



Southern Hemisphere Mining Limited

Los Pumas Manganese Project

Pre-Feasibility Study/ Development Plan

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Competent Person Statement

Information of a scientific or technical nature in this report was prepared under the supervision of Trevor Tennant, Managing Director of Southern Hemisphere, a "qualified person" under National Instrument 43-101 – "Standards of Disclosure for Mineral Projects", and is a member of the Australasian Institute of Mining and Metallurgy. Mr. Tennant has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as a "competent person" as defined in the 2004 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Tennant has reviewed and approved the information contained in this report. For further information regarding the projects, including a description of Southern Hemisphere's quality assurance program, quality control measures, the geology, samples collected and testing procedures in respect of the Southern Hemisphere's projects please refer to the technical report which are available under the Company's profile at sedar.com.

Investment Highlights

Diversified Project Portfolio

- Los Pumas Manganese Project → Near-term production
- Early-stage high-potential copper/gold assets
- Iron sands asset with attractive project economics

100% Chile-based

- One of the world's leading mining jurisdictions
- Politically stable with a strong economy

Experienced and Aligned Management & Board

- Track record in manganese mine development
- Local expertise enables the identification and acquisition of high-quality projects
- 49% equity ownership position in Southern Hemisphere

Attractive Valuation

- Southern Hemisphere is currently trading at a 39% discount to Los Pumas NPV (@ 10%) as estimated in the recent pre-feasibility study completed by the Company
- Further near term enhancements to project economics expected from resource growth and metallurgical test work
- Essentially a free-option on Southern Hemisphere's copper/gold/iron sands projects

Short-Term Valuation Catalysts

- Estimated Manganese production at Los Pumas → US\$44m in EBITDA per year
- Exploratory drilling at priority copper/gold projects
- Evaluation of iron sands project

Company Snapshot

Capitalisation Summary

Ordinary Shares ⁽¹⁾	103,019,022
Market Capitalisation @ \$0.58	AU\$60M
Cash ⁽²⁾	AU\$4M
Debt ⁽²⁾	\$0.0
Enterprise Value	AU\$56M
Enterprise Value ⁽³⁾	US\$55M
Los Pumas Pre-Feasibility Study NPV (After tax) ⁽³⁾	US\$90M
Implied Discount to Los Pumas NPV	39%

(1) Excludes 17.7m options and warrants at various exercise prices and dates between CA \$0.20 and CA \$0.40 and December 2010 and January 2013

(2) As of June 30, 2010

(3) Using AUD/USD foreign exchange rate of 0.99 as at 14 October 2010

(4) Los Pumas Project PFS at 10% discount rate

SUH Historical Share Price Performance (ASX)



- Headquartered in Australia and operating in Chile
- Dual listed on the ASX (SUH) and the TSXV (SH)
- Diversified portfolio of Chilean-based metals projects:
 - Los Pumas Manganese Project (advanced)
 - 13 Copper / Gold Projects (early-stage)
 - Iron Sands Project (early-stage)



Management & Board of Directors

Management & board of directors are closely aligned with Southern Hemisphere's shareholders

Board of Directors	Position	Ownership
Trevor Tennant	Chairman and MD	15.10%
James Pearson	Executive Director	8.77%
David Craig	Non-Executive Director	<0.1%
Eduardo Valenzuela	Non-Executive Director	4.62%
Richard Billingsley	Non-Executive Director	<0.1%
Yang Xifu	Non-Executive Director	14.02%
Seetoh Kwok Weng	Alternate to Yang Xifu	6.60%
Total		49.24%

Trevor Tennant, Chairman and MD

- Mining engineer with over 37 years experience
- Previously an executive director of Portman Mining Limited, OM Holdings Limited and Territory Iron Limited
- All three developed iron and manganese mines during Mr Tennant's tenure including Bootu Creek and Woodie Woodie
- Earlier work included 5 years as mine manager of Groote Eylandt manganese mine

Pre-Feasibility and Enhancement Studies

PFS Key Outcomes and Proposed Enhancements

- Los Pumas Pre-Feasibility Study (**PFS**) supports the development of the Los Pumas Manganese Project
- PFS Estimated Net Present Value After Tax: US\$90m at an approximate average cash cost of US\$3.50/dmtu
- Development capital costs US\$74.3m
- Payback period: 2 years
- Company expects significant enhancement of the economic outcomes of the PFS via a Feasibility Enhancement Study (**FES**)
- FES scope of work includes resource upgrade, metallurgical test work and optimisation of project flowsheet and product mix
- Company expects to release the FES by first quarter 2011

Los Pumas Project Location

- The Los Pumas Manganese Project is located in the North of Chile, region XV of Arica and Parinacota
- The mine and process plant are located close to the Chile-Peruvian border, 35km north from the town of Putre, at an elevation of 3,750mASL
- Work force to be accommodated at 150 man mine camp which is under option to the Company. The price will be US\$1.3m
- Product to be trucked to Arica to a stockpile facility 10km from the port for direct shipping to China:
 - 140 km on a sealed highway and the remaining 35 km along a provincial gravel road

Los Pumas Mine Camp



Arica Port



Los Pumas Project location



Mining in Chile

- World's largest copper producer
- Strong mining history with westernised regulations
- Robust, growing economy and stable, democratic government
- Free trade agreements with Australia, Canada, USA, EU, China and Japan
- Los Pumas Project located in a region that is generally underdeveloped, bordering Peru and Bolivia
- Fiscal incentives available for start up enterprises in the region
- Intended scale of operation expected to attract low royalty rate

Manganese Market

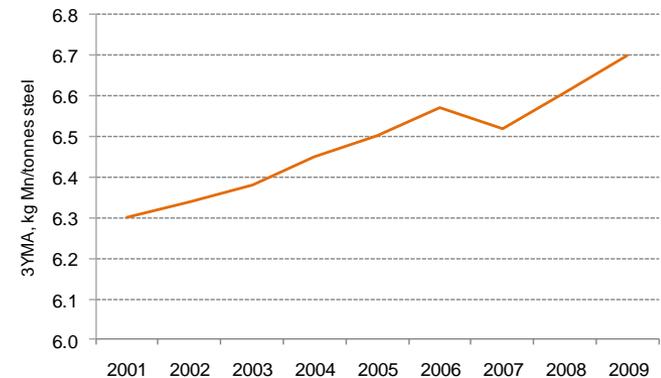
- Manganese is the fourth most used metal globally with approximately 90% of it produced employed in the production of ferroalloys for use in steelmaking – there is no known substitute for Manganese in steel production
- World demand for manganese ore depends directly on steel industry requirements. The average unit of consumption for industrialised countries is 7.5kg of manganese per tonne of steel
- In 2009 China imported 9.6mt of manganese ore. China’s reliance on imported ore for blending purposes is expected to increase
- Q1 2010 Steel and Manganese market indicators¹
 - global steel production up 23% yoy, annualised at 1.4bn tonnes
 - China steel production up 25.5% yoy, annualised at 630m tonnes
 - China Mn Ore imports 2.8 mt up 64% yoy, annualised at 11.2m tonnes
- In addition to rising demand for steel, the trend toward producing steel with high manganese intensity of use (IOU) is expected to contribute to strong underlying demand for manganese
- Siliceous ore - the Los Pumas product will have a high silica content, which is important in the production of long steel products for the construction industry

Source:
1. Iron and Steel Statistics Bureau

Manganese price history (44% Mn)



Intensity of manganese use in steel making



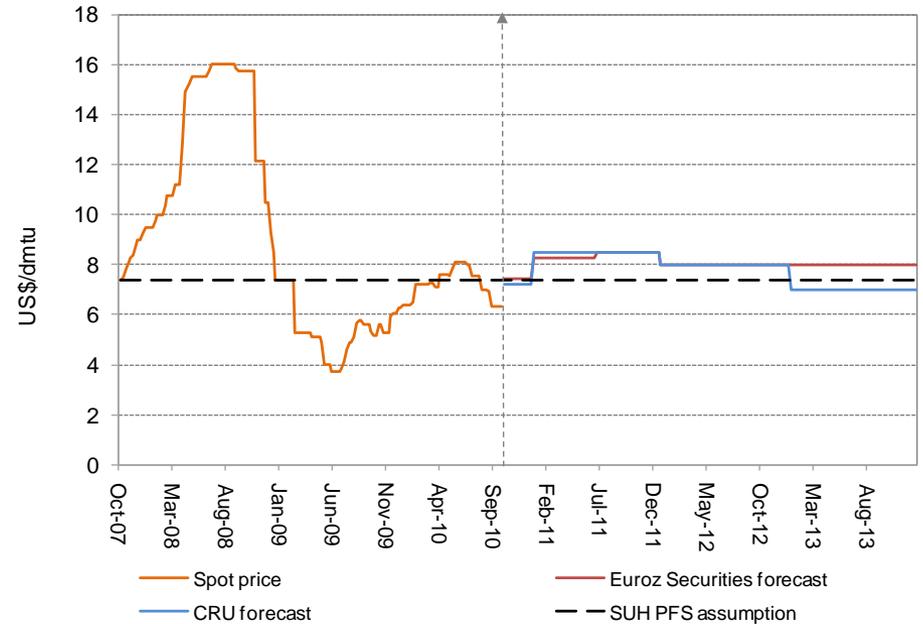
Source:
1. Ryan’s Notes
2. IMnI, Worldsteel



Manganese Price Outlook

- Manganese price is forecast to rise due to both demand and supply factors:
 - Higher steel production and IOU trends
 - China's continued reliance on Manganese imports – domestic production is suffering grade and cost issues
 - Manganese market has not 'caught up' with recent strength in iron ore price
 - South African suppliers are facing infrastructure constraints
 - Other major producers (BHP, Vale, Eramet) are at capacity
- CRU is forecasting FY11 manganese price of US\$8.5/dmtu – c. 35% above current spot price
- Significant risk to the upside (i.e. pre-GFC spot price levels)

Manganese Price Forecast



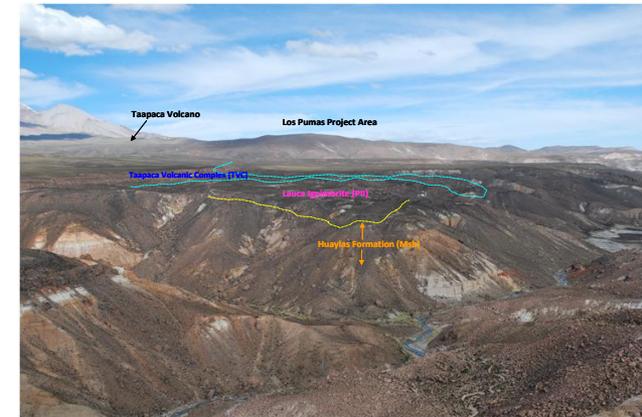
Source:

1. Ryan's Notes
2. Euroz Research
3. CRU

Los Pumas Manganese Project Overview

- Large, easy to mine JORC Measured, Indicated and Inferred Resource 18.3Mt
- Near term production (expected Q1 2012)
- Low capital and operating costs expected
- Excellent logistics and near mine infrastructure
- Strong interest in product quality from a number of Chinese Ferroalloy producers
- MOU signed with Chinese Ferroalloy producer for 150ktpa of product
- Shallow mineralisation body with low strip ratio
- Beneficiates easily
- High manganese to iron ratio with low phosphorous
- Favourable State taxes and royalties
- Regional exploration potential

Los Pumas Major Geological Features



Los Pumas Pre-Feasibility Study Scope

- PFS has evaluated the development of an open pit mine at Los Pumas to produce 300ktpa of 38% manganese product for a 7 year mine life
- Production is by contract miner and scheduled from Measured, Indicated and a tail of Inferred status mineral resources
- PFS undertaken to support a development decision in advance of final environmental approvals
- Enhancement and refinement of PFS economic outcomes and mine life expected following the completion of the FES
- Final project approvals and FES expected by first quarter 2011
- Study elements
 - Geological exploration
 - Resource definition
 - Initial metallurgical test work
 - Process engineering
 - Preliminary civil, structural, mechanical and electrical engineering
 - Mine design and scheduling
 - Estimation of capital and operating costs
 - Determination of project execution plan
 - Project execution scheduling
 - Financial analysis

Los Pumas Pre-Feasibility Study Highlights⁽¹⁾

Mn Price	US\$7.40/dmtu FOB Arica
Resource	18.3Mt @ 7.6% Mn
Mine life	7 years
Average annual production (life of mine)	300,000 tonnes
Tax rate	18%
Estimated After Tax IRR (%)	43%
Estimated NPV @ 10% discount	US\$90m
Operating Surplus	US\$207m
Payback (in years of production)	2 years
Average cash cost (life of mine)	US\$3.50/dmtu
Development capital cost	US\$74.3m

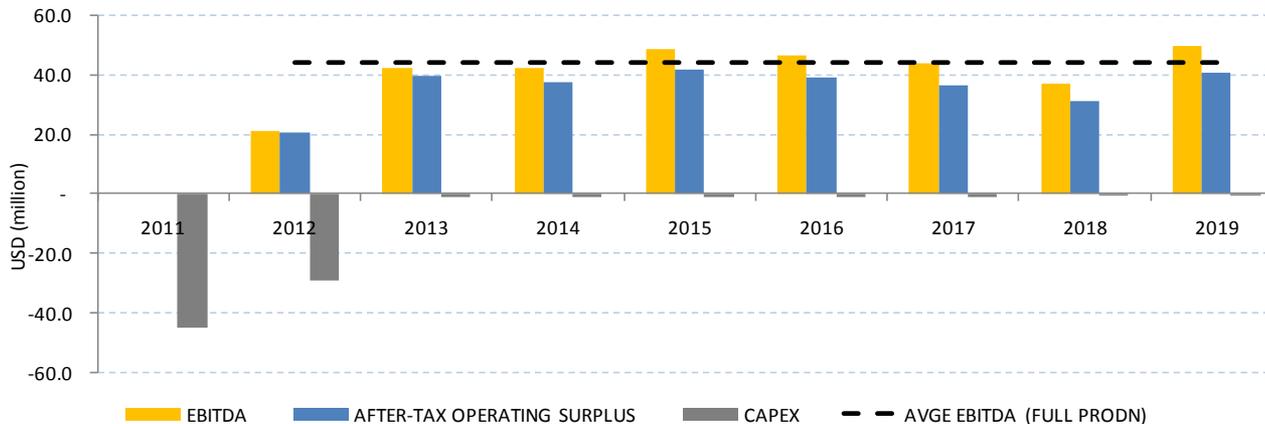
Targeted product size

- Fines 0.5-10mm (main product)
- Ultra Fines 0.2-0.5mm (secondary product)

Targeted product specification

Mn	38%	Minimum
SiO ₂	20%	
Fe	1.5%	Maximum
P	0.06%	Maximum
Al ₂ O ₃	5.0%	Maximum

PFS Life of Mine Financials



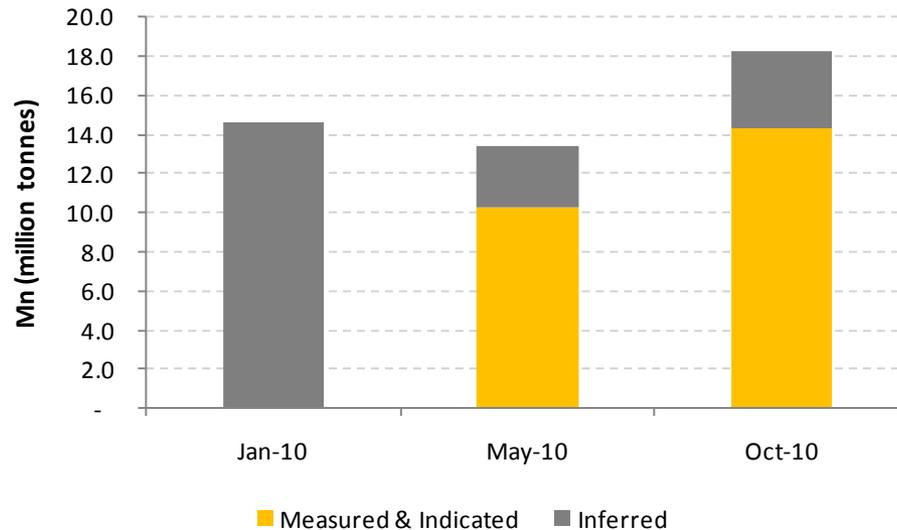
Los Pumas Resource

Resource supports initial 7 year mine life

Resource ⁽¹⁾	Tonnes (Mt)	Mn (%)	SiO ₂ (%)	Fe ₂ O ₃ (%)	Al (%)	P (%)
Measured and indicated	14.3	7.8	57	3	6	0.05
Inferred	4.0	6.8	54	3	6	0.06
TOTAL	18.3	7.6	57	3	6	0.05

Mineral Resources reported at a cut-off grade of 4% Mn.

Los Pumas Resource Growth

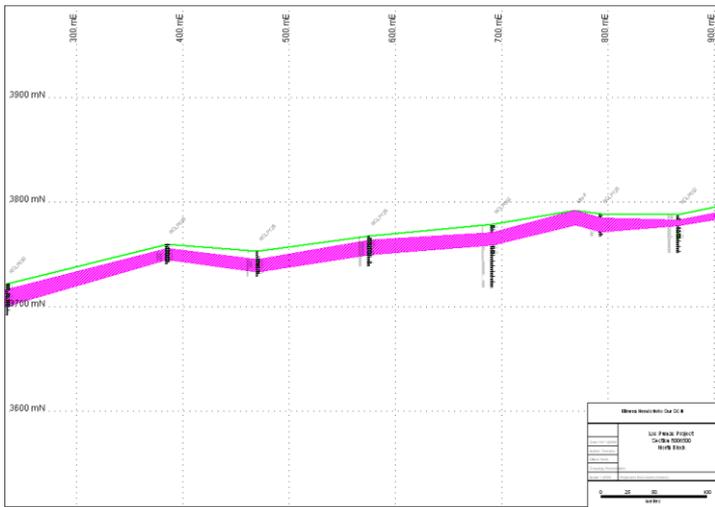


- Independent resource estimators Coffey Mining are reviewing the resource model
- A re-interpreted resource estimate that includes further analysis of the data will be completed by Q1 2011

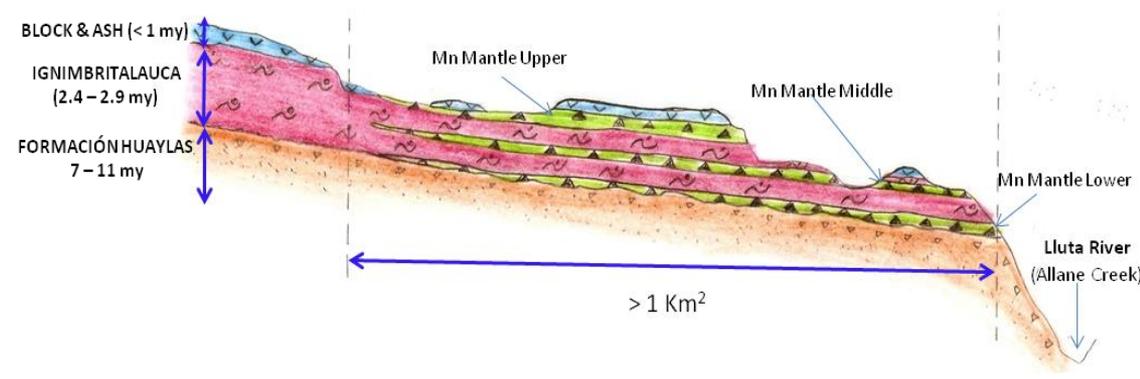
Geology

- Tabular flat mantle, near surface and easy to mine
- Resource outcropping at 0-30m depth
- Low strip ratio (1.5:1), combined with metallurgical characteristics support favourable operating costs
- Three main lithological units comprising:
 - block and ash
 - pink ignimbrite
 - volcanic sediment

Los Pumas Cross Section of the North Sector

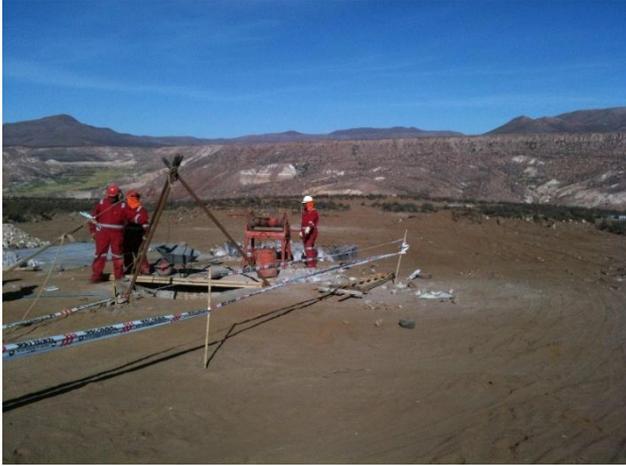


Los Pumas Schematic view of mineralised stratigraphy



Metallurgy

Winze sinking program



One meter interval sample



Metallurgical test work

- Mintek (South Africa) undertook testing
- Independent review by Mineral Processors
- Bulk samples obtained from a winze sinking program of four winzes for a total of 62 meters
- A total of 4 tonnes of sample were sent to Mintek
- Samples used for processing through a pilot DMS plant

Conclusions

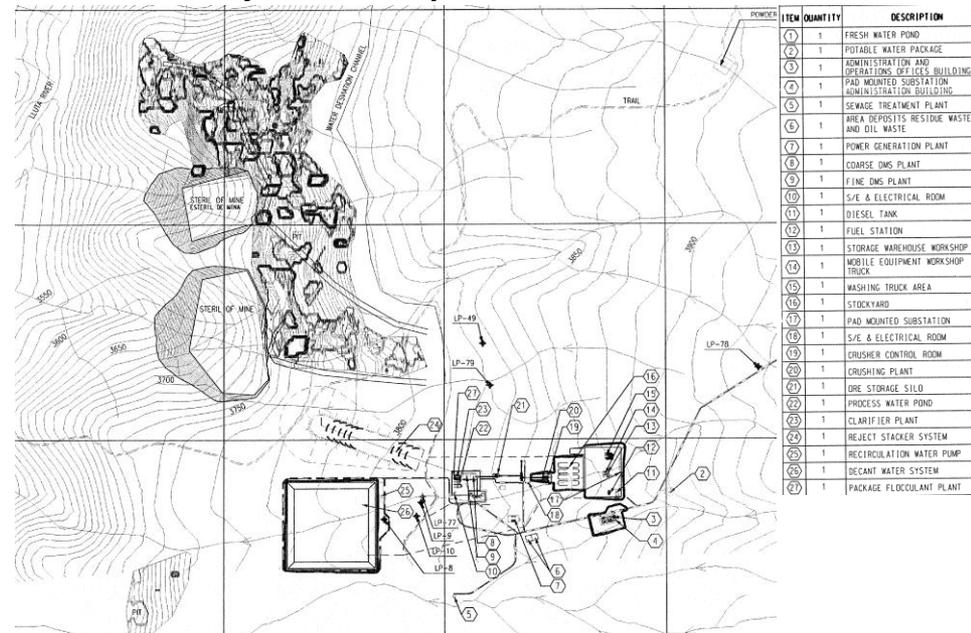
- Metallurgical test work completed to date supports metal recovery assumptions adopted in the PFS
- Further metallurgical test work expected to enhance metal recovery yield assumptions for the FES due Q1 2011

Mining

Los Pumas PFS features open pit mining with low capacity load and haul equipment

- Conventional open pit mining performed by local contract miner
- Shallow multiple pits incorporated into overall mine area
- Adjacent top-dumped waste dumps
- Low rainfall alleviates mine dewatering and drainage issues
- Short to medium hauls to process plant according to elevation of pit location
- Grade control by initial assay of blast hole drill chips
- Detailed visual grade control by direction of mine geologists

Los Pumas Project Site Map



Permitting

- Chile has absolute dominion over all the mines and minerals explored and exploited through mining concessions
- Southern Hemisphere has obtained concession status for the Los Pumas Project land, granting it exclusive exploitation rights for a 50 year period to prospect and mine the concession area
- Company has submitted declaration of environmental impact for approval
- Final environmental approval expected by January 2011

Water Supply

- Regional hydrogeological study undertaken by Hydroconsult
- Modest plant water requirements of 20 litres/second
- Several sources of surface water identified at varying distances from the project
 - Agreement reached with Putre Community Land Owners (**PCLO**) to access sufficient water for the project subject to ratification by the courts
- Local drilling for water has been completed in prospective locations on the mining tenements
- Small quantities of water in aquifers associated with the Lluta River have been intercepted
- Design and estimate completed for a water pipeline to the project and included in development capital

Environment & Community

- Los Pumas Project surface rights are privately owned by the PCLO
- PCLO has granted Southern Hemisphere easement rights over the Los Pumas Project land for all exploration and mining purposes, including the construction of plant, buildings and associated infrastructure for a 20 year period
- Environmental Approval Process
 - Declaration of Environmental Impact submitted by Southern Hemisphere under the System of Environmental Impact Assessment on 27th July 2010
 - Clarification requests received on 16th September 2010
 - Responses to be submitted by 3rd November 2010
 - Approval expected by January 2011 if further clarifications required

Los Pumas Plant

Simple and proven design with operational flexibility

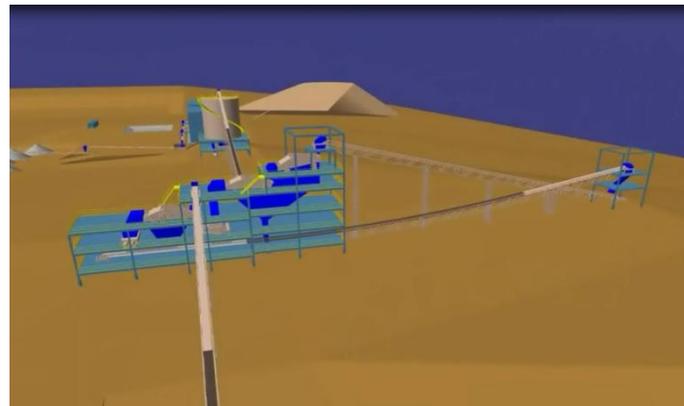
Key features

- EPCM contract with turnkey packages for processing plant sections
- Value of works is estimated at US\$31.6 million
- Value of works includes direct cost of crusher, DMS plant, effluent product, waste and slimes handling
- 12 month Design & Construct period
- Nameplate design capacity of 500ktpa allows for growth in resource base

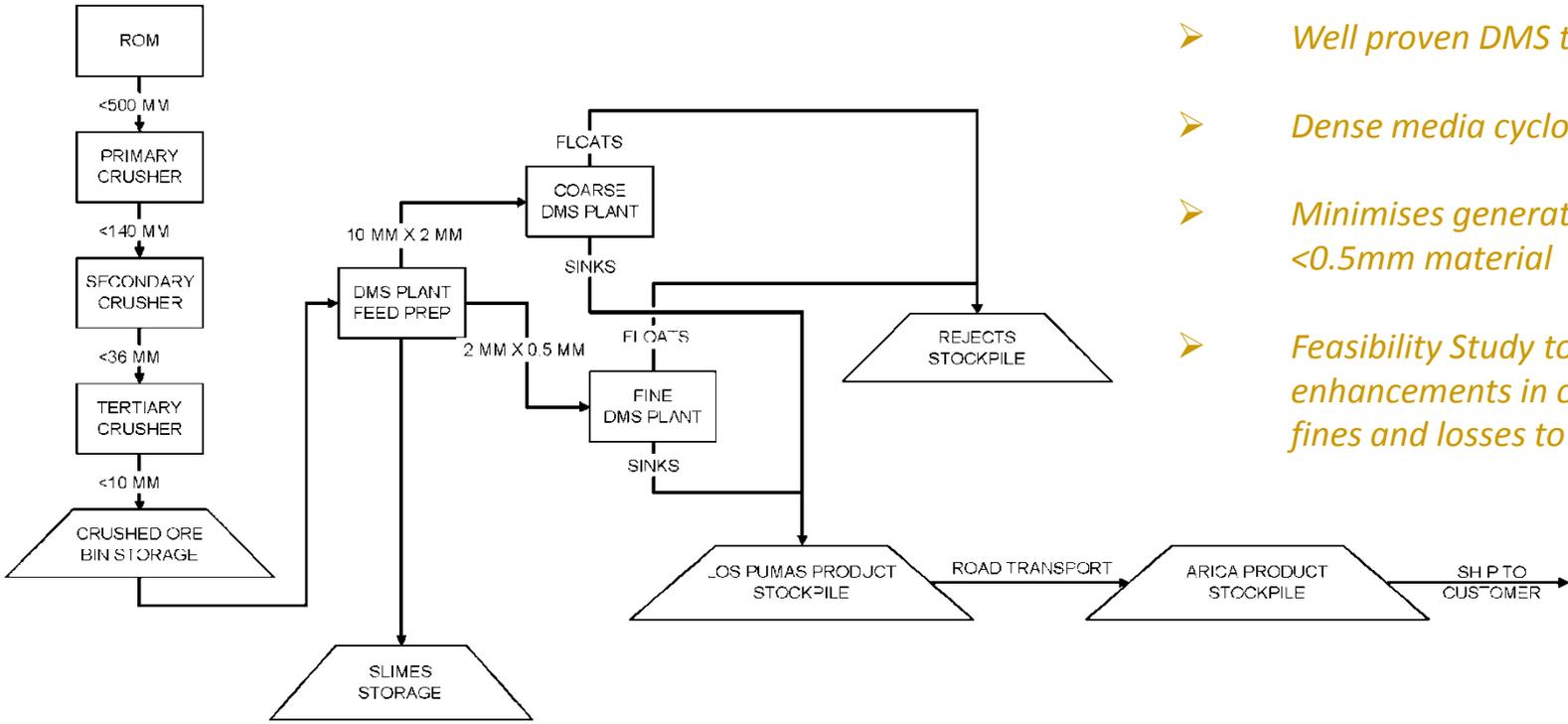
Los Pumas Plant Design



Los Pumas Plant Design



Process Flowsheet



- *Simple process*
- *Well proven DMS technology*
- *Dense media cyclones*
- *Minimises generation of <math>< 0.5 \text{ mm}</math> material*
- *Feasibility Study to investigate enhancements in capturing fines and losses to floats*

Los Pumas Project Infrastructure

- All key infrastructure (multi-user) in place:
 - 170km by sealed road to Arica Port with bulk loading capabilities for Handymax ships
 - Undercover stockpile facilities available (used for zinc concentrates from Bolivia)
 - Conveyor system for loading ships
 - Additional offsite lay down area will be acquired by Southern Hemisphere
- Mine camp purchased under option by Southern Hemisphere for US\$1.3m

Arica Port



Undercover stockpile warehouse



Ship loading conveyor system



Capital Costs⁽¹⁾

	US\$M
Mine Establishment	1.2
Mine Facilities	0.6
Process Plant	31.6
Infrastructure	18.7
General	0.4
Total Direct Cost	52.4
Indirect Costs	8.4
Owners Costs	5.3
Subtotal	66.1
Contingency	8.2
Total Development Capital Cost	74.3

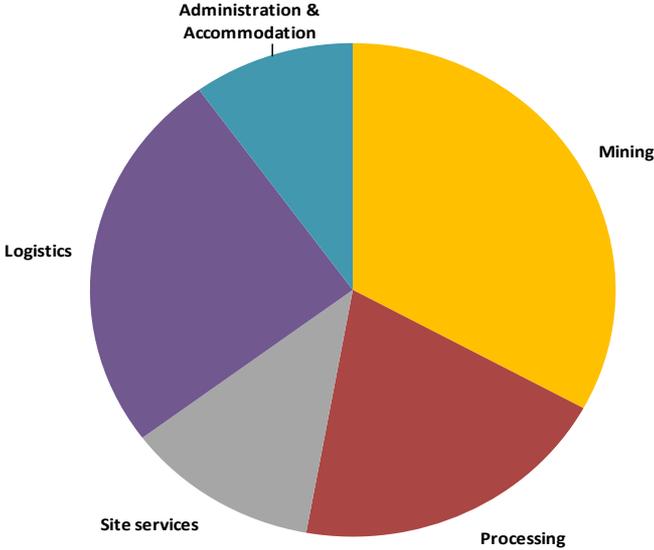
Capital Investment Scope

- 410tph three stage crushing plant
- 1,750t crushed feed silo
- 353tph coarse (10mm x 2.0mm) and fine (2mm x 0.5 mm) dense media separation plants
- Product, rejects and effluent handling
- Refurbishment of mine camp accommodation facilities
- Covered product stockpile facility at Arica

Operating Costs⁽¹⁾

Life of Mine	Estimated US\$/dm ³
Mining	1.20
Processing	0.70
Site services	0.40
Logistics	0.90
Administration & Accommodation	0.30
TOTAL	3.50

- Strip ratio of 1.5:1
- Metal recovery yield 60%
- Further metallurgical test work expected to enhance metal recovery yield assumptions and lead to a reduction in unit costs



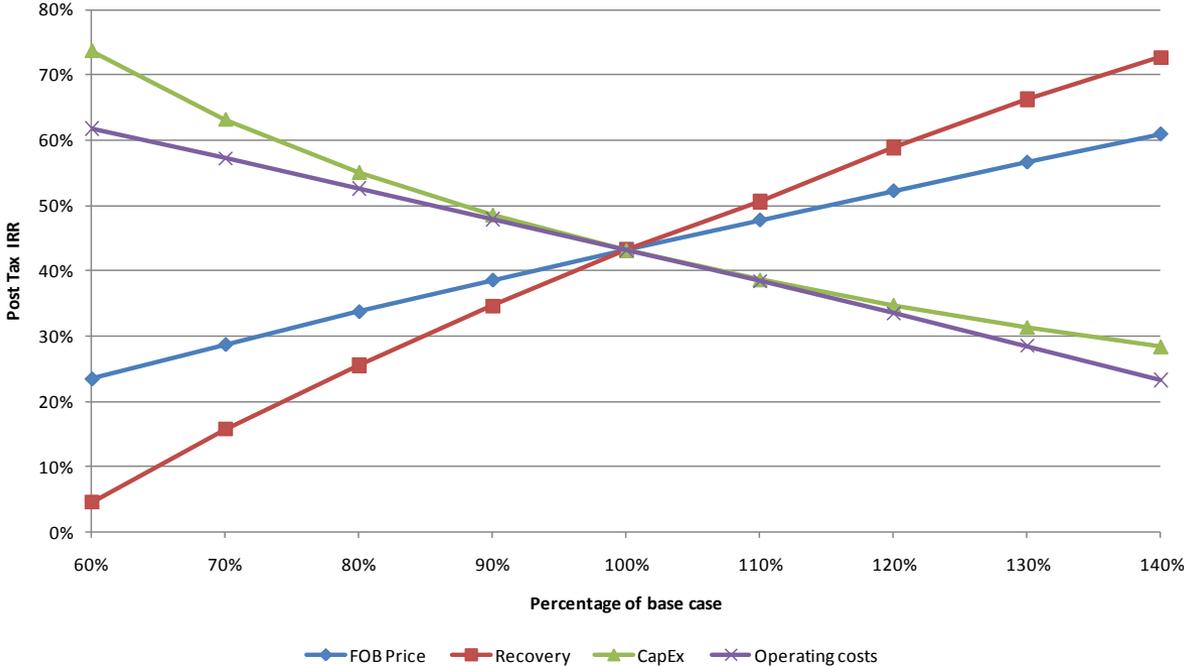
Source:
1. Los Pumas PFS (assuming 38% Mn product)

Sensitivity Analysis

Project IRR most sensitive to metal recovery and product yield assumptions

Less sensitive to capex and product price assumptions

Further metallurgical test work being undertaken to enhance metal recovery yield assumptions



Feasibility Enhancement Study

FES

- Company is undertaking an enhancement study incorporating resource work being conducted by Coffey Mining and additional metallurgical test work by Mintek and Mineral Processors of the Los Pumas mineralisation
- FES is expected to deliver:
 - Resource upgrade
 - Improved metal recoveries from additional metallurgical test work
 - Reduction in product lost to waste through flowsheet optimisation
 - Identification of optimal product mix for the Los Pumas mineralisation
- Company expects to release the FES by first quarter 2011

Development Schedule

Targeting production first quarter 2012

	2010			2011												2012	
	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February
PFS	✓																
Environmental Approval																	
FES																	
Engineering																	
Procurement																	
DMS Turnkey Contract																	
Contracts																	
Construction																	
Commissioning																	
Commence Production																	

PFS Capex for the Los Pumas Manganese Project is US\$74 million

- The Company will assess a range of financing alternatives to fund development
- The Los Pumas PFS shows strong potential financial returns which the Company believes will allow financing of its development on competitive terms
- Ability to secure development funding on acceptable terms on a timely basis will impact the development schedule

Regional targets

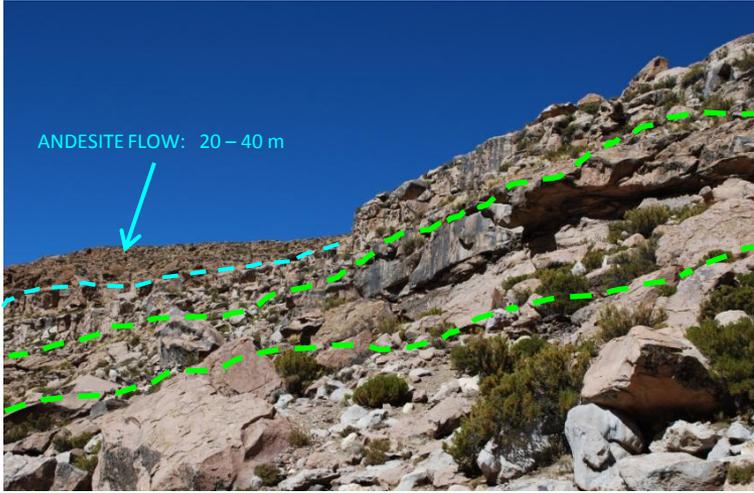
Regional map of exploration potential



- Mineralisation in the Los Pumas Project area known since World War II but potential not assessed previously
- Regional exploration potential exists in addition to resource work being undertaken as part of the FES
- Other regional targets within Company land holdings and nearby the Los Pumas Project identified

Regional targets

Southern Hemisphere Regional Target – La Pascuala



IGNIMBRITE: 15 – 25 m

PINK IGNIMBRITE, with Mn in stock work: 10 – 20 m

VOLCANIC AGLOMERATED, with Mn cement: 1 – 2 m

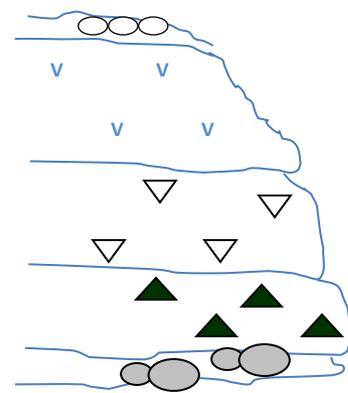
RECENT SEDIMENT: 0,5-1m

ANDESITE FLOW: 40 – 50 m

IGNIMBRITE: 15 – 25 m

PINK IGNIMBRITE, with Mn in stock work: 10 – 20 m

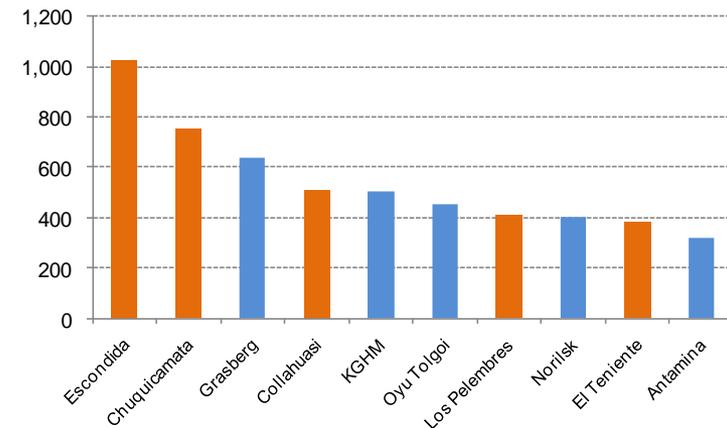
VOLCANIC AGLOMERATED, with Mn cement: 1 – 2 m



Copper Mining in Chile

- Chile is the number one copper producer in the world
- Accounts for c. 30% of the worlds copper mine production
- Home to truly world class, long-life deposits
 - 3 of the 5 largest copper mines in the world
 - # 1 Escondida: Producing over 1,000kt copper p.a
 - # 2 Chuquibambilla: Operating for over 100 years
 - # 4 Collahuasi: Producing over 500kt copper p.a. with 30 year mine life remaining
- Outstanding mining jurisdiction with established infrastructure
- New discoveries still being made:
 - 15 new major projects forecast to be brought into production before 2015
- Southern Hemisphere's projects are ideally positioned within pre-eminent copper districts

10 Largest Copper Mines (Production kt)



Source:

1. Standard Chartered research note 19 August 2010

Copper Prospects

- Copper/Copper-Gold
 - The Company has 13 properties covering over 800km² of mineral permits
 - World class copper belt host to major discoveries
 - A number of the properties are prospective for porphyry style copper/copper-gold deposits
 - Southern Hemisphere has identified three priority projects:
 - Chitigua
 - Santa Gracias/Chacay
 - Mantos Grandes
 - An aggressive exploration program is planned to further advance these key targets

Map of Company Copper Properties

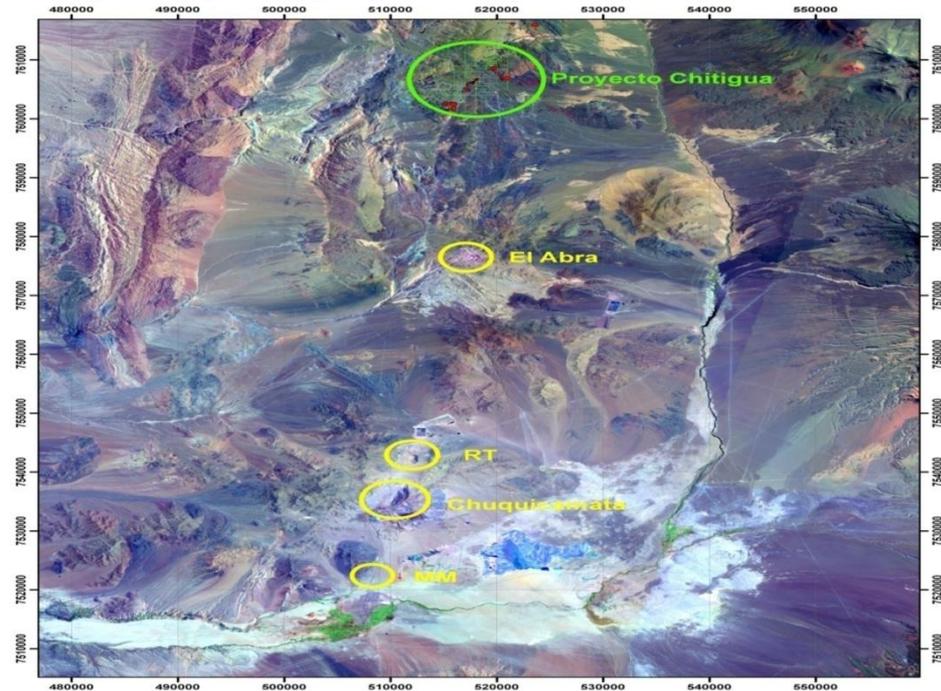


Copper Prospects

➤ Chitigua

- Porphyry copper-molybdenum target immediately east of West Fault – host to several of the world's largest copper deposits (Escondida, Gaby, Chuquicamata, Collahuasi)
- Located directly between Teck Resources' Quebrada Blanca¹ and Freeport's El Abra² deposits, situated 70km to the north and 30km to the south respectively
- IP survey prior to drilling scheduled for the end of October

Chitigua Project Regional Setting



Notes:

1. Teck Resources produced c. 190 million pounds (mlb) of copper cathode in 2009. Cathode production to continue through to 2016
2. Freeport-McMoRan plan to develop a 300mlb /annum copper sulfide project to extend existing oxide operations a further 10 years

Copper Prospects

➤ Santa Gracias/Chacay

- Santa Gracias is a porphyry copper-gold target in the La Serena region
- Located within a north-west trending structural corridor which is host to Teck Resources' Andacollo copper-gold project¹
- Chacay adjoins Santa Gracias to the North and is prospective for gold
- Rock chip samples have been submitted from each target for analysis
- Drill ready targets have been identified

Santa Gracias Project



La Cuyana at Santa Gracias Project



Notes:

1. Teck Resources commenced commercial production in Oct '10. Est. 20 year mine life, with average annual production 80kt copper and 55koz gold

Copper Prospects

➤ Mantos Grandes

- Targeting high grade hypogene, skarn related copper-gold mineralisation
- Historical small scale copper mining present with basic infrastructure to support an operation
- Prior geochemical sampling confirmed existence of copper-gold geochemical anomalies in areas adjacent to underground workings
- Initial work program involves sampling the backs of existing underground mine workings

Iron Sands Project

- Iron Sands
 - Exploration licenses covering three areas of iron sands occurrences
 - Recently acquired for C\$0.7m (to be paid in shares, subject to shareholder approval)
 - The largest, the Chanco Project, has an area 24km by 3km
 - Samples have been taken and concentrates produced using magnetics. Sent to a specialty steel producer in China for testing

Summary

- PFS supports development of the Los Pumas Manganese Project
- FES underway and expected to deliver enhanced economic outcome
- Testing of the Iron Sands potential underway with specialty steel producer in China
- Immediate exploration focus on walk-up drill targets for priority copper-gold projects

Appendices

Data Sources

PFS Component	Responsibility
Geological exploration	Southern Hemisphere
Resource definition	Coffey Mining
Initial metallurgical test work	Mintek, peer review by Mineral Processors
Process engineering	Mineral Processors
Preliminary civil, structural, mechanical and electrical engineering	SNC-Lavalin
Mine design and scheduling	Southern Hemisphere
Estimation of capital and operating costs	SNC-Lavalin
Determination of project execution plan	Southern Hemisphere
Project execution scheduling	SNC-Lavalin/Southern Hemisphere
Financial analysis	Southern Hemisphere