	27.85	1.12	266	30.85	0.85	2074	30.75	0.71	2450	30.63	0.74
Pb												
Low-grade	74	0.51	1.17	169	0.60	1.09	1314	0.54	0.86	1557	0.54	0.91
High-grade	36	1.49	0.67	97	1.72	0.66	760	1.67	0.47	893	1.67	0.50
Both	110	0.83	1.05	266	1.01	1.01	2074	0.95	0.85	2450	0.95	0.88

19.2.3 Declustering

For statistical analysis, the combined data set was de-clustered to avoid biases caused by clustered holes. The data for the combined domains was de-clustered by cell de-clustering. The method assigns weights to composites according to the number of composites within a designated cell volume. Weights are inversely proportional to the number of composites contained within a cell. Therefore composites which are clustered receive less weight than composites which are not. Individual domain de-clustering was conducted with a nearest neighbour technique, where the grade of the nearest composite is assigned to model blocks in the domain. This method was used on the individual domains because cell de-clustering on small domains can lead to spurious results. Results of the composite de-clustering are presented in Table 19.6 as a comparison with the clustered statistics.

Table 19.6 : Metal Statistics by Domain						
Metal / Domain	**Number**		**Mean Grade**		**CV**	
	Clustered	**Declus'd**	**Clustered**	**Declus'd**	**Clustered**	**Declus'd**
Zn						
Both	2,074	2,074	2.69%	2.45%	0.76	0.86
High-grade	760	17,082	4.64%	4.53%	0.36	0.36
Low-grade	1,314	43,506	1.57%	1.42%	0.79	0.86
Pb						
Both	2,074	2,074	0.95%	0.87%	0.85	0.94
High-grade	760	17,082	1.67%	1.66%	0.47	0.46
Low-grade	1,314	43,506	0.54%	0.51%	0.86	0.91
Cu						
Both	2,074	2,074	0.70%	0.67%	1.00	0.99
High-grade	760	17,082	0.45%	0.50%	0.76	1.02
Low-grade	1,314	43,506	0.85%	0.68%	0.95	0.98
Ag						
Both	2,074	2,074	30.75 g/t	28.62 g/t	0.71	0.78
High-grade	760	17,082	46.98 g/t	46.39 g/t	0.51	0.49
Low-grade	1,314	43,506	21.36 g/t	20.35 g/t	0.62	0.77

19.2.4 Histograms and Univariate Statistics

De-clustered histograms and associated probability plots were generated for zinc, copper, lead and silver for the higher grade domain, the lower grade domain, and for the two domains combined. The results are summarized above in Table 19.6 discussed in more detail for each metal below.

Zinc

The zinc grade distribution is bimodal and weakly positively skewed, with a coefficient of variation (CV) of 0.86 and a mean of 2.45% Zn. The probability plot for all zinc composites shows an inflection point at 3% Zn that marks a threshold between the higher zinc grade population and the rest of the massive sulphide (
Figure 19.3). When the dataset is subdivided into the higher zinc grade and lower zinc grade portions, based on the back-tagged codes, the two probability plots are relatively straight demonstrating uni modal populations through the relevant grade ranges. The higher zinc grade dataset is characterized by a distribution approaching normality, with a characteristically very low CV of 0.36, a mean grade of 4.53% Zn, and a roughly bell shaped histogram.

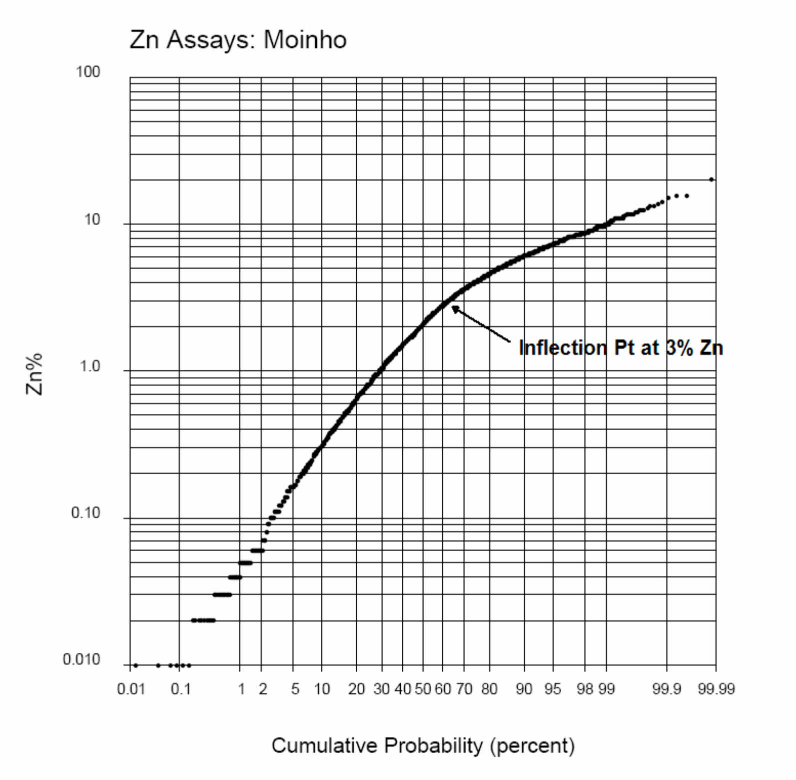


Figure 19.3: Cummulative Probability Plot for Zinc Composites (Showing the Existence of Two Populations)

Copper

The copper grade distribution can be described as moderately positively skewed, approximately log-normal and essentially uni-modal. Unlike zinc, there is no evidence of a higher grade subpopulation. The CV is 0.99 and the mean is 0.67% Cu. Copper in the higher zinc grade domain averages 0.50%, and is higher in the low zinc grade domain (0.68%).

Lead

The lead grade distribution is similar to that for zinc. It is bimodal and weakly positively skewed, with a CV of 0.94 and a mean of 0.87% Pb. The threshold between the higher and lower grade populations is approximately 1.0% Pb. When categorized by the high and low zinc grade domains, each lead distribution is essentially uni-modal. As with zinc, lead in the higher zinc domain is approximately normally distributed with a very low CV of 0.47 and a mean grade of 1.69% Pb.

Silver

The distribution of silver on the histograms and probability plots is more similar to that of copper than zinc or lead. It is weakly positively skewed with a CV of 0.71, a mean grade of 30.8 ppm Ag, and appears uni-modal through the relevant grade range. When subdivided into the higher zinc grade and low zinc grade domains, the means are 46 and 20 ppm Ag, respectively.

19.2.5 Scatter Plots

Scatter plots were produced to determine the degree of correlation between Zn and the other metals. The plots demonstrate a strong positive correlation between Zn and Pb (0.92) and Zn and Ag (0.78), while the Zn-Cu scatter plot demonstrates a poor correlation (-0.22). This coincides with the observations made regarding the domain univariate statistics observed in Section 17.2.5.

19.2.6 Contact Plots

Contact plots were created to assess the behaviour of zinc, copper, lead and silver grades at the boundary between the higher zinc grade and low zinc grade domains. The contact plots for zinc, lead and silver demonstrate a marked and sharp transition in grade at the domain boundary (Figure 19.4). Conversely, the plot for copper demonstrates that the grades are similar on either side of the contact. These plots suggest that hard domain boundaries should be employed for zinc, lead and silver during estimation, and a soft domain boundary should be employed for copper. With hard boundaries, composites from one domain cannot be used to estimate the grade of blocks in another domain. With soft boundaries, composites from a given domain can be used to estimate the grade of blocks in another domain.

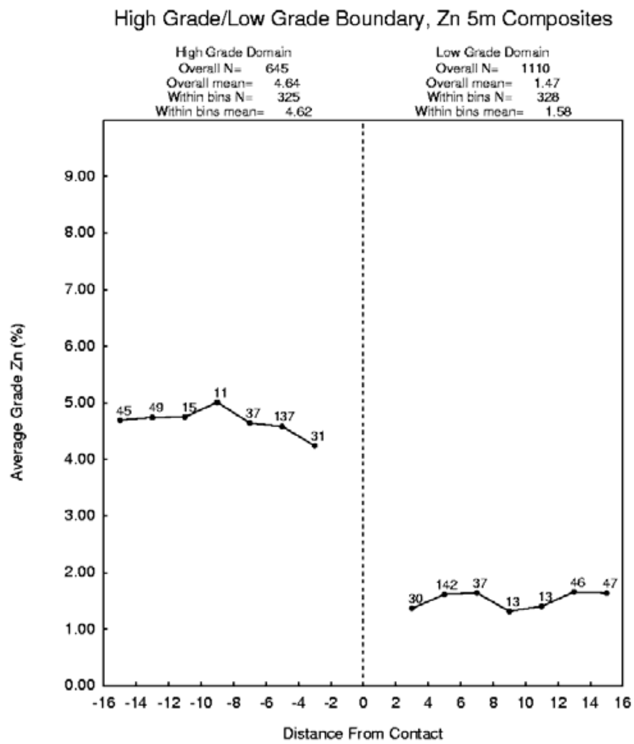


Figure 19.4: Contact plot for zinc composites.

19.2.7 Variography

Correlograms for each metal were computed by domain using SAGE2001 software and the 5 m composites. Down-hole experimental correlograms were fitted to determine the nugget. Experimental directional correlograms (37 directions in total) were calculated and modeled with one or two spherical structures honouring the nugget. SAGE2001 automatically fits the appropriate variance contributions (C1 and C2) and associated ranges (a1 and a2). Directions of maximum continuity were checked to ensure reasonable consistency with the orientation of the Moinho deposit.

The spatial continuity of all metal domain combinations is poor, leading to short ranges for most variograms. For each metal, the nugget effect is generally higher in the high-grade domains than in the low-grade domains.

Zinc – High-grade Domain

Directional correlograms display poor continuity and very short ranges in directions not aligned with the direction of maximum continuity which plunges moderately toward the northwest. A nugget contributing to 45% of the sill is used to model two spherical structures, with an average short range of 25 m and a long range exceeding 100 m.

Lead – High-grade Domain

One spherical structure with a nugget of 30% is used to model the directional correlograms. The limited number of pairs in directions off the direction of maximum continuity leads to a poor variogram structure. The range of the major axis is 50 m, plunging steeply down-dip to the northeast, with anisotropy ratios of 5:1 horizontally and close to 1:1 vertically.

Silver – High-grade Domain

A nugget contributing to 40% of the total variance is modeled with a single spherical structure. Structure is poor, with a high nugget in directions not aligned with the axis of maximum continuity, which plunges steeply in the down dip direction. The range of the major axis is around 80 m with a strong horizontal anisotropic ratio of 10:1 and a vertical ratio of 0.75:1.

Copper – High-grade

Two spherical structures fitted with a 15% nugget model experimental correlograms with poor continuity. Short scale variability reaches 55 m (major axis). Longer ranges are realized at 400 m with a strong horizontal anisotropy (16:1) and a vertical anisotropy of 2:1. The direction of maximum continuity of the first structure plunges moderately towards the southeast, while the second structure plunges moderately towards the northwest.

Zinc – Low-grade Domain

Zinc composites in the low-grade domain are modeled with one spherical structure imposing a nugget of 22%. The direction of maximum continuity plunges steeply toward the northeast with a range of 80 m.

Lead – Low-grade Domain

Experimental directional correlograms display reasonable spatial continuity. A nugget of 20% is fitted with two spherical structures. Continuity is strongest in the down dip direction with a maximum range of 200 m.

Silver – Low-grade Domain

Silver composites in the low-grade domain are modeled with two spherical structures fitted to a nugget of 20%. Directional correlograms exhibit reasonable continuity with a short range of 30 m and a long range exceeding 300 m. Continuity of the first structure reveals a slight plunge to the South-East while the second structure demonstrates a shallow plunge towards the North-West.

Copper – Low-grade Domain

Two spherical structures are used to model Cu composites in the low-grade domain with a nugget of 15%. A range of 200 m is observed down dip (plunging steeply to the northeast) reflecting the direction of maximum continuity. Good spatial continuity is evident in this direction.

19.2.8 Interpolation Plan

Multiple passes of ordinary kriging were used to interpolate grades in blocks from drill hole composites and channel sample data. In the low zinc grade domain, restricted kriged grades and unrestricted kriged grades were stored in blocks, along with the nearest neighbour value. No high-grade restrictions were employed in the higher zinc grade domain, so only the unrestricted kriged grades and the nearest neighbour values were stored.

Outlier-restricted kriging was used to constrain isolated high-grade zinc, lead and silver composites in the low-grade domain to prevent unwanted smearing of grade. The method imposes a shorter range of influence on composites above a threshold value. The thresholds were chosen from the probability plots and the ranges of influence were obtained for each metal from indicator variograms. Composites with values greater than the established thresholds were not included in the estimation neighbourhood if they were beyond the range of influence Table 19.7 summarizes the outlier restrictions employed.

Table 19.7: Outlier-Restriction Summary for the Low Zinc Grade Domain		
Metal	**Grade Threshold**	**Range of Influence (m)**
Zn	3% Zn	40 m (along strike) x 20 m (down dip) x 10 m (across strike)
Pb	1% Pb	40 m (along strike) x 20 m (down dip) x 10 m (across strike)
Ag	8 g/t Ag	40 m (along strike) x 20 m (down dip) x 10 m (across strike)
Cu	2.5% Cu	40 m (along strike) x 50 m (down dip) x 20 m (across strike)

Multiple passes utilizing larger search radii in each subsequent pass were used to ensure that all blocks in the domain received grades, while at the same time preserving local variability. Search ellipsoid ranges were based roughly on the following methodology:

- Pass 1: Half the variogram range;
- Pass 2: Variogram range; and
- Pass 3: Twice the variogram range.

A minimum of four composites and a maximum of twelve composites were used to estimate a block for every metal-domain combination. The maximum number of composites allowed from a drill hole was three.

19.2.9 Validation

Five validation exercises were completed:

1. Visual comparison of block and composite grades on sections and plans;
2. Global statistical comparison of block and de-clustered composite grades;
3. Block contact plots;
4. Local comparison of block and de-clustered composite grades; and
5. Herco change of support.

The visual comparison of composite and block grades was completed on all of the blocks, while the other three validation exercises were completed on a set of well informed blocks that were within 25 m of a drill hole. The validation set is comprised of 43,506 blocks in the low-grade domain and 17,082 blocks in the high-grade domain.

19.2.10 Global Statistical Comparison

In AMEC's opinion, the mean grade of the estimated blocks should be within five percent of the mean grade of the de-clustered composites. The statistical properties of the validation blocks are compared to the de-clustered composites in Table 19.8 (higher zinc grade domain) and Table 19.9 (low zinc grade domain).

Table 19.8: Global Comparison in the Higher Zinc Grade Domain											
Item	**No.**	**Mean**	**Min**	**1st Q**	**2nd Q**	**3rd Q**	**Max**	**Var**	**Stdev**	**CV**	**%Diff. Mean**
Zn High-grade Domain											
Zn	17,082	4.54	1.72	4.06	4.52	4.98	7.71	0.48	0.69	0.15	0.2%
ZnNN	17,082	4.53	0.00	3.51	4.39	5.41	11.86	2.69	1.64	0.36	
Cu High-grade Domain											
Cu	17,082	0.51	0.06	0.30	0.43	0.62	3.58	0.11	0.33	0.65	2.0%
CuNN	17,082	0.50	0.00	0.24	0.36	0.59	6.40	0.26	0.51	1.02	
Ag High-grade Domain											
Ag	17,082	46.31	12.96	37.63	44.34	52.68	123.20	169.59	13.02	0.28	-0.2%
AgNN	17,082	46.39	0.00	32.83	42.65	54.40	358.90	526.24	22.94	0.49	
Pb High-grade Domain											
Pb	17,082	1.65	0.44	1.40	1.62	1.86	3.96	0.14	0.37	0.23	-0.6%
PbNN	17,082	1.66	0.00	1.16	1.56	1.96	7.76	0.59	0.77	0.46	

Table 19.9: Global Comparison in the Low Zinc Grade Domain											
Item	**No.**	**Mean**	**Min**	**1st Q**	**2nd Q**	**3rd Q**	**Max**	**Var**	**Stdev**	**CV**	**%Diff. Mean**
Zn Low-grade Domain											
ZnUR	43,506	1.47	0.04	0.93	1.37	1.88	7.40	0.58	0.76	0.52	3.5%
ZnNN	43,506	1.42	0.00	0.57	1.18	1.93	11.70	1.49	1.22	0.86	
Cu Low-grade Domain											
CuUR	43,506	0.69	0.02	0.38	0.56	0.88	4.06	0.21	0.46	0.67	1.5%
CuNN	43,506	0.68	0.00	0.27	0.48	0.89	7.06	0.44	0.66	0.98	
Ag Low-grade Domain											
AgUR	43,506	20.67	1.12	15.67	19.91	24.63	94.32	63.84	7.99	0.39	1.6%
AgNN	43,506	20.35	0.00	10.97	18.38	26.93	146.50	247.79	15.74	0.77	
Pb Low-grade Domain											
PbUR	43,506	0.53	0.02	0.33	0.49	0.67	2.39	0.07	0.26	0.52	3.9%
PbNN	43,506	0.51	0.00	0.18	0.42	0.71	3.25	0.22	0.47	0.91	

Table 19.8 and Table 19.9 demonstrate that the mean block grades are within 5% of the mean de-clustered composite grades for all metal-domain combinations.

19.2.11 Contact Plots

Contact plots for the restricted kriging blocks were created for each metal to ensure the interpolation reproduced the boundary relationships observed by the composites. In all metals, the high-grade, low-grade contact was respected. Contact plots of Zn, Pb, and Ag all demonstrate hard contacts as observed by their corresponding composites while the Cu kriged blocks respect the soft boundary determined by the composites.

19.2.12 Local Comparisons of Kriged Estimates and De-clustered Composite Grades

"Swath" plots were produced to check for local estimation bias. Average kriged block values on a series of parallel slices were plotted against the average de-clustered composite values in the three directions (model rows, model columns, and plan slices).

In all three directions, the kriged blocks generally honour the distribution of de-clustered composite grades, indicating that no local bias is present. Any deviations noted correspond to areas where there are only a few blocks.

19.2.13 Herco Validation

Herco validation provides a means of checking the level of smoothing in the kriged block grade distribution to ensure that mining of selective mining unit (SMU) sized blocks will realize the estimated grade and tonnage in the resource model sized blocks. To do this, a target grade distribution is generated with a Hermitian polynomial transformation of the de-clustered composite dataset (via the nearest neighbour blocks). The distribution of the estimated blocks is then compared to the target distribution with grade-tonnage curves. At Moinho, the SMU is expected to be similar in size to the resource model block size, so the Herco validation effort is a check on the degree of smoothing.

The grade-tonnage curves demonstrate that the kriged zinc distribution in the high-grade domain is within 5% of the target herco tonnage and 2.5% of the grade at an anticipated cut-off grade of 3% Zn. Similarly, the graphs for the other three metals also show a good correlation between the targeted and achieved distributions.

19.2.14 Classification

In determining the appropriate classification criteria for the Moinho deposit, several factors were considered:

- NI 43-101/CIM requirements and guidelines;
- Observations from the site visit in 2005;
- Distribution of pierce points at the massive sulphide contacts;
- Confidence limit analysis results; and
- Experience with other VMS deposits.

The methodology relied primarily on the distribution of pierce points at the massive sulphide contacts, as the level of accuracy of the contact locations was expected to be more significant than the level of accuracy of estimated grades within the massive sulphide, particularly after the results of the confidence limit analysis were obtained.

To visually assess the distribution of pierce points at Moinho, the massive sulphide wireframe skin was colour coded according to the distance from the nearest pierce point (Figure 19.5).

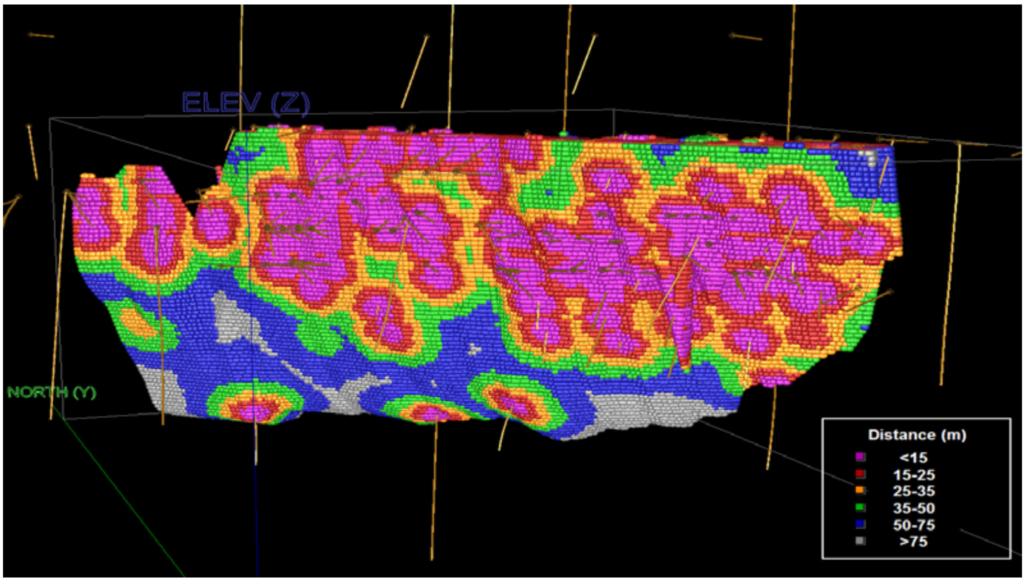


Figure 19.5: Distance to the Nearest Massive Sulphide Pierce Point

Drilling in 2004 and 2005 was primarily focussed on decreasing the sample spacing to 15 m x 15 m in key areas of the massive sulphide. The remainder of the massive sulphide was drilled at variable larger spacing depending on primarily on access considerations. Observations of continuity on section and plan demonstrated that the massive sulphide is very continuous when defined by 15 m x 15 m spaced drill holes, and should probably be categorized as *Measured*. Confidence limit analysis was used to provide a theoretical justification for assigning 15 m x 15 m spaced areas to the *Measured* status, and to help determine an appropriate upper limit on sample spacing for *Indicated* status.

AMEC has generally found that for base and precious metals deposits, sampling must be sufficient to estimate the tonnage, grade and metal content on quarterly production increments ± 15% at 90% confidence in order to define a *Measured* Resource. A resource should be classified as Indicated only if grades can be estimated with 15% accuracy on an annual basis at a 90% confidence limit. That is, when the stated confidence limits are met, cross-sectional and level plan interpretations show continuity with respect to mineralized outlines and grade. In addition, AMEC has often found that annual cash flow projections can accommodate a 15% drop in tonnage, grade or metal content without severely affecting project viability. Also, many projects are designed and operated in such a way that a 15% shortfall can be made-up by rescheduling production. More severe shortfalls are difficult to overcome. Finally, the planning horizon for feasibility studies is generally annual increments, and a ± 15% error level is often applied to capital and operating costs when conducting a feasibility study. Hence, a balanced approach requires a similar degree of confidence in the resources/reserves.

For the development of confidence intervals at Moinho, idealized blocks approximating the production from one month (20,800 m3 at 3,300 t/d) were estimated by ordinary kriging using different grids of samples to calculate an ordinary kriging variance for the large block. A standard error of estimate (RSE) was then obtained by multiplying the normalized ordinary kriging standard deviation by the coefficient of variation (CV) of the composites:

$$RSE = \sigma_{ok} * CV$$

The relative 90% confidence limit for quarterly grade production (Q90%) is obtained by multiplying the RSE by 1.645 and dividing by the number of months in a quarter:

$$Q90\% = (1.645 * RSE)/3$$

The annual equivalent (A90%) is obtained in a similar fashion:

$$A90\% = (1.645 * RSE)/12$$

The resource is classifiable as *Measured* if Q90% □ 15%, and Indicated if A90% □ 15%. The results on an annual basis (Indicated criteria) and on a quarterly basis (*Measured* criteria) are presented graphically in Figure 19.6.

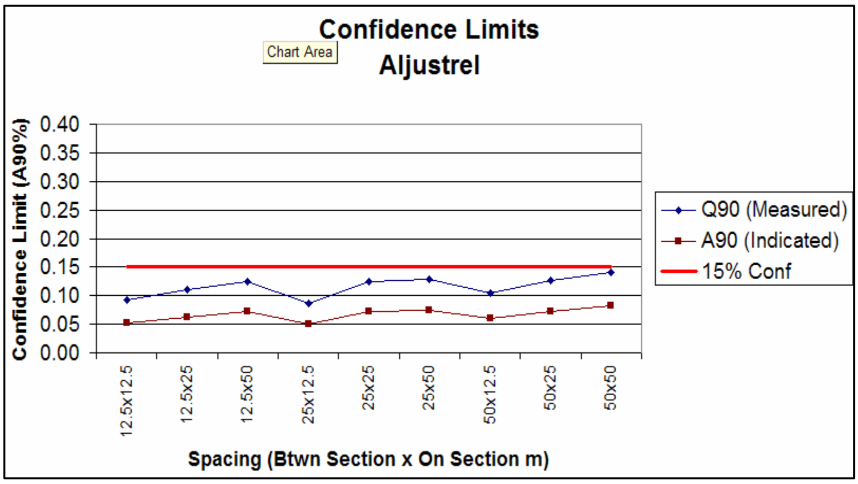


Figure 19.6: Confidence Limit Analysis Results

The confidence limit analysis results in Figure 19.6 support the assignment of blocks as *Measured* if they are within areas drilled with 15 m x 15 m drill spacing. In fact, the graph demonstrates that in terms of grade alone, all sample spacing tested would be eligible for classification as *Measured* or *Indicated*. However, the analysis does not consider the accuracy of the massive sulphide contacts. Therefore, after consideration of the continuity of the massive sulphide on plan and section, AMEC considers that those portions of the massive sulphide with pierce points spaced 15 m apart are eligible for *Measured* status. Those portions defined by holes with pierce points 35 apart are eligible for classification as Indicated. Blocks informed by drill holes up to 75 m away can be classified as *Inferred.*

Blocks further than 75 m from a drill hole should be unclassified and not included as part of the Mineral Resource.

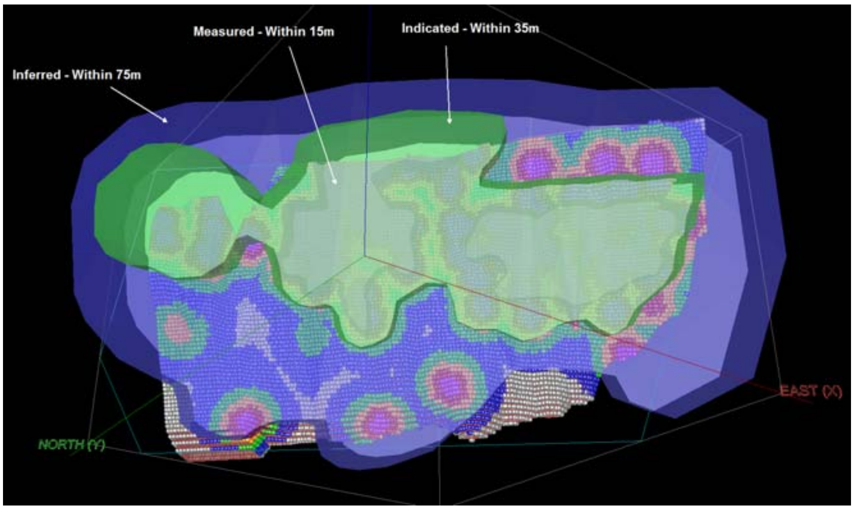


Figure 19.7: Isometric View From Below at the Footwall Showing the Shapes Used for Classification

Two modifications were made after the class codes were assigned with the solids in Figure 19.7. First, a poorly defined splay on the upper northeast corner of the massive sulphide was re-classified by dropping the *Measured* and *Indicated* classification categories by one level (*Measured* became *Indicated*, and *Indicated* became *Inferred*). The second modification involved blocks that are touching the outside edge of the massive sulphide solid wireframe. Because this wireframe was not snapped to the drill holes, there may be some minor discrepancies between the estimated and actual position of the contact, although the volume of massive sulphide should be accurate. Therefore, all *Measured* and *Indicated* blocks that touch the outside edge of the massive sulphide also had their classification category reduced by one level.

19.2.15 Mineral Resource Summary

The Moinho Mineral Resource estimate is summarized at various cut-off grades by classification category in Table 19.10 (higher zinc grade domain) and Table 19.11 (low zinc grade domain).

Table 19.10 : Moinho Mineral Resource Estimate – Higher Zn Grade Domain										
	Cutoff	Tonnes	Grade				Metal			
Category	(Zn%)	('000 t)	Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Zn ('000 lb)	Cu ('000 lb)	Ag ('000 oz)	Pb ('000 lb)
Measured	5	897	5.47	0.37	56.1	2.02	108,198	7,380	1,619	39,869
	4.5	1,842	5.10	0.39	52.2	1.86	207,067	16,020	3,092	75,688
	4	2,759	4.82	0.43	48.8	1.75	293,193	26,185	4,330	106,245
	3	3,397	4.60	0.49	46.4	1.66	344,717	37,014	5,068	124,388
	2	3,413	4.60	0.50	46.3	1.66	345,738	37,360	5,082	124,727
Indicated	5	523	5.42	0.38	55.1	2.10	62,464	4,393	926	24,181
	4.5	1,133	5.05	0.40	50.8	1.92	126,225	10,015	1,853	48,086
	4	1,771	4.77	0.45	47.2	1.79	186,121	17,571	2,686	69,772
	3	2,314	4.50	0.50	44.7	1.68	229,354	25,251	3,322	85,894
	2	2,449	4.40	0.50	43.5	1.65	237,602	27,020	3,426	88,973
Meas+Ind	5	1,420	5.45	0.38	55.7	2.05	170,662	11,773	2,545	64,049
	4.5	2,976	5.08	0.40	51.7	1.89	333,292	26,035	4,944	123,774
	4	4,530	4.80	0.44	48.2	1.76	479,314	43,757	7,016	176,017
	3	5,710	4.56	0.49	45.7	1.67	574,071	62,264	8,390	210,281
	2	5,862	4.51	0.50	45.1	1.65	583,340	64,380	8,508	213,701
Inferred	5	776	5.48	0.66	59.9	2.06	93,743	11,213	1,494	35,299
	4.5	1,364	5.16	0.55	54.2	1.93	155,091	16,601	2,377	57,937
	4	1,850	4.92	0.53	51.1	1.84	200,766	21,747	3,041	74,982
	3	2,319	4.67	0.52	48.8	1.75	238,974	26,584	3,635	89,481
	2	2,378	4.62	0.52	48.1	1.73	242,372	27,196	3,679	90,727

Table 19.11 Moinho Mineral Resource Estimate – Low Zn Grade Domain										
	Cutoff	Tonnes	Grade				Metal			
Category	(Zinc%)	('000 t)	Zn (%)	Cu (%)	Ag (g/t)	Pb (%)	Zn ('000 lb)	Cu ('000 lb)	Ag ('000 oz)	Pb ('000 lb)
Measured	5	1	5.30	0.81	39.2	1.26	124	19	1	29
	4.5	2	5.04	0.87	38.0	1.18	177	31	2	41
	4	8	4.34	0.89	37.1	1.33	805	165	10	246
	3	118	3.38	0.75	30.1	1.08	8,798	1,957	114	2,802
	2	1,273	2.43	0.71	25.6	0.78	68,236	20,003	1,046	21,792
Indicated	5	11	6.01	0.93	37.2	1.28	1,477	230	13	315
	4.5	20	5.45	0.96	36.1	1.25	2,346	413	23	538
	4	40	4.82	1.01	37.4	1.24	4,206	879	48	1,083
	3	162	3.73	0.93	36.2	1.10	13,340	3,323	188	3,924
	2	883	2.58	0.79	26.3	0.79	50,185	15,302	748	15,329
Meas+Ind	5	12	5.95	0.92	37.4	1.28	1,601	248	15	345
	4.5	21	5.42	0.95	36.3	1.24	2,523	444	25	579
	4	48	4.74	0.99	37.3	1.26	5,012	1,044	58	1,329
	3	280	3.59	0.86	33.6	1.09	22,137	5,280	303	6,725
	2	2,156	2.49	0.74	25.9	0.78	118,420	35,306	1,793	37,120
Inferred	5	7	5.67	0.67	50.4	1.92	817	97	11	276
	4.5	12	5.27	0.69	48.0	1.81	1,428	186	19	490
	4	29	4.68	0.82	44.1	1.61	2,971	517	41	1,024
	3	93	3.84	0.76	40.4	1.39	7,887	1,555	121	2,855
	2	402	2.63	0.68	22.6	0.89	23,305	6,050	291	7,916

WAI audited the AMEC resource model in April 2006 and considers that although all aspects of the presented data appear robust for resource estimation purposes would recommend that the classified resources be quoted at least by the current level interval. As an example, at Moinho the high grade resources should be stated for 275-305m; 305-355m and <365masl level intervals. Similarly these should be stated for Feitas and thereafter all of them recalculated for the new interval level of 20.0m. This would allow EuroZinc to quickly identify where the main resource and high grades lie between each level.

Due to the current high price for copper, WAI believes that consideration should be given to evaluating the AMEC resource model using a Cu cut-off grade (COG). Using the high grade Zn cut-off, Cu comprises 14% of the available resources in terms of value. It is the opinion of WAI that copper could significantly improve project resources.

A total of 285 specific gravity (SG) determinations are available for Moinho. The high grade Zn zone model uses an SG of 4.81t/m^3 for all cells, and the low grade Zn zone is assigned with an SG of 4.25t/m^3 for all cells. No description for the methodology employed in determining the SG has been presented. WAI would postulate that simple, or weighted, averaging of samples belonging to corresponding zones was performed to obtain these SG estimates. AMEC suggested that it would be prudent to investigate correlation between sulphides grade and SG. As available data does not include %Fe and %S grade information, this is not achievable. WAI concur with AMEC and suggest that in future all SG samples should be assayed for Zn, Cu, Pb, Fe and S to enable a correlation between SG and sulphides grade to be investigated.

Undoubtedly, there will be a strong variability in SG throughout the high grade zinc resource, which will correlate with the sulphide content and mineralogy.

Zn, Cu, Pb and Ag grades have been interpolated into two separate block models using an individual block size of 5x5x5m; one model for high grade Zn zone and another model for the low grade Zn zone. Ordinary kriging with individual anisotropic variograms for each element and for each zone were used for grade interpolation.

This approach appears satisfactory, although WAI would recommend that available gold grade data be utilised and included in future resource models.

In summary WAI has reviewed the AMEC 2006 final resource model and consider that the method by which the resource has been classified within it appears satisfactory. Furthermore WAI considers that there is still potential for the high grade Zn zone to extend both down-dip below the lowest existing workings (335m level) and downdip and to the northwest of the current modelled resources. An examination of the grade distribution would suggest that the grades may well continue at depth but no elevation in grade should be expected. It would appear that the copper grade within the high grade zinc zone may well increase with depth.

19.3 Estação Resource Estimate

The estimation of Estação resources was undertaken by Lundin Mining Corporate Resource Geologist, Mr. Neil Burns. Mineral resources were estimated in accordance with CIM Definition Standards on Mineral Resources and Mineral Reserves (CIM 2005) definitions that are referred to in National Instrument (NI) 43-101, Standards of Disclosure for Mineral Projects. The following information is summarised form 2006 Lundin report by N Burns.

Data was supplied by Mr. Robert Carmichael (Lundin Exploration Manager for Iberia) in the form of a Gemcom database.

Three dimensional (3D) modeling methods and parameters were used in accordance with principles accepted in Canada. Gemcom mining software was used to establish a 3D block model and subsequent grade estimates. A geological wireframe model was created from the drill hole lithological and analytical logs. Statistical and grade continuity analyses were completed to characterize the mineralization and subsequently used to develop grade interpolation parameters. Mineralized units were separated into massive sulfide and stockwork domains.

The Ordinary Kriging method of interpolation was used to estimate zinc, lead, copper, gold and silver block grades with minor topcuts in the stockwork domain to reduce the influence of statistical grade outliers.

A density block model was created using the average massive sulfide and stockwork densities from the Feitais deposit, Aljustrel.

A mineral resource classification scheme consistent with the logic of CIM guidelines (2005) was applied. The estimates are classified as Indicated and Inferred resources and reported above grade cut-offs that are considered appropriate for a potentially mineable underground deposit.

No resources have been classified as *Measured* at this time. Infill drilling and more detailed grade continuity studies will be required to improve the confidence classification to a level that supports the *Measured* category.

19.3.1 Data validation

The author was supplied with a Gemcom database containing drilling information for the Estação and Feitais deposits (Figure 19.8).

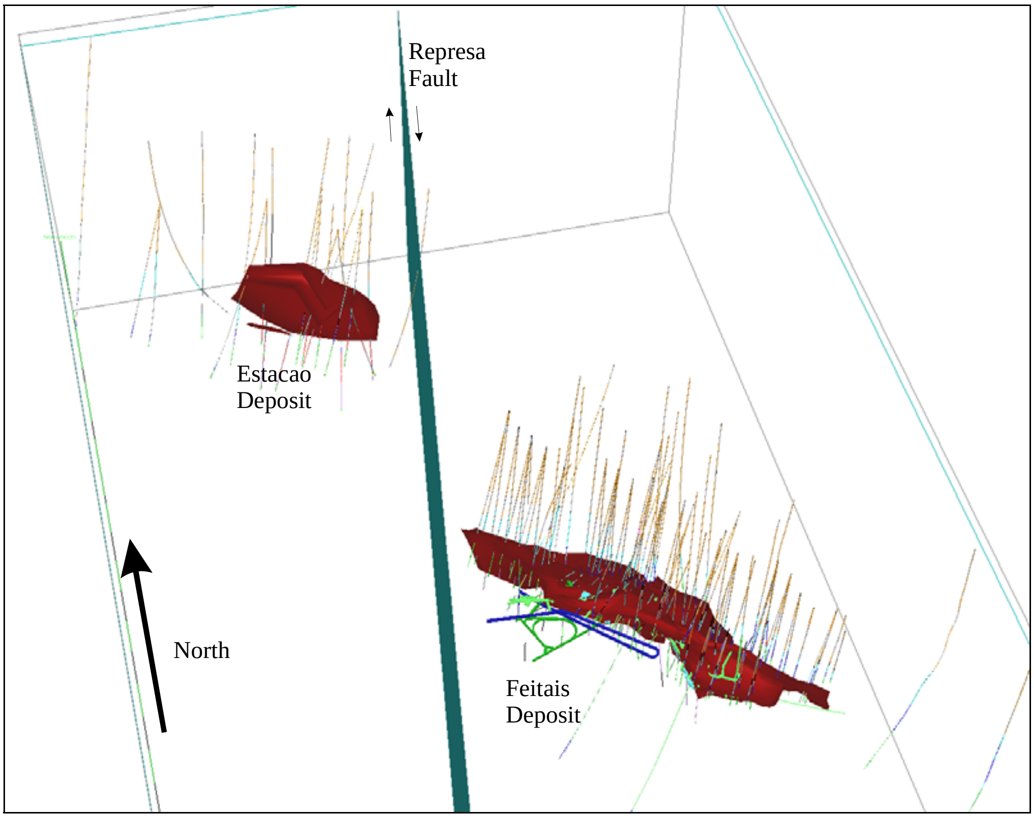


Figure 19.8-Estação and Feitais Drillhole Locations

The Estação portion of the database contains 25 diamond drillholes totaling 12,395 m (Table 19.12), 1,442 downhole surveys, and 1,129 assayed intervals.

Table 19.12: Estação Drillholes

HOLE-ID	East	North	Elevation	Length	Azimuth	Dip
E10-1	197,670.0	101,835.0	9	337.90	225	-60
E10-1A	197,670.0	101,835.0	9	368.30	225	-76
E12-4	197,918.0	101,800.0	5	423.80	225	-80
E12-4A	197,918.0	101,800.0	5	467.00	225	-65
E13-3	198,202.0	101,940.0	1	585.50	225	-60
E14-2	198,060.0	101,660.0	2.5	305.95	225	-60
ES-11	197,675.0	102,045.0	27	572.90	216	-90
ES-12	197,807.0	102,075.0	6.3	575.55	216.5	-80
ES-13	197,591.6	102,509.0	2.7	791.20	216.5	-70
ES0011-1480	198,144.5	101,632.5	0	347.00	225	-76
ES0012-1480	198,144.5	101,632.5	0	318.50	225	-68
ES0013-1840	197,861.0	101,859.0	10.5	487.00	225	-75
ES97001	198,150.0	101,980.0	1	722.00	210	-70
ES97002	198,100.0	101,980.0	3	695.00	225	-70
ES97003	197,930.0	102,040.0	3	593.00	210	-70
ES97004	198,295.0	101,750.0	0	483.00	210	-70
ES97005	198,049.0	101,802.0	6	461.00	210	-70
ES97006	197,961.0	101,974.0	6	711.00	210	-80
ES97007	198,066.0	101,747.0	6	429.00	210	-70
ES97008	198,130.0	101,720.0	6	412.80	210	-70
ES97009	198,130.0	101,720.0	6	410.00	210	-51
ES97010	198,049.0	101,802.0	6	434.00	210	-60
SD-01	198,060.0	101,660.0	2.5	516.37	230	-90
SD-02	198,165.0	101,770.0	0.19	548.59	230	-80
ES02014-1560	198,124.8	101,726.8	-2.56	399.05	225	-70
Total				12,395.41		

The database validation checks built into the Gemcom mining software were used to validate the drillhole database. A number of minor errors, consisting primarily of out of sequence intervals, were identified and corrected.

The supplied Gemcom database also included a digital topographic surface (Figure 19.9) and an interpretative wireframe for the massive sulfide domain.

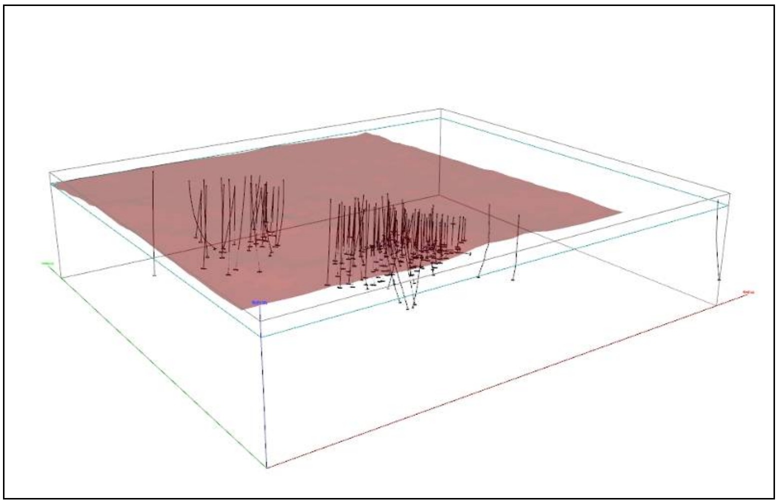


Figure 19.9: Topography Surface with Estação and Feitais Drillholes

19.3.2 Geological Model

The author produced new interpretative wireframes by digitizing and "snapping" polylines to the appropriate drillhole primary lithological contacts. The general stratigraphy is shown in Figure 19.10 which shows the massive sulfide lens and underlying stockwork zone. The mineralized bodies strike approximately 300˚, dip approximately -50˚ to the northeast and plunge approximately -40˚ to the northwest.

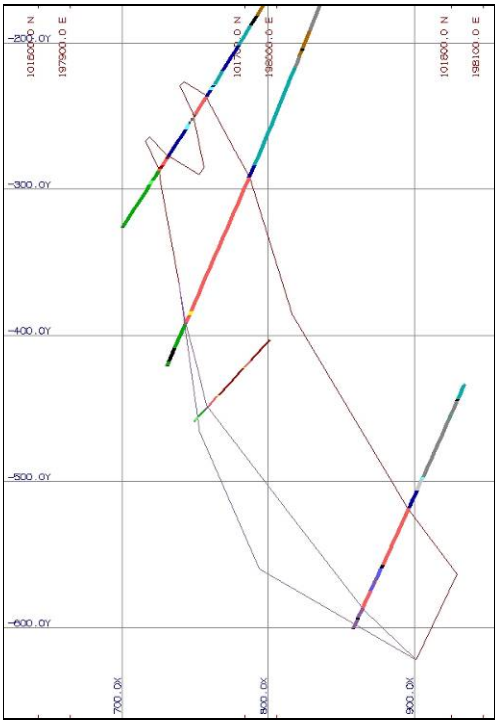


Figure 19.10: Section 1640FT Interpretation

The sectional polyline interpretations were used to create Gemcom solids of the massive sulfide and stockwork domains (Figure 19.11) which were then used to code the rock type block models.

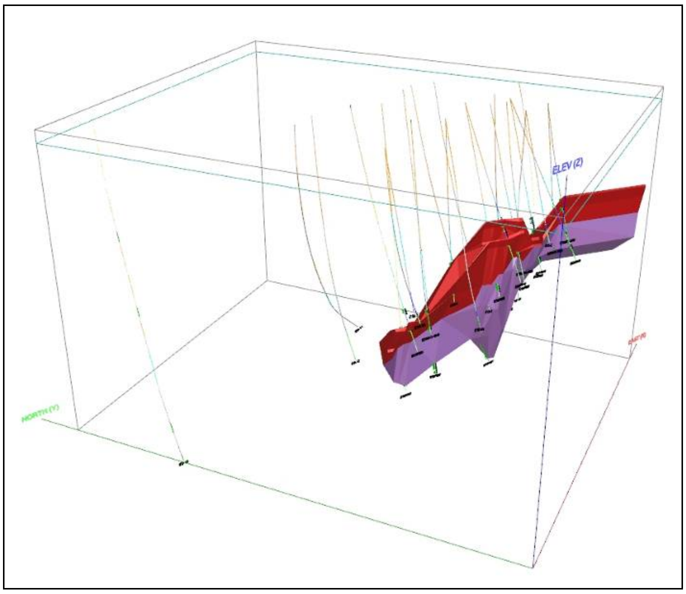


Figure 19.11: 3D View of Solids

19.3.3 Statistical Analysis prior to Interpretation and Compositing

The basic statistics of Estação core samples, prior to the definition of model domains and compositing, are shown in Table 19.13 to Table 19.17 It can be seen that the majority of base metal mineralization is associated with the intervals described as pyrite, zinc and copper facies. These units have coefficients of variation (CVs) of less than or equal to approximately 1.0. CVs of this range suggest the absence of multiple grade populations and high grade outliers indicating that a linear type estimation method such as Ordinary Kriging, without significant topcutting, can provide accurate, non-biased grade estimates.

Table 19.13: Basic Zn Assay Statistics Prior to Interpretation

Rockcode	Description	# Samples	Minimum	Maximum	Mean	Median	CV
All	All	1,128	0.01	21.80	2.54	1.68	1.1
ARG	Argillite (mudstone)	1	0.02	0.02	0.02	0.02	0.0
BAF	Barite facies	11	0.01	0.22	0.10	0.09	0.7
CHF	Chert facies	12	0.01	0.68	0.13	0.01	1.8
CHT	Chert	11	0.01	0.20	0.05	0.01	1.5
CUF	Copper facies	12	0.40	3.66	1.64	1.50	0.6
DAT	Dacite ash tuff	14	0.01	0.10	0.03	0.02	0.8
DLT	Dacite lapilli tuff	2	0.13	1.12	0.63	1.12	1.1
EXT	Exhalative facies	13	0.03	8.20	1.89	0.29	1.4
fDXT	Feldspar rich dacite crystal tuff	22	0.01	2.16	0.15	0.03	3.1
FLT	Fault	16	0.01	7.00	1.09	0.43	1.7
fRXT	Feldspar rich rhyolite crystal tuff	3	0.06	0.13	0.09	0.09	0.4
JSP	Jasper	5	0.01	0.10	0.03	0.01	1.3
PYF	Pyrite facies	687	0.02	13.20	2.86	2.25	0.8
QVN	Quartz vein	5	0.01	0.02	0.01	0.01	0.4
RAT	Rhyolite ash tuff	62	0.01	3.04	0.15	0.03	2.8
RBX	Rhyolite breccia	3	1.87	7.38	4.17	3.27	0.7
RFL	Rhyolite flow	2	0.14	0.26	0.20	0.26	0.4
RLT	Rhyolite lapilli tuff	1	0.01	0.01	0.01	0.01	0.0
STWK	Stockwork facies	122	0.01	1.07	0.12	0.04	1.5
VSD	Volcanic Sediments	2	0.14	0.30	0.22	0.30	0.5
ZNF	Zinc facies	122	0.03	21.80	6.49	6.00	0.6

Table 19.14: Basic Cu Assay Statistics Prior to Interpretation

Rockcode	Description	# Samples	Minimum	Maximum	Mean	Median	CV
All	All	1,056	0.00	7.71	0.36	0.21	1.6
ARG	Argillite (mudstone)	1	0.01	0.01	0.01	0.01	0.0
BAF	Barite facies	6	0.01	0.05	0.02	0.02	0.8
CHF	Chert facies	4	0.01	0.12	0.05	0.06	1.0
CHT	Chert	6	0.01	0.09	0.03	0.01	1.2
CUF	Copper facies	12	0.24	2.71	1.41	1.18	0.6
DAT	Dacite ash tuff	9	0.01	0.08	0.02	0.01	1.0
DLT	Dacite lapilli tuff	2	0.13	0.17	0.15	0.17	0.2
EXT	Exhalative facies	12	0.01	1.21	0.39	0.35	1.0
fDXT	Feldspar rich dacite crystal tuff	8	0.00	0.03	0.01	0.01	0.8
FLT	Fault	15	0.01	3.83	0.83	0.30	1.5
fRXT	Feldspar rich rhyolite crystal tuff	0	0.00	0.00	0.00	0.00	0.0
JSP	Jasper	1	0.01	0.01	0.01	0.01	0.0
PYF	Pyrite facies	686	0.01	2.95	0.31	0.22	1.1
QVN	Quartz vein	1	0.01	0.01	0.01	0.01	0.0
RAT	Rhyolite ash tuff	52	0.01	2.85	0.34	0.11	1.6
RBX	Rhyolite breccia	3	0.08	0.14	0.11	0.11	0.3
RFL	Rhyolite flow	1	0.02	0.02	0.02	0.02	0.0
RLT	Rhyolite lapilli tuff	0	0.00	0.00	0.00	0.00	0.0
STWK	Stockwork facies	116	0.00	7.71	0.78	0.34	1.6
VSD	Volcanic Sediments	1	0.19	0.19	0.19	0.19	0.0
ZNF	Zinc facies	120	0.02	0.63	0.18	0.15	0.7

Table 19.15: Basic Pb Assay Statistics Prior to Interpretation

Rockcode	Description	Samples	Minimum	Maximum	Mean	Median	CV
All	All	1,128	0.01	8.09	0.83	0.48	1.3
ARG	Argillite (mudstone)	1	0.01	0.01	0.01	0.01	0.0
BAF	Barite facies	11	0.01	0.15	0.04	0.03	0.9
CHF	Chert facies	12	0.01	0.32	0.05	0.01	1.8
CHT	Chert	11	0.01	0.08	0.02	0.01	1.1
CUF	Copper facies	12	0.05	1.06	0.54	0.52	0.6
DAT	Dacite ash tuff	14	0.01	0.09	0.02	0.01	1.1
DLT	Dacite lapilli tuff	2	0.20	0.30	0.25	0.30	0.3
EXT	Exhalative facies	13	0.01	1.71	0.42	0.14	1.3
fDXT	Feldspar rich dacite crystal tuff	22	0.01	1.50	0.09	0.01	3.7
FLT	Fault	16	0.01	1.58	0.44	0.11	1.2
fRXT	Feldspar rich rhyolite crystal tuff	3	0.01	0.02	0.01	0.01	0.4
JSP	Jasper	5	0.01	0.02	0.01	0.01	0.4
PYF	Pyrite facies	687	0.01	7.46	0.98	0.70	1.0
QVN	Quartz vein	5	0.01	0.01	0.01	0.01	0.0
RAT	Rhyolite ash tuff	62	0.01	0.88	0.04	0.01	2.9
RBX	Rhyolite breccia	3	0.55	1.18	0.87	0.89	0.4
RFL	Rhyolite flow	2	0.03	0.03	0.03	0.03	0.0
RLT	Rhyolite lapilli tuff	1	0.01	0.01	0.01	0.01	0.0
STWK	Stockwork facies	122	0.01	0.30	0.03	0.01	1.7
VSD	Volcanic Sediments	2	0.04	0.12	0.08	0.12	0.7
ZNF	Zinc facies	122	0.01	8.09	1.92	1.68	0.8

Table 19.16: Basic Ag Assay Statistics Prior to Interpretation

Rockcode	Description	# Samples	Minimum	Maximum	Mean	Median	CV
All	All	1,128	0.1	369.0	29.4	20.0	1.1
ARG	Argillite (mudstone)	1	1.7	1.7	1.7	1.7	0.0
BAF	Barite facies	11	1.7	15.1	6.6	4.6	0.7
CHF	Chert facies	12	0.7	14.2	3.2	1.1	1.3
CHT	Chert	11	0.7	7.6	2.3	1.2	1.1
CUF	Copper facies	12	8.3	41.7	20.6	17.1	0.5
DAT	Dacite ash tuff	14	0.9	8.6	3.0	2.7	0.6
DLT	Dacite lapilli tuff	2	16.5	22.3	19.4	22.3	0.2
EXT	Exhalative facies	13	0.2	72.6	16.8	4.0	1.3
fDXT	Feldspar rich dacite crystal tuff	22	0.1	56.1	5.2	1.5	2.4
FLT	Fault	16	2.0	41.9	16.2	16.5	0.7
fRXT	Feldspar rich rhyolite crystal tuff	3	0.8	2.6	1.4	0.9	0.7
JSP	Jasper	5	0.6	2.5	1.5	1.8	0.5
PYF	Pyrite facies	687	3.5	369.0	35.3	25.6	0.8
QVN	Quartz vein	5	0.8	1.6	1.1	1.1	0.3
RAT	Rhyolite ash tuff	62	0.3	61.3	5.1	2.8	1.9
RBX	Rhyolite breccia	3	26.1	37.0	29.8	26.2	0.2
RFL	Rhyolite flow	2	2.0	3.4	2.7	3.4	0.4
RLT	Rhyolite lapilli tuff	1	0.3	0.3	0.3	0.3	0.0
STWK	Stockwork facies	122	0.7	29.6	7.1	5.9	0.7
VSD	Volcanic Sediments	2	1.7	10.7	6.2	10.7	1.0
ZNF	Zinc facies	122	1.2	276.0	54.1	45.4	0.8

Table 19.17: Basic Au Assay Statistics Prior to Interpretation

Rockcode	Description	# Samples	Minimum	Maximum	Mean	Median	CV
All	All	1,128	0.01	2.26	0.21	0.15	1.2
ARG	Argillite (mudstone)	1	0.02	0.02	0.02	0.02	0.0
BAF	Barite facies	11	0.05	1.31	0.48	0.21	1.0
CHF	Chert facies	12	0.01	0.21	0.05	0.01	1.4
CHT	Chert	11	0.01	0.25	0.07	0.05	1.1
CUF	Copper facies	12	0.05	0.40	0.13	0.11	0.7
DAT	Dacite ash tuff	14	0.01	0.15	0.03	0.02	1.2
DLT	Dacite lapilli tuff	2	0.06	0.07	0.07	0.07	0.1
EXT	Exhalative facies	13	0.03	0.80	0.21	0.13	1.3
fDXT	Feldspar rich dacite crystal tuff	22	0.01	0.63	0.04	0.01	3.0
FLT	Fault	16	0.01	0.75	0.22	0.10	1.1
fRXT	Feldspar rich rhyolite crystal tuff	3	0.01	0.01	0.01	0.01	0.0
JSP	Jasper	5	0.01	0.01	0.01	0.01	0.0
PYF	Pyrite facies	687	0.01	2.26	0.26	0.19	1.0
QVN	Quartz vein	5	0.01	0.02	0.01	0.01	0.4
RAT	Rhyolite ash tuff	62	0.01	0.22	0.03	0.01	1.5
RBX	Rhyolite breccia	3	0.10	0.17	0.13	0.12	0.3
RFL	Rhyolite flow	2	0.01	0.01	0.01	0.01	0.0
RLT	Rhyolite lapilli tuff	1	0.01	0.01	0.01	0.01	0.0
STWK	Stockwork facies	122	0.01	0.62	0.07	0.03	1.6
VSD	Volcanic Sediments	2	0.03	0.05	0.04	0.05	0.4
ZNF	Zinc facies	122	0.01	0.99	0.28	0.27	0.6

19.3.4 Statistical Analysis after Compositing and Domaining

An analysis of assay sample lengths by rockcode was completed to determine the range of sample lengths for the most important rock types (Table 19.18). The maximum sample length of the intervals coded as copper facies is 1.52 m, pyrite facies is 2.76 m, stockwork facies is 3.00 m and zinc facies is 2.15 m. In order to preserve the grade variability and provide equal support, the assay intervals were composited to 3.0 m downward from the drillhole collars, adhering to the wireframe contacts.

Composites within the massive sulfide were assigned a domain code of 100 and those within the stockwork a domain code of 101.

Table 19.18: Sample Length Statistics

Rockcode	Description	# Samples	Minimum	Maximum	Mean	Median
All	All	1,129	0.12	11.00	1.25	1.00
ARG	Argillite (mudstone)	1	1.00	1.00	1.00	1.00
BAF	Barite facies	11	0.30	1.12	0.78	0.82
CHF	Chert facies	12	0.38	2.95	1.59	2.00
CHT	Chert	11	0.12	1.15	0.88	1.00
CUF	Copper facies	12	0.75	1.52	1.01	1.00
DAT	Dacite ash tuff	14	0.90	3.00	1.90	2.00
DLT	Dacite lapilli tuff	2	1.00	1.30	1.15	1.30
EXT	Exhalative facies	13	0.17	2.40	0.85	0.92
fDXT	Feldspar rich dacite crystal tuff	22	0.20	3.35	2.09	2.00
FLT	Fault	16	0.20	3.35	1.33	1.00
fRXT	Feldspar rich rhyolite crystal tuff	3	2.00	3.00	2.67	3.00
JSP	Jasper	5	1.00	2.00	1.69	1.93
PYF	Pyrite facies	688	0.13	2.76	1.07	1.00
QVN	Quartz vein	5	0.95	2.65	1.42	1.00
RAT	Rhyolite ash tuff	62	0.75	3.00	1.95	2.00
RBX	Rhyolite breccia	3	0.55	2.00	1.52	2.00
RFL	Rhyolite flow	2	2.00	2.00	2.00	2.00
STWK	Stockwork facies	122	0.28	3.00	1.86	2.00
VSD	Volcanic Sediments	2	1.35	2.30	1.83	2.30
ZNF	Zinc facies	122	0.50	2.15	1.03	1.00

A statistical analysis was completed after compositing and assignment of domains. The results of this analysis are shown in Table 19.9. It can be seen that the grade variability has been reduced by the compositing process, such that the maximum grade for a 3.0 m composite is 17.0% Zn compared to maximum in the raw assays of 21.8% Zn. CV values have also been reduced from a maximum of 3.1 for Zn in the feldspar rich dacite crystal tuff unit to a maximum of 1.7 in the stockwork domain.

Table 19.19: Domained Composite Statistics

Metal Association	All	Domain 100 Massive Sulfide Zn-Pb-Ag	Domain 101 Stockwork Zn-Pb-Cu-Au-Ag
# Samples	414	305	109
Zn %			
Minimum	0.01	0.03	0.01
Maximum	17.00	17.00	1.19
Mean	2.44	3.26	0.13
Median	1.69	2.67	0.03
CV	1.1	0.8	1.7
Cu%			
Minimum	0.01	0.01	0.01
Maximum	6.06	2.34	6.06
Mean	0.41	0.33	0.63
Median	0.25	0.23	0.37
CV	1.4	1.0	1.5
Pb %			
Minimum	0.01	0.01	0.01
Maximum	6.31	6.31	0.28
Mean	0.79	1.07	0.02
Median	0.51	0.82	0.01
CV	1.1	0.9	1.6
Au g/t			
Minimum	0.01	0.02	0.01
Maximum	1.72	1.72	0.30
Mean	0.20	0.25	0.05
Median	0.14	0.19	0.03
CV	1.1	0.9	1.1
Ag g/t			
Minimum	0.3	3.5	0.3
Maximum	209.3	209.3	19.9
Mean	28.7	36.6	6.6
Median	19.9	26.9	5.4
CV	1.0	0.8	0.7

Although the quantity of data is low, particularly in the stockwork domain, the statistics presented in Table 19.19 show the massive sulfide domain to consist generally of single grade populations without significant grade outliers. CV values for the massive sulfide domain are considered low, ranging from 0.8 for Zn and Ag to 1.0 for Cu. The stockwork domain however, shows signs of possible mixed populations with CV values moderate to low with values ranging from 0.7 for Ag to 1.7 for Zn.

19.3.5 Metal Correlation

A metal correlation analysis was performed on the domained composites (Table 19.20). Zn-Pb-Ag exhibit a strong correleation within the massive sulfide domain, while only Zn-Pb exhibit a strong correlation with the stockwork domain. Zn-Ag, Pb-Ag, Cu-Ag and Au-Ag show a moderate correlation within the stockwork domain.

Table 19.20: Metal Correlations

	Average Composite Grades					Correlations									
Domain	Zn%	Pb%	Cu%	Au g/t	Ag g/t	Zn-Pb	Zn-Cu	Zn-Au	Zn-Ag	Pb-Cu	Pb-Au	Pb-Ag	Cu-Au	Cu-Ag	Au-Ag
MS	3.26	1.07	0.33	0.25	36.6	0.8	-0.3	0.1	0.6	-0.3	0.1	0.8	-0.1	-0.3	0.1
STWK	0.14	0.02	0.63	0.05	6.7	0.6	0.1	0.0	0.3	0.0	0.0	0.3	0.2	0.5	0.4

19.3.6 Topcutting

An analysis was performed on the domained composites to determine if topcutting is needed to reduce high grade outliers during block grade estimation. The rank disintegration method was used to determine appropriate topcuts for each grade domain. Table 19.21 shows the topcuts chosen, their effect on the raw mean and CV, and the percentage of data affected. It can be seen that the only domains where slight topcuts were deemed necessary were the Zn, Cu and Pb stockwork domains.

Table 19.21: Topcut Analysis

Domain	Topcut	Raw Mean	Topcut Mean	% Decrease	Raw CV	Topcut CV	% Decrease	% Affected
Zn_100	NTC	3.26	3.26	0.0%	0.8	0.8	0.0%	0.0%
Zn_101	0.70	0.13	0.12	8.5%	1.7	1.5	11.5%	4.6%
Cu_100	NTC	0.33	0.33	0.0%	1.0	1.0	0.0%	0.0%
Cu_101	6.00	0.63	0.63	0.1%	1.5	1.5	0.3%	1.0%
Pb_100	NTC	1.07	1.07	0.0%	0.9	0.9	0.0%	0.0%
Pb_101	0.20	0.02	0.02	4.7%	1.6	1.4	14.6%	1.0%
Ag_100	NTC	36.56	36.56	0.0%	0.8	0.8	0.0%	0.0%
Ag_101	NTC	6.58	6.58	0.0%	0.7	0.7	0.0%	0.0%
Au_100	NTC	0.25	0.25	0.0%	0.9	0.9	0.0%	0.0%
Au_101	NTC	0.05	0.05	0.0%	1.1	1.1	0.0%	0.0%

19.3.7 Findings from Statistical Analysis of Domained Composites

The subdivision of the geology into distinct domains based on lithology and assay boundaries was successful in partitioning the mineralization into populations of reduced variability. This reduction in variability (CVs generally below 1.5) is considered sufficient to allow the use of Ordinary Kriging (OK) for both domains.

19.3.8 Continuity Analysis

A continuity study was completed for all elements for both domains. The study generated 3D variograms by defining variance fans along horizontal planes (strike), across-strike vertical fans (dip) and dip plane fans (plunge). This 3D analysis determines the directions of maximum, intermediate and minimum continuity for use in the kriging algorithms.

Due to the low quantity of data at Estação, robust variograms could not be generated for either domain, particularly the stockwork domain. The relatively large drill spacing does not provide data needed to determine short range continuities. Estação is interpreted to be the fault offset of the Feitais deposit. Feitais has been drilled off at a spacing of 40m and has been channel sampled along underground crosscuts. The high density of data at Feitais produces robust variograms, therefore, the variography from Feitais' massive sulfide Zone A was applied to Estação with slight changes in orientation to match the Estação sulfide bodies.

19.3.9 Estimation Parameters

In order to preserve the metal correlations discussed in Section 19.3.5 the variography model for Zn was applied to Pb and Ag in producing estimation parameters. Separate variography models were applied to Cu and Au. Esimation parameters generated for the massive sulfide domain were also applied to the stockwork domain. The resulting estimation parameters are shown in Table 19.22.

Table 19.22: Estimation Parameters

Element	Direction	Orientation	Rotation ADA	Nugget	Sill 1	Range 1	Sill 2	Range 2	Sill 3	Range 3
	1	-42-->348	348			40		130		135
Zn	2	23-->280	-42	0.15	0.28	20	0.29	80	0.28	110
	3	-40-->210	100			35		50		55
	1	-42-->348	348			70		120		125
Cu	2	23-->280	-42	0.15	0.31	60	0.33	150	0.21	165
	3	-40-->210	100			10		35		45
	1	-42-->348	348			40		130		135
Pb	2	23-->280	-42	0.15	0.28	20	0.29	80	0.28	110
	3	-40-->210	100			35		50		55
	1	-42-->348	348			40		130		135
Ag	2	23-->280	-42	0.15	0.28	20	0.29	80	0.28	110
	3	-40-->210	100			35		50		55
	1	-42-->348	348			20		65		70
Au	2	23-->280	-42	0.1	0.29	20	0.35	35	0.26	50
	3	-40-->210	100			20		50		60

19.3.10 Quantitative Kriging Neighborhood Analysis

A Quantitative Kriging Neighborhood Analysis (QKNA) analysis was performed to determine the optimal kriging plan. A test block with coordinates 198,073X, 101,676Y, -400Z on section 1560FT was chosen. This block is considered to be well informed with respect to the proximal surrounding data. Various case scenarios were examined to determine an optimum block size, max/min sample requirements and the discretization array. The results are presented in Figure 19.12 to Figure 19.14.

Figure 19.12 shows the results of the block size analysis where block sizes ranging from 2x2x2 to 20x20x20 were tested. The Kriging Effeciency and Slope of Regression methods of analysis are shown. Ideal parameters will result in a slope of 1 and Kriging Efficiency of 100%. The block size of 10x10x5 was found to achieve the optimum results in terms of the two methods. This block size should produce the least amount of conditional bias (degree of over-smoothing of grades).

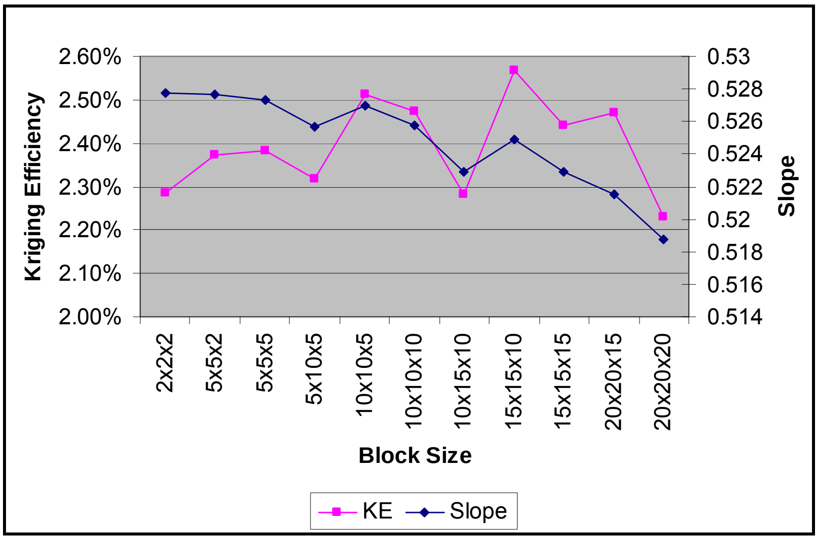


Figure 19.12: Block Size Analysis

Test analyses were run on the block size of 10x10x5 using a range of minimum and maximum samples required from a minimum of 2/ maximum of 10 to a minimum of 12/ maximum of 35. Figure 19.13 shows the best combined results to occur with a minimum of 5/ maximum of 30 and a minimum of 10/ maximum of 35.

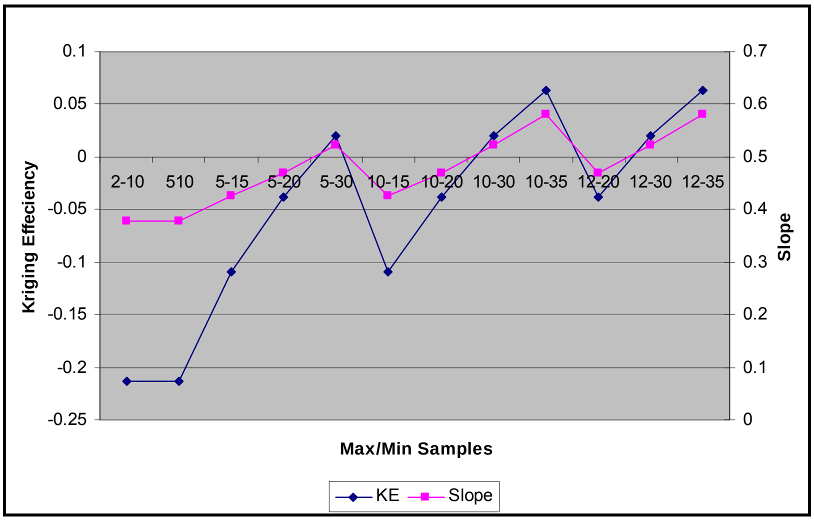


Figure 19.13: Max/min Sample Analysis

An analysis was performed on the 10x10x5 block size to determine which configuration of discretized points was optimal (Figure 19.14). Discretized arrays of 2x2x2 to 6x6x4 were tested and a break in the slope of plotted block covariance results was found to occur using a 5x5x4 array.

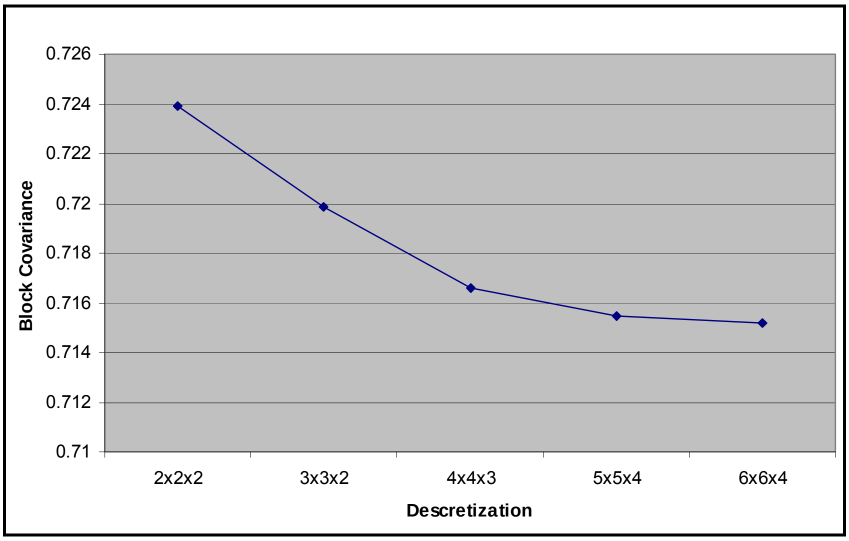


Figure 19.14: Discretization Analysis

Table 19.23 displays the estimation search parameters chosen based on the QKNA analyses.

Table 19.23: Estimation Search Parameters

Pass	Search Radius (X-Range)	Min Samples	Max Samples	Min Octants
1	1	10	35	3
2	1.5	5	30	Not used

19.3.11 Block Model

A 3D geology model was generated by coding with the domain wireframes (Table 19.24). Wireframe volumes were captured through the use of "percent" models. Separate models were generated for massive sulfide (domain 100), stockwork (domain 101) and waste (domain 102).

Table 19.24 Block Model Origin

Origin	Block Size	Number of Blocks
198200 mX	10 m	50 Columns
101242.63 mY	10 m	110 Rows
0 mZ	5 m	180 Levels

Figure 19.15 and Figure 19.16 display the coded rock type model and percent models respectively for section 1600FT.

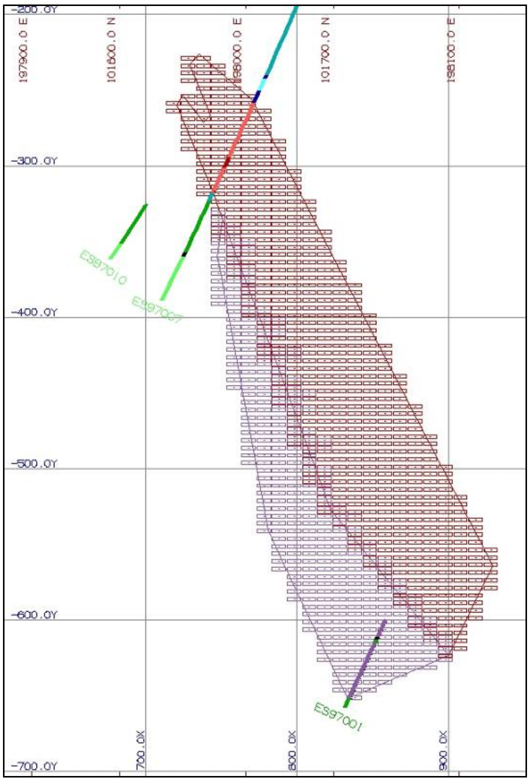


Figure 19.15: Rock Type Model Section 1600FT

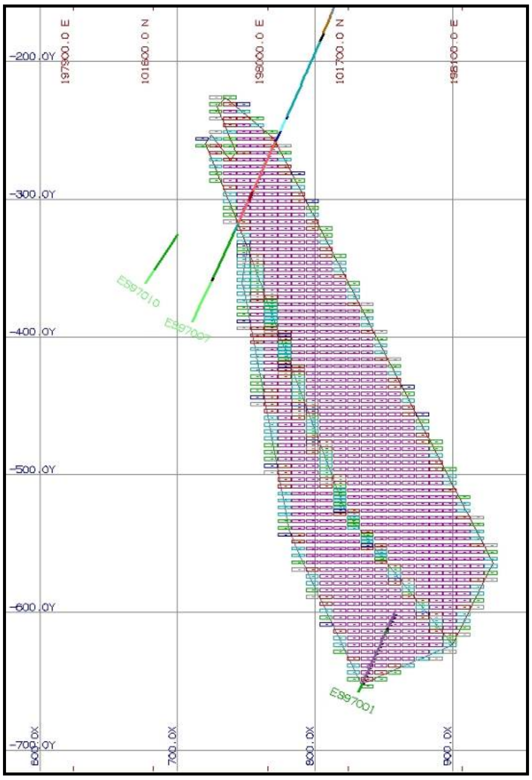


Figure 19.16: Percent Model Section 1600FT

19.3.12 Boundary Conditions

Hard boundaries were used between the massive sulfide and stockwork domains during grade estimation. Thus, blocks in one domain were not estimated using composites from the other domain. This eliminated the possibility of smearing high grades between domains.

19.3.13 Classification

The classification of Estação resources incorporated the confidence in drillhole data, the geological interpretation, data distribution, and variogram ranges. The model was coded to identify Indicated and Inferred blocks. Due to the relatively large spacing between drill sections, the acrossstrike grade continuity has not been quantified by variogram analysis, and has been assumed from Feitais variography for the purposes of this study. For this reason, no blocks within the model were classified as *Measured*. Infill drilling and more detailed grade continuity studies will be required to improve the confidence classification to a level that supports the *Measured* category and upgrade the existing Inferred resources to Indicated.

Estação Resources were classified as follows:

- Pass 1 was initially coded as Indicated, Pass 2 was initially coded as Inferred (Table 19.23);
- Pass 1 blocks informed by composites greater than 40m away or with a kriging variance greater than 0.8 were downgraded to Inferred.; and
- A perimeter was drawn around the drilling and then expanded by 20 m on all sides. No Indicated blocks were defined outside of this perimeter. The perimeter was expanded an additional 20 m and all blocks outside of this were regarded as unmineralized. Figure 19.17 shows a plan view of the classified blocks with the two perimeters where Indicated blocks are colored red and Inferred green. Indicated blocks were assigned a block model code of 2 and Inferred a code of 3. Figure 19.18 is an isometric view of the massive sulfide Indicated blocks with respect to the surrounding composites.

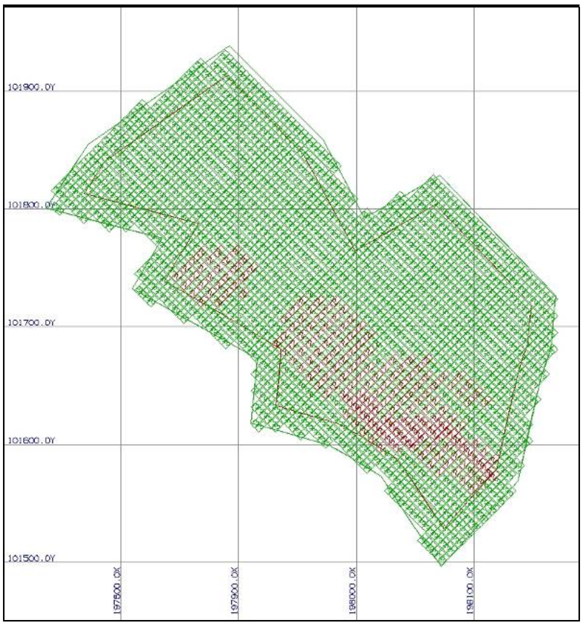


Figure 19.17: Classification Perimeters -325Z

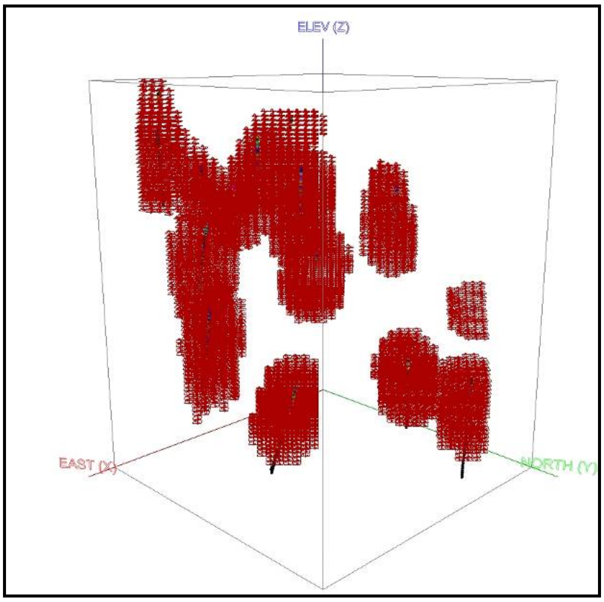


Figure 19.18: Indicated Blocks with Composites –MS Domain

19.3.14 Validation

The following three techniques were used to validate the Estação block grade models:

- Visual inspection of block and composite grades in both section and plan;
- Global comparison of mean model and input grades; and
- Plots of mean input and block grades on a series of sections and plans throughout the deposit.

Visual comparison of block and composite grades on sections and plans showed good correlation between the input date and output values. No obvious discrepancies were noted. Sectional plots of the block model and input composites are located in Appendix B.

The global mean block zinc, copper, lead, silver and gold grades were compared with the global mean of the declustered input grades (Table 19.25). The difference between declustered input grades and model grades are less than 10%. These differences are considered reasonable for an early stage global resource estimate.

Table 19.25:-Global Model Validations

	Mean Block Grades					Mean Declustered Input Grades					% Difference				
Domain	Zn %	Cu %	Pb %	Ag g/t	Au g/t	Zn %	Cu %	Pb %	Ag g/t	Au g/t	Zn %	Cu %	Pb %	Ag g/t	Au g/t
MS	3.38	0.33	1.09	37.4	0.26	3.22	0.335	1.067	37.1	0.26	-5.1%	0.9%	-1.8%	-0.9%	0.0%
STWK	0.16	0.65	0.03	6.9	0.05	0.146	0.63	0.024	6.9	0.05	-6.2%	-3.2%	-4.2%	0.0%	0.0%

Mean block grades and mean composite grades for Zn, Cu, Pb, Ag and Au were checked on-screen and plotted on a series of sections and plans. Validation plots for Zn in the massive sulfide domain 100 are shown in Figure 19.9 to Figure 19.21 and Cu in the stockwork domain in Figure 19.22 to Figure 19.24. The trend of block grades generally honor the trend of input grades, and the distribution is smooth as expected from the effects of the kriging interpolation. Portions of the graphs where the block grades deviate from the input grades are generally associated with areas of low data, as expected.

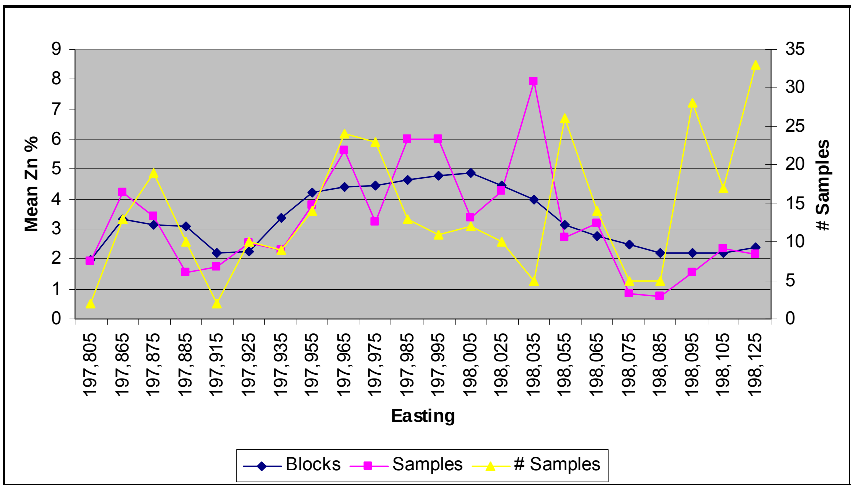


Figure 19.19: Zn Model Validation Domain 100 by Easting

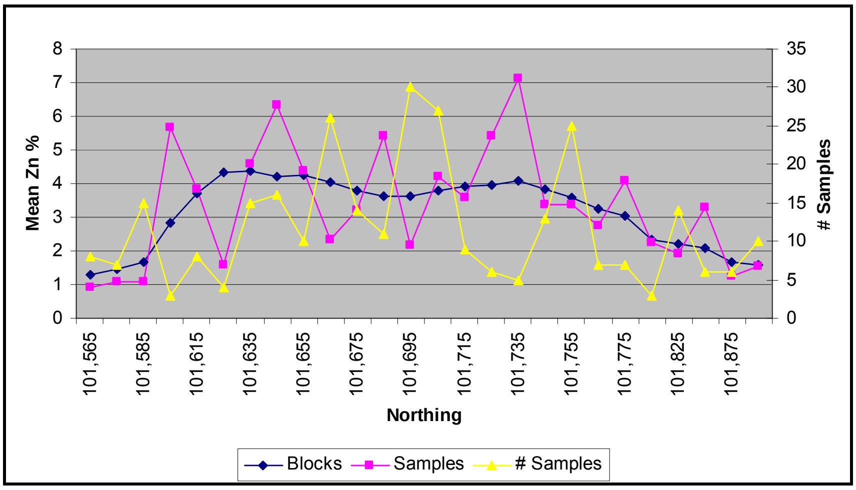


Figure 19.20: Zn Model Validation Domain 100 by Northing

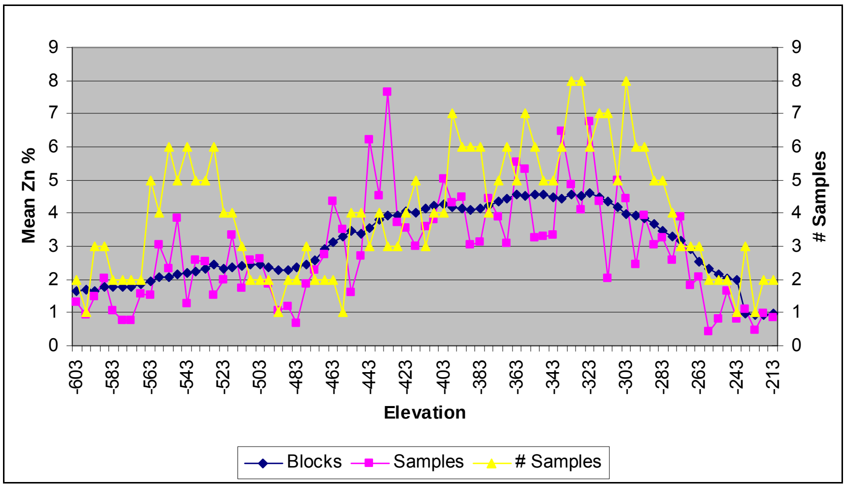


Figure 19.21: Zn Model Validation Domain 100 by Elevation

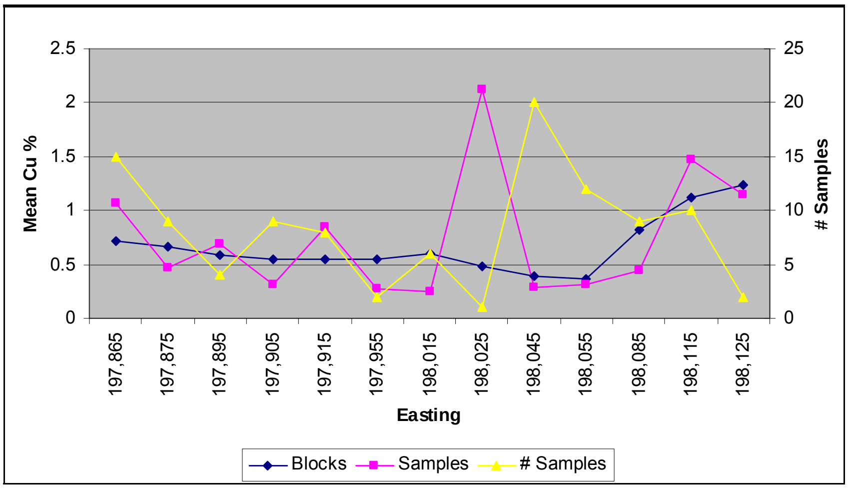


Figure 19.22: Cu Model Validation Domain 101 by Easting

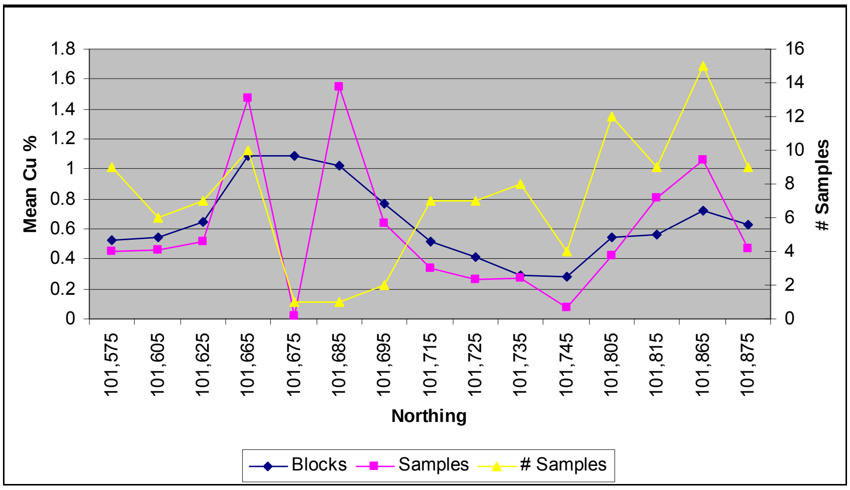


Figure 19.23: Cu Model Validation Domain 101 by Northing

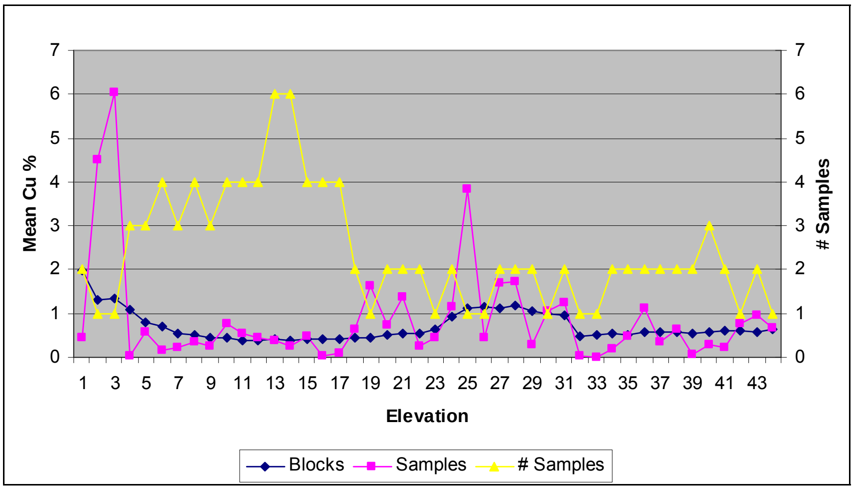


Figure 19.24: Cu Model Validation Domain 101 by Elevation

19.3.15 Density

Significant density data does not exist for the Estação deposit. For this reason average Feitais deposit densities of 4.6 g/cc for massive sulfide and 3.3 g/cc for stockwork were applied to the Estação density block models.

19.3.16 Tabulation of Resources

At a cut-off of 4.0% zinc the currently defined Indicated Resource at Estação is 5.4 million tonnes grading 5.05% Zn, 0.22% Cu, 1.57% Pb, 47.1 g/t Ag and 0.23 g/t Au (Table 19.26). Inferred Resources are estimated at 4.8 million tonnes grading 4.79% Zn, 0.24% Cu, 1.47% Pb, 44.5 g/t Ag and 0.29 g/t Au above the same zinc cut-off grade.

Table 19.26: Tabulated Resources by Zn Cut-offs

Class	Cut-off	Volume	Density	Ktonnes	Zn %	Pb %	Cu %	Ag g/t	Au g/t
Indicated	9	0	0.00	0	0.00	0.00	0.00	0.0	0.00
	8.5	1	4.60	3	8.78	3.15	0.09	101.9	0.18
	8	2	4.60	9	8.52	3.03	0.08	96.1	0.18
	7.5	5	4.60	22	8.05	2.82	0.09	88.5	0.18
	7	14	4.60	63	7.53	2.49	0.11	77.9	0.19
	6.5	53	4.60	243	6.91	2.08	0.14	64.1	0.23
	6	151	4.60	693	6.46	1.89	0.15	57.8	0.25
	5.5	309	4.60	1,423	6.09	1.79	0.16	53.6	0.24
	5	526	4.60	2,419	5.74	1.71	0.17	51.0	0.23
	4.5	841	4.60	3,868	5.36	1.63	0.20	48.4	0.23
	4	**1,171**	**4.60**	**5,384**	**5.05**	**1.57**	**0.22**	**47.1**	**0.23**
	3.5	1,410	4.60	6,484	4.83	1.52	0.23	46.7	0.24
	3	1,660	4.60	7,636	4.59	1.45	0.23	45.7	0.24
	2.5	1,986	4.60	9,136	4.28	1.35	0.24	43.8	0.25
	2	2,379	4.60	10,944	3.95	1.24	0.26	41.2	0.26
	1.5	2,776	4.60	12,771	3.63	1.15	0.30	38.5	0.27
	1	2,948	4.60	13,562	3.50	1.11	0.32	37.5	0.26
	0.01	3,923	4.29	16,825	2.86	0.91	0.38	31.6	0.22
Inferred	9	0	0.00	0	0.00	0.00	0.00	0.0	0.00
	8.5	0	0.00	0	0.00	0.00	0.00	0.0	0.00
	8	0	0.00	0	0.00	0.00	0.00	0.0	0.00
	7.5	0	0.00	0	0.00	0.00	0.00	0.0	0.00
	7	0	0.00	0	0.00	0.00	0.00	0.0	0.00
	6.5	3	4.60	13	6.68	2.02	0.19	57.9	0.21
	6	32	4.60	145	6.22	1.89	0.19	54.7	0.26
	5.5	131	4.60	605	5.83	1.75	0.19	50.9	0.27
	5	333	4.60	1,530	5.46	1.67	0.20	48.9	0.28
	4.5	666	4.60	3,061	5.10	1.57	0.22	46.9	0.28
	4	**1,043**	**4.60**	**4,797**	**4.79**	**1.47**	**0.24**	**44.5**	**0.29**
	3.5	1,529	4.60	7,032	4.45	1.37	0.26	42.0	0.30
	3	1,972	4.60	9,073	4.19	1.28	0.27	40.2	0.31
	2.5	2,406	4.60	11,070	3.92	1.20	0.29	38.6	0.31
	2	2,912	4.60	13,394	3.63	1.11	0.33	36.4	0.32
	1.5	3,372	4.60	15,513	3.38	1.03	0.37	34.5	0.32
	1	3,530	4.60	16,239	3.29	1.01	0.38	33.8	0.31
	0.01	4,949	4.23	20,953	2.60	0.79	0.42	27.9	0.25

Apart from the above mentioned resources a small Cu resource also exists within the stockwork domain. This resource only slightly overlaps with the Zn resource (ie only an insignificant number of blocks have Cu and Zn grade included in both tables). At a cut-off of 1.5% Cu the currently defined “Indicated” copper resource at Estação is 118,000 tonnes grading 1.99% Cu, 0.11% Zn, 0.03% Pb, 11.7 g/t Ag and 0.08 g/t Au (Table 19.27). Inferred Resources are estimated at 20,000 tonnes grading 1.58% Cu, 0.13% Zn, 0.03% Pb, 10.3 g/t Ag and 0.09 g/t Au above the same copper cut-off grade.

Table 19.27:Tabulated Resources by Cu Cut-offs

Class	Cut-off	Volume	Density	Ktonnes	Cu %	Zn %	Pb %	Ag g/t	Au g/t
Indicated	3	2	3.30	5	3.31	0.04	0.01	6.4	0.04
	2.5	4	3.30	14	2.99	0.05	0.01	6.2	0.04
	2	12	3.30	41	2.49	0.08	0.02	9.8	0.07
	1.5	**36**	**3.30**	**118**	**1.99**	**0.11**	**0.03**	**11.7**	**0.08**
	1	171	3.88	663	1.31	0.90	0.27	16.2	0.18
	0.5	973	3.95	3,838	0.79	1.31	0.39	17.5	0.17
	0.01	3,923	4.29	16,825	0.38	2.86	0.91	31.6	0.22
Inferred	3	0	0.00	0	0.00	0.00	0.00	0.0	0.00
	2.5	0	0.00	0	0.00	0.00	0.00	0.0	0.00
	2	0	0.00	0	0.00	0.00	0.00	0.0	0.00
	1.5	**6**	**3.30**	**20**	**1.58**	**0.13**	**0.03**	**10.3**	**0.09**
	1	88	3.65	321	1.17	0.74	0.22	14.6	0.16
	0.5	1,539	4.01	6,164	0.70	1.39	0.40	18.0	0.20
	0.01	4,961	4.23	20,993	0.42	2.59	0.79	27.8	0.25

Graphs depicting the grade-tonnage distributions according to cut-off are shown in Figure 19.25 and Figure 19.26.

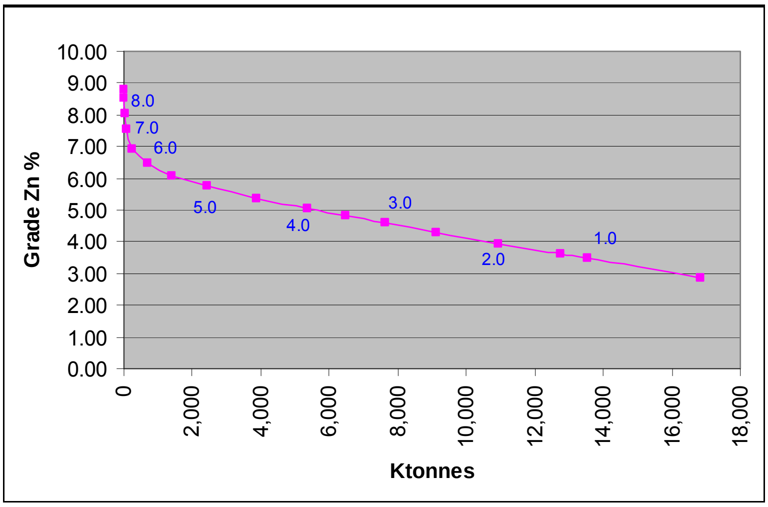


Figure 19.25: Indicated Grade-Tonnage Distributions by Zn Grade Cut-offs

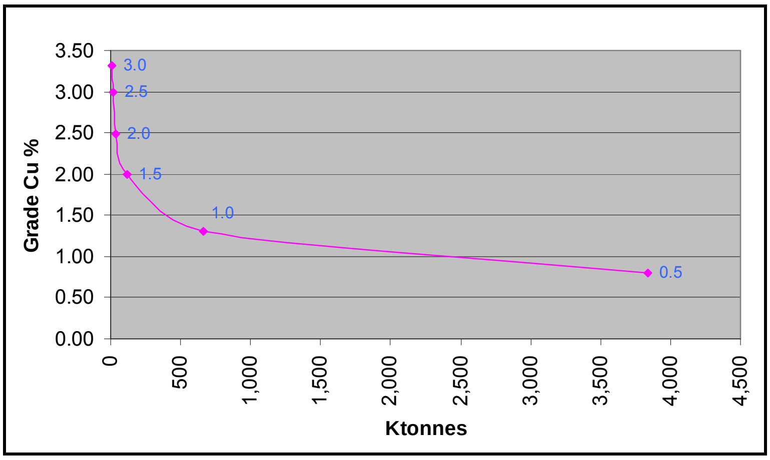


Figure 19.26: Indicated Grade-Tonnage Distributions by Cu Grade Cut-offs

WAI has reviewed the data, methodology and results of the Estação Deposit Resource Estimate and discussed the work with Mr. Burns. WAI is of the opinion that the methodology used to estimate the resource is appropriate to the deposit type, and that the methodology and results are sound.

The Estação resource does not have demonstrated economic viability as it has not yet been incorporated into the Aljustrel mine plan and converted into a mineral reserve.

19.4 Mineral Reserve Estimation

The mineral reserve estimate for the Feitais and Moinho deposits was completed in June 2000 as part of the SRK Feasibility Study. The geological and resource model was constructed using GEMCOM Desktop Edition Version 4.0 and is summarized below. This reserve has not yet been updated based on the AMEC resource estimate for Moinho. No reserve has been estimated for Estação.

WAI has reviewed in detail the methodology, parameters and procedures used to derive the reserve base for the Aljustrel project. This review included discussions with Lundin employees and consultants involved in the work, as well as site visits and report reviews. Based on this detailed review, WAI believes that these reserve estimates provide a reliable estimate the portion of the resource that could be profitably exploited. Further, WAI confirms that these figures represent the most current estimates of Aljustrel deposit reserves, although WAI understands that Lundin plans to update the Feitais estimate based on a revised resource estimate that is projected to be completed by year-end.

The mineral reserves were classified according to Canadian Institute of Mining, (November 14, 2004): CIM Definition Standards on Mineral Resources and Mineral Reserves necessary to be compliant with NI 43-101.

The mineral reserves for Feitais include the following dilution factors of 0.5% for primary stopes and 2.6% for secondary stopes. This is in addition to the uneconomic material included in the stope outlines. The projected higher dilution in the secondary stopes is from adjacent backfill in the primary stopes. Dilution has not been included for the Moinho deposit, as only partial extraction of stopes has been scheduled. The stopes are located within the massive sulphide, which has excellent ground conditions, well away from the hanging wall contact with the altered volcanic rocks.

Mineral reserves from the Feitais and Moinho deposit are tabulated in Table 19.28 to Table 19.30 below.

Table 19.28: Mineral Reserve (Probable) for Feitais Zinc Mineralization[3]

Tonnage (x1,000)	Zinc (%)	Copper (%)	Lead (%)	Silver (g/t)
12,200	5.67	0.22	1.77	64.15

Table 19.29: Mineral Reserve (Probable) for Feitais Copper Mineralization[3]

Tonnage (x1,000)	Zinc (%)	Copper (%)	Lead (%)	Silver (g/t)
1,612	0.97	2.16	0.26	14.26

Table 19.30: Mineral Reserve (Probable) for Moinho Zinc Mineralization[3]

Tonnage (x1,000)	Zinc (%)	Copper (%)	Lead (%)	Silver (g/t)
2,152	4.49	0.54	1.82	53.95

[3]*Note*: The 2006 Aljustrel zinc Mineral Reserves and Resources are estimated using cut-off grades of 4.5% zinc,4.0% zinc and 4.0% zinc for the Feitais, Moinho, and Estacao deposits respectively. The copper mineral reserves are estimated using a 1.5% copper cut-off. The Qualified Persons responsible for the Aljustrel reserve estimates are Guy Lauzier, P.Eng., Bob Carmichael, P.Eng, and Neil Burns, P.Geo.. These reserves and resources are shown in Lundin Mining Corporation's Annual Information Form for the year ended December 31st, 2006.

The current reserve estimate for the Moinho deposit is based on the SRK resource estimate and has not been re-designed to take into account additional drilling and resource estimation work initiated but not completed by AMEC in 2005. The new *Measured* resource is significantly larger (340%) than the previous estimate, which will result in a larger mineral reserve once the design work has been completed. The Moinho reserve will more than supply the envisaged first year of production while the higher grade Feitais deposit is being developed.

It should be noted that the resources, and hence the reserves at Aljustrel will be reviewed and updated at the end of 2007 in order to incorporate the results of additional drilling at Moinho and any modifications to stoping outlines at both Moinho and Feitais.

20.0 OTHER RELEVANT DATA AND INFORMATION

WAI is not aware of any other relevant data and information.

21.0 INTERPRETATION AND CONCLUSIONS

The Aljustrel Project includes a number of large VHMS deposits with economic quantities of copper, lead, zinc and silver. The Moinho and Feitais reserve estimate is adequate for long term planning and the work completed in support of the mineral resource and reserve estimate meets the accuracy expected at feasibility level.

WAI suggest that the classified resources be quoted at least by the current level interval. As an example, at Moinho the high grade resources should be stated for 275-305m; 305-355m and <365masl level intervals. Similarly these should be stated for Feitas and thereafter all of them recalculated for the new interval level of 20.0m. This would allow quick identification of the main resource and high grades between each level.

Due to the current high price for copper, WAI believes that consideration should be given to evaluating the AMEC resource model using a Cu cut-off grade (COG). Using the high grade Zn cut-off, Cu comprises 14% of the available resources in terms of value. It is the opinion of WAI that copper could significantly improve project resources.

There is likely be a strong variability in SG throughout the high grade zinc resource, which will correlate with the sulphide content and mineralogy. A total of 285 specific gravity (SG) determinations are available for Moinho. The high grade Zn zone model uses an SG of 4.81t/m^3 for all cells, and the low grade Zn zone is assigned with an SG of 4.25t/m^3 for all cells. No description for the methodology employed in determining the SG has been presented. WAI would postulate that simple, or weighted, averaging of samples belonging to corresponding zones was performed to obtain these SG estimates. AMEC suggest investigating the correlation between sulphides grade and SG however as available data does not include %Fe and %S grade information, this is not possible.

The Moinho and Feitais mines have been kept on a thorough care and maintenance programme from the cessation of production in 1993 until the present time. An initial Feasibility study towards reopening the mine was conducted by SRK in 2000, updated in 2001 and 2004. Further studies have been conducted by Eurozinc in 2005 and by Lundin Mining (PA) in 2006 resulting in some alterations to the design of the mine infrastructure, and in particular to the underground crushing and ore handling systems. In late 2006, the board approved a capital programme for the reopening of the mine, with a projected date for the commencement of production in the last quarter of 2007.

The current plan adopts the same basic stoping methods as proposed by SRK, but with a reduction in stope height and some detailed improvements to the backfill system. The other main alteration has been to replace the planned inclined conveyor to surface at the Feitais mine with a horizontal conveyor which utilises the existing underground connection to Moinho and the existing inclined underground conveyor from Moinho to the process plant.

WAI supports this basic choice of mining method. The ground conditions are generally excellent, as proven by the lack of any deterioration from roof spans of up to 30m x 50m in the massive sulphides over a period of more than 20 years.

Considerable improvements have been made to the process flowsheet since the SRK review (2000). Testwork undertaken by G&T Laboratories has demonstrated that the Feitais ore can be treated at a coarser primary grind size and with reduced rougher flotation mass pulls compared with the original study. This results in capital and operating cost savings but, more importantly, gives greater confidence in the feasibility of treating the Feitais ore since the use of a 25µm primary grind, as proposed originally, would have been without precedent in base metals flotation practice.

There is however a lack of any test data which demonstrates the feasibility of using the coarser (55µm) grind size to treat the Moinho ore in the first two years of production. WAI believes that the exceptionally high copper price now merits the production of a copper concentrate from the Moinho, and possibly the Feitais ores.

The draft Environmental Management Plan (EMP) reviewed during the 2006 visit outlined three main project areas are identified for further clarification. These were:

1. Obtaining an environmental PCIP licence and all supporting legislation for operations.
2. Updating and elaboration of the closure plan, and instigation of an environmental closure fund.
3. Implementing an Environmental Protection System to minimise environmental impacts, plus a monitoring programme to identify and mitigate for identified impacts.

WAI is satisfied that the first objective has been met, and that the project and company are, or will shortly be, in compliance with all relevant State legislation.

However, WAI is concerned that the proposed closure options for the mine are unproven, and may not be efficient in a field situation. Similarly, WAI has concerns regarding long term closure options, ensuring adequate site security and public protection. WAI trusts that these concerns will be addressed in the updated closure plan by CONFRATTER.

WAI is encouraged that some baseline environmental data has been collected since, but would recommend that further baseline environmental information and regular monitoring data are required to assess how severely the environment has already been damaged by previous operations, and how much damage is continuing.

At this stage it is not possible to state categorically that International Best Standards will be met at the start of the project for two reasons. Firstly, State assessment standards for the project will not be released until project approvals (PCIP etc.) have been granted. Secondly, there is still an absence of recent environmental quality data in some areas on which to assess the project.

Overall, providing the above concerns can be adequately addressed, WAI considers that the EuroZinc operations represent a **medium** level of risk.

The financial model in this study reveals that the project is most sensitive to the price of Zinc and to the exchange rate. However, despite the escalation of estimated capital costs compared to 2006, the revised forecast for the future prices of Zinc have had a significant effect on the financial performance of the project, improving the NPV from $28M to $77M, and increasing the IRR from 22% to 30%.

Even with the more conservative metal prices used in the 2006 technical report, the project is both viable and robust. Adopting the revised prices, which WAI consider to be more realistic, the project becomes even more robust.

The financial assessment and resultant model provides an indication of the likely operation returns, however there can be no assurances that the assumptions made in preparing these projections will prove accurate, and actual results may be material greater or less than those contained in such projections.

22.0 RECOMMENDATIONS

WAI considers that there is still potential for the high grade zinc zone to extend both down-dip below the lowest existing workings (335m level) and downdip and to the northwest of the current modelled resources. An examination of the grade distribution would suggest that the grades may well continue at depth but no elevation in grade should be expected. It would appear that the copper grade within the high grade zinc zone may well increase with depth.

WAI recommends that these resources be investigated by further drilling from both surface and from the footwall side of the deepest levels. To this extent EuroZinc instigated a 15,000m program for 2007 to complete step out drilling (identify new Inferred resources) at Feitais (8,400m), Estação (2,400m), Moinho (1,800m) and regional targets (2,400m) within the Aljustrel mining lease.

Furthermore, and as suggested by AMEC, in light of the variability of SG all samples should be assayed for Zn, Cu, Pb, Fe and S to enable a correlation between SG and sulphides grade to be investigated.

WAI believes that consideration should be given to evaluating the AMEC resource model using a Cu cut-off grade (COG). Using the high grade Zn cut-off, Cu comprises 14% of the available resources in terms of value. It is the opinion of WAI that Cu could significantly improve project resources. Subsequently revised reserve stope profiles are required and a mine design and schedule produced in-line with the updated resource estimates.

It is recommended that certain aspects of the processing flowsheet be reviewed, to include:

- The effect of higher copper head grades on lead concentrate quality;
- The feasibility of recovering a copper concentrate when the plant feed grade exceeds 0.3% Cu;
- The reliability of the IsaMill technology;
- The requirement for a flotation feed thickener;
- Cyanide permitting and potential risks of mixing cyanide with low pH water; and
- The proposed water treatment plan during commissioning and start up.

In terms of environmental considerations WAI recommends that the following actions be considered:

- Water and soil protection measures should be implemented immediately, to prevent potential unabated environmental degradation as well as a water management plan and finalising of water balance;

- An Environmental Management Plan should be formulated as soon as possible, to adequately address environmental issues at the site, and ensure that the appropriate management and response systems are in place;
- Implement an environmental monitoring plan to collect environmental quality data, to provide a measure of current environmental status, and to give a more realistic estimate of requirements for environmental expenditure and closure costs. This could include a programme for environmental training of employees and contractors.
- The proposed closure technology should be trialled, to ensure that it offers a sustainable, long term solution to mine closure, and details about after care, once EuroZinc are no longer locally based, and how sites can be successfully returned to the State as amenity land;
- A formal CDP should be drafted and reviewed;
- Regular external audits are carried out, to inspect operations, and examine environmental quality data, and to provide guidance and assistance in undertaking risk assessments and prioritising environmental expenditure, and reducing the environmental footprint, and impact of operations; and
- Regular external reviews be undertaken, to assess proposed Environmental Management Plans and Systems, Occupational Health and Safety Plans, CDPs and Mine Closure and Rehabilitation Plans to ensure relevance and compliance.

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24.0 DATE AND SIGNATURE PAGE

Technical Report on the Aljustrel Mine, Southern Portugal

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25.0 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES

As of March 2006, the Aljustrel Project has been characterised as a development property. The company is currently gearing the project up to go back into full production mode.

25.1 Mining Operations

25.1.1 Introduction

The Aljustrel Mine, is owned by Pirites Alentejanas, SA (PA) which is 100% owned by Lundin Mining Corporation. Lundin acquired PA through its merger with EuroZinc Mining Corporation in October 2006.

The Moinho and Feitais mines have been kept on a thorough care and maintenance programme from the cessation of production in 1993 until the present time.

An initial Feasibility study towards reopening the mine was conducted by SRK in 2000, and updated in 2001 and 2004. Further studies have been conducted by Eurozinc in 2005 and by Lundin Mining (PA) in 2006 resulting in some alterations to the design of the mine infrastructure, and in particular to the underground crushing and ore handling systems.

In late 2006, the Board approved a capital programme for the reopening of the mine, with a projected date for the commencement of production in the last quarter of 2007.

25.1.2 Mining Operations

25.1.2.1 Mine Plan

The current plan adopts the same basic stoping methods as proposed by SRK, but with a reduction in stope height and some detailed improvements to the backfill system. The other main alteration has been to replace the planned inclined conveyor to surface at the Feitais mine with a horizontal conveyor which utilises the existing underground connection to Moinho and the existing inclined underground conveyor from Moinho to the process plant.

Production of ore will commence from Moinho, using the existing crushing and hoisting system, and continue until the higher grade stopes in Feitais are ready for production. Ore from the Feitais mine will be crushed to 80mm in a combined primary and secondary underground crushing station to be situated on the 190m level. This fine ore will be conveyed to Moinho along the existing Santa Barbara tunnel on the 200m level, which will have been significantly enlarged to accommodate a deep trough conveyor and also to allow the passage of all sizes of trackless vehicles.

Stopes at Moinho will be mined by open stoping with pillars and be post-filled with waste rock. Mine production at Feitais will be by alternative primary and secondary stopes, post-filled with cemented rock fill (CRF).

In both mines, the opportunity will be taken to dispose of development waste in mined out stopes. The additional waste required for CRF at Feitais will be quarried from tested rock dumps on surface, and be mixed with cement in a dedicated plant on surface, prior to delivery underground via boreholes.

The objective of the plan, which is described in more detail in subsequent sections, is the best utilisation of the economic resources with a safe and productive mining method. The plan makes maximum use of the existing infrastructure and equipment and has a minimum impact on the municipal area.

There are three main economic ore bodies, which are planned to be mined consecutively:

- Zinc-rich mineralization at Moinho;
- Zinc-rich mineralization at Feitais; and then
- Copper-rich mineralization at Feitais.

The mine plan includes detailed stope outlines, development drawings, and up to date capital and operating costs estimates.

25.1.3 Existing Infrastructure

The naming of mine levels is based on metres below datum, with the zero datum elevation having been set at a historic mine entrance point on surface, which approximates to the average surface elevation in the area (see Figure 25.1 below).

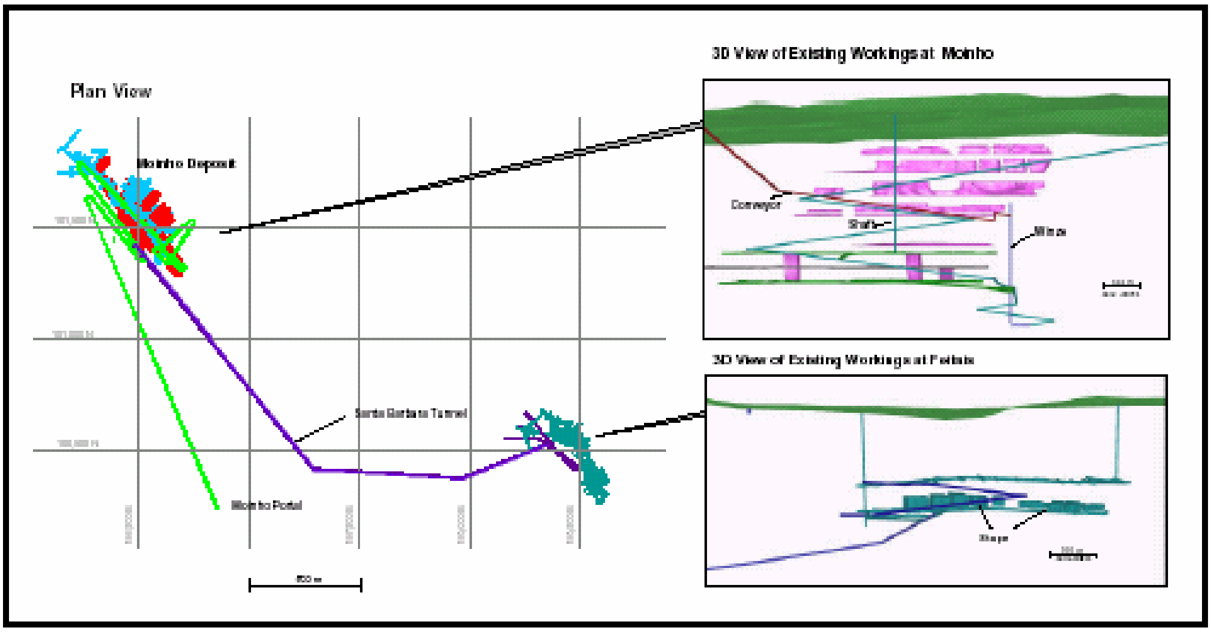

Figure 25.1: Existing Infrastructure at Aljustrel

25.1.3.1 Moinho

The Moinho mine was fully developed during the 1980's and was in production between 1991 and March of 1993. The mining methods used were a mixture of partial extraction, longhole stoping and cut and fill with waste rock fill. The operation used modern mining methods and large and productive mobile equipment.

The Moinho mine; which was the main producing zone in 1992 has subsequently been kept on continuous care and maintenance since 1993 by a small team of workers. In consequence, the mine access decline from surface, the man-hoisting shaft, the underground pumps and the underground development are all in good condition.

When last in production, ore was crushed to -150mm on the 355m level and hoisted from the producing levels (275m down to 335m) through a sub-vertical hoisting shaft (winze) to the 200m level, and thence by conveyor up a ramp to the surface ore stockpile.

The condition of all openings visited was good, especially considering that they have stood open for twelve years and more, and there is no obvious sign of deterioration. Ground conditions in the footwall drives are good with very little support. What support there is consists mainly of shotcrete and rockbolts, with short sections of steel sets in a few isolated spots. Inside the massive sulphide zone, ground conditions are even better. One stope was viewed from the top (275m level) which was some 60m long x 30m wide x 60m high and has stood open for over 12 years without any sloughing.

Mining costs prior to closure were approximately US$6.1/t against a budget of US$7.6/t. The operation had productivity for all mining personnel of approximately 5,300t/man year.

25.1.3.2 Feitais

Before production ceased in 1993, some development and production stoping were conducted in the Feitais orebody, which was accessed and developed from the Moinho mine via the Santa Barbara tunnel on the 200m level. This was a tracked haulage of about 2.5m x 2.5m dimensions, supported with steel sets and concrete where it passes through weak ground. There were some stopes at Feitais opened up above the 190m level in 1991-3, and these are still standing open, as is the footwall development on the 140m and 190m levels. These levels are inter-connected by a service ramp in the footwall, which was mined down to the 210m level and up to the 112m level, in anticipation of connecting through to surface in due course. This ramp has remained in relatively good condition, as has the Portal and some 70m of decline which were developed from the surface in preparation for connecting with the Feitais internal service ramp. Two ventilation raises to surface also exist at Feitais, one at the NW extremity from the 190m and 140m levels and one at the SE extremity from the 140m level.

25.1.4 Proposed Mining Method

25.1.4.1 Moinho

The existing stoping outlines and mining plan still remain as proposed by Golders in 1991, which was basically a longitudinal retreat, adopting 30m long long-hole open stopes and leaving 12m wide pillars with no post fill. An 8m span was to be left between the stope hanging wall and the top of the massive sulphides. Level development was laid out accordingly, much of it in ore. It is now planned that the stopes at Moinho will be post-filled with uncemented waste from underground development, and that the level interval will be 20m, as for Feitais.

PA is in the process of re-designing the stope and pillar outlines at Moinho, The slot raise for the first stope is ready, and stope drilling is scheduled to start in August. The second slot raise will also be raise bored in August.

25.1.4.2 Feitais

The SRK concept of using longhole open stoping with post filling, and mining upwards from the base of reserves, has been retained at Feitais. However, PA have modified the maximum stope heights from as much as 60m, to a maximum of 20m, in order to better control dilution and mining recovery.

Having visited the existing workings underground at Feitais, WAI supports this basic choice of method. The ground conditions are generally excellent, as proven by the lack of any deterioration from roof spans of up to 30m x 50m in the massive sulphides over a period of more than 20 years. The two types of hanging wall rock (rhyolites and sediments) were observed and their bedded nature noted, as well as the sharp nature of the boundaries with the massive sulphides.

At stope strike lengths of 20m to 25m, and widths of up to 30m, the concept of cemented fill stope walls of 40m to 60m high when mining secondary stopes relies heavily on sufficient fill strength to control dilution and prevent large collapses of fill. WAI therefore supports the reduction of the maximum stope height to 20m, although even at this height, the extent of dilution from the fill will depend upon good control of fill strength (cement addition and mixing) and also careful stope blasting technique.

SRK estimates dilution of 0.5% in primary stopes (calculated from 0.5m over-dig on the waste fill floor), and 2.6% in secondary stopes (0.5m from each stope side wall in addition to overdig). These figures represent dilution as a percentage by weight of hoisted ore (i.e. of ore + waste). WAI notes that the Specific Gravity of the ore is 4.6t/m^3, and assuming that of the waste fill is .2.8t/m^3, then the percent dilution by volume would be about 1.6 times the dilution by weight, i.e. almost 5% by volume. This is a logical estimate, although good supervision will be required to achieve such a low dilution, which can also be exacerbated by other factors such as poor accuracy and control during mining and extraction.

These estimates also assume zero dilution from the waste hanging wall, by virtue of leaving a 3m thick skin of massive sulphide below the geological hanging wall. The concept is that 3m should be thick enough to be structurally sound, and that any spalling that may occur would be of ore grade. The exact thickness of skin will depend on actual stoping trials, and some early stopes will be designed with progressively smaller thicknesses of “skin” on the hanging wall, until an optimum thickness is achieved which balances extraction against dilution. It may be in practice that the extra high grade extracted by leaving no skin compensates for any dilution which may be incurred.

The reduction of stope height to 20m has the added advantage of improving the efficiency and accuracy of the stope drilling. Holes can all be drilled down, and holing positions can be spotted on the lower sill level to check on deviation, and hence blasting efficiency.

The diagram below (see Figure 25.2) shows the elements of stope design taken from the original by SRK.

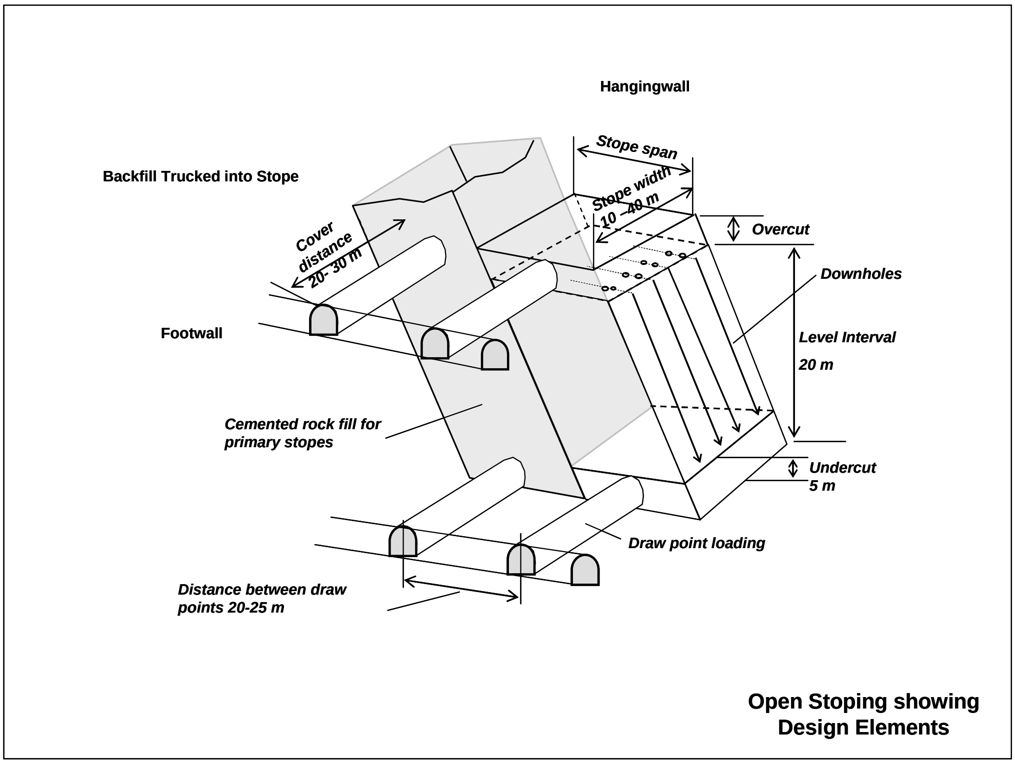

Figure 25.2: Elements of Stope Design for Feitais (after SRK)

The bulk of the waste rock required for backfill will be provided from existing, designated dumps on surface, which have already been tested for suitability, and will be crushed to a nominal 75mm. A custom designed mixing plant will be erected on surface where the cement slurry will be mixed with the crushed rock at a controlled rate. It is estimated that a cement addition rate of up to 5% will be required for the primary stopes and up to 1.5% for the secondary stopes. The ready mixed CRF material will be fed to underground via a series of ten, 400mm, surface boreholes situated along the strike of the orebody, to the 140m level, and thence be redistributed (by gravitation) by flexible piping and branch borehole lines to each stope.

25.1.5 Pre-production Development and Infrastructure

25.1.5.1 Moinho

The entire basic infrastructure for reopening the Moinho mine is already in place, so pre-production activities will consist largely of stope preparation and drilling, together with the final rehabilitation of all parts of the existing service and hoisting systems. It is also planned to enlarge the inclined tunnel containing the conveyor which brings the ore to surface so that all mobile equipment has a second means of access at Moinho and so that access to any point in the conveyor system for purposes of repair and clean up is facilitated (see Figure 25.3 below). Some additional development is required below the 355m level to access the lower line of stopes.

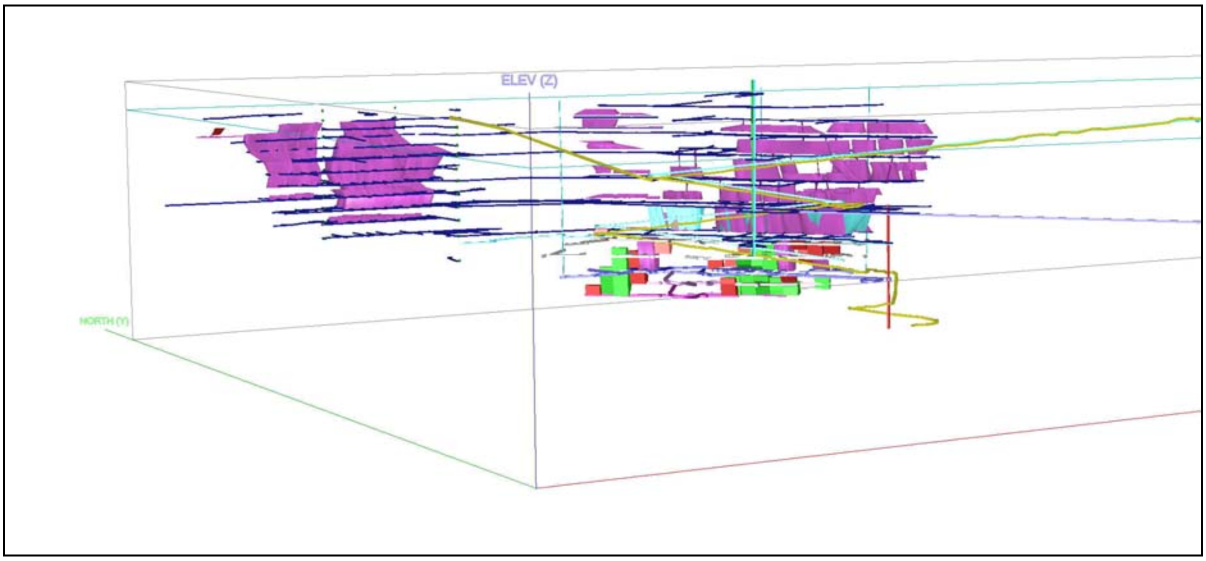

Figure 25.3: Longitudinal Section showing Moinho Mine Infrastructure (Drake, Lauzier & Dawson 2006)

The ore and waste handling system for production from Moinho, currently scheduled for the first 18 months, has been kept in good condition since 1993 under care and maintenance. Ore will be handled by truck or LHD to the crusher on 340m level, whence it will be hoisted up the existing winze, tipped into a bin and carried from the 200m level to surface by conveyor. The sub vertical hoisting system "headframe" area will be modified to enable guided discharging of the bottom–dump skips, thus making the skip cycle faster and more controlled.

The conveyor consists of five sections, with five transfer points and includes one 620m long flight at a gradient of 20%.This system averaged 360tph with a 71% availability in 1991-93 and PA believes that the conveyor system can be operated on a sustained basis at 375tph. PA will be fitting turnover points on the under (return) side of each belt in order to improve belt cleanliness and maintenance. The winze, crusher and belt have all been tested and run recently, and there is money allowed in the Capital programme for the refurbishment of the crusher and the conveyors.

The current ventilation system was adequate for mining 1.1Mtpa in 1992, and is therefore considered to be sufficient for the planned production from Moinho, supplemented as required by auxiliary fans.

The electric power and industrial water networks are already in place at Moinho.

The ore conveyed from underground will be fed on surface to a new secondary/tertiary closed-circuit cone crushing plant, which in turn will discharge fine ore (at a nominal 12.5mm) on to a 60,000t (9,000t live) covered stockpile on surface, whence it will be reclaimed to the grinding section of the process plant by a set of four feeders.

Men will be lowered and hoisted between surface and the 200m level using the existing friction winder and cage.

Trackless vehicles and materials will be handled in the ramp from surface, which enables access to all parts of the mine, down to the bottom of the sub-inclined hoisting shaft (winze).

25.1.5.2 Feitais

In the past year, PA engineers have made significant changes to the layout and design of the project, particularly with respect to the ore and backfill handling systems and the mining level intervals at Feitais.

The main change to the SRK design is the elimination of the 1.9km ore handling conveyor from the 430ml crusher at Feitais to surface. It will be replaced with a deep-trough conveyor along the existing Santa Barbara tunnel to Moinho, whence ore will be conveyed to surface using the existing conveyor (see Figure 25.4 below).

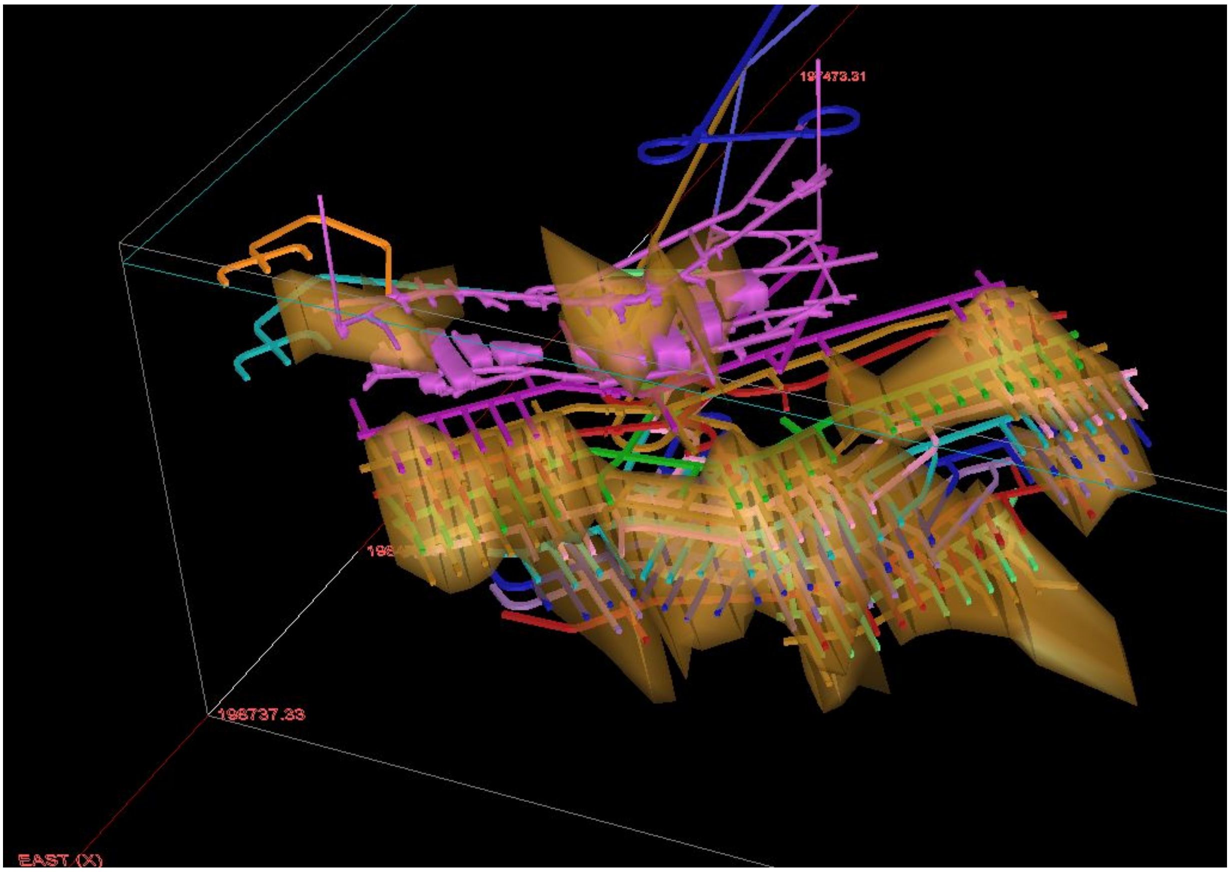

Figure 25.4: Feitais Mine Infrastructure
(Drake, Lauzier & Dawson 2006)

On reviewing the original SRK design for the Feitais inclined ore conveyor, the management of PA was concerned about:

- The practical problems of operating such a long conveyor, constructed as a series of flights, at the relatively steep gradient of 25%, with the attendant problems resulting from belt breaks and general spillage , and
- The fact that the time allowed for its completion was considered unrealistic.

A deep-trough conveyor, by its design, limits dust and spillage, and can be installed as a single flight over long distances, encompassing both vertical and some lateral (500m radius) bending. Installing the conveyor in the Santa Barbara tunnel will make use of existing development, and will continue to utilise the Moinho ore hoisting conveyor to surface, which was due to be removed and re-used at Feitais in the original SRK plan.

One implication of installing the conveyor on the 200m level is how to feed it from the underground crusher, originally planned for the 430m level, at the base of reserves. This has been resolved by moving the crushing station up to the 200m level and hauling all the ore up to that level by truck. The capital and operating costs for additional trucks have been allowed for in the revised plan. The crushing station will also be modified to allow for a secondary (cone) crusher in closed circuit with the primary jaw crusher, to provide a nominal feed size of 80mm to the conveyor. It will be necessary to enlarge the Santa Barbara tunnel to allow access for trackless maintenance and spillage cleaning vehicles in addition to the conveyor itself. This has been achieved by designing a revised profile of 5.5m high x 5.7m wide, which will allow unfettered access to all sizes of vehicles to be used. In some sections of the tunnel this will require concrete and larger size steel sets. Some of this re-sizing work has already commenced and has successfully passed through some bad ground.

In a single line conveyor system of such length, (ie. the 200m level conveyor plus the Moinho conveyor to surface), it is essential that there is sufficient buffer storage. This is to be provided by four storage bins (silos) below the 200ml crusher, each of c. 1000t capacity. The Moinho conveyors are, and the Feitais conveyor will be, of at least 375tph capacity, and thus theoretically capable of hoisting a day’s production in less than 14 hours.

The feed from the silos on to the deep-trough conveyor will be some 30m below the 200m level, and the tipping point on to the Moinho surface conveyor will be some 20m or 30m above the 200m level, so the conveyor will have to negotiate two vertical lifts. There is a sharp lateral turn part way along the Santa Barbara tunnel, and thus the conveyor has been designed in two flights, with a transfer point at the bend.

The ventilation network planned for Feitais has been modelled in *VentSim* and with the additional raises planned to surface, has been designed to provide sufficient quantities of fresh air at all work places and to meet or exceed regulatory requirements for the operation of diesel machines underground.

Pumping from the Feitais mine is planned to be from a station on the 410m level equipped to handle up to 2000m^3/day of dirty water, pumping up to the 200m level. From here, the water will be piped along the Santa Barbara tunnel to Moinho for pumping to surface. A spare rising main will be installed in the Feitais service ramp, for use in an emergency. The anticipated maximum quantity is based on a study carried out by SRK in 2000.

A quantity of water is currently running along the drain in the Santa Barbara tunnel, emanating from the Feitais and Algares mines and the tunnel itself, and is pumped to surface at Moinho. The tunnel has a down gradient of 1% towards Moinho. When the tunnel has been enlarged and the conveyor is installed, the tunnel becomes trackless and the water will be collected in sumps and pumped separately to Moinho.

25.1.6 Mining Organisation and Manpower

The total number of mining personnel at full production, including maintenance, is estimated to be 218. This equates to a productivity of 8,256 tonnes per annum per employee, which compares reasonably well with other similar operations in the world. The workforce is, however, planned to be supplemented with a varying number of additional personnel/companies on short and medium term contracts for carrying out certain duties, such as raise boring, diamond drilling and some maintenance tasks.

The Mine Superintendent (Director of Mining) will report direct to the General Manager, and will have reporting directly to him the planning and production engineers, the mine geologist, the mine foreman (Mine Captain) on each shift, and the head of mine maintenance. The mine health and safety officials will report to the Head of Human Resources.

The mine will operate two 10-hour shifts per day, seven days per week, adopting a four crew system.

A leaky-feeder cable system is being installed in all underground haulages and ramps, such that all personnel underground will be in telephonic communication.

As at The start of 2007, the mine was employing approximately 50 permanent personnel. It is planned to recruit and train in order to build this number up to about 200 by the start of production.

The following organisation (Figure 25.5) chart shows the numbers and distribution of permanent PA employee positions as they will be in July 2007.

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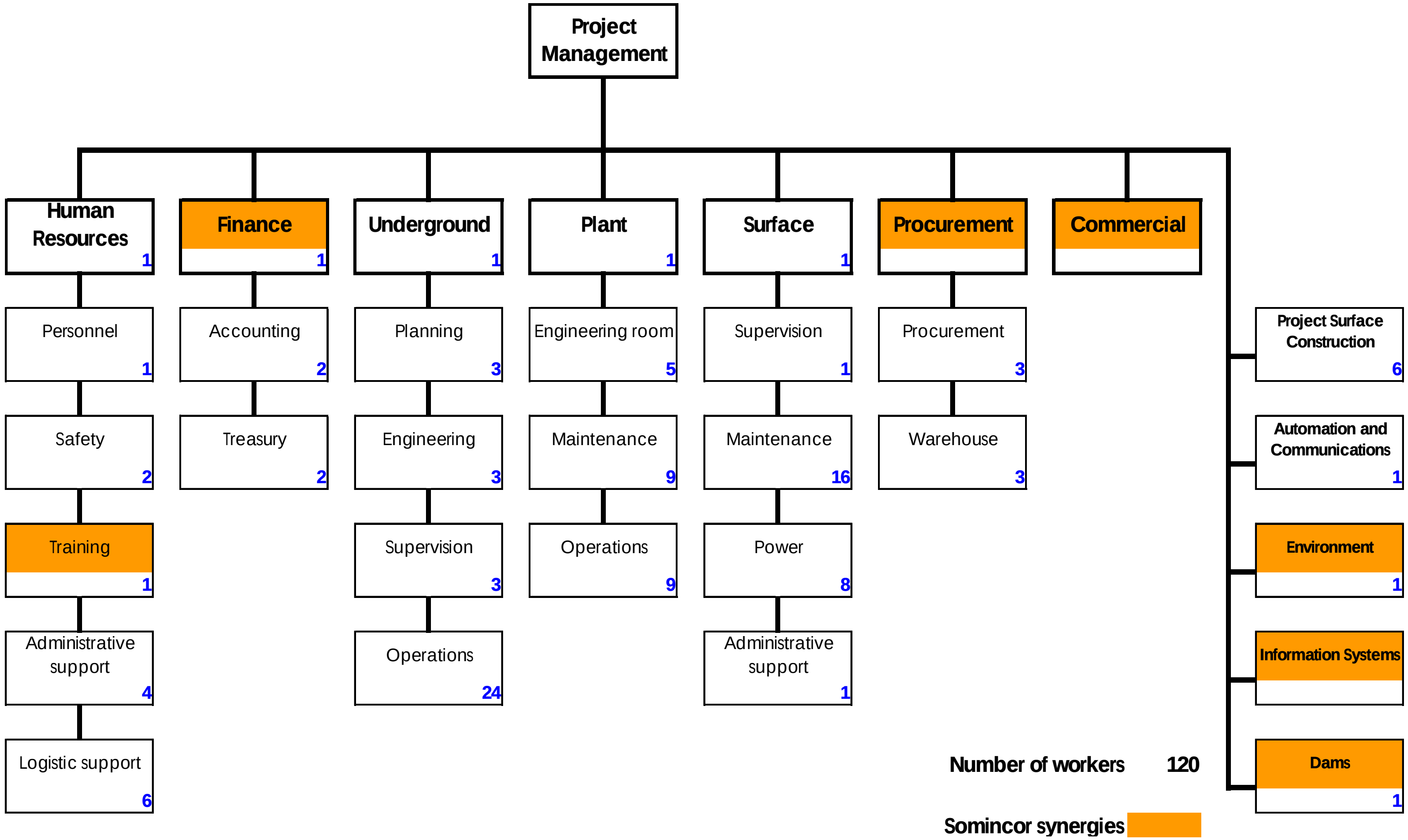

Figure 25.5: Organisation Chart

25.1.7 Production and Development Schedules

25.1.7.1 Development Schedule

A period of two years (from January 2006) has been scheduled for the work required to prepare the Feitais mine for sustainable production. Broadly, this will consist of:

- Enlarging the Santa Barbara tunnel on the 200m level, connecting it to the discharge point at the Moinho end, and installing the two flights of deep-trough conveyor, together with transfer points and feeders;
- The completion of the main access ramp from surface, by developing the remaining portion from the portal to the 112m level, and continuation of this ramp to the base of operations on the 415m level;
- The development of an ore pass system, crusher chamber, bins and conveyor loading arrangements, and installation of the primary and secondary crushers and associated hardware;
- The mining of dedicated backfill boreholes and fresh air raises from surface to the 190m level; and
- Development of the 220m, 250m, 310m and 370m levels and stope preparation development and drilling for the first production stopes.

All this work has been scheduled in detail, using a computer model which identifies each task and its duration in sequence, adopting the logic and rates of achievement, input by the planning engineers.

A rate of 4.5m/day (135m/month) has been estimated for the development, by contractor, of the access ramp. This is a fast-track approach, and is considered attainable given that both faces are independent and therefore can be multi-blasted, and also that the disposal of waste is facilitated in that there is more than sufficient space in the mined out stopes at Feitais to accommodate the disposal of all the waste generated. Enlargement of the Santa Barbara tunnel has been scheduled at a rate of 7m/day in good ground and 2m/day in areas requiring support.

It is understood that more conservative rates of advance (i.e. between 60m and 30m/month) have been adopted for other internal development, allowing time for the installation of services and support as necessary.

Associated surface works at the Feitais site have also been costed and scheduled, and include new mine changehouse and offices, workshops, a new sub station, and storage facilities.

25.1.7.2 Mining Production Schedule

The mining production schedule used for this report is summarised in the tabulation below.

The current mine schedule shows a mine life of 10 years, based on an average annual full production rate of 1.8Mtpa (achieved in years 3 to 7).

Ore Source	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**Totals**
Moinho Zn ore - kt	709	1076	367								2152
% Zn	4.50	4.51	4.52								
% Pb	1.79	1.82	1.88								
% Cu	0.55	0.56	0.59								
g/t Ag	53.60	54.10	55.07								
kt Zn metal	31.9	48.49	16.59								96.98
kt Pb metal	12.67	19.57	6.9								39.14
kt Cu metal	3.88	6.06	2.18								12.12
kg Ag metal	38000	58211	20210								116421
Feitais Zn ore - kt		497	1383	1800	1800	1800	1800	1685	1085	381	12231
% Zn		6.26	6.19	5.84	5.56	5.67	5.60	5.56	5.49	5.13	
% Pb		1.86	1.89	1.75	1.62	1.78	1.87	1.88	1.85	1.67	
% Cu		0.26	0.23	0.21	0.21	0.22	0.23	0.21	0.20	0.64	
g/t Au		0.80	0.80	0.80	0.78	0.77	0.79	0.79	0.79	0.79	
g/t Ag		66.52	67.50	62.49	58.18	62.79	66.00	69.25	68.38	56.90	
kt Zn metal		31.14	85.66	105.06	99.99	101.97	100.71	93.77	59.54	19.53	697.37
kt Pb metal		9.23	26.09	31.42	29.07	31.95	33.66	31.61	20.03	6.38	219.44
kt Cu metal		1.28	3.19	3.86	3.78	4.02	4.08	3.46	2.2	2.43	28.3
kg Au metal		398	1107	1440	1395	1386	1422	1331	857	301	9637
kg Ag metal		33061	93346	112487	104727	113026	118795	116686	74195	21677	788000
Feitais Cu ore - kt									400	1212	1612
% Zn									0.99	0.96	
% Pb									0.29	0.25	
% Cu									2.03	2.20	
g/t Ag									15.10	13.98	
kt Zn metal									3.94	11.68	15.62
kt Pb metal									1.18	3.06	4.24
kt Cu metal									8.13	26.61	34.74
kg Ag metal									6041	16945	22986
Total tonnes milled	**709**	**1573**	**1750**	**1800**	**1800**	**1800**	**1800**	**1685**	**1485**	**1593**	**15995**
Total cont Zn metal - kt											**809.97**
Total cont Pb metal - kt											**262.82**
Total cont Cu metal - kt											**75.16**
Total cont Au metal - kg											**9637**
Contained Gold- oz											**309834**
Total cont Ag metal - kg											**927407**
Contained Silver - oz											**29816600**

[NB Metal content is expressed as contained in ore, before processing]

It should be noted that this schedule is currently under review, and that this is likely to result in modifications to the timing and quantities of various outputs. For example, current indications are that ore production from Moinho will not commence until November 2007, and that there will be no production of lead concentrates from Moinho, and hence no lead or silver metal.

25.1.8 Mining Costs

25.1.8.1 Operating Costs

Operating costs have been built up from a detailed costs data base, by month for the first two years of production, and thereafter by year. The total cost over the mine life, including pre-production period, is €227.3M for a total ore production of 15.995Mt.

The average mining cost over the ten-year mine life is €14.21 per tonne of ore. This is based on reasonable productivity and the current cost of consumables in the Iberian peninsular.

All relevant back-up details are contained in the financial model, which is available for inspection at the mine.

25.1.8.2 Capital Costs

Capital estimates for the mining department include all development, equipment, services and infrastructure appertaining to the underground mine and the total expenditure is currently estimated to be €43.93M.

25.2 Environmental Considerations

25.2.1 Introduction

WAI has assessed the potential environmental and social impacts arising from the projects as they currently stand and when further operations begin, and considers potential environmental liabilities associated with these. In addition, WAI has also assessed areas of potential environmental risk associated with existing components and proposed operations with regard to international standards and best practice.

The properties were originally visited by WAI on 05 and 06 September 2006, comprising site walkovers at Aljustrel, an underground visit at Moinho mine, together with meetings and discussions with representatives from the company (Pirites Alentejanas – PA) workforce and the current owners of the mine. At that time, discussions were held with Jorge Magalhães one of the environmental managers, Ricardo Bandin, Adviser and Head of Safety and Guy Lauzier, General Director.

During the course of the visit and thereafter, WAI also reviewed the following documents, provided by the company:

- EuroZinc Aljustrel Feasibility Study 2001 update;
- EuroZinc 43-101 Technical report on Aljustrel Project March 2006;

- Rescan Environment Ltd. Environmental Management and Closure Plan;
- Steffen Robertson Kirsten (Canada) Inc. EuroZinc Aljustrel Project Feasibility Study – June 2000;
- Steffen Robertson Kirsten (Canada) Inc. EuroZinc Aljustrel Project Feasibility Study – March 2004 update;
- EuroZinc Renewal Annual Information Form March 30 2005;
- EuroZinc Feasibility Study 2001 Volumes 1&2;
- Knight Piésold Waste and Water Management Plan, Geotechnical and Environmental Input to the Feasibility Study September 1999;
- EuroZinc map for Zone of Industrial Use;
- EuroZinc Feitais Industrial Zone map;
- Industrial discharge water and tailings permit 05.11.2003 – discharge limits;
- Industrial discharge water permit for Tailings and Clear water ponds 03.04.01;
- Law on water discharges and water quality 1998;
- Formulario PCIP – Modelo de pedido de licenciamento de actividades económicas abrangidas pelo Decreto-Lei no. 194/2000 de 21 Agosto, que aprovou o regime jurídico da prevenção e controlo integrados da polução (PCIP);
- Projecto Aljustrel Plano de Actuação e Orçamento Provisional para o Licenciamento de Barragems e Aterros para a Elaboração de Manuais de Procedimentos e Monitorização e Planos de Gestão Ambiental, da Água e Resíduos e Plano de Fecho, no Período de Setembro 2006 a Setembro 2007;
- Projecto Aljustrel Gestão Ambiental – draft 22 August 2006;
- Enquadramento Legal para Licenciamento Ambiental PCIP do Projecto Aljustrel; and
- Diagnóstico Preliminar da Situação Actual dos Processos de Licenciamento de Barragens e Aterros e Recomendações para a Elaboração de Manuais de Procedimentos e Monitorização e Planos de Gestão Ambiental, Fecho, Água e Resíduos.

An update environmental visit was carried out by WAI on 23 and 24 August 2007. Surface operations were revisited at Moinho and Feitais Mines and the plant construction progress was noted. The Tailings Management Facility (TMF) (Barragem de Estereis) and the clear water dam (Barragem de Aguas Claras) were also visited. Discussions were held with Vera Palma the new environmental manager, and Jorge Magalhães, the former environmental manager who now works in the plant. Clara Godinho, the Health and Safety manager was also interviewed and discussions were held with Guy Lauzier, General Director.

During and subsequent to the visit, the additional documents provided by the company were reviewed:

- Water monitoring results for tailings dam, clear water dam, industrial water dam and minewater – AmbiPar Control, Castro Verde, Portgal; November and December 2007;
- Water sampling results for various determinands for tailings dam, Aguas Fortes Dam and industrial water dam – Pirites Alentejanas S.A. 1999-2007;
- Clear water dam water sample results – AmbiPar Control, Castro Verde, June 2006;
- Environmental Policy – Pirites Alentejanas S.A., December 2006;
- Preliminar Avalição da Qualidade Ecológica das Águas das Ribeiras situadas na zona de Influência das Minas de Aljustrel (Aquatic ecology quality survey in rivers in zone of influence of Aljustrel mines) – Insituto do Mar (IMAR), Coimbra, April 2007;
- Características de Emissões de Ruido para o exterior Ventilador Korfman Pirites Alentejanas, S.A. (noise survey) – Envi Estudos Monitorização, Lisbon, March 2007; and
- Formulário PCIP Modelo do pedido de licenciamento de actividades económicas abrangidas pelo Decreto-Lei No. 194/2000 de 21 de Agosto, que aprovou o regime jurĩdico da Prevenção e Controlo Integrados da Poluição (PCIP) (Intergrated Pollution Prevention and Control (IPPC) submission and supporting annexes) – Envi Estudos, Lisbon, May 2007.

25.2.2 Local/National/International Regulatory Requirements

Mining operations at Aljustrel have been suspended since 1993 and the project up until recently has been maintained on care and maintenance by the Somincor (now Lundin) operating company Pirites Alentejanas (PA). WAI understands that Government environmental requirements have been relaxed during this operating period and hence there has been no formal requirement for environmental monitoring for the period since 1993. Since September 2006 some environmental studies have been carried out, to assess current environmental status. These include a noise survey, to look at noise production from the Korfmann ventilator for the mine, and a mitigation plan for this. Water quality for the dams, storage reservoir, and mine water was also analysed in November and December 2007, and some yearly tailings dam water quality results are available from 1999 to 2007. A report on hydro fauna and flora in the rivers within the zone of influence of the mine is also available. Three dust monitors have also been procured and these will be installed so that a dust survey can be carried out. No results have currently been obtained. This situation is much improved since the last visit as some baseline environmental information is now available. There is still a lack of information on soil and air quality, but this can be remedied if soil and air quality monitoring programmes are implemented as a matter of priority.

Since the last visit, another environmental team member, Vera Palma, has been employed to replace Jorge Magalhães, as a deputy to the overall environmental manager Henrique Gama who is predominantly based at Neves Corvo and was not present during the WAI visit.

An inspection was carried out in 2000 by the National Institute of Water to look at the works proposed for the dams. The outcome of this was a list of actions required before the necessary environmental water permits could be granted. In response to this the company has undertaken the works highlighted by the government inspection and has submitted an improvement study (Plano de Adequação para aterro BE/BAC/BM) for the Tailings Management Facilities (TMFs) to the local authorities. This study was carried out by CONFRATTER a Portuguese consortium of environmental and geotechnical consultancies. PA is now waiting for a response from the authorities regarding these permits, so that the works done can be approved and additional works, to address the leaks, can be commissioned.

Since the WAI September 2006 visit, Envi Estudos, a Lisbon based environmental consultancy, has been commissioned to undertake a contract of works to fulfil requirements for an Integrated Pollution Prevention and Control (PCIP) permit. The PCIP submission was made to the authorities, with the required supporting documentation, in May 2007. The authorities responded to the submission with requests for further information, which PA submitted on 27 and 28 August 2007. Providing the submission is accepted, and PA does not see any reason why this should not be the case, a PCIP permit should be in place by 31st October 2007, as stipulated by the authorities. This licence will need to be in place before concentrate can be produced or sold.

The PCIP permit, once granted, includes a list of project-specific discharge criteria for water, land and air, set by the State, with which the operation has to comply. There is no finite life or renewal requirement for the PCIP permit, unless significant changes are made to the operations when an update will be required. Similarly if the conditions of the permit are breached the permit may be suspended until the problems are solved.

PA has also commissioned CONFRATTER to produce a plan to construct a temporary waste storage facility (a type of landfill) for the pyritic acid generating waste and inert waste rock that is present in the area of the Feitais mine. A permit was granted in July 2007 and WAI understand that construction works should start imminently.

WAI considers that appropriate management structure and mechanisms are in place to ensure that the project obtains the appropriate environmental permits and that the company are minded to move towards International compliance levels at an early stage of operational life. This is reinforced by significant environmental progress since 2006. WAI is however concerned by a lack of baseline environmental information in some areas, by some of the untested proposals for closure and long-term care, given the highly acid-generating nature of the mine waste and tailings.

25.2.3 Land Ownership and Environmental Liability

Within the PA licence area the company will inherit some liability for historic environmental degradation. Within the licence area there are pyrite wastes with high ARD potential from previous mining operations and PA will therefore be responsible for the remediation of these, as part of continuing operations. For this reason, PA has submitted a proposal (as mentioned above) and received a licence from the State in July 2007 to construct a temporary storage facility to segregate acid-generating waste, by surrounding it with non-acid generating waste rock and providing a drainage sump to collect contaminated water and pipe it underground, and eventually into the TMF. This material will eventually be used for backfill underground in the Feitais mine.

A large sector of the site, which was historically also owned by the company has now been taken over by the State (EDM) for Rehabilitation and is no longer included in the PA licence area. This area is to the south of Feitais mine and includes the BAF (Barragem de Aguas Fortes) lagoon and the worst area of pyrite waste. PA is not responsible for environmental liability in these areas.

25.2.4 Description of Natural Environment

The town of Aljustrel is located in the Alentejo region, a large rolling plain dominating most of southern Portugal. The Alentejo occupies and area of approximately 2.5Mha, about 30% of the total area of Portugal. This area is responsible for ~75% of the country's wheat production. Despite this, poor soils dominate and the area is also known for its cork oak and olive stands. The plain is traversed with meandering streams that dry out in the summer. Various factors had led a move towards diversification of agricultural production.

Population density is relatively low in the area, with an average of 19.5persons/km^2. The population of Aljustrel is approximately 11,820.

Some baseline conditions for surface water, noise, and hydrofauna and flora have been collected since the closure of the project in 1993. The aquatic study, carried out on three rivers within the zone of influence of the mines at Aljustrel (Azeda, Roxo, Morgado) indicates poor water quality and a low number of invertebrate species, indicating that water quality has been significantly degraded already. Water quality studies carried out on mine water, the TMF, the Barragem de Aguas Claras and the Industrial water pond also indicates existing pollution in some areas. The mine water is strongly acid (pH 2-3) with some high readings for suspended solids, Cl and Cu. Similarly the emergency dam from the plant and the Tailings Dam (Barragem de Estereis) is highly acidic (pH 2-3) with some high readings for Ca, Cu, suspended solids, Cl ad sulphates. The clear water dam shows a more neutral pH (6-7) but there are still some high levels of Cl, Ca and sulphates. The water quality in the industrial water dam was good. Thus it is clear that environmental quality has already been substantially degraded as a result of previous mining activity at Aljustrel.

The mine and the local community are inextricably linked, with the main mine sites being in the middle of the town. Visual impacts are already considerable, particularly in the environs of the Feitais mine, with the dumped material and acid water lagoon, although the majority of this area is now the responsibility of the State and forms part of a remediation project. Similarly the tailings dam and the clear water dam already have a considerable visual impact.

25.2.5 Corporate EHS Management

25.2.5.1 Policies and Practice

The company has an experienced Environmental and Health and Safety Management team, who will implement similar Environmental and Health and Safety Management Policies to those already proven in the nearby Neves Corvo Mine, also owned and operated by Somincor. Policies and practices have been introduced at a corporate level but will need to be adapted to form specific Environmental, Social and Occupational Health and Safety plans for the project. An environmental management plan will be the focus of the forthcoming months, whilst a Health and Safety plan has already been formulated for Aljustrel. This plan includes a process description, a risk assessment, and information on risk mitigation and appropriate Personal Protective Equipment (PPE). A company Environmental Policy was approved in December, and contains good pledges towards environmental protection. It will be important to ensure that these policies are put upheld throughout the working life of operations.

25.2.5.2 Organisation of EHS Management

As mentioned above, the Environmental team and the Health and Safety team are responsible for all EHS management within the licence area. Operations are also subjected to inspections by State authorities. PA had put together an action plan for Sept 2006 – Sept 2007 in the document *Projecto Aljustrel Plano de Actuação e Orçamento Provisional para o Licenciamento de Barragens e Aterros para a Elaboração de Manuais de Procedimentos e Monitorização e Planos de Gestão Ambiental, da Água e Resíduos e Plano de Fecho, no Período de Setembro 2006 a Setembro 2007*. Much of the work to obtain environmental permitting (particularly PCIP permit) is already well underway and the company advises that an updated environmental management plant will be prepared in the coming months. It is also planned to prepare a detailed water management plan – a draft water balance plan has been prepared (this was not viewed by WAI) and will be finalised in the next few months.

CONFRATTER has also been commissioned to update the existing closure and management plans prepared by Rescan in 2001. Additionally an action plan with a timeline will be submitted to the State authorities. This, along with an environmental management plan for operations, should be formulated as a matter of urgency. These are requirements under the PCIP licensing process and financial provisions for closure will also need to be submitted to the State authorities before the permit is granted.

25.2.5.3 Security

Given the inextricable link between the town life and the mine life, and the fact that the town of Aljustrel grew up around the mine, it would now be impossible to adequately secure all mine sites. Adit entrances are clearly labelled with safety notices and secured to prevent public ingress. Similarly, there is a security fence around the plant and the TMF and clear water dam, with restricted access to these areas. All employees have identification badges, and access is restricted by security personnel at all mine sites. It was reported to WAI that the local community are used to living with the mine, and do not try and enter mining operations.

25.2.5.4 Contingency Plans and Emergency Procedures

A framework spill response plan was included as part of the draft Environmental Management and Mine Closure plan by Rescan Environmental Services, dated June 2001. This is being updated and implemented, to reflect changes in the project, and to incorporate new development areas.

25.2.5.5 Staff Training and Supervision

Company Personnel are currently undertaking a comprehensive health and safety training scheme, and there are programmes of safety courses and talks to ensure that all employees are aware of health and safety requirements. No environmental training is currently being carried out. This requirement will need to be addressed in updated environmental management plans. Records should also be kept of on-the-job training and assessment of individuals' proficiency. It was reported to WAI that this is already happening with regard to H&S training and the same model should be adopted for environmental training.

25.2.6 Internal and External Stakeholder Dialogue

25.2.6.1 Internal Employee Consultation Practice

Health and Safety matters seem to be well communicated to employees through training programmes. Whilst there is no formal forum through which environmental matters are communicated to personnel, the environmental team undertakes regular internal audits, including audits of the contractors working on site, and any relevant environmental information is communicated verbally to them at this time. There are also formal monthly audits of the contractors. WAI did not view the results of these audits.

25.2.6.2 External Stakeholder Dialogue

No external stakeholder dialogue has currently been appropriate, since the company has been inactive since 1993. WAI is unaware of the proposed future policies for external stakeholder dialogue. Currently the company has a good relationship with the local community and there is a positive response to the reopening of the mine, but there will be a requirement for these aspects to be addressed as part of non-financial reporting and Corporate Social Responsibility (CSR).

25.2.7 Environmental Performance of the Company/Facility

PA is in close communication with the State agencies for environmental protection, and good relations exist between the two bodies. Since the company has not been operating since 1993, it is not possible to assess their environmental performance to date. Also given the lack of State discharge standards for compliance, due to the care and maintenance status of operations, it is not possible to assess present day environmental compliance or otherwise.

Baseline environmental data has recently been collected with regard to water quality and hydroflora and fauna. Similar data for air and land quality, to provide a benchmark against which environmental changes as a result of operations can be measured is recommend. A monitoring programme should be implemented as a matter of urgency, to provide up to date environmental data and information on potential contamination as a result of mining activities.

25.2.8 Inputs, Products and Waste Streams

25.2.8.1 Raw Materials – Consumption and Source

Given the early stage of operations, no information is currently available. This type of information was required for the PCIP submission, but since this level of detailed information is not yet available for Aljustrel, figures based on those at Neves Corvo have been used. Every year the company will submit production levels to the State, but this is not part of the PCIP application.

25.2.8.2 Water Consumption and Source.

Estimations for a Water Management plan were given in the document "*Diagnóstico Preliminar da Situação Actual dos Processos de Licenciamento de Barragens e Aterros e Recomendações para a Elaboração de Manuais de Procedimentos e Monitorização e Planos de Gestão Ambiental, Fecho, Água e Resíduos*."

An updated water flow sheet and water balance calculations for operations are currently in draft form and a model, considering different water balance scenarios, is currently being used to provide for a range of requirements. 2Mm^3 of water has been requested for abstraction from the State dam (currently run by the Farmer's Union). This has already been agreed between PA and the operating union. Potable water is sourced from town supplies.

The process water requirement for fresh has been estimated at 200m^3/hr (from the Industrial water dam). It is planned to sources all the other process water from the clear water dam and ultimately the tailings dam.

25.2.8.3 Effluent Volume and Quantity

Monitoring of effluent is not currently undertaken, given the period of mine closure. Environmental monitoring is planned to commence once the PCIP permit has been granted. WAI recommends that this monitoring be implemented as a matter of urgency and estimates of potential discharges should be made as soon as possible. Very little water discharge to the environment is planned, since it is planned to recycle water from the tailings dam, clear water dam and the mine, to pass it through the water treatment plant which is currently being constructed, and to re-use this water in the plant. Some excess water may be discharged to the Morgado River, though this will be treated prior to discharge in the water treatment plant and will be required to meet discharge criteria set by the State in the PCIP permit. Providing the water treatment of this discharge water is effective there may be an improvement in water quality in the already-polluted Morgado River.

With regard to sewage, there are 3 existing septic tanks, and a fourth will be constructed in the new industrial area.

25.2.8.4 Air Emissions

Dust generation mainly arises from vehicular activity on the surface, and from ore stock piles near the plant. The TMF is covered by a layer of supernatant water and at the time of the visit was not a significant source of dust. Underground dust generation is likely to be from crushers. Mobile water bowsers are in evidence on the surface, to minimise dust generation, and WAI is not aware of complaints about dust levels. Three dust monitoring gauges have been purchased (1 reference, 2 monitoring stations) and it is planned to site these in the forthcoming months to assess dust generation at operations.

A noise survey for the Korfmann ventilator for the mine was carried out by Envi Estudos in March 2007. Some complaints had been received regarding noise production, and this survey was commissioned in response to these. It was reported to WAI that the study included the fitting of a silencer to the ventilator and that once this was in place the levels fell within allowed limits. This part of the study was not available for review at the time of the visit and the results had only been communicated in draft form to PA.

25.2.8.5 Solid Wastes

Details of tailings and waste rock disposal are dealt with elsewhere in this report.

Scrap metal is currently segregated, stored and sold to a local contractor for recycling as appropriate. A licensed operator, Ambitrena, has been contracted for all management of industrial wastes. A specially constructed and appropriately permitted waste storage zone is proposed and Ambitrena will collect all types of waste from this area. This will include chemical and hazardous wastes including waste oil, aerosols etc.

25.2.9 Handling and Storage

Currently no reagents or materials are being stored, since operations have not started, but in the plant there are designated chemical storage areas which are being refurbished and renovated in line with changes to the metallurgical process circuit.

The storage protocol and procedure currently employed at the operating Neves Corvo mine will be used as a template for operations at Aljustrel. Explosives are not stored on siteso they are brought in as required from a local factory in Aljustrel. Fuel and gas stations are present on the site but these are managed by external contractors. WAI noted that fuel was stored in an appropriately bunded area and appeared to be stored in a double-skinned tank.

25.2.10 General Housekeeping Issues

General housekeeping and hygiene status is considered to be good and improvements have been made since the last visit in 2006.

25.2.11 Soil, Surface and Groundwater Contamination

Water management and discharge is one of the most important issues at Aljustrel. Mine water discharge is highly acidic and this has historically been directed to the tailings pond. The minewater is strongly acid (pH 2-3) with some high readings for suspended solids, Cl and Cu. Similarly the emergency dam from the plant and the Tailings Dam (Barragem de Estereis) is highly acidic (pH 2-3) with some high readings for Ca, Cu, suspended solids, Cl and sulphates. The clear water dam shows a more neutral pH (6-7) but there are still some high levels of Cl, Ca and sulphates. The water quality in the industrial water dam was good. Results indicated that environmental quality has already been substantially degraded as a result of previous mining activity at Aljustrel.

Within 2 years of starting operations it is planned to connect the tailings dam and the plant to provide adequate storage for the resultant tails material. The dam wall of this enclosure will also be raised an additional 12m, in 2 x 6m raises.

It was reported to WAI that the tails issuing from the plant will be alkaline in character and it is hoped that the addition of alkaline tails into the acid TMF will increase the pH of this material. Initially, water from the clear water pond, with an almost neutral pH will be used in the plant, to lower the level in this pond, then tails will be pumped into this area, and the two enclosures will be connected.

Tails from the plant will be sent to the TMF and the associated water will be stored on the TMF for recycling to the plant. Excess water will be discharged to the environment via the water treatment plant. This plant involves settlement of solids and injection of carbon dioxide to achieve a final pH of between 6 and 9. WAI understand that the water treatment plant will have a capacity of $420m^3$/hr and should be operational by the end of 2007.

It is reported to WAI that the TMF is unlined. It was also reported that at the time of construction, the substrate was tested for permeability and found to be sufficiently impermeable, but given the water egress that is clearly visible underground at the Moinho mine from surface infiltration, together with the highly foliated nature of the rocks, it seems likely that there is significant percolation of waters from the tailings dam to local surface and groundwaters.

Some limited historical water quality data are included in the 2000 Feasibility study. A monitoring point downstream of the tailings dam indicates elevated levels of various determinands including sulphate, nitrate, aluminium, cadmium, copper, iron, lead, manganese, nickel and zinc. This is in contrast with a monitoring point upstream of the clear water dam, where only aluminium, copper and iron were occasionally elevated. It therefore seems likely that the tailings dam has had a detrimental impact on surface water quality.

Although the existing piezometers readings do not indicate low pH of infiltration waters from the TMF, there are moderate levels of suspended solids, and some samples showed higher readings for sulphates and Cl. A full monitoring programme should be implemented to confirm these results and to ensure that infiltration from the base of the TMF conforms to allowable State standards.

Soil contamination is considered likely, given the metal content and acid generating potential of the waste stockpiles. However, no recent environmental quality data is available and it is therefore not possible to accurately assess current environmental status. WAI considers that a monitoring programme to assess current environmental status across the sites should be implemented as a matter of urgency.

25.2.12 Current Environmental Expenditure

There is no formal budget for environmental expenditure. If expenditure is required, it is cleared with the management. Current environmental expenditure is given as 0.8 €/t milled.

25.2.13 Safety Record and Site Safety Provision

No information has been viewed on site safety record, but an example incident reporting form was viewed and seemed adequate and comprehensive.

25.2.14 Fire Protection and Emergency Response Capacity

Fire protection is being addressed as part of the health and safety programme, and fire water storage facilities, and fire water provision underground is being addressed as part of the construction programme at the site.

25.2.15 Closure, Reclamation and Rehabilitation

25.2.15.1 General site

In the draft framework closure plan prepared by Rescan Environmental Services Ltd. it was proposed to return the Aljustrel mine site to the Portuguese government and to return the site to agricultural use, focussing on production of crops, such as cork and olive. During the recent visit it was communicated to WAI that Aljustrel will have an expected life of 10 years, although given the potential to expand the resource base it will very likely be longer.

It is not stated in the closure plan how this remediation will be achieved and if a decontamination or a capping system will be utilised. If no capping layer is to be implemented it will be difficult to remediate soil to a sufficient quality to ensure both sustainable plant growth, and protection of local soil and water quality and human health.

The closure plan needs to be updated as part of the PCIP process and WAI understand that this will be undertaken by CONFRATTER, though no timescales have been given for this. CONFRATTER will also be responsible for ensuring that the appropriate tailings dam permits are obtained and for setting up an environmental monitoring programme. These plans will require detailed design and financial support.

25.2.15.2 Underground Mines

In the original Rescan closure plan it was planned to backfill lower level underground workings with surface waste from previous operations. This is still the aim of PA. Proposals were also included for filling underground workings with acid generating tailings from the old

TMFs; however this has not been approved by the authorities. Primary stopes will be filled with acid generating surface waste and secondary stopes will be filled with non acid generating wastes. The underground workings will then be allowed to flood, as the natural groundwater level rebounds. It is stated in the framework closure plan that as groundwater seeps into the open underground workings, the air will be driven out and the supply of oxygen removed. It is reported that groundwater rebound will be to below surface levels, so no egress of water is expected. It is concluded that the natural oxidation of the remaining sulphide minerals should return to pre-mine levels, but that due to new faces being opened up, it will take time for the groundwater system to reach equilibrium. It is also proposed to place large quantities of organic material in the stopes, the degradation of which will reduce available oxygen.

It will be important to accurately characterise the acid generating nature of these rocks and it will also be important to assess the leaching potential of any metals left in this mine waste. It would be advisable to subject the waste, and some face samples to Toxic Characterisation Leachate Procedure (TCLP) to assess potentially leachable metal levels. WAI recommends that a pilot study, to test the efficacy of the proposed scheme, should be undertaken before these measures are implemented. WAI hopes that these areas of concern will be addressed by CONFRATTER in the updated closure plan.

25.2.15.3 TMF

The closure strategy during the last visit, as proposed by Rescan involved ensuring that a layer of supernatant water 1.3 - 1.4m deep was maintained at the tailings surface. It is stated that this was the minimum level of cover needed to prevent oxidation and wave disturbance. It has also been stated that during dry periods 700m^3 will be pumped from the Industrial water dam to maintain sufficient water coverage.

WAI understands that over time water quality will gradually attenuate, but is not convinced that within 1 year the water would be able to be discharged to the environment with no treatment other than passing through a wetland system. Moreover, the wetland will not treat percolation water and groundwater quality is likely to suffer as a consequence for some time.

Similarly, when the mining company is no longer working in Aljustrel, it is not clear who would be responsible for ensuring adequate water quality on the TMF. Clearly this system will require significant after care, perhaps even permanent, active water treatment systems. Studies elsewhere (such as Neves Corvo) indicate that a permanent water cover over tailings is not a sustainable strategy unless natural water levels are such that the permanent cover can be guaranteed.

As part of the tailings pond remediation it was proposed to develop a wetland system downstream of the TMF, to provide a reducing environment to precipitate heavy metals and act as a metals sink, and to treat acid drainage. The efficacy of this wetland system should be trialled to ensure that it is successful in precipitating metals and to ensure that the quality of egress water is within State limits. Similarly, it will be necessary to ensure the sustainability of the wetland system so that there is long term protection of local water supplies.

It will be interesting to see how the closure plan is changed and updated by CONFRATTER and whether the above areas of concern are addressed. These issues should currently be considered as project risks.

A detailed closure plan outlining the outcomes for mine closure is the first stage required in completing a mine closure plan. The plan should be an integral part of the mine life plan and undertaken with a view to a risk based approach. Closure planning is required to ensure that closure is technically, economically and socially feasible.

The dynamic nature of closure planning requires regular and critical review to reflect changing circumstances.

25.2.16 Financial Provision for Mine Closure

Site decommissioning and remediation plan, to include long term financial provision, is considered to be of high priority. The closure plan will need regular updating, and financial provision will also be required, e.g. via the establishment of a Trust Fund in which, for example, a percentage of production assets are paid by the company each year.

Financial provision is crucial for best practice mine decommissioning:

- A cost estimate for closure should be developed from the closure plan;
- Closure costs should be reviewed regularly to reflect changing circumstances;
- The financial provision for closure should reflect the real cost;
- Accepted accounting standards should be the basis for the financial provision; and
- Adequate securities should protect the community from closure liabilities.

It is further recommended that provision should be set aside for the reclamation of the site which can be undertaken in variety of ways:

- Reclamation fund;
- Environmental Trust Fund (ESCROW account);
- Environmental Insurance policy; or
- Reclamation bond.

It is necessary to investigate the most appropriate method through the assessment of costs associated with the mine closure plan.

During the 2006 visit, a closure sum of approximately €12,000,000 was envisaged by the company as a closure bond. The cost of mine closure cannot accurately be determined without detailed analysis of the environmental issues and liabilities associated with the site. It should be recognised that WAI consider a reasonable estimate at this stage is in the region of €5,000,000 - €8,000,000 for the TMF rehabilitation, between €500,000 - €800,000 for surface operations and €800,000 - €1,000,000 for the underground mines. These estimates are based on similar experience of other projects in Europe, but will need to be accurately assessed as environmental monitoring data become available. The value of €12,000,000 seems a reasonable sum, but it should be recognised that conditions change throughout the life span of a project and therefore it is necessary to revisit the MCRP at regular intervals, and for costs to be re-addressed.

In addition to the technical closure costs, social closure costs should be allowed for. A social closure study should be undertaken to consider various means of mitigating the socio-economic impacts of cessation of mining and consequent loss of employment and economic activity. This again would need to be revised on a regular basis to account for changes in circumstance. Given the local community reliance on the mine as the main income generator, it is imperative that long term, sustainable community development plans are in place. This should be addressed formally, via a Community Development Plan.

25.2.17 Conclusions

- WAI is satisfied that the requirements for PCIP licence and other environmental permits have been met and that the project and company are, or will shortly be, in compliance with all relevant State legislation. The nature of the orebodies, with high pyrite and thus a high acid generation potential along with heavy metal contents, is such that the pollution potential is significant. Mine wastes (particularly tailings) and waste waters require careful management and a high level of vigilance to maintain environmental standards;
- The area has already been heavily impacted by previous mining, resulting in an extensive environmental liability. Much of this liability remains with the State (EDM). However it is important that the extent of historic mining impacts on the water environment in particular are understood, as these may be indistinguishable from future effects of continued mining and related activities;
- WAI is concerned that the proposed closure options for the mine reviewed during the 2006 visit are unproven and may not be effective or feasible in a field situation. Similarly, WAI has concerns regarding long term closure options and ensuring adequate site security and public protection. WAI hopes that these concerns will be addressed in the updated closure plan by CONFRATTER. WAI considers it

important that closure costs and environmental expenditure are readdressed in the light of recent environmental quality data and that financial provision for closure will take into account not only physical and environmental costs, but also the need for long-term monitoring and aftercare;

- Whilst some baseline environmental data has been collected it is recommended that further environmental information and regular monitoring data on air, groundwater and soils are required to assess how severely the environment has already been affected by previous operations and whether impacts are continuing;
- There are no current plans for environmental training, internal or external stakeholder dialogue; and
- There is no formal Community Development Plan (CDP) for operations.

At this stage it is not possible to state categorically that International Best Standards will be met at the start of the project for two reasons. Firstly, State assessment standards for the project will not be released until project approvals (PCIP etc.) have been granted. Secondly, there is still an absence of recent environmental quality data in some areas on which to assess the project.

25.3 Financial Analysis

25.3.1 The Model

The financial model used is the one created by Pirites Alentejanas (PA) and last up-dated in March 2006, with the exception that metal price and exchange rate forecasts have been revised to correspond with those adopted for the recent technical report on Neves Corvo, there are no lead or silver production shown from Moinho, and the estimates of capital expenditure have been up dated.

The total capex for the whole project is currently estimated to be €92.09M or US$110M and this is split as follows:-

ITEM	Euro M
Mine	43.9
Mill	38.8
Admin	3.4
Commercial	6.0
Total capital estimate	92.1

Total operating costs, averaged over the life of the mine, are estimated as approximately €25 per tonne of ore treated, unescalated

Details of the estimates are shown in financial model which is available for inspection at the mine.

The revised metal price forecasts adopted are as follows, with March 2006 estimates shown in brackets:

Price forecast	2007	2008	2009	2010	2011 et seq
Copper – US c/lb	285 (NA)	200 (NA)	200 (NA)	200 (NA)	140 (105)
Zinc – US c/lb	145 (103)	100 (93)	100 (56)	100 (56)	70 (56)
Lead – US c/lb	42 (55)	33 (42)	33 (42)	33 (42)	30 (30)
Silver – US $/oz	10.0 (11.0)	9.5 (11.0)	9.5 (7.0)	9.5 (7.0)	8.5 (7.0)
Exchange rate $/ Euro	1.30 (1.20)	1.20 (1.20)	1.20 (1.10)	1.20 (1.10)	1.10 (1.10)

25.3.2 Summary of Results

The following table summarises the key financial conclusions from the revised model, and compares them to the results from the March 2006 model which used previous metal price estimates.

	This model	March 2006 model
NPV at 10%	US$77M	US$28M
Payback period	3.8yrs	4.2yrs
IRR	29.6%	21.8%

25.3.3 Sensitivities

Sensitivity analysis was undertaken on the financial model, the results of which are illustrated in the charts below.

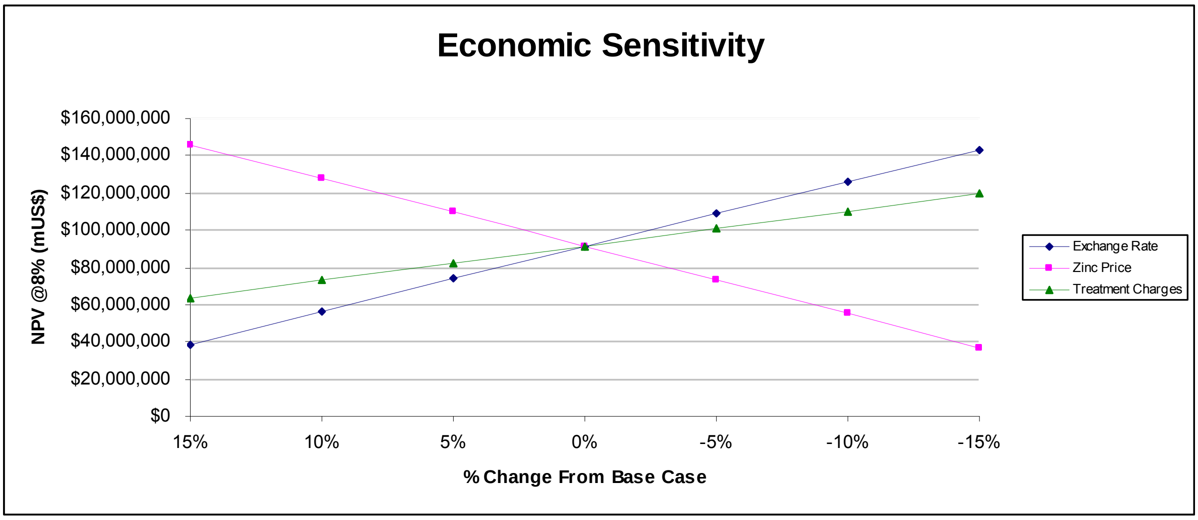

Figure 25.6: Economic Sensitivity

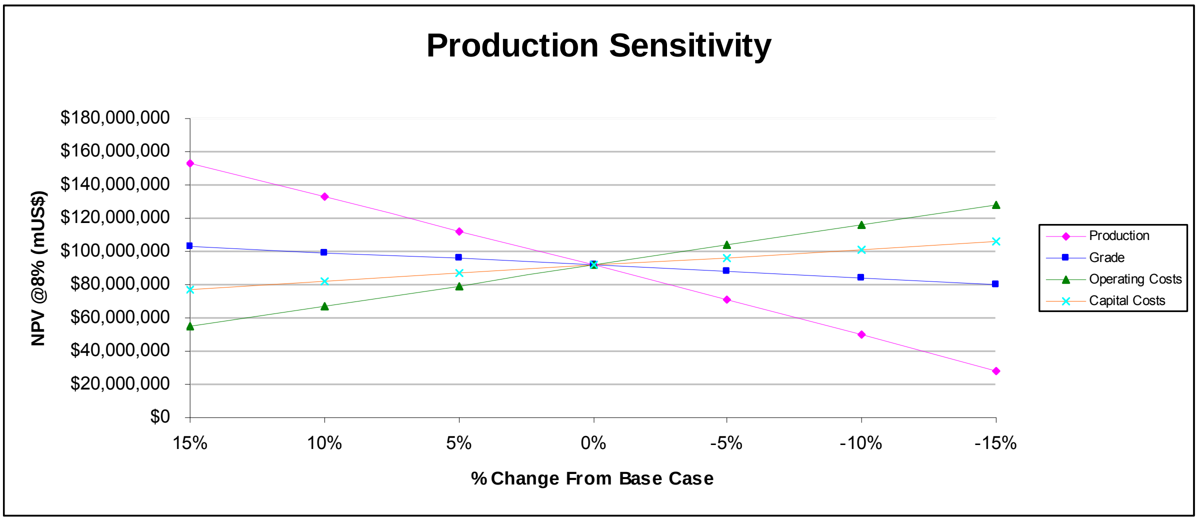

Figure 25.7: Production Sensitivity

The overall conclusions are that:

- The model is most sensitive to the price of Zinc and to the exchange rate;
- Despite the escalation of estimated capital costs compared to 2006, the revised forecast for the future prices of Zinc have had a significant effect on the financial performance of the project, improving the NPV from $28M to $77M, and increasing the IRR from 22% to 30%; and
- Even with the more conservative metal prices used in the 2006 technical report, the project is both viable and robust. Adopting the revised prices, which WAI consider to be more realistic, the project becomes even more robust.

CERTIFICATE of AUTHOR

I, **Mark L Owen**, BSc, MSc, MCSM, CGeol, EurGeol, FGS do hereby certify that:

- I am an Associate Director of:
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- I graduated with a degree in Geology from Exeter University, Exeter, Devon, UK in 1980 and thereafter graduated with a Masters degrees in Mining Geology from Camborne School of Mines, Camborne, Cornwall UK in 1981.

- I am a Fellow of the Geological Society of London and am a Chartered and European Geologist.

- I have practised my profession as a Mining Geologist for the past 26 years in areas of gold and base metals evaluation in a number of countries around the world.

- I am a Qualified Person in accordance with the National Instrument 43-101.

- I am responsible for the preparation of the technical report titled "**Technical Report on the Aljustrel Mine, Southern Portugal"** and dated 10 October, 2007, Ref WAI/61-0465 (the "Technical Report"). I last visited the Aljustrel property on 4 September 2006 for 4 days and on several occasions during 2006, as part of a WAI team and have reviewed the Mineral Resources and proposed mining operations as part of the process of reopening the mine.

- I have not had any prior involvement with the property that is the subject of the Technical Report.

- I am independent of the issuer applying all of the tests in section 1.4 of National Instrument 43-101.

- I have read the Instrument NI-43-101 and Form 43-101F1 revised December 2005 and the Technical Report has been prepared in accordance with Instrument NI-43-101 and Form 43-101F1.

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

- I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated 10 October, 2007

Name Mark L Owen BSc, MSc, MCSM, CGeol, EurGeol, FGS

CERTIFICATE of AUTHOR

I, **David L Chilcott**, ACSM, FIMMM, CEng do hereby certify that:

- I am an Associate of:
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  UK

- I graduated with first class honours in Mining Engineering from Camborne School of Mines, Camborne, Cornwall UK in 1959.

- I am a Fellow of the Institution of Materials, Mining and Metallurgy and am a Chartered Engineer.

- I have practised my profession as a Mining Engineer for the past 48 years in areas of gold and base metals evaluation in a number of countries around the world.

- I am a Qualified Person in accordance with the National Instrument 43-101.

- I am responsible for the preparation of the technical report titled "**Technical Report on the Aljustrel Mine, Southern Portugal"** and dated 10 October, 2007, Ref WAI/61-0465 (the "Technical Report"). I last visited the Aljustrel property on 22 August 2007 for 3 days and on several occasions during 2006, as part of a WAI team and have reviewed the Mineral Reserves and proposed mining operations as part of the process of reopening the mine

- I have not had any prior involvement with the property that is the subject of the Technical Report.

- I am independent of the issuer applying all of the tests in section 1.4 of National Instrument 43-101.

- I have read the Instrument NI-43-101 and Form 43-101F1 revised December 2005 and the Technical Report has been prepared in accordance with Instrument NI-43-101 and Form 43-101F1.

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

- I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated 10 October, 2007

Name D L Chilcott, BSc, ACSM, IMMM, CEng